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# **URBAN WASTE WATER TREATMENT DIRECTIVE**

## **TOWARD A NEW INFORMATION SYSTEM**

### **SIIF**

**(Structured Implementation and Information Framework)**

**Current situation of information management**

**related to the UWWTD and urban waste water  
data on Member State- and EU-level**

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Service Contract for the support to the Implementation of Directive 91/271/EEC on Urban Waste Water Treatment





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# 1 Introduction

## 1.1 Objective and scope

The objective of this Report is to scrutinize the status quo of available and published information related to the UWWTD, the data exchange processes, the achievements as well as the shortcomings of the current situation in the light of SIIF principles. It describes the achievements of current systems and considers best practice examples, which are already identified as well as proposes solutions to overcome the existing gaps as regards UWWTD SIIF principles. Overall, the Report focuses on the identification and assessment of the approaches that have been used at national and EU-level to ensure the publication and exchange of information in relation to the implementation of the UWWTD and to urban waste water data in a broader context.

## 1.2 Methodology

The assessment of the current situation of information management related to the UWWTD and urban waste water data on MS- and EU- level comprised the following surveys:

- Survey of information management related to UWWTD and urban waste water data on EU-level:
  - ✓ Survey of information on UWWTD and urban waste water data exchanged on EU-level (EC, EEA, Eurostat)
  - ✓ Survey of information on UWWTD and urban waste water data published on EU- level (EC, EEA, Eurostat)
- Survey of information management related to the UWWTD and urban waste water data on MS-level:
  - ✓ Survey of information on UWWTD and urban waste water data published by MS: Online information available on national webpages in EU-27 MS
  - ✓ Survey of information on UWWTD and urban waste water data exchanged by MS: In-depth assessment for four UWWTD SIIF pilot MS

### 1.2.1 Survey of information on UWWTD and urban waste water data published by the EC/EEA/Eurostat

The extent of online information relevant to the UWWTD available at EU-level was scanned by means of an Internet research. Special focus was placed on the dissemination of publication made available by the EC, the European Environment Agency (EEA) and Eurostat.

With regards to the principles of SIIF, it was also investigated how the EEA presents other information, which is relevant for the implementation of the UWWTD in a broader context (e.g. information on nutrients in surface water or information on the quality of bathing water sites<sup>1</sup>).

<sup>1</sup> <http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water/state/state-of-bathing-water>





### **1.2.2 Survey of information on UWWTD and urban waste water data exchanged between the MS and the EC/ EEA/ Eurostat**

All elements of the current regular reporting process under the UWWTD carried out at EU-level (i.e. reporting under Article 15(4), Article 16 and Article 17) as well as other data collection exercises related to urban waste water were scrutinized.

For UWWTD Article 15(4) the assessment includes the reporting process itself established in WISE (i.e. data collection and processing via ReportNet), the Waterbase, the UWWTD WISE Viewer, the Excel-registers, which represent the results of the legal compliance assessment on agglomeration and treatment plant level, respectively, and which form the basis for the Technical Assessment Reports (=Implementation Reports), the methodology of the legal compliance assessment and the Implementation Reports themselves.

For UWWTD Article 16 and Article 17, the assessment covered the formats recommended by the EC for Article 16-reports and Article 17- reports<sup>2</sup>.

As regards further EU-wide data collections related to urban waste water treatment, the following data collections were scrutinized:

- DG REGIO
- OECD/ Eurostat Joint Questionnaire on Inland Waters (JQ-IW)
- Eurostat Regional Environmental Questionnaire (REQ)
- European Pollution Release and Transfer Register (E-PRTR)
- WISE- State of the Environment (SoE): Water emission quality (WISE-1)
- Regional Sea Conventions (e.g. OSPAR, Helcom) and/ or International River Basin Commissions

Work was elaborated in terms of an Internet research and by requesting information directly from the institutions, which organise/ accompany the data exchange processes.

### **1.2.3 Survey of information on UWWTD and urban waste water data published and exchanged/managed by EU-27 MS**

The extent of online information relevant to the UWWTD (available via public web-sites) available in all MS was screened to get an overview of MS situation as regards SIIF key principles. It also aimed at identifying ideas to better define the future UWWTD SIIF, in particular as regards the information to be included and the formats/ methods to be used for publication or data exchange. In addition the screening also assessed which information seems to be (easily) available in the MS.

The screening was elaborated in terms of a two-step assessment: The *qualitative* analysis summarized the contents and structure of the web-sites, the level of detail, the quality and timeliness of information in a descriptive way. In addition, the *quantitative* assessment evaluated the web-pages according to the main functional SIIF principles put forward by the EC in the above cited document<sup>2</sup> by the means of scores, in order to make the results comparable. In the quantitative assessment the information available on the web-sites was evaluated according to ten criteria, with a maximum

<sup>2</sup> Commission Decision 93/481/EEC of 28 July 1993 concerning formats for the presentation of national programmes as foreseen by Article 17 of Council Directive 91/271/EEC. Available at: [http://ec.europa.eu/environment/water/water-urbanwaste/legislation/pdf/1993\\_226\\_en.pdf](http://ec.europa.eu/environment/water/water-urbanwaste/legislation/pdf/1993_226_en.pdf)





number of two points ('++') achievable for each criterion. Two points ('++') means that the criterion is fulfilled very well and comprehensively, one point ('+') means that the criterion is fulfilled in a currently sufficient way and zero points ('0') means that the criterion is not fulfilled or fulfilled at a very basic level. Statistical web-sites were not included in the assessment, as they usually give summary information and do not have a strong focus on administrative issues and in particular the UWWTD.

The analysis focused on what is currently publicly available. In this context, the following key aspects were defined:

- The geographical levels covered by the current analysis are European level with the main EU institutions and National level with the identified national web-site(s) displaying data on UWWTD,
- The temporal level of the UWWTD reporting is biannual and is mainly considered on the up to date aspect,
- The data coverage is assessed against what is reported under UWWTD,
- The accessibility is assessed against the easiness for a target group to reach the information of interest,
- The targeted audience is split in some key groups that are deemed to have different understanding of the topic and different objective or interest in accessing to available UWWTD information. The main groups identified are the following:

Table 1. Target groups identified for the screening of web-sites from EU-27 MS

Targeted group	Understanding level	Main needs identified
EC (+ National experts on UWWTD)	Very detailed and precise knowledge on legislation and its implementation	Compliance check at national and local level Key aspects of implementation and compliance at EU and smaller geographical levels up to each individual system High interest in aggregated information access to detailed current and historical data Forward looking perspective
Experts on UWW technologies, scientists	Not fully aware of details of the legislation, but full knowledge on the waste water domain	Access to detailed datasets and trends, low interest in aggregated information
Informed public and citizens	Some or no knowledge on the waste water domain	"What is in my backyard", rough but simple and clear message, mostly visual with preference on maps and graphs or summary indicators on the compliance and level of treatment.

#### 1.2.4 Survey of information on UWWTD and urban waste water data exchanged/managed by four UWWTD SIIF pilot MS (CY, IE, LT and SI)

The four MS, which agreed to become pilot MS in the UWWTD SIIF project (CY, IE, LT, SI), were scrutinized in detail. Not only on-line available information as regards urban waste water treatment was taken into account for these MS, but also their general UWWTD- and/ or water-related





information systems and the organisation of UWWTD- reporting processes. Special focus was placed on the identification of pilot MS' needs as regards the future UWWTD SIIF concept and the main obstacles for the implementation of the UWWTD.

Together with the EC, one workshop/meeting was organised in each of the UWWTD SIIF pilot MS in order to

- present the instrument of UWWTD SIIFs,
- get an overview of the current status of UWWTD- implementation, investments on urban waste water and national data management related to the UWWTD,
- discuss the work steps and their timelines in the pilot phase on UWWTD SIIFs.

In addition to these workshops/meetings, a template for the pilot MS was drafted, which allows the national consideration of all relevant issues for establishing an UWWTD SIIF. By means of several questions, this template supports the pilot MS in the assessment of the starting point for establishing a national UWWTD SIIF fully interoperable with the EU-level UWWTD SIIF and the definition of objectives, contents and management rules for the future UWWTD SIIF. The template was pre-filled with already available information and sent to the pilot MS for completion and comments. Web-conferences were used to discuss the results of these templates with the pilot MS and to further define the work steps and timelines in the pilot phase on UWWTD SIIFs. The results of the in-depth assessment of the six UWWTD SIIF pilot MS is provided in chapter 3.2.

## **2 Information management related to the UWWTD and urban waste water data on EU-level**

### **2.1 Exchange of information related to the UWWTD and urban waste water data on EU-level (EC/ EEA/ Eurostat)**

#### **2.1.1 Data from UWWTD Article 15(4), Article 16 and Article 17 Reports and from infringement processes available in EU-27 MS**

##### **2.1.1.1 UWWTD Article 15(4)<sup>3</sup>**

Under Article 15(4), discharges from UWWTPs have to be monitored to verify compliance with the emission control standards. In the years 2005 – 2007 the MS, the EC and the EEA have jointly developed technical specifications for such reporting within WISE.

##### **2.1.1.1.1 Reporting process**

According to legal requirements, the reporting under Article 15(4) is elaborated upon request from the EC within six months by means of a consolidated reporting format (UWWTD Questionnaire, UWWTD Q). Data is uploaded by the MS into the EIONET Central Data Repository (CDR) in terms of xml- files for tabular data and in terms of shape-files for GIS-data on SA. Each national dataset undergoes an intensive automated and manual QA/QC-procedure before it is included into the EU-wide UWWTD production database. This database is managed by the European Topic Centre on

<sup>3</sup> <http://rod.eionet.europa.eu/obligations/613>.







Inland, Coastal and Marine Waters (ETC/ICM) and contains information for the reference years 2005/2006 (first reporting cycle) to 2009/2010 (third reporting cycle). The first dataset is very fragmentary, as only 18 MS provided data in the first reporting cycle and the data quality was not very good in all datasets. The production database is not publically available, but most parts of it are available in Waterbase on the web-site of the EEA. The UWWTD Waterbase is an extract of the UWWTD production DB, containing parameters that were subject to discussion and approval of EU-MS. The selection of parameters to be included into the Waterbase was done according to their relevance for the assessment of UWWTD-compliance and implementation in joint agreement with the EU-MS.

#### **2.1.1.1.2 Parameters requested under Article 15(4)**

The parameters of the database can be differentiated into:

- **Master data:** These data describe the UWWTD reference elements (i.e. receiving areas, agglomerations, UWWTPs, discharge points, food-processing industries) and establish the links between them. In addition, the basic data of the reporting process are identified as master data. These parameters have to be reported by all MS independently from pending transition periods. Master data are explicitly indicated in the data dictionary of the existing UWWTD Article 15(4)-reporting.
- **Mandatory parameters:** Mandatory parameters comprise parameters relevant for the legal compliance assessment and for a comprehensive understanding of the UWWTD-implementation in a MS. They cover data, which are either based on the UWWTD text or justified by acceptance of the UWWTD Committee.

All parameters of data blocks 0-4, 7 and partly 5 (information on Individual and other appropriate systems) are relevant.

- **Voluntary parameters.** The parameters covered in data blocks 5 (management of leaks and storm water overflows), 6, 8 and 9 are indicated as voluntary parameters. They include information necessary for agreed functionalities like interoperability and streamlining across data flows (e.g. E-PRTR IDs for UWWTPs > 100,000 p.e.) and information available in MS and giving added value at EU-level (e.g. discharged loads of BOD<sub>5</sub>, COD, N<sub>tot</sub> and P<sub>tot</sub>).

Many of the requested parameters are either master data (IDs, names, coordinates), which usually do not change from one reporting cycle to the other, or parameters, describing the UWWTP (treatment type at the UWWTP, monitoring results), which should be regularly available from the UWWTPs. The parameters of the dataset, which originate from the spirit of the UWWTD to protect the aquatic environment and which are logical needs to assess compliance with the Directive usually require several calculation/ estimation steps and seem to be only generated for the purpose of the UWWTD in most of the MS. These parameters cover the size (= generated load in p.e.) of agglomerations<sup>4</sup>, the % of the generated load of the agglomeration collected in collecting systems, addressed through IAS and not collected at all and the % of the generated load of an agglomeration collected in collecting system and connected to a specific UWWTP. This information is usually also

<sup>4</sup> The size of the agglomeration (= generated load in p.e.) should include the resident population, the non-resident population, seasonal changes and industrial waste water (such as from small and medium sized enterprises and/or economic activities) being discharged into an urban waste water collecting system or urban waste water treatment plant





not available on the UWWTD- related web-sites from those MS, which already provide comprehensive web-sites with several SIIF- elements (e.g. France, Greece).

Several parameters from the set of voluntary parameters under Article 15(4) would be helpful in case included into the UWWTD SIIF parameter set, as they are considered as relevant UWWTP characteristics or easier understandable for waste water experts and the public, than the UWWTD terminology. A detailed overview of these parameters is provided in the concept paper.

In the context of voluntary parameters from the UWWTD Article 15(4) parameter set it needs to be mentioned that many MS insist on reporting only mandatory parameters under Article 15(4), although also some of the voluntary parameters would be available. This approach became apparent again, when the EC requested additional parameters in UWWTD Q2011 and only few MS provided information. In addition, there are also parameters, which are currently not included in the parameter set requested under Article 15(4), but which are considered as essential for the legal compliance assessment and hence, relevant for the future UWWTD-SIIF. These parameters will be described in the concept paper in detail.

#### **2.1.1.1.3 Quality assessment/ quality control (QA/QC)**

The reporting process under Article 15(4) includes an intensive QA/QC-process. The MS have to report tabular data and GIS-data, which are both clearly defined in terms of parameter definitions and specifications (description and explanation of parameters, data dictionary, Excel-templates and xml-schemas, GIS-guidance<sup>5</sup>). Tabular data has to be reported via xml-files, which can be generated either directly from national databases and up-loaded into the CDR or by the use of an online data evaluation and management tool (Web DEM-tool). This tool allows either a manual data input or the up-load of Excel-files, provides automated QA/QC-procedures and generates xml-files as output, which can then be up-loaded into the CDR.

After submitting UWWTD tabular data and GIS files on CDR, automatic QA/QC are carried out to check and control the quality of the data files in the released envelope. The result of the QA/QC is saved in the feedback section of respective envelope and cover the following steps:

##### General criteria:

- Consistency of reporter and report ID in all files (explanation: one report consists of different files, which need to be linked via the reporter and the report ID)
- Syntax checks (data type, field length) according to Data dictionary
- Reference date of the report has to be 31/12 of the requested reference year
- Master data check according to Data dictionary
- No duplicate codes are allowed (IDs of receiving areas, agglomerations, UWWTPs and discharge points must not be reported twice in the templates T\_ReceivingArea, T\_Agglomeration, T\_UWWTP and T\_Discharge Points)
- Full link from agglomeration to receiving area must be established for all active agglomerations

<sup>5</sup> Link to relevant documents and explanation how to report is given in the technical document '*How to use Reportnet for reporting under the Urban Waste Water Treatment Directive (271/1991/EEC)*', updated version for 2013 available at: [http://cdr.eionet.europa.eu/help/UWWTD\\_final.pdf](http://cdr.eionet.europa.eu/help/UWWTD_final.pdf).





- Historical link: all receiving areas, agglomerations, UWWTPs and discharge points reported in the previous reporting exercise have to be reported again (either as 'active' or 'passive' elements).
- Changes related to previous reporting exercise (e.g. change of treatment type at UWWTP)

#### Receiving Areas:

- IDs of receiving areas have to contain country prefix
- Codes of receiving areas should ideally contain indication of the type of sensitive area (e.g. river-RI, lake-LK,...)
- All receiving area need to have names
- For each SA and its catchment (CSA) the date of designation and the sensitivity criteria need to be given. The sensitivity criteria should be coherent
- In case of application of Article 5(4): date of application of Article 5(4), number of UWWTPs, total generated load of all these UWWTPs, incoming and discharged loads on  $N_{tot}$  and  $P_{tot}$  have to be reported

#### Agglomerations:

- IDs (starting with country pre-fix), names and the generated load (p.e.) have to be provided
- UWWTD deadline or transitional period have to be reported for all active agglomerations in correct format (in EU15 MS the data must not exceed 31/12/2005)
- Coordinates must be provided in ETRS89 and have to be located within country borders, additionally the linkage („reasonable“ distance) between agglomeration and UWWTP will be checked
- The parameters '*Rate of generated load collected in collecting system*', '*Rate of generated load addressed through IAS*' and '*Rate of generated load not collected in collecting system and not addressed through IAS*' must be provided and have to sum-up to 100% (tolerance range: 99% - 101%)
- All agglomerations, where a specific fraction of the generated load is collected in collecting systems must be linked to an UWWTP or to a Collecting system without treatment

#### UWWTPs:

- IDs (starting with country pre-fix) have to be provided
- Indication, whether ID relates to a 'real' UWWTP or to a Collecting system without treatment, needs to be given
- Coordinates must be provided in ETRS89 and have to be located within country borders, additionally the linkage („reasonable“ distance) between agglomeration and UWWTP will be checked
- Rate of generated load of an agglomeration treated in particular UWWTP must be provided. At the same time the following overall criterion must apply: '*Rate of generated load collected in collecting system*' = sum of '*Rate of generated load of an agglomeration treated in particular UWWTP*' of all connected UWWTPs (tolerance range: +/- 1%)
- Treatment type must be provided for all 'real' UWWTPs
- Organic design capacity is a valuable parameter and should be provided for all active UWWTPs





- Compliance monitoring results (BOD<sub>5</sub>, COD) need to be reported in case of secondary treatment
- Compliance monitoring results (N and/ or P) need to be reported for agglomerations >10 000 p.e. discharging into SA/CSA or into any MS applying Article 5(8) + 5(2,3)
- All UWWTPs have to be linked to a discharge point
- Additional plausibility check: check if UWWTP capacity is  $\leq 0.1$  times the load treated in this plant and the monitoring results show „pass“<sup>6</sup>.

#### Discharge Points:

- IDs (starting with country pre-fix) have to be provided
- Coordinates must be provided in ETRS89 and have to be located within country borders
- All discharge points have to be linked to an UWWTP/Collecting system without treatment and to a receiving area (ID of receiving area must be reported for every discharge point (unless the discharge point is located in Normal Area)
- Type of receiving water (e.g. freshwater, coastal water) has to be provided
- Link to WFD: ID of WFD waterbody or ID of groundwaterbody or ID of receiving water or ID of WFD sub-unit, or ID of WFD river basin district have to be provided for each discharge point.

#### Member State – level:

- Is information on the yearly production of sewage sludge provided?

In addition to these automatic QA/QC-processes the ETC/ICM also elaborates a manual QA/QC-check, which covers the following elements:

- Do GIS-files of receiving areas satisfy the requirements as given in the GIS-guidance document (Topological rules: e.g. sensitive areas must not overlap)
- Are the IDs of GIS-elements identical with IDs of receiving areas reported in tabular data
- GIS-overlap of coordinates of discharge points with GIS-shape files of receiving areas: Are the discharge points located in the receiving area, as indicated by the MS in tabular data?
- Coherence between transitional periods for agglomerations reported by EU12 MS and interim targets for these MS<sup>7</sup>

The QA/QC-processes are considered as already very advanced to provide a good UWWTD database. Main difficulties originate from the fact that not all MS correct the errors identified during the QA/QC-processes and that some inconsistencies become apparent during the legal compliance assessment only (e.g. designation of receiving areas as reported in the UWWTD Questionnaire differs to agreements between MS and the EC, agglomerations treating waste water in UWWTPs in other countries).

In 2012 the QA/QC-processes were extended for plausibility checks on the incoming and discharged loads of BOD<sub>5</sub>, COD, N<sub>tot</sub> and P<sub>tot</sub> on UWWTP-level. The methodology as well as the results are available from the UWWTD Waterbase.

<sup>6</sup> Example: An UWWTP with an organic design capacity of 2,000 p.e. is reported with a load entering the UWWTP of 21,000 p.e. The ratio is 2,000 p.e./ 21,000 p.e. = 0,095

<sup>7</sup> [http://ec.europa.eu/environment/water/water-urbanwaste/legislation/pdf/transitional\\_periods\\_eu10\\_eu2.pdf](http://ec.europa.eu/environment/water/water-urbanwaste/legislation/pdf/transitional_periods_eu10_eu2.pdf)





#### **2.1.1.1.4 Assessment methods**

The database available from UWWTD Questionnaires is assessed for compliance on the level of single agglomerations and of EU MS. This assessment is regularly published in so-called Implementation Reports, which represent three- to four-year old information due to the length of the reporting and evaluation process. Due to pending transition period the legal compliance assessment was possible to a limited extent for EU12 MS so far. Therefore, the last three Implementation Reports also covered information as regards the waste water installations in place (not taking into account the treatment requirements according to the UWWTD, but presenting the available waste water infrastructure).

The methodology for the legal compliance assessment was intensively discussed with the EC. The methodology was presented to the MS in several UWWTD-reporting workshops and an overview of the methodology is also provided in the 7<sup>th</sup> Implementation Report.

#### **Compliance assessment**

In brief, all agglomerations for which the transition period under the UWWTD has expired by the reference date are assessed for compliance. This means a check of several parameters for compliance with Articles 3-5. The following parameters are taken into account:

- the size of the agglomeration (p.e.),
- the deadline to comply with UWWTD/ transitional period for this agglomeration,
- the type of receiving area (i.e. normal area, sensitive area,...),
- the date of designation/ review of the receiving area,
- the type of receiving water (i.e. freshwater, coastal water,...).

The legal compliance check follows a hierarchical approach (this approach was approved in a decision of the European Court of Justice). This means that violation of Article 3 (assessment as non-compliant 'NC') entails non-compliance with Article 4 and Article 5 (even if the other requirements for Articles 4–5 are met). Similarly, an agglomeration cannot be compliant with Article 5 if it fails to comply with Article 4.

From the last three reporting exercises (UWWTD Q2007, UWWTD Q2009 and UWWTD Q2011) it became obvious that there is a general agreement with the data evaluation methodology. However, there were two main 'weaknesses' in the legal compliance assessment, which led to differing points of view between the EC and the MS:

- The UWWTD clearly states that the core element of the legal compliance assessment is the agglomeration and that all waste water from an agglomeration, which is entering collecting systems shall before discharge be subject to secondary (or more stringent) treatment. The EC allows a certain margin of flexibility (1% or 2,000 p.e.) to MS, when assessing compliance with Article 4 (and Article 5).

Several MS (e.g. IT, CZ) disagree with this methodology, arguing that it is misleading that an agglomeration that is partially non-compliant is reported as totally non-compliant when described in terms of p.e.. Italy gave the example of Rome (generated load 2,750,000 p.e), which is connected to 11 treatment plants, 6 of them treat 95% of the generated load and are compliant, whereas the remaining 5 smaller plants should treat 3.17% of the total generated load but are reported as not connected to the collecting system. So "only" a relative small percentage of the total load does not meet the Directive requirements but, according to the







data evaluation method used to account not compliance, the entire agglomeration Rome with its entire generated load is considered as not compliant.

As the legislative text of the Directive is very clear on this issue, it is expected that the EC will keep the approach taken during the last Implementation Reports.

- For the assessment of the need for more stringent treatment on agglomeration level it is essential to know, when a SA was initially designated and for which sensitivity criteria. As already mentioned earlier, the current Questionnaires under Article 15(4) only request information on the last date of designation or review of SA and hence, the development and changes of these areas since their first date of designation are only available at the EC from 2006 onwards (when WISE-principles were implemented for reporting). In the previous UWWTD evaluations, it was tried to trace back the historical development of sensitive areas by GIS-overlaps of SA reported under different reporting exercises in the past. Although this method represented a good approach, it was not correct in several cases. The most comprehensive and reliable information is only available from the MS, which – on the basis of the historical development of SA – know, which treatment level needs to be achieved by which agglomeration and by when.

In order to correct this current weakness, the UWWTD SIIF could foresee additional parameters, which ensure that either the first date of designation is provided by the MS or that the UWWTD treatment requirements at a specific reference date are indicated for each agglomeration.

There are also several other issues which led to discussions with the MS during the last UWWTD evaluation process and which were decided on a case-by-case- basis during the last evaluation exercise. These issues include:

- **Consideration of treatment installations for compliance assessment:** Since the second UWWTD Implementation Report, there are two criteria, which are jointly taken into account for the assessment of compliance at UWWTP – level:
  - ✓ Treatment installation/ treatment type (defines the treatment, the UWWTP is designed for)
  - ✓ Monitoring results (define, whether the UWWTP is working properly to achieve the treatment/ removal-rates, which are defined for the UWWTP is by criteria in the consent)

In the 7<sup>th</sup> Implementation Report there were several situations, where the treatment type was reported to be 'lower' than the treatment level indicated by the monitoring results (e.g. The treatment type was indicated to be 'primary treatment', but the monitoring results of BOD<sub>5</sub> and COD were reported to 'pass' the requirements of secondary treatment). It was mentioned by several MS in the commenting phase, that a specific UWWTP complies with the Directive as monitoring results were reported to 'pass' although the required treatment installation is not in place.

- **Consideration of Remark-fields:** In the 7<sup>th</sup> UWWTD reporting exercise it became clear that a lot of relevant information was provided in the 'Remarks-fields' (very often in the national language). In many cases the information was relevant for the compliance assessment. E.g. in Ireland the treatment installation of several UWWTPs was indicated to be 3other (no indication, whether 'other' refers to N-removal and/ or P-removal) and then in the remark-field





it was explained in textual form that the UWWTP provides N- and/ or P-treatment installations).

- **Missing monitoring results from UWWTPs, which started operation late in the reference year or which are under re-construction:** In the commenting phase to the 7<sup>th</sup> Implementation Report, there were several comments that monitoring results for single UWWTPs could not be provided, as the UWWTP started operation late in the reference year or because the UWWTP was under re-construction. The UWWTD-questionnaire was intended to reflect the situation at a specific reference date (31/12/xxxx). The monitoring results have to cover the entire reference year (i.e. the Directive refers to one year of sampling).
- **Missing monitoring results from industrial WWTP:** For several WWTPs there was the remark that monitoring results could not be provided, as these WWTP are not urban waste water treatment plants, but industrial waste water treatment plants.
- **Treatment requirements in SA and CSA:** Since the 5<sup>th</sup> Implementation Report the legal compliance assessment foresaw that a CSA has to be designated for each SA and that the sensitivity criteria in both areas have to be identical. This rule was not always taken into account by the MS. It needs to be decided, whether this approach should have consequences or not.

In the future the legal compliance assessment could be implemented by the MS themselves in order to improve the acceptance of the results. This could be done by centrally providing the evaluation algorithms to the MS. However, before the algorithms will be made available, the information gaps on the first date of designation of sensitive areas or the treatment requirements as regards more stringent treatment need to be closed. In addition, the open issues for discussion, which were raised during the last UWWTD reporting exercise, need to be clarified and decided (e.g. a consideration of Remark-field will not be available in a standardized evaluation by centrally available algorithms). However, even with a centrally defined set of algorithms, targeted 'handwork' on specific cases and on their assessment will be required.

#### Treatment installations in place

The 'Description of the waste water installations in place' comprises a descriptive evaluation of the waste water installations in a MS. It describes e.g. the number of agglomerations where > 0% of the generated load is treated by secondary treatment or by any more stringent treatment, no matter, which more stringent would be required according to the sensitivity criteria of the SA. This assessment does not refer to the legal requirements of the UWWTD and does not allow any conclusion about the correct implementation of the Directive.

This evaluation 'chain' helps to appraise the waste water situation of a MS beyond the mere legal compliance check. No matter whether it is legally required by the UWWTD or not, a MS may be highly advanced as regards its waste water treatment (e.g. by affording more stringent treatment for agglomerations in 'Normal Area'). This evaluation 'chain' is of special importance in those MS where transition periods for the implementation of the Directive are still pending and where, hence, legal compliance cannot yet be assessed.

In the future the legal compliance assessment and the evaluation of the treatment installations in place need to be linked more closely. From the experience of the last reporting exercises it became





obvious that the difference between both evaluation chains was not clear. In addition, the evaluation of the treatment installations in place did not provide a reliable forecast for MS, with pending transition periods, as the assessment did not take into account the future treatment requirements originating from the Directive.

#### **2.1.1.1.5 Presentation of data evaluation**

The results of the legal compliance assessment and of the treatment installations in place are presented in different formats:

- The EC receives Excel-sheets which give the results of the following evaluations for each MS (an example of such an Excel-sheet is provided in Annex VIII):
  - ✓ Lists of SA, the dates of last designation or review and the sensitivity criteria,
  - ✓ Compliance assessment on the level of Article 5(4) – areas (based on incoming and discharged loads of  $N_{tot}$  and  $P_{tot}$  of each Article 5(4)- area),
  - ✓ Compliance assessment on UWWTP- level (Article 4 and Article 5),
  - ✓ Compliance assessment on agglomeration – level (Article 3, Article 4, Article 5),
  - ✓ Summary graphs as regards legal compliance with Article 3, Article 4, Article 5 on the level of the MS and the different receiving areas (i.e. Normal Area, Sensitive Area). These summary graphs present the number of agglomerations and the generated load (p.e.),
  - ✓ Summary graphs as regards treatment installations in place on the level of the MS and the different receiving areas (i.e. Normal Area, Sensitive Area). These summary graphs present the number of agglomerations and the generated load (p.e.),
  - ✓ List of big cities/ big dischargers the available waste water treatment and the areas they discharge into,
  - ✓ Information on the generation and discharge of sewage sludge.
- The Implementation reports provide on MS-level
  - ✓ Summary graphs as regards legal compliance with Article 3, Article 4, Article 5 on the level of the MS and the different receiving areas (i.e. Normal Area, Sensitive Area). These summary graphs present the number of agglomerations and the generated load (p.e.)
  - ✓ Summary graphs as regards treatment installations in place on the level of the MS. These summary graphs present the number of agglomerations and the generated load (p.e.)
  - ✓ Textual information as regards the waste water treatment in big cities/ big dischargers and whether they comply with treatment requirements
- The Implementation reports provide on EU-level<sup>30</sup>
  - ✓ Summary graphs as regards legal compliance rates (% and absolute values in p.e.) with Article 3, Article 4, Article 5 on the level of the MS, on the level of EU 15, EU12 and EU27. Some graphs also indicate the changes of the number of agglomerations and the generated load subject to compliance in the 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> Implementation Report.







- ✓ Changes as regards compliance rates (%) with Article 3, Article 4 and Article 5 from the 5<sup>th</sup> to the 6<sup>th</sup> and 7<sup>th</sup> Implementation Report on the level of MS, on the level of EU 15, EU12 and EU27
- ✓ Summary graphs as concerns number of agglomerations and p.e. in the different size classes on MS-level and changes of number of agglomerations and generated load over years
- ✓ Summary graphs as regards the available waste water treatment in big cities/ big dischargers

Information as regards the legal compliance assessment on agglomeration-level is currently not made available for the MS. In the context of the data evaluation process for the 7<sup>th</sup> Implementation Report, many MS raised the question, whether this information could be made available for them.

In the future the legal compliance assessment on agglomeration-level could be made available for the MS either as background information for the commenting phase of Implementation Reports or also for the public in terms of the WISE Viewer (there is a draft layer on compliance assessment (at both EU-MS and agglomeration level under discussion)).

#### **2.1.1.2 UWWTD Article 16 (Situation reports)<sup>8</sup>**

The principal aim of the situation reports is to inform the public regularly and on a given date about the situation on waste water collection, waste water treatment, sewage sludge generation and discharge, as well as to present the development of the situation in relation to at least the two previous years. They have to be transmitted to the EC (via up-load to the EIONET CDR) as soon as published by the MS. The report has to be elaborated every two years and should follow informal recommendations on the format of the Article 16 report, which were elaborated in close cooperation between the MS and the EC.

The Article 16 reports are elaborated in the national language and usually contain mainly aggregated information as regards waste water treatment (e.g. aggregated on MS-level, aggregated per size class or by RBD). In case information on agglomeration and/ or UWWTP – level is available, only basic parameters are usually covered (e.g. name of agglomeration/ UWWTP, ID of agglomeration/ UWWTP, organic design capacity of the UWWTP (p.e.), treatment type, name of receiving water). Therefore, the Article 16-reports cannot be used for the development of UWWTD SIIFs.

#### **2.1.1.3 UWWTD Article 17 (National Implementation Programme)<sup>9</sup>**

The National Implementation Programme aims at providing information on the initial status and on the forecasts for implementation of the UWWTD along the required deadlines according to the UWWTD and the Commission Decision 93/481/EEC of 28 July 1993 concerning formats for the presentation of national programmes as foreseen by Article 17 of Council Directive 91/271/EEC.

Each MS should have reported once (by 1994 or by Accession respectively) and then updated every 2 years if necessary.

<sup>8</sup> <http://rod.eionet.europa.eu/obligations/387>.

<sup>9</sup> <http://rod.eionet.europa.eu/obligations/524>.





The National Implementation Programme shall include information on agglomerations (initial status and forecasts), on number and capacity of collecting systems and treatment plants, on sludge use and disposal and on associated financial investments.

Commission Decision 93/481/EEC provides formats for reporting this information. These formats are reflected in the Article 17 templates and contain aggregated information (aggregation per size class and per type of receiving area and type of receiving water). Only for some MS information as regards the initial status and the forecast is available on agglomeration-level. The link to agglomerations reported under Article 15(4)- reporting is only possible, in case identical IDs for agglomerations are provided in both reporting formats (as e.g. elaborated in Poland).

The template is obsolete and has to be updated.

In the context of developing the UWWTD SIIF, data already collected under Article 15(4) could be supplemented with information on future measures in order to replace the Article 17 – reporting.

#### **2.1.1.4 Reporting upon request in case of infringement procedures under the UWWTD**

In the past years the EC actively requested information from MS in the context of infringement procedures. The core parameter set covered the following information:

- ID and name of the agglomeration
- Receiving waters (e.g. Normal Area, SA, Less Sensitive Area (LSA), Bathing Waters,...)
- Deadlines and transitional periods in the Accession Treaty (mm/yyyy )
- Planned date of the project completion (mm/yyyy)
- Status before implementation
  - Agglomeration load (p.e.)
  - Collection rate (in % of the load): % of the agglomeration load collected in collecting system
  - Connection rate (in % of the load): % of the agglomeration load collected in collecting system and connected to a specific UWWTP/ to specific UWWTPs
  - IAS - individual appropriate systems (in % of the load)
  - Capacity of UWWTP(s) serving the agglomeration (p.e.)
  - Treatment level in place
  - Treatment performances
- Status after implementation
  - Agglomeration load (p.e.)
  - Collection rate (in % of the load)
  - Connection rate (in % of the load)
  - IAS - individual appropriate systems (in % of the load)
  - Capacity of UWWTP(s) serving the agglomeration (p.e.)
  - Treatment level in place





- Treatment performances

As the data was only requested in case required in the context of infringement procedures, the available datasets cover different reference years per MS. The information is not centrally available at the moment. It needs to be investigated on a case-by-case-basis, which parameters are available for which reference year for single MS, in order to decide, whether they can be used for the development of UWWTD SIIFs. A standardized consultation seems to be not feasible at the moment.

## **2.1.2 Further EU-wide data collections related to urban waste water treatment data**

### **2.1.2.1 DG REGIO**

Upon application DG REGIO has the possibility of funding the construction and/ or up-date of waste water collection and treatment infrastructure using the budget lines of Cohesion or Structural Funds. In this context DG REGIO is collecting information on the current and the envisaged future situation of waste water collection and treatment (incl. start of tendering, construction, operation) and the financial requirements of these work steps. As DG REGIO only request information for urban waste water related projects above 50 mio €, the available information covers only the biggest projects.

The possibility for a standardized use of information available at DG REGIO for the purpose of developing UWWTD SIIFs needs to be checked in detail. At present, no information as regards DG REGIO's internal databases is available.

### **2.1.2.2 OECD/ Eurostat Joint Questionnaire on Inland Waters (JQ-IW)<sup>10</sup>**

The JQ-IW is part of the OECD/Eurostat Questionnaire on the State of Environment (SoE) which is sent regularly since the early 1980s. The questionnaire consists of ten tables, of which table 1 is dealing with renewable freshwater resources, Tables 2 to 4 are dealing with annual freshwater abstraction and use, Table 5 to 8 are dealing with waste water related issues and Table 9 and 10 cover water quality aspects of selected rivers and lakes. The waste water tables can be further differentiated in Table 5 (National population connected to waste water collecting systems and treatment plants), Table 6 (Treatment capacity of waste water treatment plant in terms of BOD), Table 7 (Sewage sludge and disposal) and Table 8 (Generation and discharge of waste water in terms of volume, BOD, COD, Ntot, Ptot, p.e. and heavy metals).

The questionnaire is sent out bi-annually; data is requested on annual basis and on MS- level and should have 100% coverage with no threshold.

Although several parameters requested in the JQ-IW seem to be similar to information reported under the UWWTD, there are key differences:

- Table 5 of the JQ-IW requests information on the national resident population connected to collecting systems and waste water treatment plants, whereas the UWWTD requests information on the % of the size of an agglomeration (p.e.) connected to collecting systems and waste water treatment plants. The size of an agglomeration as defined under the UWWTD usually consists of resident population, seasonal changes, non-resident population (e.g. tourism) and industrial waste water.

<sup>10</sup> <http://rod.eionet.europa.eu/obligations/645>





- The UWWTD requires reporting of UWWTPs serving agglomerations with at least 2,000 p.e., whereas the JQ-IW has no limit as regards the size of UWWTPs.

The JQ-IW is prefilled with different data before its release. For UWWTP aspects the JQ-IW uses the UWWTD definitions and one of the datasets used for pre-filling is data reported to the EC under UWWTD Article 15(4). Though the difference in coverage in terms of area/population between the JQ-IW and UWWTD-reporting, a few of the parameters included in the UWWTD questionnaire correspond to or are similar to some of those contained in the JQ-IW (e.g. the number of UWWTPs with primary, secondary and more stringent treatment). Pre-filled values from this source should be taken as indicative values only, but they can be a proxy in cases where no respective data are accessible for the statistical offices.

Due to the different scopes of UWWTD Article 15(4)- reporting and the JQ-IW, the use of JQ-IW data for the development of UWWTD SIIFs seems to be possible to a limited extent only. However, the time series as regards the resident population connected to waste water collecting systems and different waste water treatment systems could be used as additional parameter for the UWWTD SIIF. Some of the JQ-IW approaches are easier to understand for non-experts or the informed public and could be investigated further for presenting/aggregating the data at a national- or EU wide level. The JQ-IW is made to provide a national picture and aggregation of these national pictures at an upper level could allow to have an EU- or OECD-picture.

### **2.1.2.3 Eurostat Regional Environmental Questionnaire (REQ)**

The REQ is part of the European Statistical Programme in the field of Environment Statistics. The questionnaire is sent out bi-annually (sent out for the first time in 2010), data is requested on annual basis. In order to respond to the statistical needs for EU regional and environmental (mainly the WFD) policies, the requested aggregation-level is the NUTS2- level and the RBD- / RBD Subunit-level.

Compared to the JQ-IW the parameter set requested in the REQ differs slightly: not all parameters as concerns waste water are included (e.g. the REQ does not include tables on sewage sludge) and some parameters are aggregated (e.g. the JQ-IW differentiates between urban and industrial WWTP, whereas the REQ requests aggregated information for both, industrial and urban waste water treatment plants).

Similar to the JQ-IW the REQ is prefilled by Eurostat with data reported previously to Eurostat (time series from REQ 2010) as well as with some data reported to the EEA supported by the European Data Centre on Water (ETC/ICM) in the Framework of the EIONET.

At the moment the consideration of REQ-data for purposes of UWWTD SIIFs is not regarded as first priority. In the future, data collected via the REQ might be connected to the UWWTD SIIF (e.g. via links to WFD RBD, the agglomerations discharge to or via NUTS2-level of the agglomeration or via geographical aggregation with GIS tools). However, it needs to be clearly investigated by then, which links are useful.





#### 2.1.2.4 European Pollution Release and Transfer Register (E-PRTR)<sup>11</sup>

The E-PRTR covers annual information concerning the amounts of pollutant releases to air, water and land as well as off-site transfers of waste and of pollutants in waste water from a list of 91 key pollutants. A facility has to report data under E-PRTR if it fulfils the following criteria:

- the facility falls under at least one of the 65 E-PRTR economic activities listed in Annex I of the E-PRTR Regulation and exceeds at least one of the E-PRTR capacity thresholds
- the facility transfers waste off-site which exceed specific thresholds set out in Article 5 of the Regulation.
- The facility releases pollutants which exceed specific thresholds specified for each media - air, water and land - in Annex II of the E-PRTR Regulation.

With regards to urban waste water treatment the E-PRTR covers information on UWWTPs with an organic design capacity of more than 100,000 p.e and emissions exceeding a specific threshold and optionally on UWWTPs with a lower organic design capacity reported as “diffuse sources”. The pollutants which might be given for UWWTPs cover TOC (total organic carbon) (threshold 50,000 kg/year), Ntot (threshold 50,000 kg/year), Ptot (threshold 5,000 kg/year), heavy metals (and possibly also other pollutants like Nonylphenole or Diuron).

For providing the link between UWWTPs reported under the UWWTD and E-PRTR, the UWWTD Questionnaire under UWWTD Article 15(4) reporting foresees to provide the link to the E-PRTR-ID of an UWWTP on a voluntary basis.

At the moment the link from E- PRTR-data to UWWTD SIIFs is not regarded as first priority. In the future, data collected via the E-PRTR might be connected to the UWWTD SIIF (e.g. via links to UWWTPs). However, it needs to be clearly investigated by then, which links are useful and necessary.

#### 2.1.2.5 WISE-State of the Environment (SoE): Water emission quality (WISE-1)<sup>12</sup>

This annual data collection requests information on emissions of nutrients (Nitrate, Ammonium, Ntot, Ptot), organic matter (TOC, COD<sub>Mn</sub>, COD<sub>Cr</sub>, BOD<sub>5</sub>, BOD<sub>7</sub>) and hazardous substances to water, aggregated within RBDs and RBD Sub-units. For hazardous substances it will be supplemented in the coming years by the inventory of emissions discharges and losses requested by Directive 2008/105/EC (WFD Daughter Directive). Emissions cover point and diffuse sources. Nutrient and organic matter emissions should be split by point sources according to the population equivalent (p.e.). Point sources from collected but untreated agglomerations are also requested. Data from UWWTPs serving agglomerations with a size of less than 2,000 p.e. are requested only if they are significant.

The categories of point and diffuse sources of emissions cover:

- Point sources to coastal and transitional waters:
  - D0 - Direct Discharges (total)
- Point sources to Inland Waters

<sup>11</sup> <http://prtr.ec.europa.eu/Home.aspx>

<sup>12</sup> <http://rod.eionet.europa.eu/obligations/632>





- U1 - Urban Waste Water Untreated (U11-U14)
- U2 - Urban Waste Water Treated (U21-U24)
- I3 - Industrial Waste Water Treated
- I4 - Industrial Waste Water Untreated
- O5 - Other Waste Water Treated
- O6 - Other Waste Water Untreated
- G7 - Point Sources to GW (total)
- Diffuse (non-point) sources to inland waters:
  - NP1 - Agriculture
  - NP2 - Emissions...Atmospheric Deposition
  - NP3 - Un-Connected Dwellings Emissions
  - NP4 - Urban Diffuse Emissions
  - NP5 - Storm Overflows Emissions
  - NP6 - Abandoned Industrial Sites
  - NP7 - Other Diffuse Emissions
  - NP8 - Background Emissions

At the moment the consideration of SoE-data for purposes of UWWTD SIIFs is not regarded as first priority. In the future, data collected via the SoE might be connected to the UWWTD SIIF (e.g. via links to WFD RBD, the agglomerations discharge to). However, it needs to be clearly investigated by then, which links are useful.

#### **2.1.2.6 Regional Sea Conventions (e.g. OSPAR, Helcom) and/ or International River Conventions (e.g. Danube, Rhine): Data collections on riverine loads and emissions from land-based point sources including UWWTP**

Example: Danube River Basin – ICPDR - Emission Inventory:

Under the WFD, RBD authorities have to make an assessment of the situation as regards pressures and impacts on their territory (Article 5 report), that should cover UWWT situation. In previous years the ICPDR collected information on agglomerations located in the Danube River Basin, their UWWTPs, discharge points and discharged loads (BOD<sub>5</sub>, COD, N<sub>tot</sub>, P<sub>tot</sub>) per discharge point. For the EU MS the UWWTD database from the EC was used to prefill the emission inventory templates and the countries were asked to complete the templates with the discharged loads (which are voluntary data in the Article 15(4)-reporting). For the Non-EU MS the templates were pre-filled with data from previous years and the countries were asked to up-date information. The last data collection in the context of the emission inventories was elaborated in 2011 (reference date of information 2007 or 2008).

At the moment the consideration of information from river Commissions for purposes of UWWTD SIIFs is not regarded as first priority. It needs to be investigated, whether a link from the UWWTD SIIF to such data collections is useful and brings an added value.







## 2.1.3 Further EU-wide data collections which could be useful in the context of the UWWTD

### 2.1.3.1 Chemical and ecological status of surface water bodies and chemical status of ground water bodies

According to Article 8 of the WFD the MS have to develop programs for the monitoring of the ecological and chemical status of surface water bodies and the chemical status of ground water bodies. In addition, the Environmental Quality Standards Directive (Directive 2008/105/EC, EQSD) lays down Environmental Quality Standards (EQS) for priority substances and certain other pollutants as provided for in Article 16 of the WFD, with the aim of achieving good surface water chemical status and in accordance with the provisions and objectives of Article 4 of that Directive. Information collected in the context of the WFD and the EQSD could be used to assess the effects of waste water treatment for surface and ground water quality.

On the French web-site related to the UWWTD, the concept of linking information related to the UWWTD and related to surface water quality has already been realized. Besides the UWWTPs, the web-site also presents the water quality at monitoring stations in terms of BOD<sub>5</sub>, NO<sub>2</sub>, NH<sub>4</sub> and PO<sub>4</sub> over a time period of three years (see chapter 2.1). Other parameters which could be presented in the context with the UWWTD are: COD, Ntot, Ptot, dissolved oxygen and chlorophyll concentration.

On the EU-wide level DG ENV (supported by Atkins) has developed the WISE-WFD database<sup>13</sup> which contains data from River Basin Management Plans (RBMP) reported by EU MS according to Article 13 of the WFD. The database is placed with EEA, however, not yet integrated in the EEA Data Service. The full database is quite complex and not yet made available for public download. However, a number of aggregation queries have been made; these aggregation queries extract data from the database and present it as data tables that can be downloaded in Excel format. These queries cover for instance information on the chemical and quantitative status of groundwater bodies or the ecological and chemical status of surface water bodies.

By means of the annual WISE-SoE data collection process, the EEA furthermore collects information on groundwater quality<sup>14</sup>, the water quality of rivers<sup>15</sup> and lakes<sup>16</sup> and - in marine countries – marine data<sup>17</sup> as well as biological data in transitional and coastal waters<sup>18</sup>. The information requested under these data collections inter alia covers physical characteristics of the monitoring stations and chemical quality data on nutrients, organic matter and hazardous substances.

For rivers and lakes it also includes the biological data (primarily calculated as national Ecological Quality Ratios), as well as information on the national classification systems for each Biological Quality Element and water body type. Marine data and biological data in transitional and coastal waters inter alia cover chemical quality data on nutrients in seawater and hazardous substances in biota, sediment and seawater and biology in transitional and coastal waters.

Visualization of data from different data flows can be made by combining map layers publically

<sup>13</sup> [http://www.eea.europa.eu/data-and-maps/data/wise\\_wfd](http://www.eea.europa.eu/data-and-maps/data/wise_wfd).

<sup>14</sup> <http://rod.eionet.europa.eu/obligations/30>.

<sup>15</sup> <http://rod.eionet.europa.eu/obligations/28>.

<sup>16</sup> <http://rod.eionet.europa.eu/obligations/29>.

<sup>17</sup> <http://rod.eionet.europa.eu/obligations/14>.

<sup>18</sup> <http://rod.eionet.europa.eu/obligations/630>.





available in EEA Map Services<sup>19</sup>.

At the moment the consideration of information from the WISE-SoE data collection process for purposes of the UWWTD SIIFs is not the main priority. However, on the long-term, information on water quality aspects is considered as important aspect to be linked to the efforts of urban waste water treatment.

### **2.1.3.2 Bathing Water Directive (Directive 2006/7/EC)<sup>20</sup>**

Under the Bathing Water Directive (BWD) the MS have to provide the EC annually with the results of the monitoring and with the bathing water quality assessment for each bathing water, as well as with a description of significant management measures taken. The MS have to report this information in terms of xls- or xml- schema templates via up-load in the CDR upon request by the EC.

At the moment the link of data collected under the BWD to the future UWWTD SIIF is not of first priority. On the long term it needs to be investigated, which links will be useful.

## **2.2 Publication of information related to the UWWTD and urban waste water data on EU- level (EC/ EEA/ Eurostat)**

### **2.2.1 Data from UWWTD Article 15(4), Article 16 and Article 17 Reports and from infringement processes available in EU-27 MS**

#### **2.2.1.1 UWWTD Article 15(4)**

Information reported under Article 15(4) is published in terms of the following products:

- The Waterbase (published by EEA)
- Interactive Maps: UWWTD WISE Viewer (published by the EEA)
- UWWTD Implementation Reports (published by the EC)

##### **2.2.1.1.1 Waterbase<sup>21</sup>**

The Waterbase represents a downloadable database containing selected information collected under Article 15(4) for reference years 2007 – 2011. Not all parameters of the UWWTD database are available in Waterbase, but all the relevant ones for assessing compliance with the Directive.

The dataset is divided into tables on: reported period, receiving areas (i.e. designated SA and their catchments including type of sensitivity, last date of designation or review and geo-referenced data), agglomerations, urban waste water treatment plants (UWWTP), links agglomerations – UWWTPs, discharge points, and (at MS level) sludge handling and treated waste water re-use. An extra table contains additional data, provided by some MS beyond the scope of UWWTD compliance (Incoming and discharged loads of BOD<sub>5</sub>, COD, N<sub>tot</sub> and P<sub>tot</sub>).

##### **2.2.1.1.2 UWWTD WISE Viewer<sup>22</sup>**

<sup>19</sup> <http://discomap.eea.europa.eu/ArcGIS/rest/services/Water>.

<sup>20</sup> <http://rod.eionet.europa.eu/obligations/531/overview>.

<sup>21</sup> <http://www.eea.europa.eu/data-and-maps/data/waterbase-uwtd-urban-waste-water-treatment-directive-3>.

<sup>22</sup> <http://www.eea.europa.eu/themes/water/interactive/soe-wfd/urban-waste-water-treatment-directive-viewer>.







The UWWTD WISE Viewer (interactive maps) gives the following information for the latest reference year of the Article 15(4)- reporting (currently 2009/ 2010):

- Receiving areas
  - ✓ GIS-layer on receiving areas and differentiation whether it is a sensitive river, sensitive lake, sensitive coast-line, sensitive coast area, sensitive transitional water, less sensitive coast-line, catchment of sensitive area, normal area or whether the MS applies Article 5(8). For sensitive areas, the designation criteria (N, P or N&P) can be shown and the GIS-layers can be downloaded from Waterbase.
- Agglomerations
  - ✓ On MS level the WISE Viewer presents summary diagrams (pie charts) on pathways of waste water (= type of treatment) based on total generated load in p.e. of all agglomerations  $\geq 2,000$  p.e. in a MS. The size of each segment of the pie charts is proportional to the percentage of the waste water of all agglomerations attributed to the respective waste water pathway, in other words expressing the pollutant load (in p.e.) undergoing the different types of treatment. The segments of the pies are colored according to the different waste water pathways (see Figure 1).

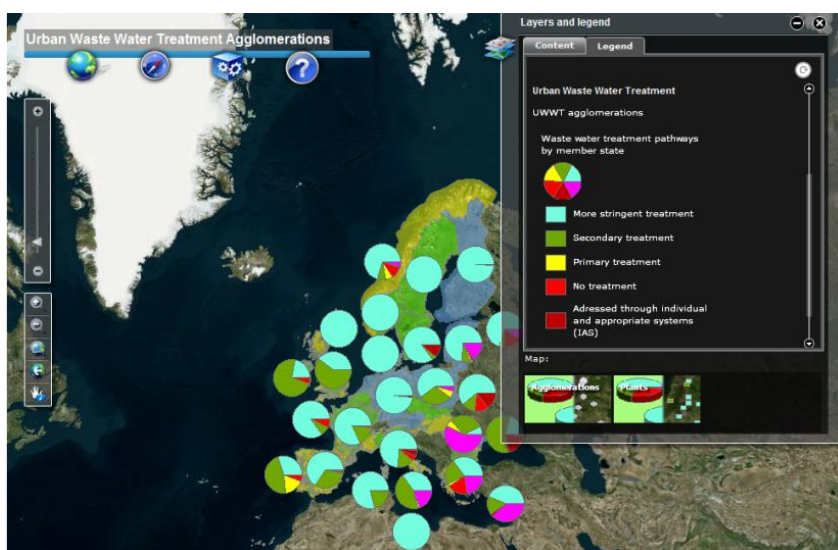


Figure 1. Example of the presentation of waste water treatment on MS-level in the WISE Viewer

- ✓ On agglomeration-level agglomerations are presented with different size of dots represent different size classes and identical purple color of dots
- ✓ When clicking to the agglomeration, the following information becomes available: ID, name, reference year, deadline of UWWTD, generated load of the agglomeration (p.e.).
- ✓ Big cities: in case an agglomeration has a size of  $> 150,000$  p.e. the dot is represented as pie chArticle The size of each segment of the pie charts is proportional to the percentage of the waste water of the agglomerations attributed to the respective waste water pathway. The segments of the pies are colored according to the different waste water pathways (see Figure 2).

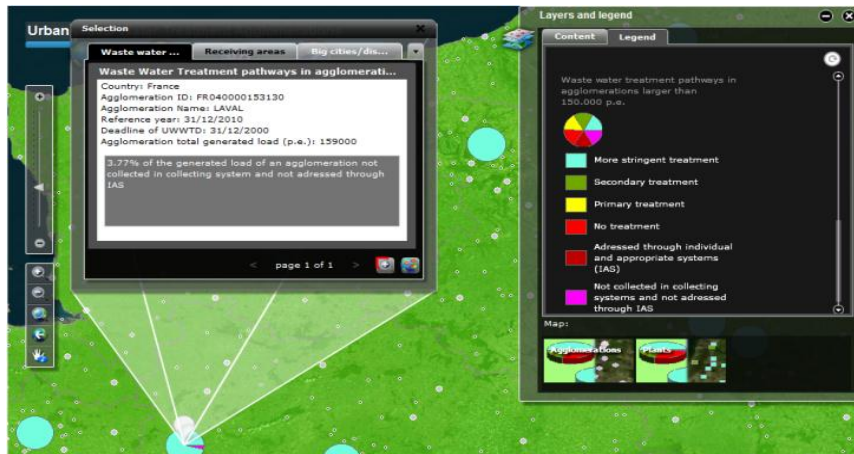


Figure 2: Example 1 of the presentation of agglomerations > 150,000 p.e. in the WISE Viewer

- ✓ When clicking to the big city/ big discharger, the following information becomes available: ID, name, reference year, deadline of UWWTD, generated load of the agglomeration, textual information on the % of the generated load addressed through the different waste water collection and treatment processes. For the big cities/ big dischargers the pop-up window also includes a table as regards the different waste water collection and treatment pathways, but this table is not yet filled with data (see Figure 3).

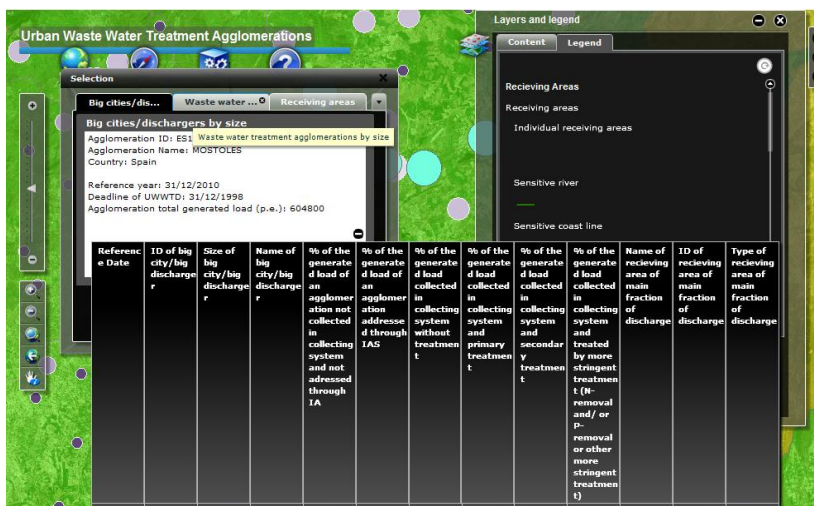


Figure 3: Example 2 of the presentation of agglomerations > 150,000 p.e. in the WISE Viewer

## • UWWTPs

- ✓ On MS level the WISE Viewer presents summary diagrams on treatment types at waste water treatment plants in a MS. The size of each segment of the pie charts is proportional to the number of UWWTPs per treatment type (unlike pie charts in the map of agglomerations, which reflect p.e.load). The segments are coloured according to the different treatment type

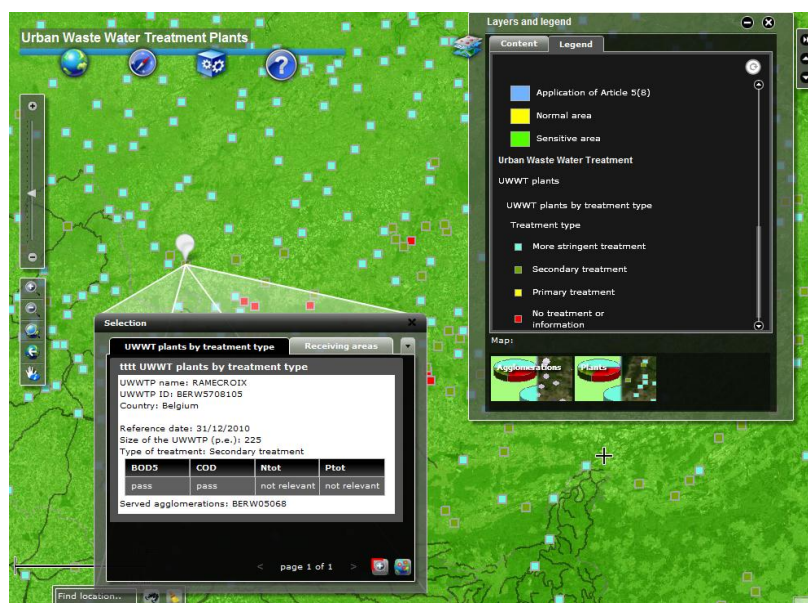


Figure 4. Example of the presentation of UWWTPs in the WISE Viewer

- ✓ The UWWTPs are presented as squares of equal size with different colours according to the different treatment types (see Figure 4)
- ✓ When clicking to the square the following information becomes available: ID, name, reference date, organic design capacity (p.e.), treatment type, compliance monitoring results as regards BOD, COD, Ntot and Ptot and ID of agglomerations served. Where additional data have been reported, also the annual discharge pollutant loads are shown.

## Conclusion

The UWWTD WISE Viewer provides interactive maps with the basic elements of the UWWTD. It is obvious that great efforts had been undertaken by the ETC/ICM and the EEA throughout recent years in order to prepare the datasets the way they are at the moment. Especially the generation of the GIS-layer on SA and CSA required considerable resources in order to correct topological errors together with the MS.

General short-comings of the present system cover the following aspects:

- SA and CSA: when clicking to the CSA the pop-up window is often empty
- Agglomerations > 150,000 p.e.: table as regards the different waste water collection and treatment pathways in the pop-up window is often empty
- The big cities/ big dischargers on the map are following a slightly different definition than the big cities/ big dischargers in the Implementation reports: In the 7<sup>th</sup> Implementation Report big cities might consist of several UWWTD agglomerations or of only one agglomeration > 150,000 p.e.. The allocation of these big cities/ big dischargers on a map is difficult, as coordinates of the centre of several agglomerations can hardly be generated automatically. Therefore, the WISE Viewer only presents agglomerations >150,000 p.e. as big cities/ big dischargers.

Major short-comings as regards the UWWTD SIIF principles:





- The WISE Viewer represents a static content based on biannual reporting. Information results from the previous UWWTD reporting exercise under Article 15(4) and is three to four years old
- No information on future perspectives is provided as this is not reported in tabular form
- No information on the required waste water treatment or as regards compliance with the UWWTD is provided
- Visualisation software is not very user-friendly, but an up-date is envisaged
- Not always clear and self-explanatory for the informed public

### **2.2.1.1.3 Synthesis/ Implementation Reports<sup>23</sup>**

So far, the EC has published six Synthesis Reports as regards the implementation of the UWWTD. The reports were published after the expiry of the different dead-lines of the Directive and hence, scope and design of these reports differ considerably.

#### **2.2.1.1.3.1 First Synthesis Report (published in January 1999, coverage: EU-15 MS)**

As provided for in Article 17 of the UWWTD, the purpose of this report was to review and assess the information received from the MS on programmes for the implementation of the Directive. This information should have been communicated to the EC by 30 June 1994 at the latest. Because of delays attributable to a number of MS, the EC could only publish this report in 1998. Theoretically, the report was intended to cover the EU-15 MS, but as Italy did not provide information, only 14 MS were included.

#### **2.2.1.1.3.2 Second Synthesis Report (published in 2002, reference date 31 December 1998, coverage: EU-15 MS)**

The second Synthesis Report focused on

- the identification of SA by the MS
- the measures implemented by the MS with the view to the deadline of 31 December 1998
- waste water treatment in major cities
- verification of the identification of sensitive areas by the EC

December 1998 was a key milestone in the UWWTD. By this date MS were required to ensure, inter alia, that waste water treatment facilities were available for all agglomerations > 10,000 p.e. where the effluent was being discharged into a SA. While MS were not formally required to submit reports specifically in relation to the December 1998 deadline, the EC, on its own initiative decided to request MS to provide information. Accordingly formal requests were sent to MS in April 1999. In addition to the issue of waste water treatment in SA, MS were also requested to provide information on waste water treatment in major agglomerations, even if not discharging into SA.

The second Synthesis report was based on the replies submitted by the MS and a study prepared by the EC services in relation to sensitive areas. Only 13 of the MS provided all the information requested by the EC in relation to waste water treatment in SA until February 2001.

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<sup>23</sup> [http://ec.europa.eu/environment/water/water-urbanwaste/implementation/implementationreports\\_en.htm](http://ec.europa.eu/environment/water/water-urbanwaste/implementation/implementationreports_en.htm)







2.2.1.1.3.3 Third Synthesis Report (published in 2004, reference date 31 December 2000 for waste water treatment in agglomerations > 15,000 p.e. in normal areas, reference date 31 December 2001 for waste water treatment in agglomerations > 10,000 p.e. in sensitive areas, reference date 1999 for monitoring results in agglomerations > 10,000 p.e. in sensitive area, coverage: EU-15 MS)

The second key milestone under the UWWTD was 31 December 2000. By this date MS were required to ensure that waste water treatment facilities were provided for all agglomerations > 15,000 p.e., which discharged their effluent into a so called 'normal areas'. By this date, MS were also required to ensure that biodegradable waste water produced by plants of the food-processing sectors listed in the Directive, and which discharged directly into receiving waterbodies, respected certain conditions.

The present report presents the measures implemented by the MS in relation to the deadline of 31 December 2000. In addition, it presents the improvements having taken place by 2002 concerning agglomerations discharging into SA and subject to the deadline of 31 December 1998. Beyond the updated situation of waste water treatment infrastructure, the report also includes information on the treatment performance of waste water treatment plants discharging their effluents into SA in the year after the deadline had expired (i.e. monitoring results from the reference year 1999 were requested). Furthermore the report gives an overview of waste water treatment in major cities, as well as a general review of the progress of MS towards the implementation of the directive.

MS were not formally required to submit reports in relation to the respect of the deadlines set down in the directive. However, the EC decided to request the MS to provide the information in order to verify the implementation of the Directive. Accordingly, formal requests were sent to MS in December 2000 and March 2001. One year after the deadline for delivering the information to the EC, most MS had still not provided all the requested information. Many MS only provided the complete information after the EC had announced infringement procedures. Despite the legal actions taken by the EC, France and Spain still did not deliver the complete information. In addition to the long delays in providing the requested information, the quality of the data provided was frequently very poor, which hampered the processing and analysis of the information.

2.2.1.1.3.4 Fourth Synthesis Report (published in 2007, reference date 2001 or 2002, coverage: EU-15 MS)

The fourth Synthesis report presented an up-date of the information provided in the third Synthesis Report (agglomerations >15,000 p.e. discharging into normal area and agglomerations > 10,000 p.e. discharging into SA, as well waste water treatment in big cities) for reference date 2001 or 2002. As not all MS provided up-dated information, the information available in the report refers to the situation presented in the third Synthesis Report.

Many MS reported the requested information at a very late stage and in addition, the data quality was often poor, which hampered the processing and analysis of the information. In addition, the datasets from several MS showed considerable discrepancies as regards the number of agglomerations/ big cities reported in the previous report.





#### 2.2.1.1.3.5 Fifth Synthesis Report (published in 2009, reference date 2005 or 2006, coverage: EU-27 MS)

The third key milestone under the UWWTD was 31 December 2005. For the EU-15 MS all deadlines in the Directive had expired and waste water collection and treatment therefore had to be in place for all agglomerations within the scope of the Directive. The fifth report was also intended to cover the EU-12 MS, for which some transitional periods had been granted for specific agglomerations on the basis of the load, the size of agglomerations or the nature of the discharge area. However, for several agglomerations in the EU-12 MS, the deadlines to implement the UWWTD had already expired by 31 December 2005 and therefore, they were also included into the report.

The report was based on a comprehensive questionnaire, which was jointly agreed by the EC and the MS. The requested reference date of information was 31 December 2005 or – in case more up-dated information was available – 31 December 2006. This reference date was requested for Article 3 (collecting systems), Article 4 (agglomerations  $\geq 2,000$  p.e. discharging into normal areas) and Article 5 (agglomerations  $> 10,000$  p.e. discharging into SA) of the Directive and covered both, waste water treatment and performance (monitoring results).

The request to report information was sent out in July 2007 and replies/ corrections of data were accepted until November 2008. Nevertheless, only 18 MS of the EU-27 MS provided a complete dataset (10 out of the EU-15 MS and 8 out of the EU-12 MS). The report could therefore only give an incomplete picture of the status of implementation.

Due to the clear definition of reporting templates (UWWTD Questionnaire) and binding reporting principles in accordance with WISE in the run-up to the 5<sup>th</sup> Synthesis Report the data quality revealed a considerable improvement compared to the first four reports.

#### 2.2.1.1.3.6 Sixth Synthesis Report (published in 2011, reference date 2007 or 2008, coverage: EU-27 MS)

The sixth synthesis Report represents an up-date of the situation described in the fifth Synthesis Report. As for the fifth report the sixth one was based on a reporting template and binding reporting principles in accordance with WISE.

In contrast to the fifth synthesis report, additional interim deadlines in the EU-12 MS had expired and due to experience gained in the reporting process for the fifth Synthesis Report, the data coverage improved considerably. All MS except UK provided the requested information in time and in good quality, which revealed major improvements to the previous data submission.

The presentation of information was done in the same way as for the 5<sup>th</sup> Synthesis Report, which allowed – limited by the data coverage of both reports - a comparison of the status of implementation.

#### 2.2.1.1.3.7 Seventh Synthesis Report (expected to be published in 2013, reference date 2009 or 2010, coverage: EU-27 MS)

The seventh synthesis Report represents an up-date of the situation described in the sixth Synthesis Report. As for the fifth and sixth report the seventh one was based on a reporting template and binding reporting principles in accordance with WISE.





The Seventh Synthesis Report is the first one, for which all EU-27 MS have reported comprehensive datasets in time and in good quality. The seventh synthesis report is still in the phase of revision and is expected to be published by the EC by mid 2013.

#### 2.2.1.1.3.8 Conclusion

As can be seen from chapter 3.2.1.1.3.1. to 2.2.1.1.3.6 the sixth Implementation reports published so far, were conceived according to different scopes and objectives. In the run-up to the 5<sup>th</sup> Synthesis Report the reporting templates, reporting and evaluation principles as well as the presentation of results in the reports were defined according to the WISE-principles and since then allow a better comparison of information reported throughout the years. However, for the fifth and sixth report, this progress was still limited by the data coverage. In addition, the fact that transition periods are continuously expiring in the EU-12 MS from one synthesis report to the other hamper the direct comparison and of information over years and require the provision of comprehensive interpretation of the results.

While the first three Synthesis reports provided very technical information related to the implementation of the UWWTD, the need to communicate the efforts of the Directive to a broader audience (of water experts) emerged already for the fourth Synthesis Report. Therefore, the summary section of this report tried to explain the main provisions of the Directive and key findings in terms, which are not necessarily related to the UWWTD.

Starting from the 5<sup>th</sup> Synthesis Report it was tried to place an additional focus on the progress of the implementation of the Directive over years. However, due to the newly developed reporting and assessment guidelines and the concurrent low data coverage, a comparison was only possible to a very limited extent. This work step was however possible since the sixth implementation report.

In brief the sixth Synthesis Report covers information as regards compliance of the single MS, of the EU-12, the EU-15 and the EU-27 with Article 3, Article 4 and Article 5 of the Directive and relates compliant agglomerations to these agglomerations, which need to be compliant with the Directive's requirements ('subjected load') (see Figure 5 and Figure 6). Especially in the EU-12 MS this latter value may quickly change from one year to the other. Since the sixth Implementation Report one focus was also placed on the changes of compliance status from one report to the other (Figure 7 and Figure 8).



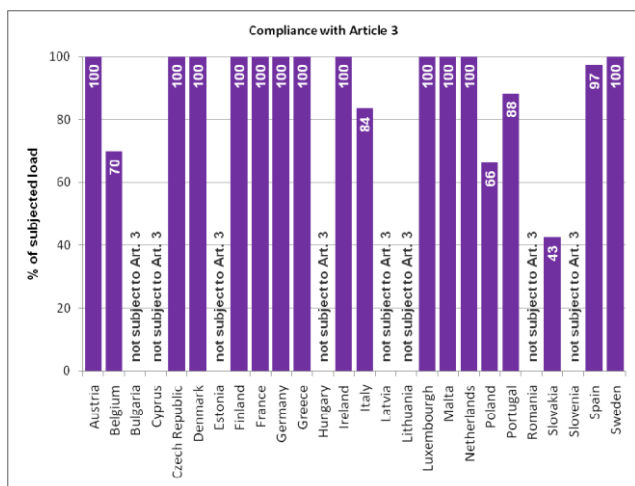


Figure 5. Presentation of compliance with Article 3 in the sixth UWWTD Synthesis Report

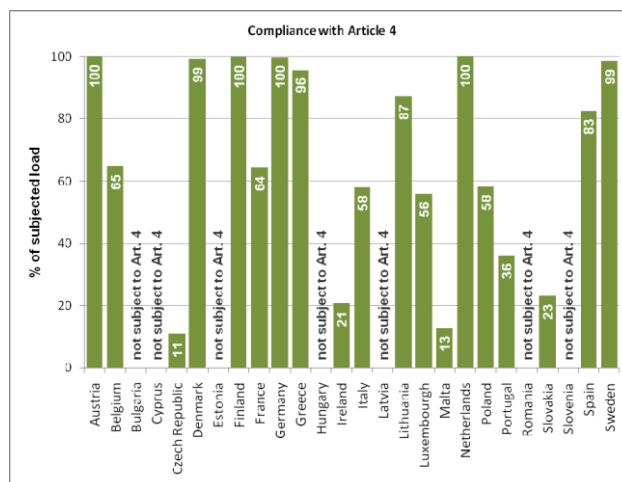


Figure 6. Presentation of compliance with Article 4 in the sixth UWWTD Synthesis Report

	Article 3	Article 4	Article 5
	Compliance in % of subjected load		
AT	0.0	0.0	0.0
BE	-27.9	-1.8	-1.4
DK	0.0	-0.8	6.2
FI	0.0	11.7	66.3
FR	0.0	0.4	14.5
DE	0.0	0.3	0.0
LU	0.0	-38.7	6.8
NL	0.0	0.0	0.0
PT	-7.0	-5.3	1.8
SK	-50.7	-30.8	not subject
SE	0.0	0.6	7.1

Figure 7. Presentation of changes in compliance status from one Synthesis report to the other

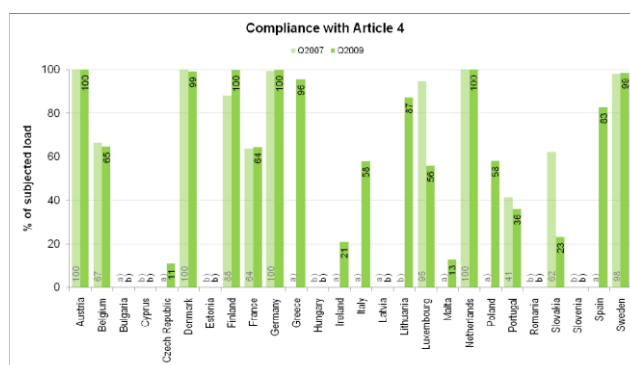


Figure 8. Progress in compliance rates for Article 4 UWWTD (reference years 2005/2006 for the 5<sup>th</sup> Implementation Summary and reference years 2007/2008 for the 6<sup>th</sup> Implementation Summary) for EU-15 and EU-12 in % of the subjected load (Legend: a) no data included in 5<sup>th</sup> Implementation Summary and b) not subject to compliance with this Article).

Four main issues became clear in the process of drafting the seventh Synthesis Report:

- It is difficult to determine a homogenous definition of compliance rates for all six Synthesis Reports published so far and hence, to establish time series of compliance/trend analysis from these reports. The reason is that scope, objectives, data definitions, data evaluation methods as well as the data coverage of the six reports varied considerably.
- The reports do not yet allow an assessment of the efforts of UWWTD implementation to the aquatic environment. Although the reports provide the evaluation of the UWWTD compliance status, the report is not helpful to answer the question of the benefits of its implementation.
- The report is still written in a very technical way, focusing on definitions and requirements of the Directive. The EC however intends to make the reports comprehensible to a broader







audience in order to make it more interesting and useable. Therefore, future challenges for the presentation of results will be the balance between creating a document, which is useful for the informed public, but which - at the same time – still allows the assessment, to which extent a MS complies with the requirements of the UWWTD.

- In recent years many MS started to publish information on UWWTD - implementation on national web-sites. This information often relates to a more recent status that published in the Synthesis Reports. One of the main objectives of the Synthesis Reports ('to inform the public about the current status of implementation') could therefore become obsolete in the near future, unless it is changed to a web based system using national websites. This change could combine a part automatically generated from the most recent data available and an expert assessment conducted on a different timing and process. This approach would allow to keep the possibility to make the scope evolve over time together with a core common part allowing building trends and historical series.

#### **2.2.1.2 UWWTD Article 16 (Situation reports)**

The reports are usually publically available on the web-sites of the MS and also from the EIONET CDR (in case up-loaded by the MS). The up-load into the EIONET CDR is not claimed by the EC, therefore not checked by EEA and thus, not all Article 16- reports are available in EIONET.

#### **2.2.1.3 UWWTD Article 17 (National Implementation programs)**

MS should up-load their Article 17- reports to the EIONET CDR, from where the data is publically available. However, only few of the EU-12 MS elaborate this report on a regular basis and/ or up-load it to the CDR. The up-load into the EIONET CDR is not claimed by the EC, therefore not checked by EEA and thus, not all Article 17- reports are available in EIONET.

#### **2.2.1.4 Reporting upon request in case of infringement procedures under the UWWTD**

Information exchanged in the context of infringement cases is currently neither centrally available nor published.

### **2.2.2 Further EU- wide data collections related to urban waste water treatment data**

#### **2.2.2.1 DG REGIO**

DG REGIO publishes information on its projects in a project database<sup>24</sup>, which also comprises information on waste water related projects and in analysis reports on the Cohesion Policy Performance<sup>25</sup>. The latter ones provide inter alia information on the situation of waste water treatment with regards to the requirements of the UWWTD and explain future needs and estimated costs for these needs (e.g. Environment and Risk Prevention under Structural Funds for 2007-2013 period: Full report for Poland).

<sup>24</sup> [http://ec.europa.eu/regional\\_policy/projects/stories/index\\_en.cfm](http://ec.europa.eu/regional_policy/projects/stories/index_en.cfm)

<sup>25</sup> [http://ec.europa.eu/regional\\_policy/information/evaluations/index\\_en.cfm#1](http://ec.europa.eu/regional_policy/information/evaluations/index_en.cfm#1)





### 2.2.2.2 OECD/ Eurostat Joint Questionnaire on Inland Waters (JQ-IW)<sup>26</sup>

Information collected by means of the JQ-IW is publically available from the Eurostat database<sup>27</sup>, which contains tabular data, but also a visualisation of tabular data in terms of graphs and maps. Historical data is available.

Although waste water related information covered by the JQ-IW is not necessarily compatible with information collected under the UWWTD, it is often used for the generation of indicators, fact sheets or maps by different organisations (e.g. EEA) in order to demonstrate the progress of urban waste water treatment in Europe (see Figure 9). The reason is that the JQ-IW provides long term series for many parameters, whose definitions were not considerably changed for decades, and covers many countries across Europe, thus allowing significant trend analysis.

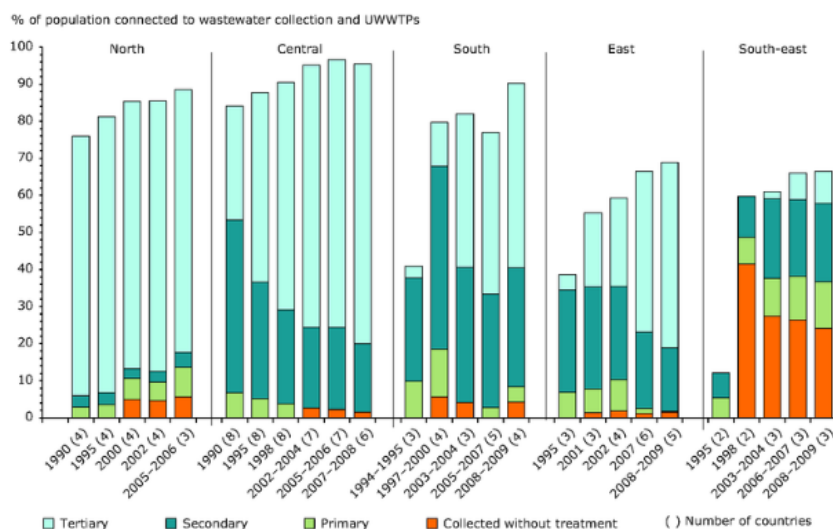


Figure 9. Example for the use of information collected by the JQ-IW<sup>28</sup>

### 2.2.2.3 Eurostat Regional Environmental Questionnaire (REQ)

Information collected by means of the REQ is publically available from the Eurostat database<sup>29</sup> (data on NUTS2- and RBD-level). Historical data is available to a different extent in the different regions.

### 2.2.2.4 European Pollution Release and Transfer Register (E-PRTR)<sup>30</sup>

Information reported under E-PRTR is published by means of searchable databases and interactive maps and provides information on annual releases of pollutants to the aquatic environment (Figure and Figure 11).

<sup>26</sup> <http://rod.eionet.europa.eu/obligations/645>

<sup>27</sup> [http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/data/main\\_tables](http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/data/main_tables)

<sup>28</sup> Data source: CIS024: <http://www.eea.europa.eu/data-and-maps/indicators/urban-waste-water-treatment/urban-waste-water-treatment-assessment-3>.

<sup>29</sup> <http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/data/database>

<sup>30</sup> <http://prtr.ec.europa.eu/Home.aspx>





Figure 10. E-PRTR starting page

Pollutant name	Total	Accidental	Accidental %	Method	Method used	Confidential
Arsenic and compounds (as As)	14.0 kg	0	0 %	Measured	OTH STANDARD METHODS	
Cadmium and compounds (as Cd)	8.00 kg	0	0 %	Measured	OTH STANDARD METHODS	
Chlorides (as total Cl)	3,690 t	0	0 %	Measured	OTH S	
Copper and compounds (as Cu)	124 kg	0	0 %	Measured	OTH STANDARD METHODS	
Mercury and compounds (as Hg)	7.00 kg	0	0 %	Measured	OTH STANDARD METHODS	
Nickel and compounds (as Ni)	168 kg	0	0 %	Measured	OTH STANDARD METHODS	
Lead and compounds (as Pb)	21.0 kg	0	0 %	Measured	OTH STANDARD METHODS	
Total nitrogen	79.0 t	0	0 %	Measured	APAT-IRSA-CNI	
Total phosphorus	6.39 t	0	0 %	Measured	APAT-IRSA-CNI	
Zinc and compounds (as Zn)	939 kg	0	0 %	Measured	OTH STANDARD METHODS	

Figure 11 E-PRTR: Detailed information for selected facility

#### 2.2.2.5 WISE- State of the Environment (SoE): Water emission quality (WISE-1)<sup>31</sup>

Information collected by the SoE Reporting process - Water emission quality is made available for the public in terms of the Waterbase. It is primarily used to compile indicator factsheets, associated with the EEA's Core Set Indicators, upon which EEA assessment reports are based.

#### 2.2.2.6 Regional Sea Conventions (e.g. OSPAR, Helcom) and/ or International River Conventions (e.g. Danube, Rhine): Data collections on riverine loads and emissions from land-based point sources including UWWTP

Information collected in the context of regional sea conventions or International River Conventions is usually not made publically available, but used for evaluations, which are provided in reports. Data on urban waste water collected by the ICPDR for the years 2007 – 2008 was for instance used to draft the Danube River Basin Management Plan<sup>32</sup> (example see Figure 12).

<sup>31</sup> <http://www.eea.europa.eu/data-and-maps/data/waterbase-emissions-2>

<sup>32</sup> <http://www.icpdr.org/main/publications/danube-river-basin-management-plan>

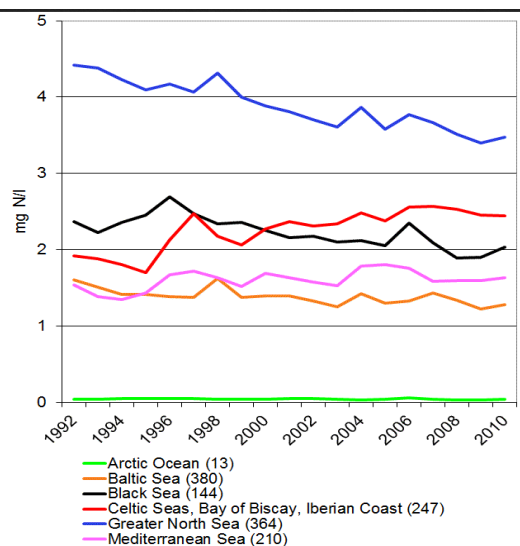




Figure 12. Map showing waste water treatment in the Danube River Basin

### 2.2.3 Further EU-wide data collections which could be useful in the context of the UWWTD

### 2.2.3.1 Chemical and ecological status of surface waterbodies and chemical status of ground waterbodies



The annual WISE-SoE data collection process on water quality aspects allow the EEA the publication of information in terms of downloadable datasets via Waterbase<sup>33</sup> and the publication of indicators on water quality<sup>34</sup>.

Figure 13. Nitrate concentrations in rivers between 1992 and 2010.

<sup>33</sup> E.g. Waterbase - Transitional, coastal and marine waters: <http://www.eea.europa.eu/data-and-maps/data/waterbase-transitional-coastal-and-marine-waters-8>

<sup>34</sup> E.g. Nutrients in freshwater (CSI 020): <http://www.eea.europa.eu/data-and-maps/indicators/nutrients-in-freshwater/nutrients-in-freshwater-assessment-published-4>

Nutrients in transitional, coastal and marine waters (CSI 021): <http://www.eea.europa.eu/data-and-maps/indicators/nutrients-in-transitional-coastal-and/nutrients-in-transitional-coastal-and-4>





### 2.2.3.2 Bathing Water Directive (Directive 2006/7/EC)

Information is made publically available via different pathways:

- Downloadable database<sup>35</sup>
- Interactive Maps: WISE Viewer<sup>36</sup>
- Annual summary reports on the quality of bathing waters<sup>37</sup>
- EEA Core set of indicators Bathing water quality (CSI 022)<sup>38</sup>

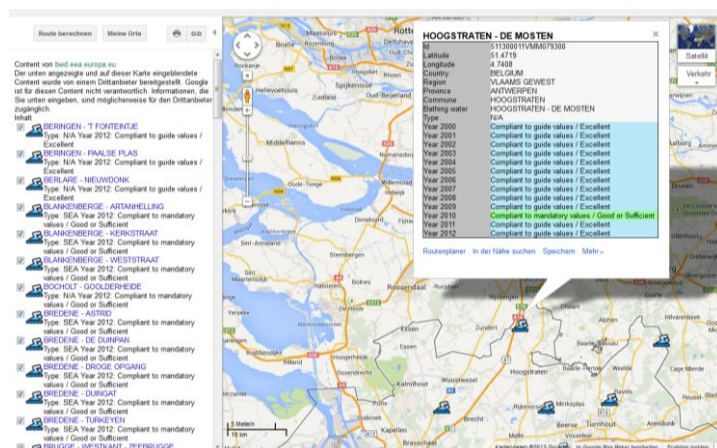


Figure 14. Example Bathing waters WISE Viewer

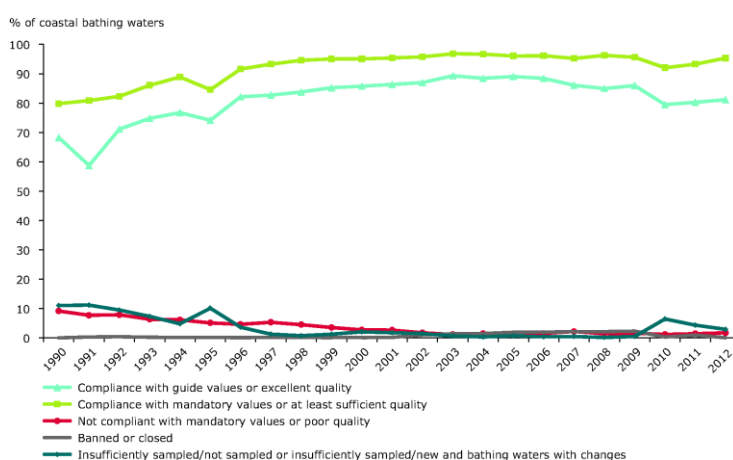


Figure 15. EEA Core set of indicators Bathing water quality

The WISE Bathing Water Quality data viewer<sup>39</sup> allows a quick check on locations and statistics on the quality of coastal and freshwater bathing waters (searchable by country, region, province and bathing water). Historical information is usually available for several previous years. On the level of the bathing water it is clearly indicated, whether the site is compliant with guide values (Excellent quality), compliant to mandatory values (good or sufficient quality), not compliant to mandatory values (poor quality), banned or closed, not sufficiently sampled or not sampled.

<sup>35</sup> <http://www.eea.europa.eu/data-and-maps/data/bathing-water-directive-status-of-bathing-water-5>

<sup>36</sup> <http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water/bathing-water-data-viewer>

<sup>37</sup> <http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water/state-of-bathing-water>

<sup>38</sup> <http://www.eea.europa.eu/data-and-maps/indicators/bathing-water-quality/bathing-water-quality-assessment-published-4>

<sup>39</sup> <http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water/bathing-water-data-viewer>





### **3 Information management related to the UWWTD and urban waste water data on EU-27 MS-level**

#### **3.1 Publication of information related to the UWWTD and urban waste water data on MS-level: Online information available on national web-pages in EU-27 MS**

The screening of the web-sites revealed that nearly all MS are publishing information as regards the UWWTD, but that quality and quantity of the available information differs considerably. The most common information providers are Ministries of Environment, the national environment agencies, regional administrative units or water boards and to a lesser extent national statistic institutes, with the latter generally providing aggregated information. However for most of the MS, the information related to the UWWTD and its implementation is scattered either on the web-sites of different institutions/ different regions or in different sections of one web-site (e.g. in the section 'Legislation', 'Water Information Systems', 'Strategies and Programs').

Textual information, summary tables and graphs describing the situation of waste water treatment in the MS, a link to the UWWTD (either descriptive or with links to related documents), downloadable reports (mainly UWWTD Article 16- and/ or Article 17- pdf- reports and/ or Article 15(4) Excel- or xml-files) present the minimum available information, which nearly all MS provide on their web-sites. The reference dates of this information is not always clear and varies considerably and some elements of this data (especially Article 15(4)- reports) are only interpretable for those few experts of a MS dealing with reporting under the UWWTD. This minimum information is completed in some countries by the additional publication of searchable databases, which allow to obtain more detailed information per agglomeration and/ or UWWTP and/ or discharge point (as implemented by e.g. SI, DE, LT). Interactive maps are already provided by several MS (e.g. FR, EL, SI, DE) with the level of detail and presentation of information varying considerably.

The available information as regards physical parameters (= fields of information) relevant for the UWWTD usually contains:

- IDs and names of urban waste water treatment plants (UWWTPs),
- coordinates of UWWTPs,
- name of the main city, the UWWTP serves,
- the available waste water treatment type either in terms of infrastructure (primary/secondary/more stringent) or main technology used,
- removal rates, effluent loads or effluent concentrations of suspended solids (SS), BOD<sub>5</sub>, COD, N<sub>tot</sub> and P<sub>tot</sub>,
- IDs, names and locations of discharge points,
- size of connected agglomerations,
- IDs, names and designation dates of sensitive areas (SA).

Information, which is usually missing, relates to the fraction of the generated load of an agglomeration, which is collected in collecting system and which is treated in the connected UWWTPs. These parameters are not technical ones, which can be measured easily, but need to be





recalculated regularly on the basis of the residents, the non-residents and the industry within an agglomeration. For the compliance assessment on agglomeration-level, these parameters are however of main importance, as the Directive stipulates that all agglomerations above 2,000 p.e. are provided with collecting systems or Individual and Appropriate Systems (IAS) and that all waste water collected in collecting system receives the treatment described in Article 4 and/ or Article 5 of the Directive.

Member States, which reveal a decentralised/ federal administrative organisation (e.g. AT, DE, IT) usually provide rather view information on national level, whereas the different regions/ Länder present their UWWTD- related information in a very detailed and comprehensive way, however, strongly differing amongst regions/ Länder.

Although nearly all EU-27 MS publish UWWTD-related information on their national web-sites, only some MS have already established UWWTD SIIF principles on national level. No MS has entirely implemented all SIIF elements, but the analysis identified good practice examples, how UWWTD SIIF principles could be realized. These examples do not only include the parameters to be published, but also give an impression of possible and reasonable information up-dating frequencies and the tools to make data publically available. The most comprehensive and clear presentation of UWWTD-information in terms of SIIF- principles is provided by FR, EL, IE, PL and ES. CY also provides very comprehensive information, but data is scattered between different web-sites and therefore not so transparent and easily available.

The most comprehensive and clear presentation of UWWTD- information is provided by France and Greece. Both countries provide sound descriptive information as regards the UWWTD and its national implementation (including links to legislative and further supporting documents). Data publication is supported by interactive maps, which provide up-to- date information (reference year 2011 or 2012) and allow an easy navigation even for the interested public. In particular in France the way of presenting compliance information by means of different colors on the maps is very clear. The link to the water quality parameters in surface waters furthermore raises the awareness of the effects of UWWTD implementation. Waste water treatment requirements according to the UWWTD and compliance with the Directive are explicitly given for each UWWTP in France. The web-sites of both MS, however provide no or only very limited information as regards future measures to bring UWWTPs into compliance.

This forward-looking perspective is already established by Ireland, Poland and Cyprus who provide this information in terms of down-loadable pdf-reports and/ or Excel tables. The web-pages of these MS are considered as less self-explanatory and structured, but they provide comprehensive information on UWWTD related aspects (e.g. reasons for non-compliance, physical parameters). In Cyprus, physical parameters are in addition scattered between the web-sites of different regions and the national level, which hampers the public access to data. Data is presented differently which allows the assumption that different databases are established in the different regions and on national level.

Interactive maps with basic information as regards physical parameters are also provided by Spain and Slovenia. The web-pages are however less self-explanatory, provide no information on forward looking aspects and comprise outdated information.

The following section gives examples of good implementation of the UWWTD SIIF principles in the MS:





1. SIIFs relate (only) to information, which is relevant for implementation and compliance at national level. *Parameters of physical nature*

This principle is well implemented in FR and EL.

Example France:

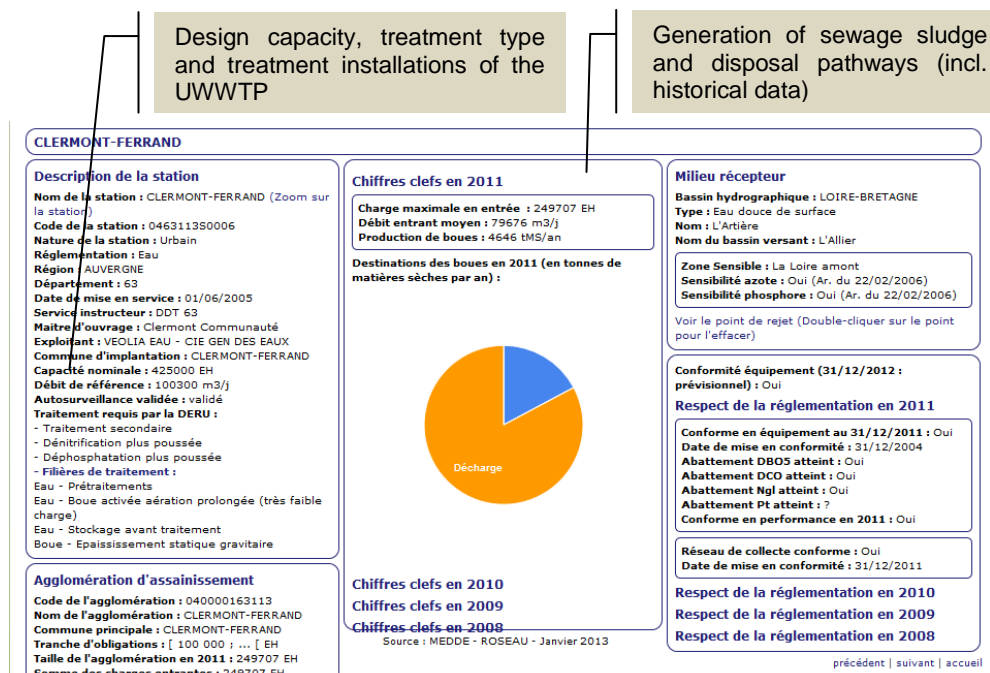


Figure 1. Pop-up window for each UWWTP on an interactive map

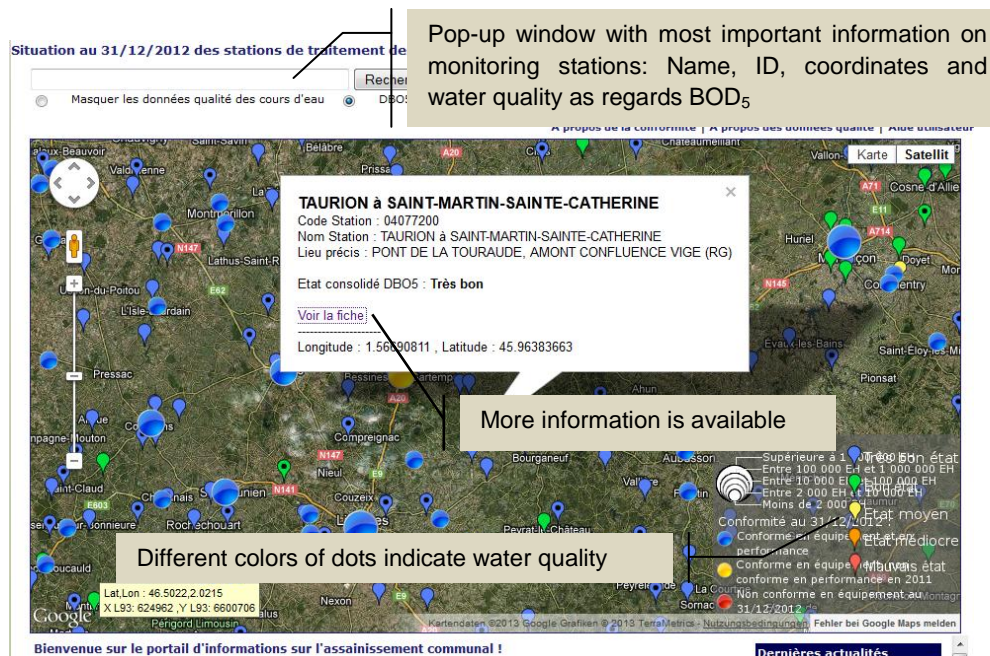


Figure 2. Information available for water monitoring stations

1. SIIFs relate (only) to







information,  
which is  
relevant for  
implemen-  
tation and  
compliance at  
national level.  
*Parameters of  
physical nature*

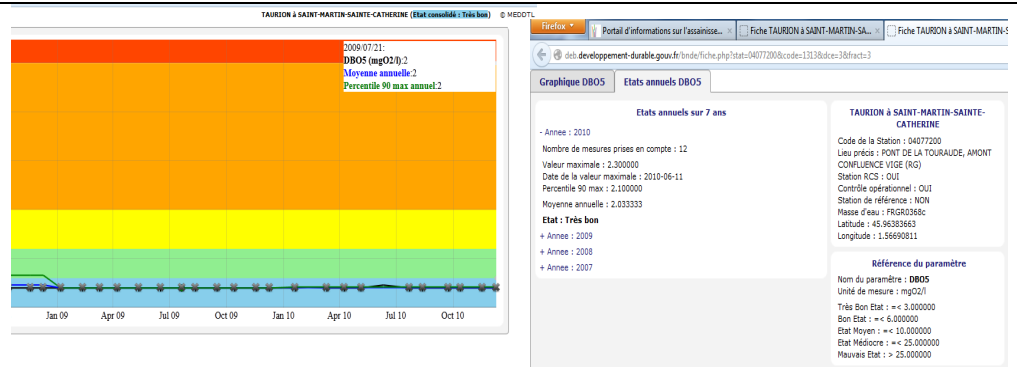


Figure 3. Detailed information of French water quality monitoring stations in terms of graphs

Example Greece:

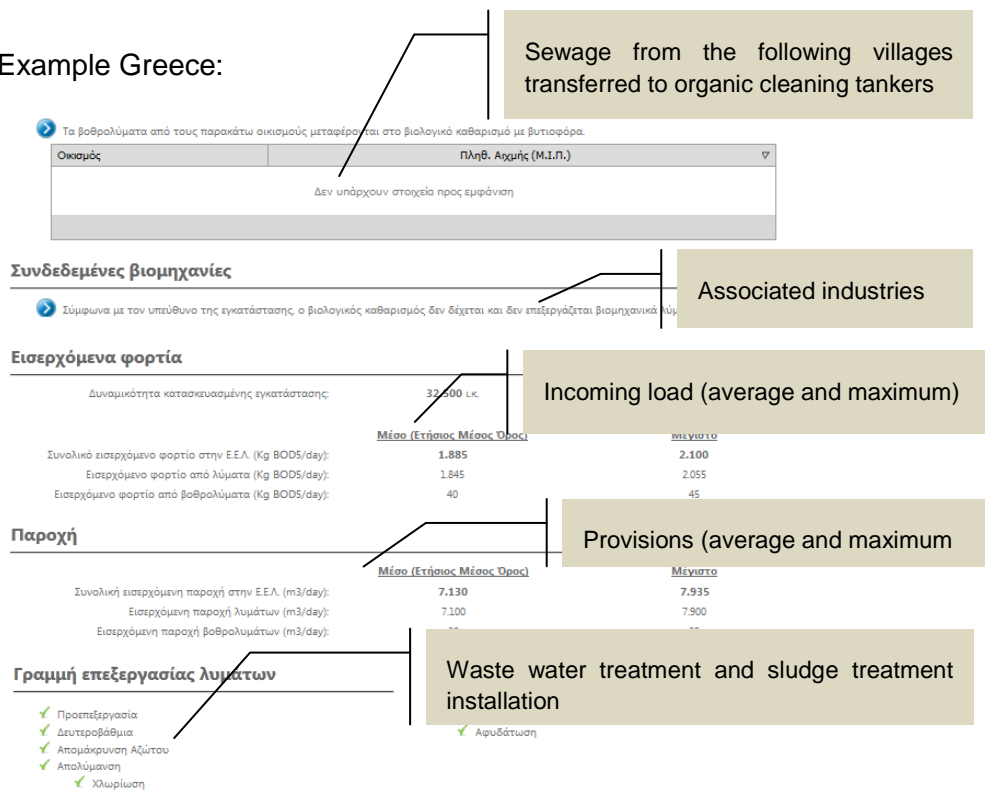


Figure 4. Example of presentation of physical parameters for each UWWTP in Greece





2. SIIFs relate (only) to information, which is relevant for implementation and compliance at national level.  
*Parameters of administrative nature*

This principle is well implemented in FR and EL.

Example France: This principle is well implemented by the provision of the following information: Operator of UWWTP; Responsible authority; Connected agglomeration (ID and name); size of the agglomeration and communes included into the agglomeration; Legal acts designating SA, the UWWTP discharges to; Region and department, the UWWTP discharges to; Name of hydrographic basin and of receiving water (link to WFD), all elements see Figure 1); General explanation of UWWTD and implementation into national law (including designation and review of SA) available from a web-site linked to the interactive map<sup>40</sup>

Example Greece: This principle is well implemented by the provision of the following information: Operator of UWWTP; Program funding structure; Date of completion of construction; Inception Date; End Date Environmental Conditions; Agglomerations connected to the UWWTP via collecting systems, ID and size of agglomerations and % of generated load collected in collecting system; Villages (names and size), where the sewage is connected to organic cleaning tanks; contact details for each UWWTP

**Γενικά**

Φορέας: Δ.Ε.Υ.Α. - ΝΗΣΟΥ ΧΙΟΥ  
 Πρόγραμμα χρηματοδότησης κατασκευής - Π/Υ: ΤΑΜΕΙΟ ΣΥΝΟΧΗΣ- ΙΔΙΟΙ ΠΟΡΟΙ  
 Ημ/νία ολοκλήρωσης κατασκευής: 31/7/1994  
 Ημ/νία έναρξης λειτουργίας: 31/7/1994  
 Ημ/νία λήξης Περιβαλλοντικών Όρων: - - Δεν έχει υποβληθεί

General information (date of starting operation, client, etc)

**Εξυπηρετούμενοι οικισμοί**

Οικισμοί που εξυπηρετούνται από τον βιολογικό καθαρισμό μέσω δικτύου αγωγών

Οικισμός	Κωδικός	Πληθ. Αγωγής	Χωριστικό
ΧΙΟΣ	GR41300101	24.950	93
ΑΓ. ΜΗΝΙΑΣ		4.900	85
ΒΡΟΝΤΑΔΟΣ		4.800	94
ΚΑΜΠΟΧΩΡΑ		2.165	50
		<b>36.815</b>	

Communes/ agglomerations (incl. IDs) served by the UWWTP's drainage system, size of agglomerations, % served and type of sewage network

**Επικοινωνία**

Υπεύθυνος λειτουργίας: ΜΑΡΙΑ ΕΛΕΥΘΕΡΙΟΥ  
 Φορέας: ΔΕΥΑ ΧΙΟΥ  
 Θέση: -  
 Διεύθυνση: -  
 Τηλέφωνο: 22710 43893  
 Fax: -  
 E-mail: mareleftheriou@gmail.com

Contact details

Figure 5. Example of presentation of administrative information for each UWWTP in Greece

<sup>40</sup> <http://assainissement.developpement-durable.gouv.fr/recueil.php>





3. SIIFs relate (only) to information, which is relevant for implementation and compliance at national level: Further parameters relevant for implementation and compliance

This principle is well implemented in FR, EL and IE.

Example France: This principle is well implemented by provision of the following information: Type of receiving water (freshwater, coastal water, estuary); Type of receiving area (and in case of SA: name of SA and sensitivity criteria); Date, when compliance as regards waste water collecting systems needs to be achieved; Date, when compliance as regards treatment needs to be achieved; Compliance as regards collecting systems at a specific reference year on UWWTP-level (Y/N); Compliance as regards treatment type at a specific reference year<sup>41</sup> (Y/N); Compliance as regards monitoring results at a specific reference year<sup>40</sup> (Y/N) (all elements see Figure 1)

Example Greece: This principle is well implemented by provision of the following information: ID, name and type of receiving water; Sensitivity of receiving area; Compliance of monitoring results at a specific reference year (Y/N)

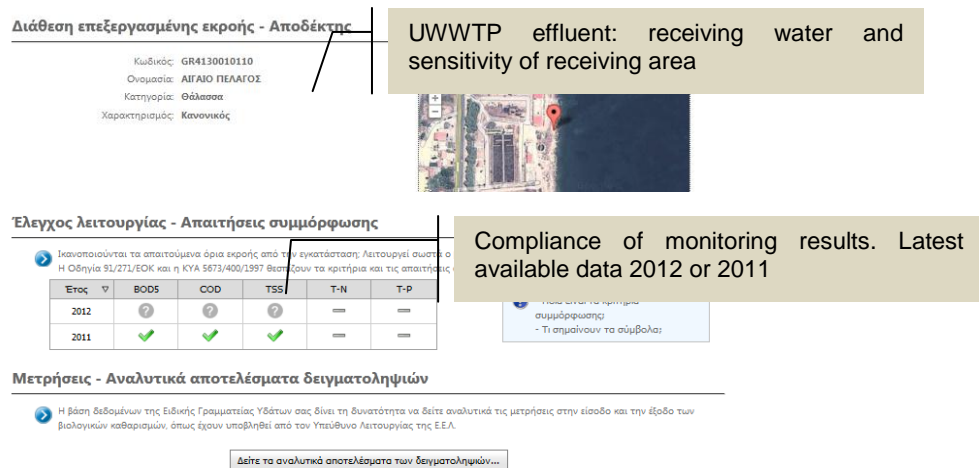


Figure 6. Example of presentation of compliance information for each UWWTP in Greece

Example Ireland: This principle is well implemented by provision of the following information: Type of receiving water (freshwater/coastal water/estuarine); Type of receiving area and in case of a sensitive area: date of designation; Status of compliance at reference date 2011, 2010 and 2009 as regards secondary treatment (pass/ fail/ fail due to lack of secondary treatment in operation/

Table 4.2: Compliance in 2010 and 2011 with the Directive's requirements on total phosphorus in waste water discharged to sensitive areas from urban areas >10,000 p.e.

Water services authority	Urban area	Reg. No.	Phosphorus pass or fail in 2010	Reason for fail in 2010	Phosphorus pass or fail in 2011	Reason for fail in 2011
Carlow	Carlow town	D0028-01	Pass		Pass	
Cavan	Cavan	D0020-01	Pass		Pass	
Cork County	Carrigrohilly <sup>26</sup>	D0044-01	Fail	Quality & sample no.	Pass <sup>26</sup>	
Cork County	Fermoy	D0058-01	Pass		Pass	
Cork County	Mallow <sup>26</sup>	D0052-01	Pass		Pass	
Donegal	Killybegs <sup>27</sup>	D0011-01	Fail	Quality & sample no.	Fail	Quality & sample no.
Dublin City	Dublin City (Ringsend)	D0034-01	Fail	Quality	Fail	Quality
Fingal	Swords <sup>28</sup>	D0024-01	Fail	Quality	Pass	
Kerry	Killamey	D0037-01	Pass		Pass	
Kerry	Trillick <sup>29</sup>	D0040-01	Pass <sup>30</sup>		Pass <sup>30</sup>	
Kildare	Alfhy	D0003-01	Pass		Pass	
Kildare	Lendip	D0004-01	Pass		Pass	
Kildare	Osberstown	D0002-01	Pass		Pass	
Kilkenny	Kilkenny City <sup>30</sup>	D0018-01	Fail	Quality	Fail	Quality
Laois	Portlaoise	D0001-01	Pass		Pass	

Figure 7. Example of presenting compliance status of single agglomerations

<sup>41</sup> It is not always perfectly clear whether compliance refers to the provisions of the UWWTD or to the provisions of national regulations (which might be stricter than the provisions of the UWWTD)





	<p>failure due to incomplete sampling); Status of compliance at reference date 2011, 2010 and 2009 as regards nutrients removal (pass/ fail/ failure due to incomplete sampling).</p>
<p>4. Ensuring transparency and public access</p>	<p>This principle is well implemented in FR, EL and partly ES.</p> <p>Example France: This principle is well implemented in the following way: Web-site and interactive maps available; Very clear and self-explanatory for informed public, waste water experts and EC.</p> <p>Pop-up-window with most important information on UWWTP</p> <p>Different size of dots indicate size of UWWTP</p> <p>Different colors of dots indicate compliance/ non-compliance</p> <p>Reference date of treatment performance: 2011</p> <p>Reference date of treatment installation: 2012</p> <p>More information is available</p> <p>Figure 8. Example of UWWTD- presentation in France</p> <p>Example Greece: This principle is well implemented in the following way: Web-site and interactive maps available; Very clear and self-explanatory for informed public, waste water experts and EC</p>



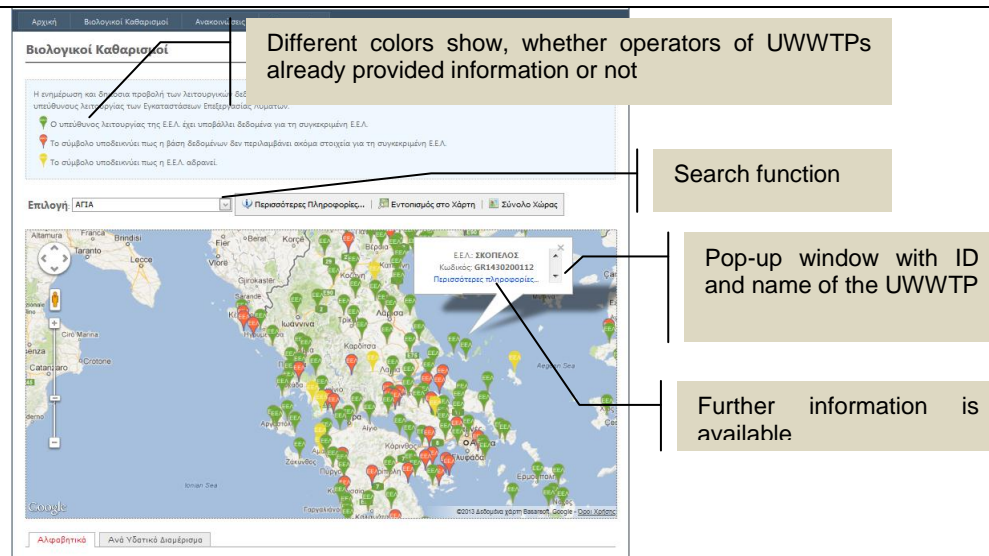


Figure 9. Example of UWWTD- presentation in Greece

5. Keep information regularly up to date:

This principle is well implemented in FR, EL and partly in SI.

Example France: This principle is well implemented by provision of the following information: Latest available information (status at 02/05/2013) is 2011 (monitoring results) and 2012 (treatment installations); Latest available information for water quality at monitoring stations: 2010; Historical data available for the last 3 to 4 years (see Figure 8 and Figure 1)

Example Greece: This principle is well implemented by provision of the following information: Latest available information (02/05/2013) as regards monitoring results is 2011 or even 2012 (UWWTPs can provide data whenever it becomes available). Historical data available for the 1 to 2 years

Example Slovenia: For the web-application on water emissions, latest information is available for 2012. Historical data is (at least theoretically) available for the last 10 years

Emission to waters from Urban Waste Water Treatment Plants

Conditions

Municipality

Settlement

MSCODE (codes under WFD)

HOD

Agglomeration

Municipal Waste Water Treatment Plant

BLEL (LJISICE) (ID=119)

Years

Activity

Level of treatment

Primary

Secondary

Tertiary

Parameters for write out

Benzene (mg/l)

Benz(a) pyrene (mg/l)

Benz(a) fluoranthene (mg/l)

Benz(a,h,i) perylene (mg/l)

Benz(a) fluoranthene (mg/l)

Beryllium (mg/l)

Biochemical oxygen demand (BOD5) (n)

Biochemical oxygen demand (BOD5) (g)

Biochemical oxygen demand (BOD5) (h)

Biodegradability (%)

Display results

Export XML

Export Excel

Zapisi 1. 15 od skupno 11 zapiskov

No	Parameter	ID WWTP	Name of WWTP	Effluent coordinates	Year of monitoring	Average
1.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2012	11
2.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2011	13
3.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2010	13
4.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2009	13
5.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2008	10
6.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2007	10
7.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2006	10
8.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2005	10
9.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2002	8
10.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	2000	6
11.	Biokemijska potreba po kisiku (BPK5) (mg/l)	119	BLEL (LJISICE)	433807,136376	1999	12

Zapisi 1. 15 od skupno 11 zapiskov

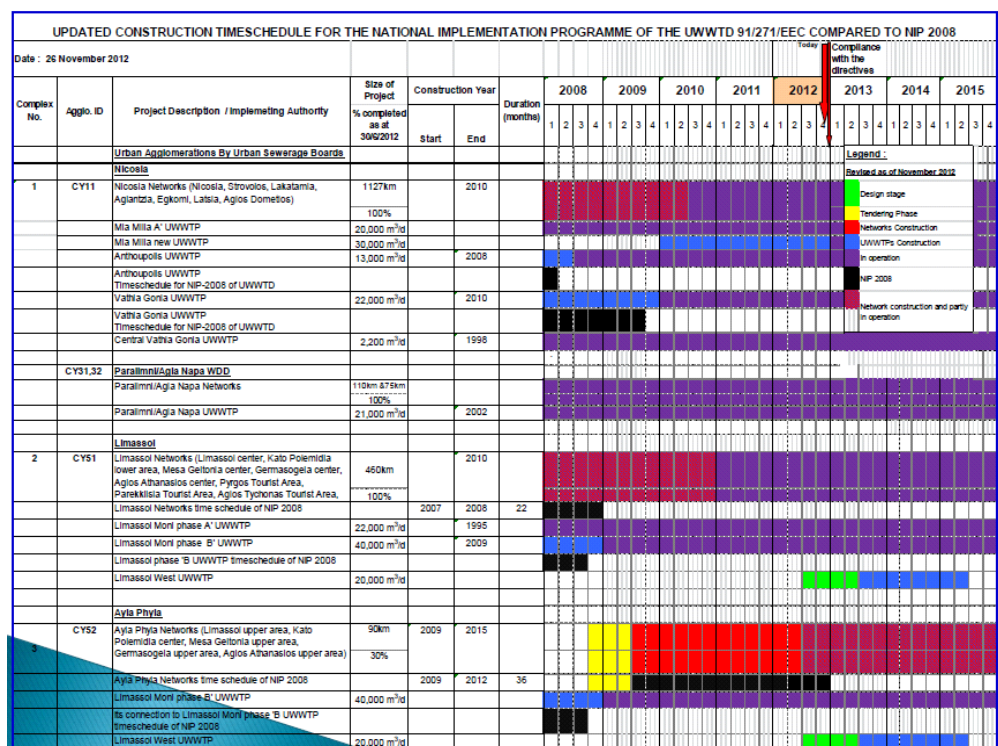






	Figure 10. Information made available in the Slovenian web application on water emission																																																																																								
6. Perspective on getting (or staying) into compliance	<p>This principle is well implemented in IE, CY and PL.</p> <p>Example Ireland: This principle is well implemented by provision of the following information: Date, when secondary treatment/ nutrient reduction was required according to the Directive (for non-compliant agglomerations); Estimated completion date, when secondary treatment/ nutrient reduction will be implemented (for non-compliant agglomerations)</p>																																																																																								
6. Perspective on getting (or staying) into compliance:	<div><p>Table 2: Urban areas with secondary treatment required by the UWWTD but not yet in operation</p><table><tr><th>Water services authority</th><th>Urban area</th><th>Date secondary treatment required</th><th>Estimated completion date<sup>1</sup></th></tr><tr><td>Fingal</td><td>Lusk</td><td>2005</td><td>mid 2012 connection to Portlaine</td></tr><tr><td>Cork</td><td>Skibbereen</td><td>2005</td><td>end 2012</td></tr><tr><td>Wicklow</td><td>Bray</td><td>2000</td><td>2012 pipeline to Shanganagh</td></tr><tr><td>Gulway</td><td>Cifden</td><td>2005</td><td>2013</td></tr><tr><td>Cork</td><td>Cobh</td><td>2005</td><td>2014<sup>3</sup></td></tr><tr><td>Cork</td><td>Passage West/Monkstown</td><td>2005</td><td>2014<sup>3</sup></td></tr><tr><td>Cork</td><td>Ringskiddy/Crosshaven/Carrigrohane</td><td>2000</td><td>2014<sup>3</sup></td></tr><tr><td>Donegal</td><td>Moville</td><td>2005</td><td>mid 2014</td></tr><tr><td>Donegal</td><td>Killybegs</td><td>2008</td><td>end 2014</td></tr><tr><td>Cork</td><td>Youghal</td><td>2005</td><td>end 2015</td></tr><tr><td>Wicklow</td><td>Arklow</td><td>2005</td><td>end 2015</td></tr></table><p>Figure 9. Example of presenting the date of reaching compliance</p></div> <div><p>CONTRACTS AT CONSTRUCTION</p><table><tr><th>Scheme Name</th><th>Contract Name</th><th>W/S</th><th>Estimated Cost €</th></tr><tr><td colspan="4"><b>Dublin City</b></td></tr><tr><td>Ballymore Eustace Water Treatment Plant Phase 3</td><td>- Contract 1 (Civil Works)</td><td>W</td><td>65,535,000</td></tr><tr><td>Ringend Wastewater Treatment Plant Extension</td><td>- Contract 2 (M&amp;E Works)</td><td>W</td><td>21,698,000</td></tr><tr><td>Water Conservation Stage 3</td><td>- Sludge Treatment Plant Works</td><td>S</td><td>21,245,000</td></tr><tr><td></td><td>- Dublin Region Watermains Rehabilitation Project (Dublin City) Tranche 1</td><td>W</td><td>26,642,000</td></tr><tr><td colspan="4"><b>Dun Laoghaire/Rathdown</b></td></tr><tr><td>Bray Shanganagh Scheme</td><td>- Contract 1 (Wastewater Treatment Plant - DBO)</td><td>S</td><td>80,337,000</td></tr><tr><td>Sandyford High Level Water Supply Scheme</td><td>- Contract 1 (Civil Works)</td><td>W</td><td>16,244,000</td></tr><tr><td></td><td>- Contract 2 (M&amp;E Works)</td><td>W</td><td>1,761,000</td></tr></table><p>Figure 12. Presentation of estimated costs for construction of waste water infrastructure</p></div> <p>Example Cyprus: This principle is well implemented by provision of the following information in the National Implementation Plan (NIP): date when compliance will be achieved, date of /timeline for design of measures on waste water collection and treatment, date of /timeline for tendering of measures on waste water collection and treatment, date of /timeline for construction of measures on waste water collection and treatment, date of operation of waste water collection and treatment (see Figure 13)</p>	Water services authority	Urban area	Date secondary treatment required	Estimated completion date <sup>1</sup>	Fingal	Lusk	2005	mid 2012 connection to Portlaine	Cork	Skibbereen	2005	end 2012	Wicklow	Bray	2000	2012 pipeline to Shanganagh	Gulway	Cifden	2005	2013	Cork	Cobh	2005	2014 <sup>3</sup>	Cork	Passage West/Monkstown	2005	2014 <sup>3</sup>	Cork	Ringskiddy/Crosshaven/Carrigrohane	2000	2014 <sup>3</sup>	Donegal	Moville	2005	mid 2014	Donegal	Killybegs	2008	end 2014	Cork	Youghal	2005	end 2015	Wicklow	Arklow	2005	end 2015	Scheme Name	Contract Name	W/S	Estimated Cost €	<b>Dublin City</b>				Ballymore Eustace Water Treatment Plant Phase 3	- Contract 1 (Civil Works)	W	65,535,000	Ringend Wastewater Treatment Plant Extension	- Contract 2 (M&E Works)	W	21,698,000	Water Conservation Stage 3	- Sludge Treatment Plant Works	S	21,245,000		- Dublin Region Watermains Rehabilitation Project (Dublin City) Tranche 1	W	26,642,000	<b>Dun Laoghaire/Rathdown</b>				Bray Shanganagh Scheme	- Contract 1 (Wastewater Treatment Plant - DBO)	S	80,337,000	Sandyford High Level Water Supply Scheme	- Contract 1 (Civil Works)	W	16,244,000		- Contract 2 (M&E Works)	W	1,761,000
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Example Poland: This principle is well implemented by provision of the following information: plans for the period 2012 – 2015 and causes for delays as regards their implementation.

### 3.2 Exchange of information related to the UWWTD and urban waste water on MS-level: Information management related to the UWWTD and urban waste water data in four selected UWWTD SIIF pilot MS

This work step was only possible for a limited number of MS, as the relevant information is not available from public web-sites. Scrutinizing this information requires an intensive cooperation and exchange with the MS.

In all pilot MS the UWWTD- information available for internal purposes was much more comprehensive and up-to-date, than the information published at national web-sites. As expected, most of the pilot MS are operating internal databases/ water information systems in order to assess the performance of UWWTPs, for general water administration and planning purposes and to compile data required for reporting in an efficient way.



Poland and Slovenia have established a GIS-system (visualization of UWWTPs and discharge points in terms of maps) for internal purposes. Slovenia has established such a GIS-system, enabling visualization of environmental data, including data, related to water issues (“Atlas okolja” – English: “Environmental Atlas”), as well as downloading official GIS-layers by different users (“Geoportal ARSO”). As the specifications of these databases were usually done according to the specifications of UWWTD Article 15(4) reporting, these internal databases represent a good starting point for the establishment of national UWWTD SIIFs.

The detailed analysis revealed that the pilot MS have either implemented the internal water information systems recently (e.g. PL, LV, SI) or are still in the process of (further) developing the systems (e.g. LT, CY, IE). Therefore, the idea of establishing a national UWWTD SIIF seems to come at the right time.

In most of the pilot MS UWWTD- performance related information is updated on an annual basis (= transferred from operators of UWWTPs/ public water service providers/ laboratories or civil servants monitoring the UWWTPs into a central database). This information is usually provided into the central water information system until May of the consecutive year; for CY the annual reports are provided until 31 March of the consecutive year. After the QA/QC of data elaborated by national organizations, the information is published between June and December of the consecutive year.

Difficulties for the implementation of UWWTD SIIFs may result from the fact that the responsibilities of UWWTD SIIF elements are scattered between different institutions and that hence, data might not be available easily (e.g. responsibilities for future measures to achieve compliance and the financial resources required). Further difficulties are missing financial and/ or human resources to implement/ programme a national UWWTD SIIF.

### **3.2.1 Cyprus**

#### **3.2.1.1 Current situation of urban waste water data collection and data management**

##### **3.2.1.1.1 Data collection and data management (content aspects)**

There are several national and regional water information systems (web-sites available from eight regions (= Sewerage Boards) and on national level) related to urban waste water data in place in Cyprus.

A visualization of information in terms of GIS-maps is currently under work; a CY GIS - system is currently being implemented by WDD as part of the GIS implementation project undertaken in collaboration with the Department of Information Technology Services (DITS). Based on the good practice example provided by France in the UWWTD SIIF workshop in December 2012 in Brussels, relevant data of Cyprus were exported to Google Earth format. The Google Earth data layer shows agglomerations and UWWTPs as dots on a map and provides some further information on these elements in a pop-up window presenting a good starting point for the national UWWTD SIIF. The goal of this system is i) to gather data and ii) to provide different access to administrative users and to the public. The aforementioned data layer cannot be made available online, as CY is currently lacking money to buy and maintain a web-server. The GIS server is now strictly accessible only from the national administration. For the general public access to the data, arrangements have to be made.





## **Data transfer into/between databases**

These information systems are not connected to each other; each department and sewerage board manages and publishes information independently. Both departments involved in waste water data collection and data management in the Ministry of Agriculture, Natural Resources and Environment (MANRE), the Water Development Department (WDD) and the Department of Environment, are closely cooperating on aspects of urban waste water treatment and the implementation of the UWWTD. This cooperation and data exchange, which works well and smoothly, currently happens via e-mails and Excel-files. As regard the question, whether a national database/water information system is planned/would be helpful to bring together the data available at both departments, it was answered by Cyprus, that the current approach is working fine and that there is no necessity to change it. Building and operating such a database/water information system is a matter of financial and human resources, which are scarce at the moment.

## **How are UWWTD reporting requirements (e.g. data model under UWWTD Article 15(4)-reporting) integrated in the national UWWTD WIS?**

Very few fields of UWWTD reporting requirements are also used in the national water information system.

## **Regular up-dates of data**

Updates are elaborated on a yearly basis, concerning only the parameters that change. Specifically, Cyprus updates the quantities and the quality control parameters of the recycled water produced by each wastewater treatment plant. It is not divided into tables of 'permanent' data and thematic tabular data that change. These data are published in the website of WDD only via NIP-2008; these will be updated as soon as the new NIP will be finalized and published. Some of these data such as IDs, Names of agglomerations and UWWTPs, coordinates, agglomeration type and population equivalent are recently published in the GIS system. Also these data are published on the website of the Department of Environment via Reports submitted to the European Commission under Article 15 and Article 16.

### **3.2.1.1.2 Data collection and data management (IT aspects including INSPIRE compatibility)**

#### **IT-systems behind the databases related to UWWTD- reporting**

Each Department has its own team of IT experts who manages all themes of the department's database; all IT experts manage all information nodes. The format used are excel tables defined at the national level for each data collection cycle , information vehicles used are E-mails.

#### **INSPIRE-compatibility of data**

Cyprus aims at compliance and alignment with Inspire standards and specifications. Progress reflects the current state of Inspire specification and technological development. The technology used for the CY GIS infrastructure is ESRI's ArcSDE.

### **3.2.1.1.3 Responsibilities for urban waste water data collection and data management**

The following responsibilities for urban waste water data collection and data management can be summarised for Cyprus:

- The Council of Ministers has the overall responsibility for implementing Articles 3 and 4 of the UWWTD.





- The Ministry of Agriculture, Natural Resources and Environment (MANRE) has the responsibility for the implementation of the rest of the UWWTD via the Water Pollution Control Law and of the Integrated Water Management Law (79(I)/2010). Specific allocation of responsibilities has been given to two of its Departments: the Water Development Department (WDD) and the Department of Environment. The Water Pollution Control Law (WPC), its Regulations and Decrees have established appropriate actions and necessary measures for the protection of the Cyprus waters and soils from pollution, aiming to achieve good quality of the waters. Most of the EU Directives (including UWWTD) and the environmental acquis for the protection of water have been transposed mainly through Ministerial Orders and Council of Ministers Regulations issued under this Law. The Sewerage Systems Law was amended in order to fully transpose Article 3, Article 4 and Article 5(2), as well as Part A of Annex I of the Directive taking into account the Cyprus transitional period of 31-12-2012. It also provides for the authorization of the discharges into collection networks:
  - Ministry of Agriculture, Natural Resources and Environment (MANRE), Department of Environment
    - Coordinating and responsible authority for the implementation and enforcement of the WPC Law.
    - Issuing Waste Discharge Permits for the operation of Urban Waste Water Treatment Plants and the disposal of sludge, for the industrial wastewater from the sector of food processing plants with organic load >4000 p.e. as well as for the management of the UWWTPs effluent discharges in order to protect the water resources.
    - The Department of Environment, through Inspections and Annual Reports as well as through the Monitoring Program ensures that the permit conditions are met, in order to achieve protection of water and soil.
    - Monitoring the discharges through a Monitoring Programme which includes sampling and chemical analysis of effluent quality conducted by an independent laboratory for all the parameters and the frequency that are defined in the Directive and maintaining the relative Database.
    - The Monitoring Program is applied to all UWWTPs and industries from the sector of food processing plants that comes under the provisions of the UWWTD.
    - Collecting Information, preparing and submitting reports to European Commission under UWWTD Article 15 and Article 16.
    - Responsible for assessing the Environmental Impact Assessment Studies of planned developmental activities related to the design, construction and operation of Sewerage Systems and Urban Waste Water Treatment Plants as well as the Management of the Recycled Water and issuing Environmental Approvals setting specific terms for the protection of Environment.
    - National Focal Point in the Urban Wastewater Committee – DG Environment.
  - Ministry of Agriculture, Natural Resources and Environment (MANRE), Water Development Department:







- Implementation of Directive 91/271/EEC on urban wastewater treatment, as regards the preparation and implementation of the National Program of the Directive which includes planning, preparation of studies and promoting, managing, and supervising the construction of sewerage systems and monitoring the operation and maintenance in rural communities and municipalities, with a population equivalent of more than 2,000, coordination with the Urban Sewerage Boards for their assistance in implementing the Directive in cities and collecting information and preparing status and progress reports (Article 17) towards the European Commission.
- Management of Wastewater Treatment Plant for Domestic Septage and Industrial Wastewater at Vathia Gonia area.
- Handling of specialized sanitary engineering issues relating to public health and environmental protection.
- Contract Agreements Upgrading Wastewater Treatment Plants
- Project for the construction of the Wastewater Treatment Plant for Domestic Septage, Industrial Wastewater, surplus sludge and leachate at Vati area.
- Technical Advisor of the Rural Sewerage Boards

- Sewerage Boards:

The Sewerage Boards are established and operate under the 'Sewerage Systems Laws 1971 – 2010). They are the responsible body for securing funds, constructing, operating and maintaining the sewerage network and wastewater treatment facilities within its sewerage boundaries, as well as for the billing and collection of sewer tariffs. According to the provisions of the Sewerage Systems Law, president of the established Sewerage Boards in all rural communities is the corresponding District Officer. President of the Sewerage Boards in all municipalities is the corresponding Mayor. The competent Authority for the implementation of the Sewerage Law is the Minister of Interior. There are urban and rural sewerage boards (which both may serve one or more agglomerations). The 6 Urban sewerage boards are technically and administratively competent. They carry out the design, tendering, and construction of their sewerage systems. Operation and maintenance of the sewerage systems is carried out either from the in-house or by contracts with Private Companies. Rural sewerage boards lack the technical and administrative set-up. Therefore, the Water Development Department acts as technical advisor for their sewerage systems and it undertakes the design, tendering, supervision of construction and management of the operation and maintenance's contracts with Private Companies.

The Cyprus Government, recognizing that many authorities are involved in the legal, procedural and administrative sides for implementing the UWWTD and hence good co-ordination is required between them, has appointed a "Project Ministerial Committee (PMC)" in early 2007 for monitoring the progress and compliance with the Directive. The Ministers appointed for the PMC are the Minister of MANRE, the Minister of Interior, the Minister of Finance and the Director General of the Planning Bureau. The terms of reference of the PMC include the policy making, as well as the procedural and administrative problem solving. On behalf of MANRE, WDD and specifically the Wastewater and Reuse Division have the responsibility:

- to establish the National Implementation Programme (Article 17) of the UWWTD and report to the EC accordingly and updates.





- to train all stakeholders (municipalities, communities, sewerage boards) on the requirements of the UWWTD in general.
- to co-operate with the Department of Environment of MANRE on the fulfillment of other Articles and reports under the Directive (Article 15 – Situation Report and Article 16 - Public report).
- to co-ordinate with the Urban Sewerage Boards on the progress of the implementation of the Directive for their portion of the works.
- to implement articles 3, 4 and 5(2) on behalf of the rural agglomerations i.e. to undertake the design, the preparation of the TOR and tendering, evaluation of tenders and the contract award, the supervision of construction and project management of the contracts.
- to act as a consultant to the established rural Sewerage Boards for the Operation and Maintenance stage of the projects, as regards to supervision of the treatment plant quality performance and other contractual matters.
- to technically support the Ministry of Finance during its negotiation with European Banks for securing of the finance, on behalf of the rural sewerage boards.
- to apply for the co-funding of rural sanitation projects through the Structural Funds and Cohesion Fund for 2007-2013 and implement the approved projects.
- to prepare time-schedules for the NIP, as well as for individual rural sanitation projects, to monitor the same and issue frequent updates.

The role of the Urban Sewerage Boards in the implementation of the NIP: to undertake the securing of finance, the construction of collection systems and wastewater treatment facilities of the urban agglomerations and of any suburban / rural agglomerations that they are merged administratively with the respective Urban Sewerage Boards. The Boards are also responsible for the operation and monitoring of the said works.

#### **Organisation of reporting under Article 15 and 16 UWWTD:**

- Data from Urban and Rural Sewerage Boards are obtained on demand for reporting purposes as well as on the annual reports submitted to the Department of Environment according to the relevant terms set in Waste Discharge Permits.
- Through an official letter all the involved authorities are informed about the obligation to submit the relevant report and are invited to a meeting. Guidelines and relevant tables with all the required information/data are included.
- A meeting is organised with all the relevant authorities that are the 6 Urban Sewerage Boards and the Water Development Department (WDD) as a technical advisor for the Rural Sewerage Boards as well as the responsible body to manage the effluent produced by the UWWTPs of the 6 Urban Sewerage Boards. Timetables, clarifications and guidelines are provided regarding the required information and the relevant data.
- The collected data mainly include information about agglomerations, UWWTPs, Receiving/Sensitive Areas, Discharge Points effluent and sludge (e.g. inlet/outlet monitoring data and flows, generated loads, receiving water bodies, coordinates, IDs,





construction/connection data etc.).

- After the collection of the relevant data a validation is running and the validated data are used for the calculations and the preparation of the report according to the guidelines of European Commission.
- A draft report is provided to the relevant bodies for comments and after the final report is prepared it is submitted by the nominated reporter to European Commission according to the relevant guidelines and web tool. Moreover, the submitted report is published on the website of the Department of Environment and also is provided to the Sewerage Boards and the WDD.

### **Organisation of reporting under Article 17 UWWTD:**

- Data for the Article 17-reports is obtained from census, the Cyprus Tourist Organization and from urban and rural Sewerage Boards on demand for reporting purposes.
- The collected data cover information regarding the progress of the design, tendering, construction works and cost. Data are necessary and helpful for better planning due to the long procedures and periods required until construction, thus are updated regularly on demand for reporting purposes.
- Data arising from the operation of the sewerage systems (e.g. flows, loads, population equivalents etc.), are obtained on demand for reporting purposes, according to the frequencies and the requirements of the Directive.
- Data is still kept in tabular form but is currently expanded to the newly developed GIS system. At the moment only IDs, Names of agglomerations and UWWTPs, coordinates, agglomeration type and population equivalent are published in the GIS system.
- Stakeholders involved in the elaboration of the Article 17-reports (National Implementation Plans) are:
  - Council of Ministers (overall responsibility for the Implementation Plan)
  - MANRE (including its two departments, the Department of Environment and the Water Development Department, responsibility for the implementation of the Water Pollution Control Law and of the Integrated Water Management Law (79(I)/2010) and reporting under the UWWTD)
  - Ministry of Interior (responsibility for the implementation of the Sewerage Law. Under this Law the Sewerage Boards are operating)
  - Ministry of Finance: It is responsible for securing of the relevant capital investments for wastewater infrastructure through national budget.
  - Planning Bureau: It's the managing authority of Co-financed Projects concerning Sewage Schemes in Communities of National Implementation Program.
  - Sewerage Boards (responsibility: undertake the securing of finance, the construction of collection systems and wastewater treatment facilities of the urban agglomerations and of any suburban / rural agglomerations that are merged administratively with the respective Urban Sewerage Boards. The Boards are also responsible for the





operation and monitoring of the said works)

### **3.2.1.2 Current status and follow-up actions towards national UWWTD SIIF including expectations and benefits, limitations as well as user needs (resources and support)**

#### **3.2.1.2.1 Requirements of a national UWWTD SIIF**

##### **Data relevant for implementation and compliance**

The information collected in the national UWWTD WIS already allows the assessment of compliance with the UWWTD and is already made publically available via the National Implementation Plan (NIP) 2008<sup>42</sup>, which is published on the website of WDD. So far, there was one NIP in 2005 and one in 2008 and a revised plan is currently under preparation. The new NIP will be finalized and published until the end of 2013.

The NIP 2008 contains information on concrete timelines, milestones, dates of expected compliance, capital investments planned for collecting systems, treatment facilities and sludge treatment and disposal (in mio €) as well as the EU-fund planned to be used. These elements are described for each agglomeration/ UWWTP in the Article 17-report. The link between agglomerations reported under Article 15(4) and Article 17 is established.

Also compliance information is provided on the level of agglomeration in the Reports submitted to the European Commission under Article 15 and Article 16, which are published in the website of the Department of Environment.

If delays are expected in the proposed UWWTD implementation plans, it is an issue that has to be discussed with the involved Ministries, mainly with the Ministry of Interior and of Finance, since it concerns major capital investments.

No additional parameters/elements are considered as relevant on national level; Cyprus considers the parameters set defined for UWWTD Article 15(4)-reporting as sufficient.

##### **Data ensuring transparency and public access**

The aspects covered in section 2.1 are made publically available in the Cyprus revised national Implementation Plan (NIP 2008), which is available as PDF-report in English on the Internet.

##### **From reporting to information management**

Cyprus will remain to the 2-years UWWTD reporting cycle, as the rest of the MS.

An UWWTD information system in which national sites are dynamically connected to the EU level could be feasible but Cyprus is lacking of IT personnel and financial resources.

Cyprus does not believe that it will be possible to implement 'pull'-mechanisms for data, which is not available at national level (but on the level of water boards or regions). For better coordination Cyprus considers that it is more efficient one national authority should coordinate the information to be made available for the EC (e.g. suggest that a web-page tool similar to PRTR should be used, where Sewerage Boards will submit data, which – after validation by the two national authorities (WDD&DE) – will be published to the EC by WDD.)

<sup>42</sup> [http://www.moa.gov.cy/moa/WDD/WDD.nsf/0/051403f075da65d5c22575cb00391be0/\\$FILE/Report.pdf](http://www.moa.gov.cy/moa/WDD/WDD.nsf/0/051403f075da65d5c22575cb00391be0/$FILE/Report.pdf)





CY opinion concerning EU-level UWWTD SIIF as portal, from where the user is directly transferred to a national UWWTD SIIF is the following: CY mentions that language aspects will be of main importance. In principal, the idea of this portal is fine. However, it will have to be guaranteed that both, contents and language of the provided information are adapted to the user needs of Cypriote citizens (detailed information available in Greek) and of the European level (more general information available in English).

### **Regular updates of data**

Cyprus is positive about the idea of a more frequent updating of UWWTD information only related to Cyprus bottlenecks (infrastructure), since bottlenecks can be spotted and resolved at an early stage. The main limitation of more frequent updating is the setting up of the relevant mechanisms on a national level for collecting information due to financial aspects. The possibility should be provided and if the resources are available Cyprus can chose to update the data more frequently.

How frequently could national UWWTD- related information be updated and made available either to public, waste water experts and/ or the EC?

CY specified that the earliest frequency to up-date information in the possible national UWWTD SIIF would be once a year and that data would be only on the progress of sewage systems and UWWTPs works, mainly provided by the WDD.

### **Perspective on getting (or staying) in compliance including financing of measures**

The proposed parameters covering the perspective on getting (or staying) into compliance can be provided in Cyprus, though the frequency must be discussed on a national and regional level.

### **Less administrative burden when reaching/maintaining compliance**

Cyprus would prefer to reduce the reporting requirements for agglomerations, which have been in compliance in the last reporting exercise.

#### **3.2.1.2.2 Expectations and benefits**

Cyprus is expecting the following benefits from a national UWWTD SIIF:

- Better identification of the rate of compliance/ progress of compliance in relation to infrastructure (and as regards Article 3, Article 4 and Article 5(2))
- Better identification of bottlenecks for UWWTD implementation and the reasons for delays, the current bottlenecks can be described as follows
  - National Implementation Plans were partly too optimistic
  - Implementation delays because of different reasons, e.g. lack of financial resources, lack of manpower and unexpected situations (e.g. after tendering phase for an UWWTP a disregarded tenderer files a legal protest against the decision
  - The Legal Framework allows Rural Sewerage Boards to make decisions and take actions for implementing their sewage systems, but without putting any fines or taking any measures in case they don't follow their obligations.
  - There are a lot of small Rural Sewerage Boards which don't have the capability to







follow the provisions of the Directive.

- Improved information for the public (on selected parameters)

Currently, the national UWWTD SIIF project is still in an early stage; an infrastructure for a team of experts for implementing the requirements of a national UWWTD SIIF is currently being developed.

### **3.2.1.2.3 Limitations**

The main limitations to set up a national UWWTD SIIF in Cyprus are the following:

- Financial aspects
- Administrative structure

### **3.2.1.2.4 User needs (resources and support)**

The following support by the EC is expected in specifying/deploying your national UWWTD SIIF:

- Financial assistance in setting up the national UWWTD SIIF, relating to CAPEX and OPEX for both software and hardware and training as well.

### **3.2.1.3 Key findings (to be presented during 24th October 2013 UWWTD SIIF Workshop)**

The following key findings were identified after having screened all information provided through the Questionnaire, the in-depth assessment of information (web-page, background documents) and the outcome of the UWWTD SIIF meeting (held in Nicosia on 30 July 2013):

### **Current situation of urban waste water data collection and data management**

Content side	IT side
<p>Several national and regional water information systems (web-sites available from eight regions (= Sewerage Boards) and on national level) related to urban waste water data in place in Cyprus, not connected to each other. Cooperation and data exchange via e-mails and Excel-files, current approach is working fine and that there is no necessity to change it (building and operating such a database/water information system is a matter of financial and human resources)</p> <p>Updates of some of the data are regularly done on a yearly basis.</p> <p>Spatial data of the GIS-system are already INSPIRE- compatible.</p> <p>A visualization of information in terms of GIS-maps is currently under work; a CY GIS-</p>	<p>The data collection is focussed around the reporting to EC and uses a standardised xls data collection template at national level. Involved actors are therefore used to gather data on a single format and using common reference lists. The shift from a central approach with formal data requests and sending to a distributed one could be implemented, but needs a package of tools already pre-packed for non IT experts.</p> <p>The need to develop the website content to also reflect Art 15(4) data is a good opportunity to develop a progressive implementation of this.</p>





system is currently being implemented by WDD showing agglomerations and UWWTPs as dots on a map and providing some further information on these elements in a pop-up window.	
<b>Responsibilities for urban waste water data collection and data management</b> <ul style="list-style-type: none"><li>• Ministry of Agriculture, Natural Resources and Environment (MANRE) with its two departments (Department of Environment and Water Development Department)</li><li>• Sewerage Boards</li><li>• Council of Ministers</li></ul>	

### **Current status and follow-up actions towards national UWWTD SIIF**

- Expectations & benefits
  - Better identification of the rate of compliance/progress of compliance in relation to infrastructure (and as regards Article 3, Article 4 and Article 5) and other bottlenecks of UWWTD implementation (incl. forward looking aspects & information of the public (incl. map services))
  - Improved information for the public (on selected parameters)
- Limitations (general and specific)
  - Only few agglomerations and financial limitations: not all parameters need to be provided in a central database
  - An UWWTD information system in which national sites are dynamically connected to the EU level could be feasible but Cyprus is lacking of IT personnel and financial resources
  - Administrative structure
- User needs (resources and support)
  - Financial assistance in setting up the national UWWTD SIIF, relating to CAPEX and OPEX for both software and hardware and training as well

#### **3.2.1.4 References (returned Questionnaire, in-depth assessment of web-pages and background material, bilateral contacts)**

- Pilot MS In-depth Assessment Questionnaire – returned on 2 August 2013 (final)
- UWWTD SIIF Meeting – 30 July 2013 – final minutes
- Comments to list of parameters as presented by COM in December 2013

#### **3.2.1.5 Contact persons (main/additional contacts)**

- Mr. Kyriacos Kyrou – WDD, Cyprus Water Director: kchrysanthou@wdd.moa.gov.cy
- Mr. Charis Omorphos – WDD, Sector I - Division of European Union: comorphos@wdd.moa.gov.cy





- Ms. Lia Georgiou – WDD, Sector II - Division of Waste Water and Reuse: lgeorgiou@wdd.moa.gov.cy
- Ms. Alexia Panayi, WDD, Sector II - Division of Waste Water and Reuse: apanayi@wdd.moa.gov.cy
- Dr Chrystalla Stylianou, Department of Environment: cstylianou@environment.moa.gov.cy
- Ms Stella Perikenti, Department of Environment: sperikenti@environment.moa.gov.cy

## 3.2.2 Lithuania

### 3.2.2.1 Current situation of urban waste water data collection and data management

#### 3.2.2.1.1 Data collection and data management (content aspects)

There are currently two web-sites presenting information on waste water treatment in Lithuania:

- Web-site from the Lithuanian Environment Protection Agency and
- Web-site from Statistics Lithuania (which presents data made available from the Lithuanian Environment Protection Agency)

The web-site from the Lithuanian Environment Protection Agency provides information (for reference years 2002 to 2011) about

- All domestic, industrial and municipal dischargers, coordinates and IDs of dischargers (the discharge points are the same as reported under UWWTD Article 15, but the ID's are of different classification), names and types of waste water treatment plants,
- Aggregated information (on the level of county/ municipality) for waste water volumes, subdivided into different categories like 'not entailing cleaning', 'cleaned according to the standards', 'insufficient cleaning', 'contaminated (no treatment)', 'released into storage tanks',
- Aggregated information (on the level of county/ municipality) for pollutant dischargers /e.g. BOD7, COD, suspended solids, and
- Waste water volumes per UWWTP (for UWWTPs above 2,000 p.e.) subdivided into different categories like 'inadequately treated sewage volume' 'quantity of water cleaned according to standards\_', etc. also giving the name of the receiving waters.

The web-site from Statistics Lithuania provides information (for reference years 1995 to 2011) on the level of municipalities, counties or the national level:

- The total sewage discharge
- Sewage treated according to standards
- Inadequately treated sewage
- Sewage meeting quality standards
- Sewage without treatment





The limit values for waste water treatment as set in the national legislation, may in some cases be stricter than that of the UWWTD.

Currently, and in the frame of the national UWWTD SIIF project, there is work on-going towards an upcoming new database and data publishing systems.

### **How are UWWTD reporting requirements (e.g. data model under UWWTD Article 15(4)-reporting) integrated in the national UWWTD WIS?**

Data required for Article 15 reporting is collected under a single system and made available for download in excel to work with and then use it to fill in the UWWTD data set.

### **Regular up-dates of data**

The information provided only relates to the upcoming new database and data publishing systems. The update changes whole dataset. There is permanent data in the database from which the datasets for publication are later made which includes everything except for concentrations, flows, sludge amounts, population data. There is an intermediary between the database and the data publishing system and it's a software application called "Business intelligence" or BI. With the help of BI, LT authorities can make any dataset from data that are stored in their database and link it to the publishing system.

### **3.2.2.1.2 Data collection and data management (IT aspects including INSPIRE compatibility)**

#### **IT-systems behind the databases related to UWWTD- reporting**

A software project was conducted to develop the new information system for UWWTD in Lithuania. The database and the input-part are already finalised and fully operational, but the output-part still has to be developed further.

The idea is that there is an intermediary (i.e. software application called 'Business intelligence' or BI) between the database and the data publishing system, which allows the extraction of relevant data from the database for different purposes (e.g. reporting under UWWTD Article 15(4) or information of the public via web-site and/ or GIS-application).

The output-part of the system is still under development. As the entire new system is not yet finalised, the entire system will be used and the database populated only from 2014 onwards.

All reference datasets will be pre-filled in the system by the responsible institution and all the specific data on each local system will be filled by the operators of waste water treatment plants themselves. The tool will cover the reporting and management of information necessary for the administration and information of the general public. The automatic compliance checking tool included will check the data against national standards which are sometimes stricter than the EU standards and proof, whether national permits are fulfilled. The new system is fully centralised as regards the database and allows adapted access to different stakeholders (e.g. different institutions, operators of waste water treatment plants) that can use it and/or fill it with the pieces of information within its responsibility). One option for the future could be to provide the different users of the system (informed public, waste water experts, European Commission) with different access rights to the new system, so that all user groups can use the information relevant for their purposes. The central node could then act as the national UWWTD SIIF node.





The new database will be a single database consisting of three separate subsystems related to UWWTD:

- Monitoring data (data on every wastewater sample);
- Yearly wastewater data with detailed information on WWTP's, discharge points and pollutant (parameter) amounts.
- Automatic compliance checking and additional data input subsystem (for its calculations it will use the data of the previous two systems).

It is not yet fully clear whether upgrading the new system to fully cover SIIF needs or making a separate one and just importing data to it from the new system would be the best option. The mapping necessary between the current data in the system and the requirements for the EU SIIF node will identify the level of adaptation needed and in particular the need to gather additional datasets from other systems and the compatibility of these datasets with the national Lithuanian database.

Data is imported and stored (Oracle 11g database) in basically the same system, later it can be exported from Business intelligence software into the web page or directly into users computer using all of the common formats.

The information vehicles used are web services. The habit to use it will be of great use to implement a national SIIF.

#### **INSPIRE-compatibility of data**

No information was provided on this aspect, the knowledge is disseminated in different services and a common approach was not developed for the moment.

#### **3.2.2.1.3 Responsibilities for urban waste water data collection and data management**

The following responsibilities for urban waste water data collection and data management can be summarised for Lithuania:

- Municipalities (owner of the infrastructure) maintain infrastructure, responsible for organization of waste water services according to valid legislation, obliged to prepare development plans for waste water infrastructure.
- Water companies (owner of the infrastructure) maintain infrastructure and are responsible for discharge to the environment, e.g. for keeping the limit values that are laid down on their permit.
- Regional Departments of the Environmental Protection Agency Lithuania are responsible for controlling discharges to the environment and for reporting (in case when operator decides to not use the system to report the data but to provide a paper report to the department).
- National Department of the Environmental Protection Agency Lithuania: operate the water information system.
- Ministry of Environment Lithuania.







### **3.2.2.2 Current status and follow-up actions towards national UWWTD SIIF including expectations and benefits, limitations as well as user needs (resources and support)**

#### **3.2.2.2.1 Requirements of a national UWWTD SIIF**

##### **Data relevant for implementation and compliance**

The information collected in Lithuania allows the assessment of compliance with the UWWTD, but is not identifying the gaps/delays in implementing the UWWTD, the reasons for these gaps, the determination of measures and timelines to overcome these gaps and the determination of the financial resources available and required for these measures. The reasons for this are: missing templates, methodology, certain order of reporting in order to have steady collection of this information under a single system.

However, LT representatives do not consider it necessary to include in the SIIF, information on gaps or delays as the UWWTP covered by the Directive are mostly working properly. A data update every 2 years is sufficient, and information on non-compliance and measures and associated financial resources to overcome being mostly textual information, is not worse including it in LT SIIF. LT representatives raise the key problem for the future is to tackle UWWTP for smaller cities and villages <2,000 p.e.

Lithuania expects to meet the proposed UWWTD implementation plans to full extent.

##### **Data ensuring transparency and public access**

Only parts of the above mentioned aspects are covered under different web pages of different organizations and companies. UWWTD Article 16 report is published on LT EPA web site which covers some of those aspects. Some of the wastewater treatment companies publish information on finished or on-going projects related to UWWTD.

Transparency and public access of the national UWWTD SIIF will be ensured through the following actions: Lithuania uses planning to have all of the data needed for the assessment of compliance under single system with ability to preview it on the web site and download it if needed (public access). The aspects on gaps/delays/measures to overcome the gaps and financial resources to finance the measures are mostly textual information and could be imported either directly into the system (the new WIS) or/and gathered from different sources and made publicly available on the web site.

##### **From reporting to information management**

The use of web services in the new system is a step forward to an information management approach as it already provides a framework for a standardisation of the information collected and retrieved. The size of the country and the limited number of plants make it possible to manage a central system that may in the long run and if standard tools are made available to envisage a shift from human to a central machine to a machine to machine approach.

The habit of all the users to gather data and provide to a central system in a standardised approach is already a step forward to an information management approach, the benefits





anticipated being a reduction in the reporting burden and a more up-to-date information by connecting directly the local systems to the central database.

### **Regular updates of data**

The limitations of more frequent up-dates are seen in the bigger possibility of errors in data, since there are less time for finding them and a bigger work load. This however can be reduced by the implementation of automatic QA/QC procedures, allowing focusing the manual checking on the identification of more elaborated and less obvious errors.

The advantages of more frequent up-dates are seen as follows: it is normal (for us at least) that more recent data shows positive changes in wastewater treatment and that the public is more interested in the newest data.

There has been no data collection under the new system as of yet, but in theory all the required data could be gathered and made ready for publication around June every year.

### **Perspective on getting (or staying) in compliance including financing of measures**

Monitoring and status data can be updated annually, but making forecasts consume a lot of time and most likely will not be available for yearly update. If an agreement can be found on reporting only information about non-compliant agglomerations were accepted, this would allow focus on the remaining data for forecast and would ease the work and an annual update.

### **Less administrative burden when reaching/maintaining compliance**

The idea to reduce the reporting requirements for agglomerations, which have been in compliance in the last reporting exercise, is supported by Lithuania.

#### **3.2.2.2.2 Expectations and benefits**

Lithuania is expecting the following benefits from a national UWWTD SIIF:

- The main purpose of our upcoming WIS would be to inform the public of the implementation of the UWWTD and the situation on the treatment of wastewater. The current WIS only shows part of the situation on the treatment of wastewater.
- An easy way for public to access UWWTD related information and less manual more automated way of exchanging the information between the EC/EU and MS.

#### **3.2.2.2.3 Limitations**

The main limitations to set up a national UWWTD SIIF in Lithuania are the following:

- Financial aspects
- Maintenance of the new system and
- Additional work load on our specialists.

#### **3.2.2.2.4 User needs (resources and support)**

The following support by the EC is expected in specifying/deploying the national UWWTD SIIF:

- Any support from the EC would be more than welcome.





### 3.2.2.3 Key findings (to be presented during 24th October 2013 UWWTD SIIF Workshop)

The following key findings were identified after having screened all information provided through the Questionnaire, the in-depth assessment of information (web-page, background documents), the outcome of the UWWTD SIIF workshop (held in Vilnius on 31 January 2012) and the web-conference held on 26 August 2013:

#### Current situation of urban waste water data collection and data management

Content side	IT side
<p>There are currently two web-sites presenting information on waste water treatment in Lithuania:</p> <ul style="list-style-type: none"> <li>• Web-site from the Lithuanian Environment Protection Agency and</li> <li>• Web-site from Statistics Lithuania (which presents data made available from the Lithuanian Environment Protection Agency)</li> </ul> <p>Currently, and in the frame of the national UWWTD SIIF project, there is work on-going towards an upcoming new database and data publishing systems.</p> <p>A software project was conducted to develop the new information system for UWWTD in Lithuania. The database and the input-part are already finalised and fully operational, but the output-part still has to be developed further.</p> <p>As the entire new system is not yet finalised, the entire system will be used and the database populated only from 2014 onwards.</p>	<p>The data collection is gathering information for different purposes via a centrally maintained database from which information can be retrieved for different purposes. The use of standardised templates at national level to collect the data and of web services to disseminate the data provides already a structured framework. Involved actors are therefore used to gather data on a single format and using common reference lists. A shift from this to an information management system is possible and will mainly require a mapping exercise to identify the necessary adaptations in the collected data and the new data to add.</p> <p>The shift from a central approach with fill in forms to a distributed one could be implemented, but needs a package of tools already pre-packed for non IT experts.</p>
<p>Responsibilities for urban waste water data collection and data management</p> <ul style="list-style-type: none"> <li>• Municipalities (owner of the infrastructure) maintain infrastructure, responsible for organization of waste water services according to valid legislation, obliged to prepare development plans for waste water infrastructure.</li> <li>• Water companies (owner of the infrastructure) maintain infrastructure and responsible for discharge to the environment, responsible for keeping the limit values that are laid down on their permit.</li> <li>• Regional Departments of the Environmental Protection Agency Lithuania: responsible for controlling discharges to the environment and for reporting.</li> <li>• National Department of the Environmental Protection Agency Lithuania: operate the water information system.</li> <li>• Ministry of Environment Lithuania.</li> </ul>	





## **Current status and follow-up actions towards national UWWTD SIIF**

- Expectations & benefits
  - The main purpose of upcoming WIS would be to inform the public of the implementation of the UWWTD and the situation on the treatment of wastewater. The current WIS only shows part of the situation on the treatment of wastewater.
  - An easy way for public to access UWWTD related information and less manual more automated way of exchanging the information between the EC/EU and MS.
- Limitations (general and specific)
  - Financial aspects
  - Maintenance of the new system and
  - Additional work load on our specialists.
- User needs (resources and support)
  - Any support from the EC would be more than welcome.

### **3.2.2.4 References (returned Questionnaire, in-depth assessment of web-pages and background material, bilateral contacts)**

- Pilot MS In-depth Assessment Questionnaire – returned on 11 July 2013
- UWWTD SIIF Workshop – 31 January 2013 – final minutes
- Telephone Conference – 26 August 2013 – final minutes

### **3.2.2.5 Contact persons (main/additional contacts)**

- Mr. Dalius Krinickas, Ministry of Environment: d.krinickas@am.lt
- Mr. Irmantas Valūnas, Ministry of Environment: i.valunas@am.lt
- Mr. Mindaugas Simanskis, Environmental Protection Agency: m.simanskis@aaa.am.lt

## **3.2.3 Slovenia**

### **3.2.3.1 Current situation of urban waste water data collection and data management**

#### **3.2.3.1.1 Data collection and data management (content aspects)**

#### **Three databases for urban waste water data collection and data management in place**

There are currently three databases related to urban waste water data collection:

- **Database on urban waste water and run-off rain water and treatment:** This database is managed by the Ministry of Agriculture and the Environment and comprises information on service providers, agglomerations and infrastructure. According to the Environment Protection Act, the Ministry of Agriculture and the Environment has to operate a database on public infrastructure covering waste water collecting systems and UWWTPs. The Decree





on collection and treatment of urban waste water and run-off rain water lays down the reporting obligations related to this database:

- Register of public service providers (data providers are the municipalities),
- Register of public UWW collecting systems (register of collecting system includes data on sewer network as well as data on UWWTPs, since according to national legislation UWWTP is a part of collecting system; data providers are the public service providers),
- Annual report on public service performance (data providers are the public service providers),
- Annual report on infrastructure in agglomerations (data providers are the municipalities)

In case information on agglomerations is requested, these agglomerations are identical to agglomerations in the sense of the UWWTD. The annual reporting on infrastructure in agglomerations was only introduced in 2012, as data gaps in respect to the UWWTD provisions were identified: Beforehand information on public services performance was only collected from public service providers, which are not responsible for construction of infrastructure in agglomerations. Data is up-dated once a year. Access to the database is granted to the Public Services for Environmental Protection Division and to the data providers (via passwords) in order to provide the requested information. Access is also granted for data review purposes to municipalities and other governmental organisations (e.g. Statistical Survey, Environmental Agency, and Environmental Inspectorate). The purpose of the reporting is to fulfil the provisions of the Decree on collection and treatment of urban waste water and run-off rain water in order to follow and control implementation of national legislation as regards public infrastructure construction and performance of each particular obligatory task of public service providers and also to provide a part of information for reporting under the UWWTD. The link from this database to other databases (e.g. the database on water emissions or datasets on funding) is currently not provided. For reporting purposes according to UWWTD the data from Ministry's' database is provided to Environmental Agency, who is responsible for preparation of the whole report. Data are provided in xls-files and on case-by-case basis linked to database on water emissions (manually).

- **Database on water emissions:** The database is operated by the Slovenian Environment Agency (EA) and contains operational data on WWTPs, the performance (monitoring results) of the WWTPs and permit data. For reporting under Article 15(4) of the UWWTD, this database has to be combined with the database of urban waste water and run-off rain water collection and treatment. While data on emissions from the Database on water emissions are publically available (e.g. compliance with emission limit values), information on agglomerations from the Database on urban waste water and run-off rain water and treatment (e.g. connection rate) is not yet publically available. Monitoring information as regards emissions from WWTPs and industrial facilities is reported to the Slovenian Environment Agency once per year (by the end of March). By December, the data from the previous calendar year is publically available on the web-site. The data providers are authorized laboratories, not the operators of the WWTPs/ industrial facilities themselves. The monitoring data is used by the Slovenian Environment Agency to control permits, which are issued by the agency (and not the Ministry). The Slovenian Environment Agency is responsible for the visualization of data, which is done by means of an Atlas okolja (data on







agglomerations to be found in the 'Environment'-section) and the web-application on water emissions. The Atlas okolja represents interactive maps showing UWWTD sensitive areas, agglomerations and related UWWTPs. Information on compliance per agglomeration level is not published, only information as regards compliance of UWWTPs (whether limit values of permits are kept) is published in the web-application on water emissions (not visualized in Atlas okolja).

- **Spatial database (GIS ARSO)** contains spatial and other data on agglomerations (as e.g. ID and name, location, size, layout), originating from Operational programme on collection and treatment of urban waste water, and data on UWWTPs, originating from Database on water emissions. Purpose of the database: Contains all information for map services and Web Feature Services (WFS). Operated by Slovenian Environment Agency, which is responsible for maintaining and updating this database regularly. The Spatial database has also some imported emission data from Database on water emissions. Basic spatial information for WWTPs (e.g. name of municipality, city name, etc.) are based on spatial query based on X, Y coordinates. .

There is a wish to connect all of these databases, managed by the Ministry and Environment Agency, together and put them at the same place, but this is still complex, due to different Ministry's divisions involved. Discussion on possibilities to connect these databases is in the process in link to the SIIF project at national level.

For UWWTD-reporting, information originates from the following databases:

- *UWWTP Performance according to UWWTD (e.g. BOD, COD):* Database on water emissions
- *Size of agglomerations:* defined in the Operational programme on collection and treatment of urban waste water. Therefore, this data is checked only when the Operational Programme is revised. It is calculated from population data and enlarged by 30% due to urban waste water from other sources.
- *Agglomeration: % of generated load collected in collecting system, addressed through IAS, not collected at all:* Database of urban waste water and run-off rain water and treatment. Data is reported by public service providers on regular basis. For the UWWTD reporting purposes this data is then checked with the data on reported loads of treatment plants, therefore with data from the database on emissions. The checking is done to avoid mistakes or inconsistencies.

Since the national legislation is stricter than UWWTD (e.g. Agglomerations 2,000 p.e. – 10,000 p.e. discharging into sensitive areas need to have N- and P-removal by the end of 2015), compliance with national legislation means also compliance with the UWWTD. Nevertheless, compliance with the less strict provisions of the UWWTD is not checked automatically or by automated tools. It is done "manually" if needed.

Databases on investments (realized and planned financing of measures) according to UWWTD and related national legislation, including Operational Programme on collection and treatment of urban waste water are the following:

- Database on investments from the Cohesion Fund (CF),
- Database on investments from the European Regional Development Fund (ERDF),
- Database on investments from national and/or local budget, including environmental taxes.

#### **Data transfer into/ between databases**





- Data provided for water emission database are provided by authorised labs and gathered via an automatic application at the Environment Agency's web-page accessible via password. The report is also transferred to the Environment Agency via paper document for official recognition with signature. The reporting has to be finalised by the end of March for monitoring results of the previous calendar year. Results of operational monitoring for discharge emission are thoroughly checked and published on web application for public access by the end of each year.
- The operators of UWWTPs provide data via a separate special web application at the Ministry's web-page with text file. The reporting has to be finalised by the end of March for data of the previous calendar year as well.
- Exchange between Database on water emissions located at the Environment Agency and the Database on urban waste water and run-off rain water and treatment located at the Ministry is done via e-mail.

#### **How are UWWTD reporting requirements (e.g. data model under UWWTD Article 15(4)-reporting) integrated in the national UWWTD WIS?**

- The Database on urban waste water and run-off rain water collection and treatment includes the required information on agglomerations (same ID and name of agglomeration used on national level and for the purposes of Article 15(4) reporting). In addition the database consists of agglomerations with less than 2.000 p.e., which are defined according to the same criteria as those > 2.000 PE (and reported under UWWTD).

#### **Regular up-dates of data**

Changes of permanent data (e.g. coordinates) have to be done directly by the responsible persons (directly entering the Database on urban waste water and run-off rain water collection and treatment via password and changing parameter) not later than 3 months after the changes happen. Annual updates are made no later than end of March. The changes are done by the operator, and historisation is kept but as the new system was implemented this year, historical data were not checked for the moment: registries on public sewer network were introduced this year and now municipalities should check all data and also data from the past. Connection between Consolidated Cadastre of Public Infrastructure, managed by The Surveying and Mapping Authority of the Republic of Slovenia, and Registries on public sewer network, managed by Ministry of Agriculture and the Environment, should be ensured through IDs of the sewer network in question.

Regular up-dates of data can be summarised as follows

- Database on urban waste water and run-off rain water collection and treatment: Reporting obligation is once a year by the end of March (previous year data) for public service providers and by the end of February (previous year data) for municipalities. System is divided to tables of permanent data (registers on public sewer network) which should be updated, when change occurs, and tables of annually reported data.
- Database on water emissions (Water Emission Information System): once a year (always by the end of March for data from the previous year)

#### **3.2.3.1.2 Data collection and data management (IT aspects including INSPIRE-compatibility)**

##### **IT-systems behind the databases related to UWWTD- reporting**

Overall the UWWTD datasets are split between different databases each with a different data collection/validation/publication process corresponding to specific needs and different IT technologies.





For the Database on urban waste water and run-off rain water and treatment, it is based on Microsoft SQL server.

For the Database on water emissions all data connected to reporting are stored in Microsoft Access and all spatial data in Oracle database. For enabling correct reporting by the labs each year a workshop is organised at the Environment Agency with reporters to explain changes and definitions and how to fill the web application. WFS are established with Geoserver 2.2.3, the metadata are established with a Geoportal based on ESRI technology, and Microsoft Access database for some datasets. Reporting data model is established by legislation; data is exchanged by electronic form (excel application), QC of the data and data transfer with VBA application.

For the Database on urban waste water and run-off rain water and treatment, instructions are published and a workshop is organised to explain how to report, with a forum to allow exchange between reporters and centrally maintained databases: reporters have access to templates to correct/update the data or add new data.

Information vehicles between both databases above are E-mails.

### **INSPIRE-compatibility of data**

The knowledge on INSPIRE requirements is limited within the institutions in charge of Spatial database (GIS ARSO), and the compatibility is therefore considered only via the specific requirements for geographical data in a long term perspective.

INSPIRE is considered as relevant for spatial data sets, all other data (e.g. emission data, water quality data, etc.) should be addressed via the SEIS. . Linking of SEIS data to spatial data will be ensured via IDs of spatial data. SI has implemented WFS for spatial data but not all of the existing spatial data are compatible to Inspire. First priority at national level was to establish the system for spatial data distribution according to INSPIRE and then compatibility with INSPIRE will be implemented.

#### **3.2.3.1.3 Responsibilities for urban waste water data collection and data management**

The following responsibilities for urban waste water data collection and data management can be summarised for Slovenia:

##### **Ministry of Agriculture and the Environment:**

- Legislation (preparation of national legislation and its revision if necessary, transposition of EU legislation, infringements, related to transposition of EU legislation).
- At the moment management of Database on urban waste water and run-off rain water collection and treatment; is done by the Public Services for Environmental Protection Division, organisational unit of the Public Services for Environmental Protection and Investments in Environment Directorate. However, according to national legislation all databases related to environment should be managed by the Environment Agency and this is progressively implemented. Data providers: municipalities and public service providers.

##### **Slovenian Environment Agency:**

- Management of Database on water emissions (Water Emission Information System). Data providers: authorized laboratories, not the operators of the WWTPs/ industrial facilities themselves
- Reporting under Article 15(4), Article 16 and Article 17 of the UWWTD;





Some information as regards Article 17 is available at the Ministry of Agriculture and the Environment - for reporting purposes they have to be combined (manually) with other data, available at the Environment Agency: Public Services for Environmental Protection and Investments in Environment Directorate has information on Cohesion funds and related national and local budgets (co financing these Cohesion projects - participation from the state budget and from budget from municipalities), but no information as regards other funds. In order to complete the data for reporting purposes or fill the table proposed in the UWWTD SIIF, the Ministry of Agriculture and the Environment would have to request information from the Ministry for Economic Development and Technology, responsible for ERDF, or other ministries, dealing with other funds (e.g. Ministry of Finance, which monitors financial performance of projects), and/or municipalities, which can directly apply for regional funding or use their own budget or environmental taxes (particular municipality can use environmental taxes, collected in its teritoria, for investments in public infrastructure for collecting and treatment of urban waste water). Cohesion funds were/are used for financing infrastructure in agglomeration  $\geq 2,000$  p.e., whereas infrastructure in agglomerations  $< 2,000$  p.e. is financed by regional funds.

- Visualisation of data (Atlas okolja)
- Informing public in relation to environment

#### **Ministry for Economic Development and Technology:**

- Management of database on investments from the European Regional Development Fund (ERDF). Data are collected and managed at municipal level. For reporting purposes according to UWWTD will have to be connected to agglomerations manually. Data are complemented by MFERAC, database on financial performance of projects, managed by Ministry of Finance. However, there are some constraints regarding the spatial data.
- Management of database on investments from national and/or local budget, including environmental taxes. Data are collected and managed at municipal level. For reporting purposes according to UWWTD connection to agglomerations will have to be done manually. Data are complemented by MFERAC, database on financial performance of projects, managed by Ministry of Finance. However, there are some constraints regarding the spatial data.

#### **Ministry of Infrastructure and Spatial Planning - The Surveying and Mapping Authority of the Republic of Slovenia**

- Management of Consolidated Cadastre of Public Infrastructure (ZK GJI). Data providers: The owners of public infrastructure (i.e. municipalities)

### **3.2.3.2 Current status and follow-up actions towards national UWWTD SIIF including expectations and benefits, limitations as well as user needs (resources and support)**

#### **3.2.3.2.1 Requirements of a national UWWTD SIIF**

##### **Data relevant for implementation and compliance**

The information collected in the national UWWTD WIS already allows the assessment of compliance with the UWWTD, with the following limitations





- significant improvement of accuracy of data is needed
- manual exchange of data is needed between Ministry and Agency in the moment since databases are not connected appropriately

The identification of gaps/delays in implementing the UWWTD is in some way possible, having the following limitations:

- Information for particular agglomerations whose transitional period already expired are known and controlled but unfortunately not managed in the organised database on regular basis (information from both databases, Database on urban waste water and run-off rain water and treatment and Database on water emissions have to be combined manually to get comprehensive information). For agglomerations whose transitional period expires in 2015 only some concrete concerns expressed by municipalities are available at the Ministry which indicate delays can be expected. Gaps/delays are analysed on case by case basis when needed for informing public or for reporting purposes. However, gaps/delays are not systematically gathered together for each particular agglomeration and thus managed in the organised database on regular basis.

The determination of measures and timelines to overcome these gaps is done as follows:

- Operational Programme on collection and treatment of urban waste water includes some analysis presenting the state on 21. December 2008. Measures and timelines to overcome gaps in infrastructure construction are included but no concrete measures focused on overcoming noted delays.
- More recent information is available only for particular agglomerations whose transitional period already expired but not for those whose transitional period expires in 2015 and measures and timelines to overcome the gaps are not systematically gathered.

The situation as regards the available determination of the financial resources required for these measures can be described as follows:

- Ministry of Agriculture and the Environment has information on Cohesion funds and related national and local budgets (co financing these Cohesion projects - participation from the state budget and from budget from municipalities) as regards particular agglomerations whose transitional period already expired and some other agglomerations whose transitional period expires in 2015 but are already in this moment included in the cohesion funds. No information is available at the Ministry of Agriculture and the Environment as regards other funds.
- Cohesion funds in the 2007 – 2013 financial perspective were/are used for financing of infrastructure in agglomeration with total load  $\geq 2,000$  p.e., whereas infrastructure in agglomerations  $< 2,000$  p.e. were/is financed by regional funds.
- Information as regards future investments for financing of infrastructure in agglomeration with total load  $\geq 2,000$  p.e. financed by Cohesion funds is known at the Ministry of Agriculture and the Environment. Some information in this field (mainly at the level of projects) are gathered in some Excel sheets for daily work purposes; however, complete information are not systematically gathered together for each particular agglomeration and thus managed in the organised database on regular bases.

Concluding it can be said that

- Appropriate reporting obligations are in place since the annual report on infrastructure in agglomerations was introduced in 2012, as data gaps in respect to the UWWTD were







identified. However, the quality of the reported data should be significantly improved as well as some automatic QA/QC controls should be developed to avoid unnecessary manual work (manual control of data).

- The problems Slovenia faces are (mainly due to lack of human resources):
  - a large number of reporting units and responsible organisations involved in a part of the reporting (large amount of municipalities (over 200) and also large amount of public services providers (over 100) involved – which both means large amount of persons/reporters - especially in comparison to the staff at the ministry/ agency; also large amount of agglomerations to be reported on (over 2200)).
  - management of the information system (as regard Database of urban waste water and run-off rain water collection and treatment) by the Ministry through an external contractor,
  - the Database on urban waste water and run-off rain water and treatment is not integrated into the Environmental information system developed at the Slovenian Environment Agency in accordance with the Environment Protection Act.
  - The lack of a shared reference system (IDs) that would allow an easy transfer of the datasets from one institution to the other.

To which extent do you expect to meet the proposed UWWTD implementation plans? If you are expecting delays, what are the reasons?

- In its national legislation SI has partly introduced stricter standards than required under the UWWTD and the Accession Treaty. In the following aspects SI is stricter as regards treatment requirements:
  - Agglomerations 2,000 p.e. – 10,000 p.e. discharging into sensitive areas need to have N- and P-removal by the end of 2015 (although the UWWTD does not require more stringent treatment in agglomeration 2,000 p.e. – 10,000 p.e.)
  - Agglomerations 50 p.e. – 2,000 p.e need to comply with Article 3 (and consequently with Article 7) by the end of 2015 if waste water is discharged into water in the catchment of sensitive area or in drinking water protection area and by the end of 2017 in other cases.

After the assessment of the first WFD River Basin Management Plan (RBM) it became clear that these requirements, which were set according to the precautionary principle, are too strict and not necessary on a national level. Therefore, SI would like to reconsider and change (if and where justified) its national legislation and requests, whether this is possible.

- When defining agglomerations as 'sufficiently concentrated areas' according to the UWWTD, SI used a GIS-layer on population density and all cells of this layer with a population density of > 20 PE/ha or > 10 PE/ha if sensitive area or drinking water protection area, were taken into account for the definition of agglomerations. The size of agglomerations was then determined by summarizing the number of inhabitants and adding 30% of the resulting load for urban waste water originating from industry/ tourism, etc. It was made clear that due to the SI approach, a very high number of agglomerations had been identified in SI.

The main difficulty originating from the two aspects above is, that in recent years money had been invested in the construction of sewer systems and WWTPs of small agglomerations, which originate from the strict approach of SI and that this money is now missing for the finalization of waste water infrastructure in bigger agglomerations, whose transition periods under the UWWTD





have already expired or are close to expiry. The required investment needs for the construction of waste water infrastructure in order to reach compliance with SI legislation amounts around 1.6 billion € (of which around 800 mio € for agglomerations  $\geq 2,000$  p.e.). Some deadlines for 2015 will be probably not met, as SI was too ambitious when defining the goals for 2015.

### **Data ensuring transparency and public access**

The aspects covered in section 2.1 are for the moment only partly made publically available/visualized on a national level.

### **From reporting to information management**

The Slovenian national position as regards the replacement of UWWTD reporting to data centres by information systems managed at national and regional level applying the principle (i.e. e-reporting) is as follows: Slovenia is of the opinion that “this plan is very ambitious; it would not be easy to implement the idea in “smaller” Member States with limited human resources in public administration.” Slovenia is not thinking that it will be possible to implement ‘pull’-mechanisms for data that is not available at national level (but on the level of municipalities / public service providers at local level).

### **Regular updates of data**

Slovenia would appreciate the possibility to update UWWTD- information more frequently than every two years. Advantages and limitations of more frequent up-dates are seen according to national legislation which includes that all reporting obligations are once a year therefore databases are systematically reviewed once a year. It would not be possible to do it more often due to limited human resources (at public administration as well as at public service providers or local communities). Once a year, national UWWTD- related information could be updated and made available either to public, waste water experts and/ or the EC.

### **Perspective on getting (or staying) in compliance including financing of measures**

The proposed parameters covering the perspective on getting (or staying) into compliance can be provided by Slovenia. In order to fill the table proposed in the UWWTD SIIF workshop in December 2012, the Ministry of Agriculture and the Environment would have to request information from other ministries dealing with other funds and municipalities, which can directly apply for regional funding. Nevertheless, the accuracy of data should be improved.

### **Less administrative burden when reaching/maintaining compliance**

Reducing of reporting requirements would be appreciated by Slovenia. It should only be reported if the data/situation changes since the last report.

#### **3.2.3.2.2 Expectations and benefits**

Slovenia is expecting the following benefits from a national UWWTD SIIF:

- The three databases used for UWWTD-reporting are only linked manually when needed for particular purposes and it is not easy to extract the information for UWWTD-reporting from the respective databases. Therefore, one issue for the national UWWTD SIIF could be automated tools, which extract and/ or validate the information required for UWWTD reporting.
- Knowledge as regards the gaps for single agglomerations could be further improved.
- Visualization of the data could be further improved (e.g. to show UWWTD-compliance). Slovenia already has the intention to up-date and extend the Atlas okolja and to link Atlas





okolja-information to data from the water emission database. These plans have not yet been executed due to lacking human and financial resources

### **3.2.3.2.3 Limitations**

The main limitations to set up a national UWWTD SIIF in Slovenia are the following:

- Human resources
- Financial resources

### **3.2.3.2.4 User needs (resources and support)**

Which support by the EC is expected in specifying/deploying your national UWWTD SIIF?

- Funding from Cohesion fund (2007-2013: preparation of the national project and 2004-2020: project on establishment of the national UWWTD\_SIIF). Support is in particular required towards an improvement of accuracy of data, relevant for UWWTD implementation process, and will be focussed on priorities for national development of the system. SI is also preparing a national concept paper to define priorities for the future improvement of the system.
- Not only financial support for implementing the national SIIF is needed, but also technical guidelines are expected from the EU side.

### **3.2.3.3 Key findings (to be presented during 24th October 2013 UWWTD SIIF Workshop)**

The following key findings were identified after having screened all information provided through the Questionnaire, the in-depth assessment of information (web-page, background documents) and the outcome of the Workshop (held in Ljubljana in May 2013) as well as the telephone conference (on 9 September 2013):

#### **Current situation of urban waste water data collection and data management**

Content side	IT side
<p>Three databases for urban waste water data collection are in place</p> <ul style="list-style-type: none"><li>○ Database on urban waste water and run-off rain water and treatment</li><li>○ Database on water emissions</li><li>○ Spatial database (GIS ARSO)</li></ul> <p>Exchange between database on urban waste water and database on water emissions is done via e-mail between the Ministry and EA.</p> <p>The database on urban waste water and run-off rain water collection and treatment includes the required information on agglomerations (same ID and name of</p>	<p>Overall the UWWTD datasets are split between different databases each with a different data collection / validation / publication process corresponding to specific needs and different IT technologies. A large part of the data is collected from local authorities/ authorized laboratories with the help of electronic templates directly connected to national databases.</p> <p>Difficulties are highlighted in the connection between these different databases and the QA/QC assessment.</p>





<p>agglomeration used on national level and for the purposes of Article 15(4) reporting); in addition the database consists of agglomerations with less than 2.000 p.e., which are defined according to the same criteria as those &gt; 2.000 PE (and reported under UWWTD).</p> <p>Since the national legislation is stricter than UWWTD, compliance with national legislation means also compliance with the UWWTD. Nevertheless, compliance with the less strict provisions of the UWWTD is not checked automatically or by automated tools. It is done “manually” if needed.</p> <p>Changes of permanent data (e.g. coordinates) have to be done directly by the responsible persons (directly entering the Database on urban waste water and run-off rain water collection and treatment via password and changing parameter) not later than 3 months after the changes happen. Annual updates are made no later than end of March.</p> <p>SI has implemented WFS for spatial data but not all of spatial data are compatible to Inspire. First priority at national level was to establish the system for spatial data distribution according to INSPIRE and then compatibility with INSPIRE will be implemented.</p>	
<p><b>Responsibilities for urban waste water data collection and data management</b></p> <ul style="list-style-type: none"> <li>• Ministry of Agriculture and the Environment: legislation &amp; management of Database on urban waste water and run-off rain water collection and treatment (although according to national legislation all databases related to environment should be managed by the Slovenian Environment Agency)</li> <li>• Slovenian Environment Agency: management of Database on water emissions (Water Emission Information System), reporting under Article 15(4), Article 16 and Article 17 of the UWWTD; visualisation of data (Atlas okolja), informing public in relation to environment.</li> <li>• Ministry for Economic Development and Technology: Management of database on investments from the European Regional Development Fund (ERDF) and database on investments from national and/or local budget, including environmental taxes (complemented by MFERAC, database on financial performance of projects, managed by Ministry of Finance). Data are collected and managed at municipal level. For reporting purposes according to UWWTD will</li> </ul>	



have to be connected to agglomerations manually.

- Ministry infrastructure and Spatial Planning - The Surveying and Mapping Authority of the Republic of Slovenia: Management of Consolidated Cadastre of Public Infrastructure (ZK GJI)

### Current status and follow-up actions towards national UWWTD SIIF

- Expectations & benefits
  - Three different databases on UWWTD requiring manual interaction for EU- reporting purposes > National SIIF will require a clear mapping of all data needed and hence be used to implement inter-linkages / automatic validation processes.
  - The standardisation required will allow implementation of a shared reference system (IDs) allowing an easy transfer of the datasets from one institution to the other hence saving resources.
  - Improved QA/QC controls by standardisation of EU QA/QC processes
  - Improved knowledge on data gaps (single agglomerations, in particular these with transitional periods until the year 2015) and overall situation allowing better investment planning and anticipation of non compliance situations
  - Improved visualisation of data (including map services)
- Limitations (general and specific)
  - Human resources
  - Financial resources
  - The information collected in the national UWWTD WIS already allows the assessment of compliance with the UWWTD, with the following limitations
    - Significant improvement of accuracy and quality of data is needed
    - Manual exchange of data is needed between Ministry and Agency in the moment since databases are not connected appropriately. The Database on urban waste water and run-off rain water and treatment is not integrated into the Environmental information system developed at the Slovenian Environment Agency.
    - Inter Ministries and Environment Agency QA/QC controls should be developed to avoid unnecessary manual work (manual control of data).
  - The identification of gaps/delays in implementing the UWWTD is in some way possible, having the following limitations: Information for particular agglomerations whose transitional period already expired are known and controlled but unfortunately not managed in the organised database on regular basis. For agglomerations whose transitional period expires in 2015 only some concrete concerns expressed by municipalities are available at the Ministry which indicate delays can be expected. Gaps/delays are analysed on case by case basis when needed for informing public or for reporting purposes. However, gaps/delays are not systematically gathered together for each particular agglomeration and thus managed in the organised database on regular basis.
  - The aspects covered in section 2.1 are only partly made publically available/ visualized on a national level. Transparency and public access of the Slovenian







national UWWTD SIIF system as regards the aspects covered in section 2.1 cannot be ensured at the moment.

- User needs (resources and support)
  - Funding from Cohesion fund (2007-2013: preparation of the national project and 2004-2020: project on establishment of the national UWWTD\_SIIF). Support is in particular required towards an improvement of accuracy of data, relevant for UWWTD implementation process, and will be focussed on priorities for national development of the system. SI is also preparing a national concept paper to define priorities for the future improvement of the system.
  - Not only financial support for implementing the national SIIF is needed, but also technical guidelines are expected from the COM side.

#### **3.2.3.4 References (returned Questionnaire, in-depth assessment of web-pages and background material, bilateral contacts)**

- UWWTD SIIF Workshop – 23 May 2013 (Ljubljana) – final minutes
- Pilot MS In-depth Assessment Questionnaire – returned on 2 August 2013 (and additional comments were provided on 30 August 2013)
- UWWTD SIIF Telephone Conference – 9 September 2013 – final minutes

#### **3.2.3.5 Contact persons (main/additional contacts)**

- Ms Natasa Vodopivec: [Natasa.Vodopivec@gov.si](mailto:Natasa.Vodopivec@gov.si) (main contact)
- Mr. Aleš Veršič: [aversic@gov.si](mailto:aversic@gov.si)
- Mr. Uroš Vajgl: [uros.Vajgl@gov.si](mailto:uros.Vajgl@gov.si)
- Mr. Branko Ravnik: [branko.ravnik@gov.si](mailto:branko.ravnik@gov.si)

### **3.2.4 Ireland**

#### **3.2.4.1 Current situation of urban waste water data collection and data management**

##### **3.2.4.1.1 Data collection and data management (content aspects)**

Eight river basin districts (RBDs) are established on the island of Ireland, North and South. Seven cover the entire South including one covering the cross-border areas. One further RBD is wholly located in Northern Ireland.

Prior to 2007 waste water discharges were not specifically permitted / licensed. The OEE did implement and enforce the requirements of the Urban Wastewater Directive, since 2001. Since 1992 the EPA has had a role (S.61 of the EPA Act 1992) to report on a biennial basis on the LA role in municipal wastewater treatment.





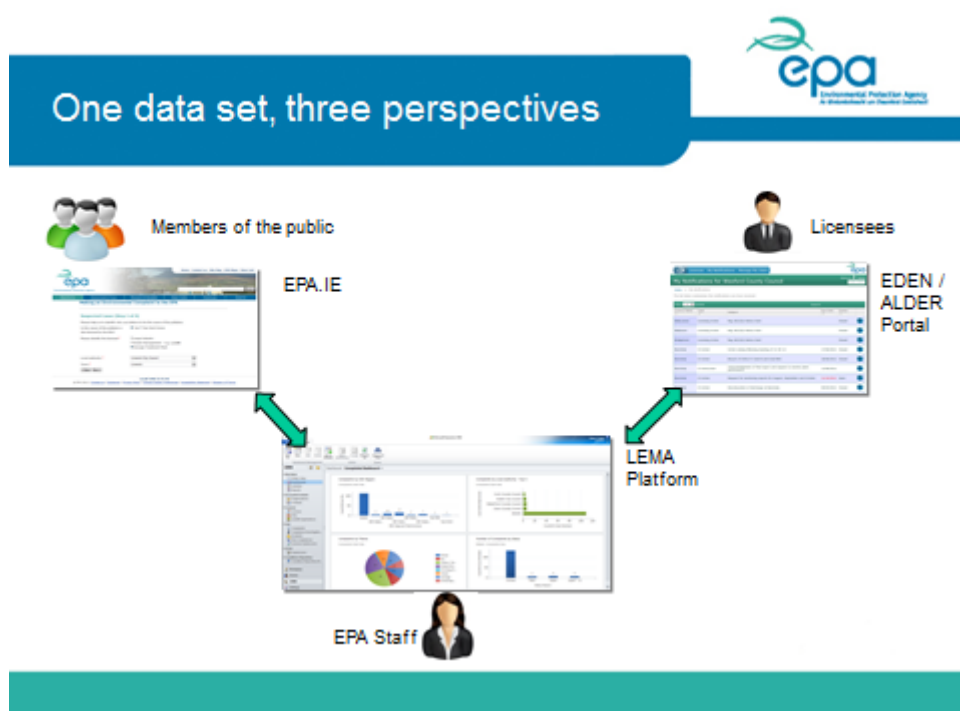
The Waste Water Discharge (Authorisation) Regulations 2007 introduced a regime to permit municipal wastewater discharges. These permits (licences and Certificates of Authorisation) provided a more specific basis for enforcement (by OEE). These permits require, in many cases, that improvements be made to the wastewater treatment infrastructure.

Ireland is currently working away trying to get a functioning system on POMS UWW for the end of the year, and if possible also a website for UWW public information. Ireland wants to bring pressure on the business side to move from the PDF report to something more interactive in order to comply more with the SIIF principles.

The LEMA Project – an environmental Licencing, Enforcement and Monitoring Application developed by the EPA – aims at developing a new, end-to-end licensing, enforcement, monitoring and reporting application (LEMA) and to employ contemporary ICT and GIS technologies to enhance the work procedures of Agency staff through the elimination of duplication, reduction of reliance on manual procedures and promotion of strategic practices. The new core technologies are used:

- EDEN portal – licensee registration and access
- Web applications – licensee facing interaction
- Dynamics CRM – EPA staff interaction
- ArcGIS – spatial data
- Sharepoint – document repository
- [www.epa.ie](http://www.epa.ie) – interaction with members of the public

One data set will be in place in Ireland which can be seen from three perspectives:



### Data transfer into/between databases

The fully integrated system with common semantic, under the umbrella of the LEMA with the management of all information layers embeds from its origin the use of the datasets in an





integrated way. Inclusion and extraction of data for different purposes are part of the key functionalities of the system.

**How are UWWTD reporting requirements (e.g. data model under UWWTD Article 15(4)-reporting) integrated in the national UWWTD WIS?**

The information system being fully integrated, the reporting requirements are embedded in the system, and especially the Municipal Wastewater Discharge Permitting system and the GIS system.

**Regular up-dates of data**

Licensees have to implement a programme of Improvements and report about the progress made on a regular basis (regularity could be specified in the license itself, similarly the nature of the progress would depend on the type of improvement specified).

**3.2.4.1.2 Data collection and data management (IT aspects including INSPIRE compatibility)**

**IT-systems behind the databases related to UWWTD- reporting**

The new core technologies are used:

- EDEN portal – licensee registration and access
- Web applications – licensee facing interaction
- Dynamics CRM – EPA staff interaction
- ArcGIS – spatial data
- Sharepoint – document repository
- www.epa.ie – interaction with members of the public
- DREAM - automated risk assessment methodology

**INSPIRE-compatibility of data**

As the EPA agrees on the need for an overall IT consistency, they agree with the proposed approach basing the data model on Inspire concepts. As far as exposing Inspire compliant data is concern the EPA is not worried. They have a split between thematic content in CRM and additional geo-info in GIS database: 99% is in the production database (CRM), the rest in spatial database. They will have to create bridges between CRM/SIG anyway. So it is far easier for them to set up the required services.

**3.2.4.1.3 Responsibilities for urban waste water data collection and data management**

The following responsibilities for urban waste water data collection and data management can be summarised for Ireland:

- OEE is responsible for the enforcement of discharge permits
- EPA is responsible for the full management of the information system including data gathering



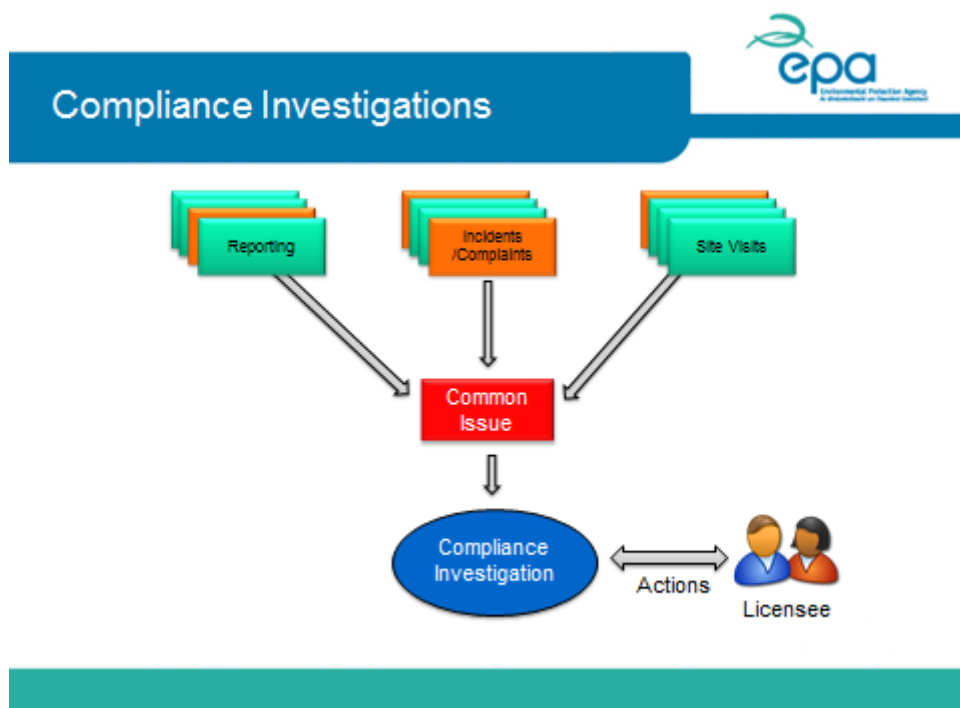


### 3.2.4.2 Current status and follow-up actions towards national UWWTD SIIF including expectations and benefits, limitations as well as user needs (resources and support)

#### 3.2.4.2.1 Requirements of a national UWWTD SIIF

##### Data relevant for implementation and compliance

A dedicated system is already in place as illustrated in the following and another system (DREAM) allows to focus on the most pressing situations.



##### Data ensuring transparency and public access

The EPA Report – ‘Focus on Urban Waste Water Discharges in Ireland’ – was first published in February 2012 and includes a review of the operation of UWWT plants mainly covering data for 2008/2009. The first update report, published in June 2012, presented data for the year 2010. The second update report included additional nutrient data for 2010 and focuses on plants that require an EPA waste water discharge licence (i.e. > 500 p.e.).

The current integrated information system could be further developed in the direction of a national UWWTD SIIF node in a very simple and rapid way provided the architecture and data content is defined.

##### From reporting to information management

The on-going activities implementing the UWWTD SIIF principle, provide opportunities to

- Build a comprehensive Water Information System
- Make decisions on investment based on good data and analytics to deliver the best outcomes for society and the environment

The system is already fully integrated and information management oriented.





### **Regular updates of data**

The provision by licensees of updated data is currently done by the licensees but could easily be transformed in a fully distributed system as all elements of the system are clearly defined.

### **Perspective on getting (or staying) in compliance including financing of measures**

Key questions regarding the future perspective can be summarised as follows. These questions are currently being addressed in Ireland.

- Where should we spend money?
- Where will we get the best return on our investment?
- What type of return are we looking for?
- Increase in 'good status' statistics
- Or increase in environmental quality
- How do we define 'environmental quality'?

### **Less administrative burden when reaching/maintaining compliance**

The current system allows deriving easily the necessary dataset for reporting but also providing tools to allow targeting the most important issues for maintaining compliance.

#### **3.2.4.2.2 Expectations and benefits**

Ireland is expecting the following key benefits from a national UWWTD SIIF (LEMA):

- Receipt of all incoming information as electronic data via webforms.
- Reducing duplication, and burden for licensees.
- Automated notification of issues to Enforcement Inspectors.
- Standardisation of Licences and licence conditions.
- Risks to target actions to deliver environmental outcomes.
- Automated reporting (Internal & EU).

Ireland is very supportive of this SIIF approach for Urban Waste Water Information management/reporting considering the SIIF principles to be clear and logical and help to identify key information streams that are focused on environmental outcomes.

- Legislative framework

Ireland understands that the UWW Directive reporting has been taken as a pilot and that the SIIF pilot exercise specifically looks at the relevant reporting obligations. However IE would consider it useful to create an overarching environmental regulation context for water, and identify the relative role of each directive in that context. This may provide some context for the measures required in the UWW Directive. IE would consider it particularly significant to examine all water related directives in the context of the overarching directives, particularly Water Framework and Marine Strategy Directives. Here the relevant roles of each of the 'sub' directives can be examined in the context of achieving the overarching requirements of the framework directives. This may inform to some extent the reporting requirements developed for each Directive under SIIF.

- Information technology







From an IT perspective SIIF is exposing UWW data in a pre-defined format for reporting to EU and providing a user interface (website) for public/data experts to view data in a standard way. Both concepts are based on transforming MS UWW data into a compliant structure based on INSPIRE principles. The open standards approach using web will require significant investment required from member states to transform their data into the INSPIRE compliant model and set up the WFS service and node frontend. A pull/synchronous dialogue between EU node and MS node web services would require server and database resources to exchange large datasets. This could impact on normal day to day operations within the MS systems: the communication channel between nodes is kept open until the data transfer is completed. A pull/asynchronous dialogue would be preferable where large datasets are exchanged at off peak hours to minimise impact on normal UWW system operations. Implementing a security model will complicate the implementation where sensitive data is transferred. One suggestion would be to prototype a small dataset (instead of the full UWW dataset) to prove communication between nodes and notification/asynchronous services. This would be a purely technical prototype but would give an idea of the complexity of the distributed architecture and the effort/cost required to implement the full UWW solution.

### **3.2.4.2.3 Limitations**

No major limitations are currently identified to implement a national UWWTD SIIF node in Ireland.

### **3.2.4.2.4 User needs (resources and support)**

With a very advanced and fully integrated information system, Ireland could be one of the first implementers of the new concept, allowing the demonstration of its feasibility and added value for both the citizens and the authorities.

### **3.2.4.3 Key findings (to be presented during 24th October 2013 UWWTD SIIF Workshop)**

The following key findings were identified after having screened all information provided through the Questionnaire, the in-depth assessment of information (web-page, background documents) and the outcome of the UWWTD SIIF workshop (held in Vilnius on 31 January 2012):

#### **Current situation of urban waste water data collection and data management**

Content side	IT side
Ireland is currently working away trying to get a functioning system on POMS UWW for the end of the year, and if possible also a website for UWW public information. Ireland wants to bring pressure on the business side to move from the PDF report to something more interactive in order to comply more with the SIIF principles.  The LEMA Project – an environmental Licencing, Enforcement and Monitoring Application developed by the EPA – aims at	The data collection is gathering information for different purposes via a centrally maintained information system comprising different databases from which information can be retrieved for different purposes. The fully integrated information system makes it possible to consider a shift to a UWWTD SIIF is probably easy to conduct once the detailed components are defined. The implementation of INSPIRE compatibility is also not a key difficulty.





developing a new, end-to-end licensing, enforcement, monitoring and reporting application (LEMA) and to employ contemporary ICT and GIS technologies to enhance the work procedures of Agency staff through the elimination of duplication, reduction of reliance on manual procedures and promotion of strategic practices.	
Responsibilities for urban waste water data collection and data management <ul style="list-style-type: none"><li>• OEE is responsible for enforcement of discharge permits</li><li>• EPA is at the core of the information system</li></ul>	

### Current status and follow-up actions towards national UWWTD SIIF

- Expectations & benefits
  - Main purpose of national SIIF: Identification of priority needs for investments as regards water-related Directives, better identification of bottlenecks of UWWTD implementation
  - Receipt of all incoming information as electronic data via webforms.
  - Reducing duplication, and burden for licensees.
  - Automated notification of issues to Enforcement Inspectors.
  - Standardisation of Licences and licence conditions.
  - Risks to target actions to deliver environmental outcomes.
  - Automated reporting (Internal & EU).
- Limitations (general and specific) – no limitations are currently identified
- User needs (resources and support) – a pilot implementation in Ireland would allow demonstrate the feasibility and identify some difficulties

#### 3.2.4.4 References (In-depth assessment of web-pages and background material, bilateral contacts)

- UWWTD SIIF Workshop – 10 July 2013 – presentations and summary minutes.

#### 3.2.4.5 Contact persons (main/additional contacts)

- Mr. Tom Stafford: [t.stafford@epa.ie](mailto:t.stafford@epa.ie)
- Deirdre Kirwan: [d.kirwan@epa.ie](mailto:d.kirwan@epa.ie)
- David Mahony: [d.mahony@epa.ie](mailto:d.mahony@epa.ie)
- Gavin Smith: [g.smith@epa.ie](mailto:g.smith@epa.ie)





The diagram illustrates the data flow for UWWTD reporting, structured from the Basic level up to the EC and Eurostat databases.

**Basic level:** data is provided by one or several of these actors

- Operators of UWWTP
- Public water service providers
- Laboratories/ civil servants monitoring the UWWTPs
- Municipalities

**Regional level, e.g.**

- regional authorities
- regional departments of EPA

**National level, e.g.**

- Ministries
- Environment Protection Agencies (EPA)

**Added value of this level:**

- Brings together relevant topics for UWWTD (e.g. from UWWTPs and municipalities)
- Adds national/ legal UWWTD - aspects

**Up-dating frequency:**

- Usually once a year
- Water quality data might be up-dated as soon as available

**Reason for reporting:**

1. Monitoring of water permits
2. EU-reporting obligations (e.g. UWWTD, WFD,...)

**Internal QA/QC** (indicated by blue arrows between levels)

**Regional Publication** (indicated by a pink arrow from Regional level to National level)

**National Publication** (indicated by a pink arrow from National level to EC/Eurostat)

**EEA/ ETC-ICM** (European Environment Agency/ European Topic Group on Integrated Chemicals Management)

- compiles EU27 - database

**EC:**

- Legal compliance assessment
- Infringement procedures

**Publish: Implementation reports** (indicated by a pink arrow from EC)

**EEA/ ETC-ICM** (European Environment Agency/ European Topic Group on Integrated Chemicals Management)

- up-date biannual, but provided irregularly
- Irregular data-flow in case of infringement processes

**UWWTD Art. 16**

**UWWTD Art. 17**

**UWWTD Art. 15(4)**

- up-date biannual QA/QC in xml-file and DEM-tool

**Provides database for compliance** (indicated by a blue arrow from EEA/ ETC-ICM to EC)

**UWWTD Water base**

**UWWTD Wise Viewer**

**Publish: Indicators Waterbase** (indicated by a pink arrow from UWWTD Water base)

**WISE SoE**

- up-date annually

**EEA/ ETC-ICM**

**JQ and REQ**

- up-date biannual QA/QC
- up-date biannual data is provided by national statistical offices, but administrative data are often used

**Eurostat**

**Publish: Eurostat Database** (indicated by a pink arrow from Eurostat)

Many MS publish regional and national information as regards the UWWTD and/ or urban waste water in a broader context, which may significantly differ to the information available at EU-level as regards the reference date (national/ regional publications are more up-to-date than EU-wide publications), contents (national/ regional publications provide more comprehensive information, than currently available at EU-level, which is also of relevance for the EC), conclusions (different assessment as regards the status of waste water treatment) and way of presenting data (some national/ regional publications are clearer and more user friendly than current publications on EC- level).

Figure 16. Current workflows in the in the context reporting under UWWTD and other urban waste water data related topics

#### 4.2 Achievements and shortcomings of the current information management at EU-level in the light of SIIF- principles

The existing reporting processes under UWWTD (Article 15(4)- reporting as first priority, Article 16- and 17- reporting as second priority) were scrutinized according to the main SIIF principles in order



to get an overview on the achievements and the shortcomings of the current UWWTD- reporting (Table 1).

There are currently several data collections which are dealing with information related to urban waste water treatment and the UWWTD. Structure, contents, definitions and reporting timelines of these data collections follow their own individual purposes and were not (always) harmonized with the UWWTD, but (also) with specifications originating from different institutions dealing with water (e.g. parameters of the JQ-IW were harmonized with the OECD and the UWWTD). In addition, most of the data collections are requesting aggregated information (e.g. SoE-reporting, JQ-IW, REQ) and are therefore currently not appropriate for use in the context of the UWWTD SIIF.

The development of UWWTD SIIFs is intended to concentrate as first priority on the fulfillment of data requirements originating from the Directive itself. On the long term, the link to other water-related topics has to be investigated in detail.

With regards to the content requirements of the UWWTD SIIF, the most important data collection related to the UWWTD is the reporting exercise under Article 15(4), as this data collection comprises dis-aggregated information on the level of SA, agglomerations, UWWTPs and discharge points. Taking the Article 15(4)- reporting as starting point for a future SIIF, further information, which is already available mainly in the Implementation Reports under UWWTD Article 17 could supplement the information collected under Article 15(4).

When analyzing the SIIF- principles on the EU-wide level, the current reporting processes fulfill these principles as can be seen from Table 1.

### **4.3 Potential user groups of UWWTD SIIFs and their (legal) requirements**

Table 2 lists the potential user groups of UWWTD SIIFs and gives an overview of their (legal) requirements. These user groups will have to be considered in the concept for the UWWTD SIIF.



Table 2. Achievements and the shortcomings of the current UWWTD- reporting in the light of SIIF principles

SIIF Principle	Achievements of current UWWTD-reporting	Shortcomings of current UWWTD-reporting
1. SIIFs relate (only) to information which is relevant for implementation and compliance at national level. <i>Physical parameters</i> <sup>43</sup>	<ul style="list-style-type: none"> <li>Mandatory parameters collected under Article 15(4)- reporting cover the data of physical nature required for the legal compliance assessment (e.g. size of agglomeration in p.e., UWWTP treatment type in place, sensitivity of receiving area)</li> </ul>	<ul style="list-style-type: none"> <li>Information on the waste water treatment of the fraction of waste water addressed through individual and appropriate systems (IAS)</li> </ul>
1. SIIFs relate (only) to information which is relevant for implementation and compliance at national level. <i>Administrative/ legal parameters and documents</i> <sup>40</sup>	<ul style="list-style-type: none"> <li>Article 15(4)- reporting covers: competent authority to report UWWTD data under Article 15(4), NUTs for agglomerations, UWWTPs, discharge points.</li> </ul>	
1. SIIFs relate (only) to information which is relevant for implementation and compliance at national level. <i>Compliance parameters</i> <sup>40</sup>	<ul style="list-style-type: none"> <li>National summary information on compliance available in UWWTD Implementation reports</li> </ul>	<ul style="list-style-type: none"> <li>No information as regards the date of relevant deadline/ transition period differentiated into Article 3, Article 4 and Article 5</li> <li>No information on treatment requirements for agglomerations, UWWTPs and Article 5(4)- areas in the reference year is provided by MS. These treatment requirements are currently evaluated by the EC on the basis of several parameters in an unsatisfactory way</li> <li>Information on UWWTD- compliance for agglomerations, UWWTPs, and Article 5(4)- areas is not provide by the MS, but assessed by the EC. Data is not made publically</li> </ul>

<sup>43</sup> Shortcomings of current UWWTD-reporting as regards the set of parameters focuses on main gaps for assessing compliance with the Directive and not on parameters, which might be additionally helpful





SIIF Principle	Achievements of current UWWTD-reporting	Shortcomings of current UWWTD-reporting
		available.
2. Ensuring transparency and public access	<ul style="list-style-type: none"> <li>• General information as regards the UWWTD is provided on the EC's web-page</li> <li>• Implementation reports are published every two years</li> <li>• Waterbase and the UWWTD WISE Viewer already allow the public availability of selected information from the UWWTD Article 15(4) – reporting</li> <li>• Datasets reported under Article 15(4), Article 16 (in case uploaded by the MS) and Article 17 (in case uploaded by the MS) are available in the Central Data Repository (CDR) at EIONET</li> </ul>	<ul style="list-style-type: none"> <li>• Publically available information is only understandable for experts dealing with UWWTD (not for the informed public only to a very limited extent for waste water experts)</li> <li>• The informed public and waste water experts seem to be not aware of the publically available information</li> <li>• The presentation of information is not very self-explanatory</li> </ul>
3. From reporting to information management	<ul style="list-style-type: none"> <li>• UWWTD data exchange is now clearly defined as reporting process. Common definitions, specifications and data exchange formats (xml, GIS shape files) were agreed for parameters collected under Article 15(4). This allows automated reporting, QA/QC-procedures and hence a good data quality in the EC-'database</li> <li>• UWWTD reference data elements are identified (i.e. receiving areas, agglomerations, UWWTPs, discharge points, food-processing industries) and stable external unique identifiers are provided</li> <li>• Historic data management is partly available according to WFD CIS Guidance No 22</li> </ul>	<ul style="list-style-type: none"> <li>• Shift from reporting process to information management is required (covering mainly IT-aspects)</li> <li>• Historic data management of UWWTD reference data elements (i.e. receiving areas, agglomerations, UWWTPs, discharge points, food-processing industries) is not yet fully implemented in UWWTD Article 15(4)- reporting</li> </ul>
4. Keep information regularly up to date	<ul style="list-style-type: none"> <li>• Reporting under the UWWTD currently follows a two-years –cycle.</li> </ul>	<ul style="list-style-type: none"> <li>• Shift to a more frequent availability of data is required</li> </ul>







SIIF Principle	Achievements of current UWWTD-reporting	Shortcomings of current UWWTD-reporting
5. Perspective on getting (or staying) into compliance	<ul style="list-style-type: none"> <li>On EU-level no disaggregated information is currently available on a regular basis. Article 17- reports are provided by the MS on irregular basis and usually contain aggregated information. Only few MS detail their Article 17- reports on agglomeration-level and make this information publically available (e.g. PL)</li> </ul>	<ul style="list-style-type: none"> <li>Information is required on the level of agglomerations, UWWTPs and Article 5(4)- areas</li> </ul>
6. Less administrative burden when reaching/maintaining compliance	<ul style="list-style-type: none"> <li>Reporting on EU-level does not differentiate between compliant and non-compliant agglomerations. Identical information is requested</li> </ul>	<ul style="list-style-type: none"> <li>Definition of different information requirements for compliant and non-compliant elements and elements under Transition Period</li> </ul>

Table 3. Potential user groups of UWWTD SIIFs and their legal requirements (orange sections mark the proposed core element of the UWWTD SIIF)

User group	Main requirement	Type of requirement	Comments	Purpose	Need to include it in UWWTD SIIF
Informed/ general public, citizens	Access to information: Focus on popular scientific information	- Aarhus Convention - Access to Information Directive (2003/4)	Does not necessarily have to be provided via UWWTD SIIF. Could be also provided via other media (e.g. hard-copy brochures and/ or at regional/ local networks)	- Information	optional
Media	Access to information: Focus on popular scientific information	- Aarhus Convention - Access to Information Directive (2003/4)	Does not necessarily have to be provided via UWWTD SIIF. Could be also provided via other media (e.g. hard-copy brochures and/ or at regional/ local networks)	- Information	optional





User group	Main requirement	Type of requirement	Comments	Purpose	Need to include it in UWWTD SIIF
Operators of UWWTPs/ Public service providers	Provision of information to the public	- Aarhus Convention - Access to Information Directive (2003/4)	Does not necessarily have to be provided via UWWTD SIIF. Could be also provided via other media (e.g. hard-copy brochures, the water bill and/ or at regional/ local networks)	- Information	optional
	Verification that the UWWTP complies with permits	defined in national water legislation (e.g. water act)	Does not necessarily have to be provided via UWWTD SIIF. Could be also provided via hard-copy reports and/ or national IT-systems	- Administration	optional
Regional authorities (Thematic domain experts)	Verification that the UWWTP complies with permits	- defined in national water legislation (e.g. water act) - UWWTD Article 12(2) - UWWTD Article 15(1)	Does not necessarily have to be provided via UWWTD SIIF. Could be also provided via hard-copy reports and/ or national IT-systems	- Administration	optional
	Reporting to national level so that the national level can fulfill EU-reporting obligations	Could be defined in national water legislation (e.g. water act)	Does not necessarily have to be provided via UWWTD SIIF. Could be also provided via Excel - sheets and/ or national IT-systems	- Reporting to EC	optional
	Link UWWTD information with other water related data (e.g. from WFD) for water management and administration purposes	Water- related Directives (e.g. WFD)	Does not necessarily have to be provided via UWWTD SIIF	- Administration	optional
National authorities (Thematic domain experts)	Verification that the UWWTP complies with permits	- defined in national water legislation (e.g. water act) - UWWTD Article 12(2) - UWWTD Article 15(1)	Does not necessarily have to be provided via UWWTD SIIF. Could be also provided via hard-copy reports and/ or national IT-systems	- Administration	optional
	Reporting to EC	UWWTD: Article 15(4), Article 17	Need to be implemented in UWWTD SIIF	- Reporting to EC	mandatory





User group	Main requirement	Type of requirement	Comments	Purpose	Need to include it in UWWTD SIIF
	Provision of information to the public	UWWTD: Article 16	Need to be implemented in UWWTD SIIF	- Information - Reporting to EC	mandatory
	Link UWWTD information with other water related data (e.g. from WFD) for water management and administration purposes	Water- related Directives (e.g. WFD)	Does not necessarily have to be provided via UWWTD SIIF	- Administration	optional
Scientists, Experts on urban waste water (treatment technologies )	Access to information: Focus on technical/ legal information		Does not necessarily have to be provided via UWWTD SIIF	- Information	optional
EC	Verification, that the UWWTD is correctly implemented	UWWTD: Article 15(4)	Need to be implemented in UWWTD SIIF	- Administration	mandatory
	Verification, that the UWWTD will be correctly implemented in the MS	UWWTD Article 17	Need to be implemented in UWWTD SIIF	- Administration	mandatory
	Actions against MS, who have not implemented the UWWTD correctly		Need to be implemented in UWWTD SIIF	- Administration	mandatory
	Provision of information to the public: Focus on legal information	- Implementation reports (legal requirement?) - UWWTD Article 17(5)	Need to be implemented in UWWTD SIIF	- Information	mandatory
EEA	Implement data flows under UWWTD: QA/QC, compilation of database		Need to be implemented in UWWTD SIIF	- Administration	mandatory





User group	Main requirement	Type of requirement	Comments	Purpose	Need to include it in UWWTD SIIF
	Provision of information to the public, to media, to scientists and to EC: Focus on environmental relevant, technical and legal information as well as popular scientific information		Need to be implemented in UWWTD SIIF	- Information	mandatory
Institutions, which might use UWWTD data to fulfill their legal obligations (e.g. National statistical offices, EUROSTAT)	Use of already available data sources in case the parameter definitions fit to own, individual purposes	<ul style="list-style-type: none"> <li>- WISE – principle 'report once - use many'</li> <li>- this principle is also implemented in national legislation (e.g. Austria: provisions of the Federal Statistics Act endeavors to minimise the workload placed on respondents as a result of surveys. One measure to reduce the work-load is the clear preference of use of existing data sources (administrative data, public registers) over own statistical surveys</li> </ul>	Does not necessarily have to be provided via UWWTD SIIF	- Information	optional





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## **Annex A: Assessment of online information available on national webpages of EU-27 MS (see separate document)**





## Annex B: Detailed MS-examples applying SIIF principles

Several MS have already implemented some SIIF-principles in a very good and clear way. The following chapter gives examples for the implementation of SIIF-principles in different MS and analyses the achievements (indicated by '+') and shortcomings (indicated by '-') of the systems with regards to UWWTD SIIF principles. In addition, aspects, which are already basically available, but could be improved further are given in this assessment (indicated by '0').

### France

France provides a very comprehensive and clear interactive map, which does not only show UWWTD- related information, but also links to other water-related issues (e.g. monitoring stations of surface water). The core element is the waste water treatment plant. Information on the required treatment according to the UWWTD and compliance as regards the available equipment (reference year 2012) and monitoring results (reference year 2011) is provided for each UWWTP. The web-site is very clear and self-explanatory, allowing easy navigation for the informed public, waste water experts and the EC. Taking into account the principles of a SIIF, remedial actions for UWWTPs which are not compliant with the requirements of the UWWTD are currently only available for UWWTPs, which are prioritized in the respective year. Figure 18 to Figure 21 give examples of the French web-site related to UWWTD.

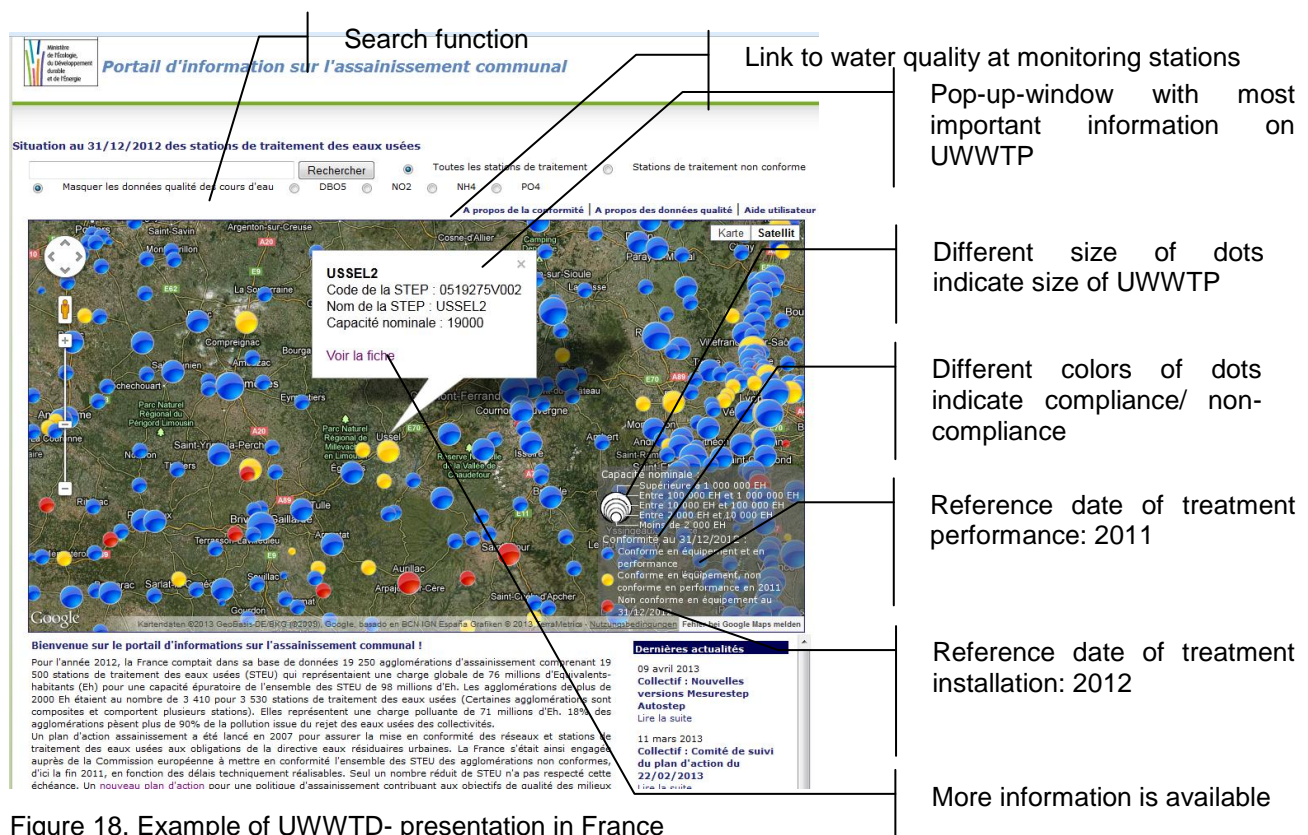


Figure 18. Example of UWWTD- presentation in France





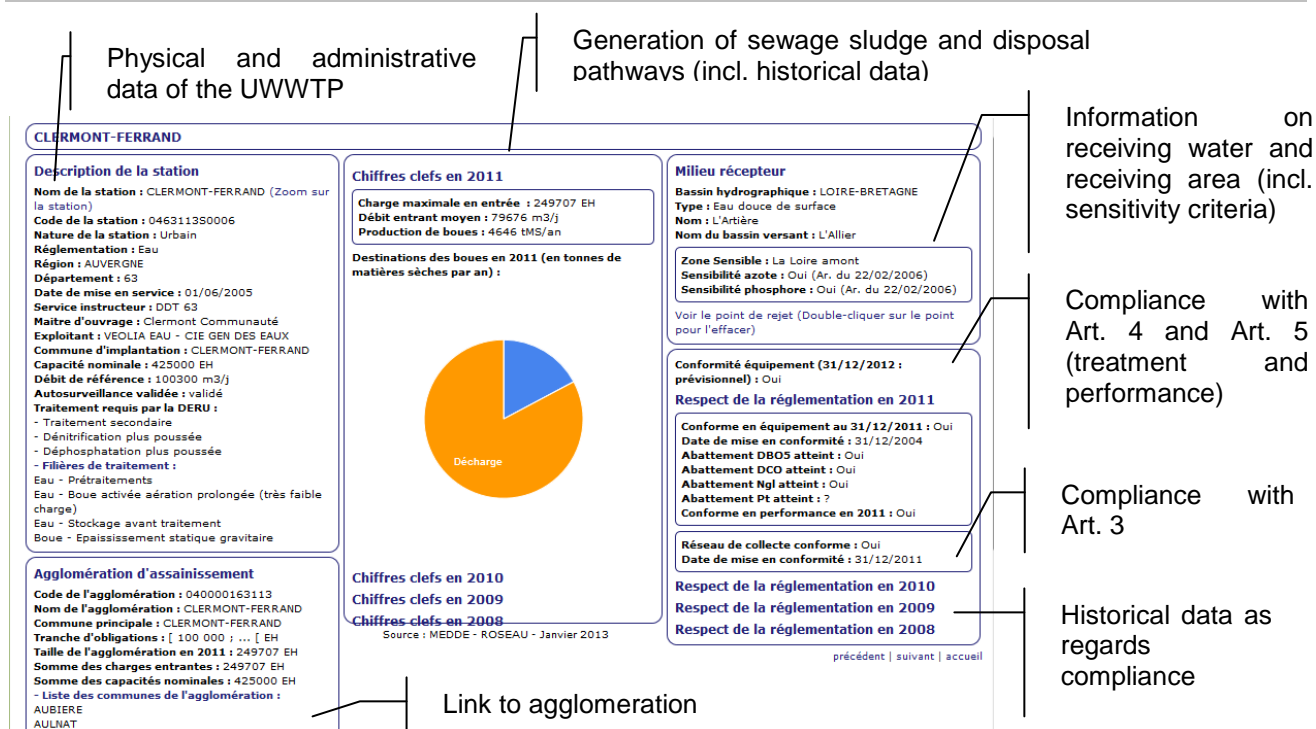


Figure 19. Detailed information of selected UWWTP

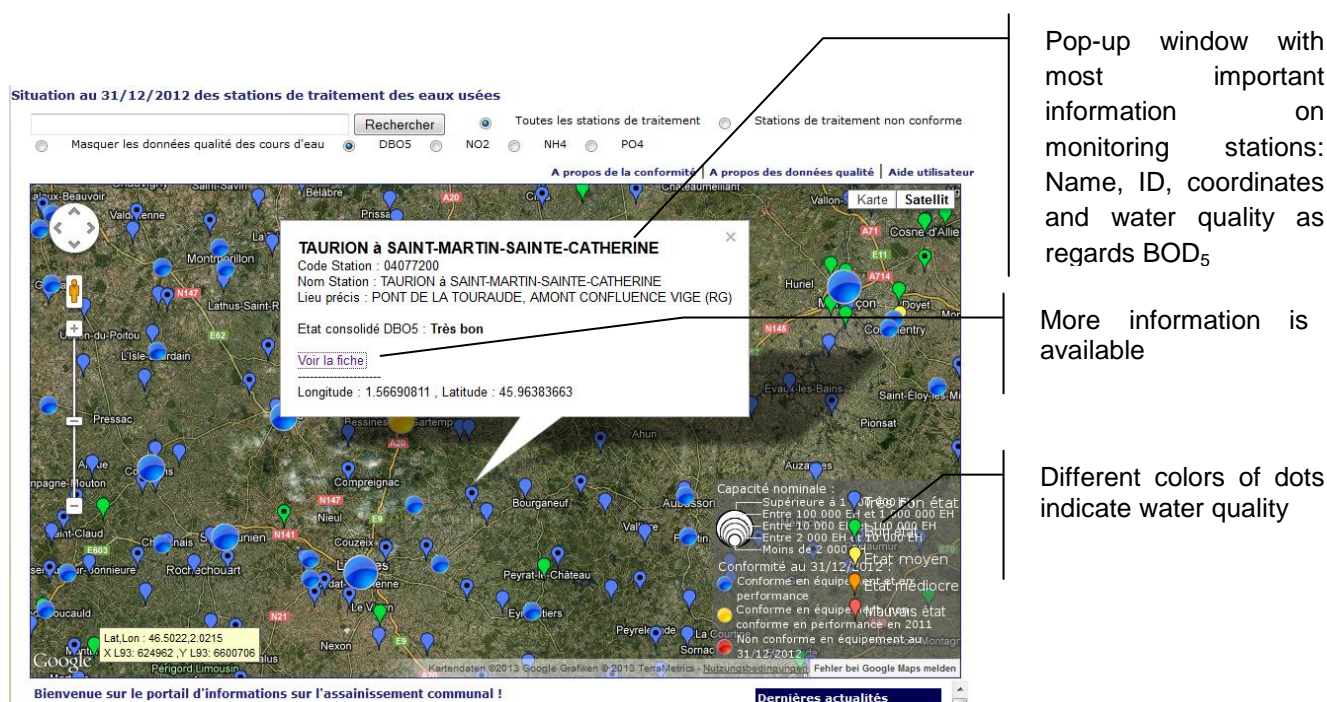


Figure 20. Information available for water monitoring stations



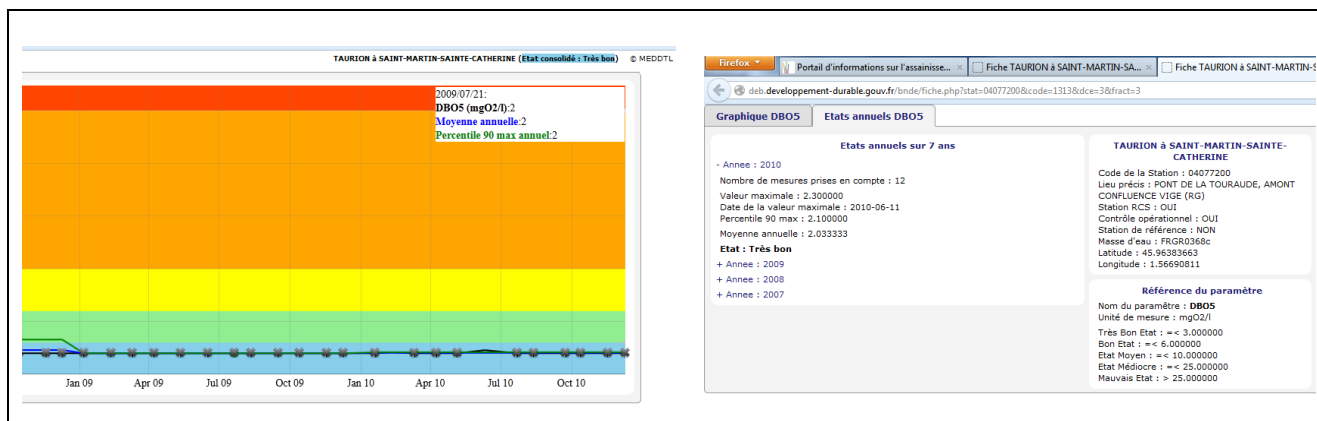


Figure 21. Detailed information of French water quality monitoring stations in terms of graphs

The achievements and shortcomings of the French information system as regards UWWTD SIIF principles can be summarized as follows:

- 1) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of physical nature:
  - +) This principle is well implemented by provision of the following information: ID, name and organic design capacity (p.e.) of UWWTP; Treatment type; Treatment installations; Sewage sludge production (t dry solids/a) and disposal routes
  - +) The link to other water-related topics is provided by: Water quality at water monitoring stations (BOD<sub>5</sub>, NO<sub>2</sub>, NH<sub>4</sub>, PO<sub>4</sub>)
- 2) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of administrative nature:
  - +) This principle is well implemented by provision of the following information: Operator of UWWTP; Responsible authority; Connected agglomeration (ID and name); size of the agglomeration and communes included into the agglomeration; Legal acts designating SA, the UWWTP discharges to; Region and department, the UWWTP discharges to; Name of hydrographic basin and of receiving water (link to Water Framework Directive (Directive 2000/60/EC, WFD)); General explanation of UWWTD and implementation into national law (including designation and review of SA) available from a web-site linked to the interactive map<sup>44</sup>
  - 0) It needs to be clarified whether the link to WFD-elements can be established sufficiently. Currently, only the name of the hydrographic basin and of the receiving water is given. It might helpful, if also the ID of hydrological basin and ID of receiving water as well as the ID of WFD waterbody was provided
- 3) SIIFs relate (only) to information which is relevant for implementation and compliance at national level: Further parameters relevant for implementation and compliance:
  - +) This principle is well implemented by provision of the following information: Type of receiving

<sup>44</sup> <http://assainissement.developpement-durable.gouv.fr/recueil.php>





water (freshwater, coastal water, estuary); Type of receiving area (and in case of SA: name of SA and sensitivity criteria); Date, when compliance as regards waste water collecting systems needs to be achieved; Date, when compliance as regards treatment needs to be achieved; Compliance as regards collecting systems at a specific reference year on UWWTP-level (Y/N); Compliance as regards treatment type at a specific reference year (Y/N); Compliance as regards monitoring results at a specific reference year (Y/N)

- ) The following information, which is required under the UWWTD, seems to be currently not available in the system: % of the generated load of the agglomeration collected in collecting system, addressed through IAS and not collected at all; % of the generated load of the agglomeration collected in collecting system and treated in one UWWTP; No information as regards compliance with Article 3 on agglomeration-level

4) Ensuring transparency and public access:

- + ) This principle is well implemented in the following way: Web-site and interactive maps available; Very clear and self-explanatory for informed public, waste water experts and EC;

- 0) The following functionality might be additionally helpful: Data down-load functionality, layers accessibility via web-services

5) Keep information regularly up to date:

- + ) This principle is well implemented by provision of the following information: Latest available information (status at 02/05/2013) is 2011 (monitoring results) and 2012 (treatment installations); Latest available information for water quality at monitoring stations: 2010; Historical data available for the last 3 to 4 years

6) Perspective on getting (or staying) into compliance:

- + ) This principle is well implemented by provision of the following information: Information for prioritized UWWTPs is available, but only as static map and brief general action plans without detailed information
- ) The following information seems to be currently not available in the system: Detailed information about future measures, their timetables, costs, expected dates of compliance, funds,...

In a presentation during the UWWTD SIIF workshop in Brussels on 11 December 2012 the French representative presented the French web-site on UWWTD and explained the motivation for it: The web-site represents a place to find lot of information and news about sanitation (regulation, action plans and indicators, water quality of rivers, sanitation tools), that guarantees transparency and implements the Aarhus convention. With around 10,000 unique visitors per month it is a reference system for water stakeholders and saves time at the ministry to answer to individual requests. The web-site puts an additional pressure on communities to have compliant sanitation systems and the dissemination of data helps to have more accurate data. The French representative however also explained that considerable time and human resources are required to operate the database (e.g. more than 150 persons feed the database with 10% - 20% of their work time).





## Greece

Greece provides a well-structured web-site as regards the UWWTD, with good information for the informed public, waste water experts and the EC. The provisions of the UWWTD and the implementation into national law are well described to inform non-experts. Guidance documents as concerns waste water treatment as well as national and EU-reports related to the UWWTD are presented in terms of links. Greece also offers an interactive map covering the National Database of Waste water Treatment Plants (see Figure 22 to Figure 27). Compliance with the Directive on UWWTP- level is not presented as clearly as on the French web-site, but treatment type and passing or failing monitoring results for BOD<sub>5</sub>, COD, Ntot and Ptot make this information indirectly available. Taking into account the principles of a SIIF, remedial actions for UWWTPs which are not compliant with the requirements of the UWWTD are currently missing. Latest available information is from 2011 or 2012 (depending on the UWWTP).

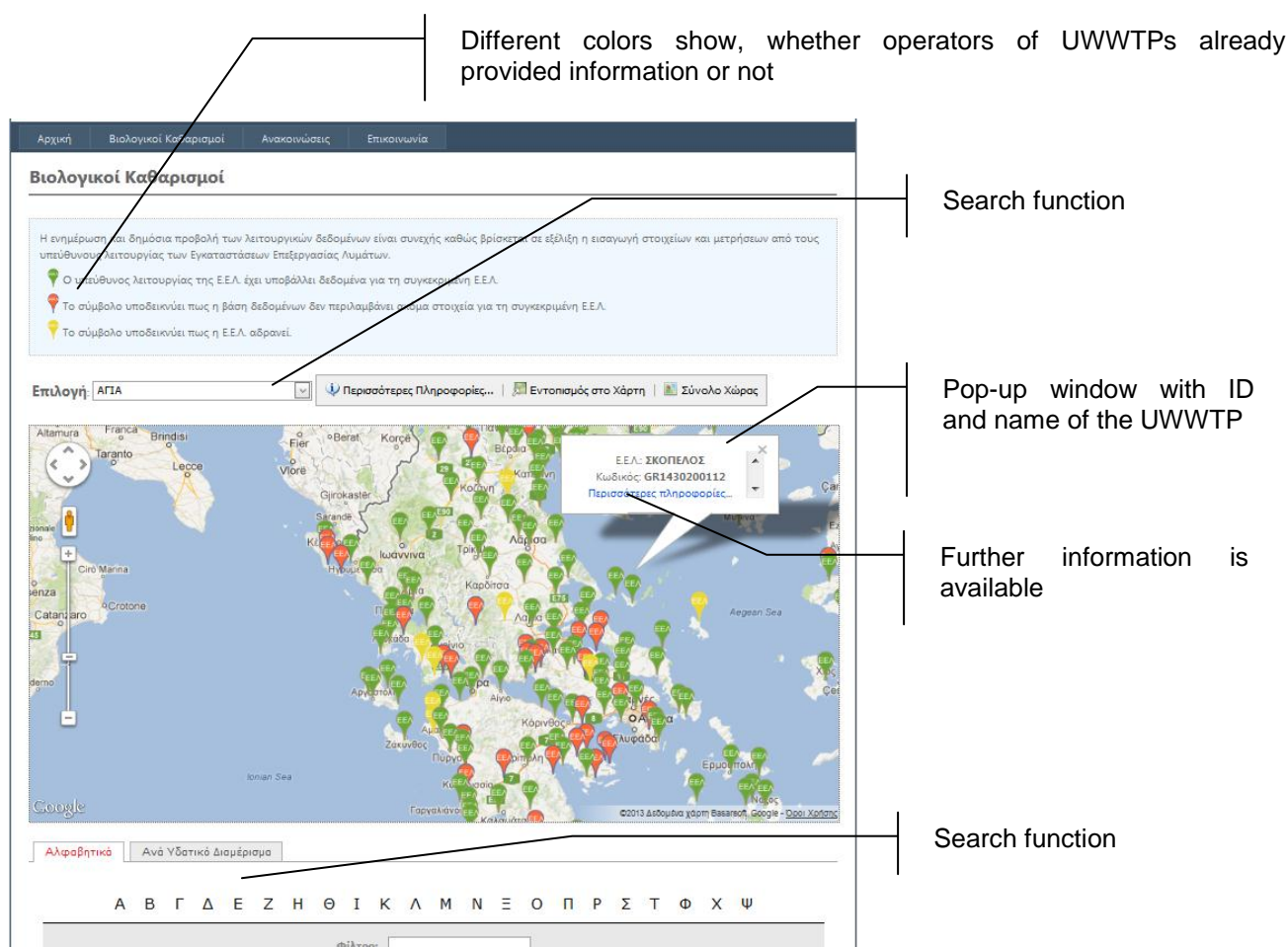


Figure 22. Example of UWWTD- presentation in Greece





Location of UWWTP and discharge point

#### Γενικά

Φορέας: Δ.Ε.Υ.Α. - ΝΗΣΟΥ ΧΙΟΥ  
 Πρόγραμμα χρηματοδότησης κατασκευής - Π/Υ: ΤΑΜΕΙΟ ΣΥΝΟΧΗΣ- ΙΔΙΟΙ ΠΟΡΟΙ  
 Ημ/νία ολοκλήρωσης κατασκευής: 31/7/1994  
 Ημ/νία έναρξης λειτουργίας: 31/7/1994  
 Ημ/νία λήξης Περιβαλλοντικών Όρων: - - Δεν έχει υποβληθεί η Απόφαση Έγκρισης Π.Ο. από την Ε.Ε.Λ.

General information (date of starting operation, client, etc)

#### Εξυπηρετούμενοι οικισμοί

Οικισμοί που εξυπηρετούνται από τον βιολογικό καθαρισμό μέσω δικτύου αποχέτευσης.

Οικισμός	Κωδικός	Πληθ. Αρχής (Μ.Ι.Π.)	Ποσοστό % Δ.Δ.	Τύπος δικτύου
ΧΙΟΣ	GR41300101	24.950	85	Χωριστικό
ΑΓ. ΜΗΝΑΣ		4.900	85	Χωριστικό
ΒΡΟΝΤΑΔΟΣ		4.800	94	Χωριστικό
ΚΑΜΠΟΧΩΡΑ		2.165	50	Χωριστικό
		<b>36.815</b>		

Communes/ agglomerations (incl. IDs) served by the UWWTP's drainage system, size of agglomerations, % served and type of sewage network

Figure 23. Example 1 of presentation of further information for each UWWTP in Greece

Τα βοθρολύματα από τους παρακάτω οικισμούς μεταφέρονται στο βιολογικό καθαρισμό με βυτιοφόρα.

Οικισμός	Πληθ. Αρχής (Μ.Ι.Π.)
Δεν υπάρχουν στοιχεία προς εμφάνιση	

Sewage from the following villages transferred to organic cleaning tankers

#### Συνδεδεμένες βιομηχανίες

Σύμφωνα με τον υπεύθυνο της εγκατάστασης, ο βιολογικός καθαρισμός δεν δέχεται και δεν επεξεργάζεται βιομηχανικά λύματα.

Associated industries

#### Εισερχόμενα φορτία

Δυναμικότητα κατασκευασμένης εγκατάστασης: 32.500 Λ/Σ

	Μέσο (Ετήσιος Μέσος Όρος)	Μέγιστο
Συνολικό εισερχόμενο φορτίο στην Ε.Ε.Λ. (Kg BOD5/day):	1.885	2.100
Εισερχόμενο φορτίο από λύματα (Kg BOD5/day):	1.845	2.055
Εισερχόμενο φορτίο από βοθρολύματα (Kg BOD5/day):	40	45

Incoming load (average and maximum)

#### Παροχή

	Μέσο (Ετήσιος Μέσος Όρος)	Μέγιστο
Συνολική εισερχόμενη παροχή στην Ε.Ε.Λ. (m3/day):	7.130	7.935
Εισερχόμενη παροχή λυμάτων (m3/day):	7.100	7.900
Εισερχόμενη παροχή βοθρολυμάτων (m3/day):	30	35

Provisions (average and maximum)

#### Γραμμή επεξεργασίας λυμάτων

- ✓ Προεπεξεργασία
- ✓ Δευτεροβάθμια
- ✓ Απομάκρυνση Αζώτου
- ✓ Απολύμανση
- ✓ Χλωρίωση

#### Γραμμή επεξεργασίας υλούς

- ✓ Πάχυνση
- ✓ Αφυδάτωση

Waste water treatment and sludge treatment installations

Figure 24. Example 2 of presentation of further information for each UWWTP in Greece





#### Διάθεση επεξεργασμένης εκροής - Αποδέκτης

Κωδικός: GR4130010110  
Όνομασία: ΑΙΓΑΙΟ ΠΕΛΑΓΟΣ  
Κατηγορία: Θάλασσα  
Χαρακτηρισμός: Κανονικός



UWWTP effluent: receiving water and sensitivity of receiving area

#### Επαναχρησιμοποίηση επεξεργασμένων

Παροχή (m<sup>3</sup>/έτος)  
Σύνολο: -  
Ψύξη: -  
Βιομηχανία: -  
Άλλη μέθοδος: -

#### Διάθεση παραγόμενης λυματολάσπης

Ξηρά Στερεά (Kg DS/έτος)  
Σύνολο: 220  
Γεωργία - Έδαφος: -  
Διάθεση σε ΧΥΤΑ: 220  
Καύση: -  
Άλλη μέθοδος: -

Ποσοστό στερεών της αφυδατωμένης λάσπης (%): 25

Reuse of treated water and disposal of sewage sludge

#### Έλεγχος λειτουργίας - Απαιτήσεις συμμόρφωσης

Ικανοποιούνται τα απαιτούμενα όρια εκροής από την εγκατάσταση. Λειτουργεί σωστά ο βιολογικός καθαρισμός. Η Οδηγία 91/271/ΕΟΚ και η ΚΥΑ 5673/400/1997 θεσπίζουν τα κριτήρια και τις απαιτήσεις συμμόρφωσης.

Έτος	BOD5	COD	TSS	T-N	T-P
2012	?	?	?	=	=
2011	✓	✓	✓	=	=

Ποιότητα είναι τα κριτήρια συμμόρφωσης.  
Τι σημαίνουν τα σύμβολα:

#### Μετρήσεις - Αναλυτικά αποτελέσματα δειγματοληψιών

Η βάση δεδομένων της Ειδικής Γραμματείας Υδάτων σας δίνει τη δυνατότητα να δείτε αναλυτικά τις μετρήσεις στην είσοδο και την έξοδο των βιολογικών καθαρισμών, όπως έχουν υποβληθεί από τον Υπεύθυνο Λειτουργίας της Ε.Ε.Λ.

Δείτε τα αναλυτικά αποτελέσματα των δειγματοληψιών...

Compliance of monitoring results. Latest available data 2012 or 2011

Analytical results: when clicking to this button, the detailed results appear (see Figure 13)

Figure 25. Example 3 of presentation of further information for each UWWTP in Greece

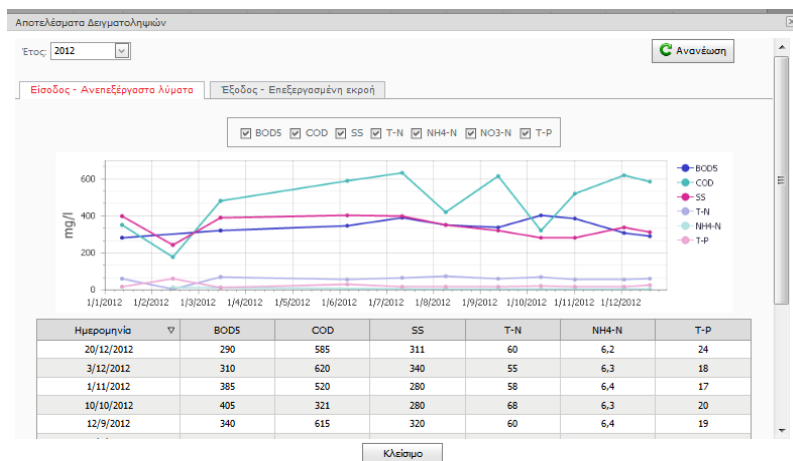


Figure 26. Example 4 of presentation of further information for each UWWTP in Greece

#### Περισσότερες πληροφορίες

Όνομα αρχείου	Τίτλος	Τύπος αρχείου	Μέγεθος (bytes)
Δεν υπάρχουν στοιχεία προς εμφάνιση			

More information

#### Επικοινωνία

Υπεύθυνος λειτουργίας: ΜΑΡΙΑ ΕΛΕΥΘΕΡΙΟΥ  
Φορέας: ΔΕΥΑ ΧΙΟΥ  
Θέση: -  
Διεύθυνση: -  
Τηλέφωνο: 22710 43893  
Fax: -  
E-mail: mareleftheriou@gmail.com

Contact details

Figure 27. Example 4 of presentation of further information for each UWWTP in Greece







The achievements and shortcomings of the Greek information system as regards UWWTD SIIF principles can be summarized as follows:

- 1) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of physical nature:
  - + ) This principle is well implemented by provision of the following information: ID, name and organic design capacity (p.e.) of UWWTP; Max. and average total incoming load on UWWTP (kg BOD<sub>5</sub>/d) = incoming sewage load + Incoming load of septage; Max. and average incoming sewage load (kg BOD<sub>5</sub>/d); Incoming load of septage (kg BOD<sub>5</sub>/d); Total incoming supply to WWTP (m<sup>3</sup>/d); Incoming waste water flow rates (m<sup>3</sup>/d); Incoming supply septage (m<sup>3</sup>/d); Treatment type; Treatment installations; Sewage sludge treatment installations; Sewage sludge production (t dry solids/a) and disposal routes
- 2) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of administrative nature:
  - + ) This principle is well implemented by provision of the following information: Operator of UWWTP; Program funding structure; Date of completion of construction; Inception Date; End Date Environmental Conditions; Agglomerations connected to the UWWTP via collecting systems, ID and size of agglomerations and % of generated load collected in collecting system; Villages (names and size), where the sewage is connected to organic cleaning tanks, contact details for each UWWTP
  - 0) It needs to be clarified whether the link to WFD-elements can be established sufficiently. It might helpful, if also the ID of the WFD waterbody was given
- 3) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Further parameters relevant for implementation and compliance:
  - + ) This principle is well implemented by provision of the following information: ID, name and type of receiving water; Sensitivity of receiving area; Compliance as regards monitoring results at a specific reference year (Y/N)
  - ) The following information, which is required under the UWWTD, seems to be currently not available in the system: No clear information, which treatment type is required according to the UWWTD; No information as regards compliance with Article 3 on agglomeration-level
- 4) Ensuring transparency and public access:
  - + ) This principle is well implemented in the following way: Web-site and interactive maps available; Very clear and self-explanatory for informed public, waste water experts and EC
  - 0) The following functionality might be additionally helpful: Data download functionality, layers accessibility via web-services
  - ) The following information seems to be currently not available in the system: No link to other water-related information (e.g. water quality at monitoring stations)
- 5) Keep information regularly up to date:
  - + ) This principle is well implemented by provision of the following information: Latest available





information (02/05/2013) as regards monitoring results is 2011 or even 2012 (UWWTPs can provide data whenever it becomes available). Unclear, which reference date the other information has; Historical data available for the 1 to 2 years

6) Perspective on getting (or staying) into compliance:

- ) The following information seems to be currently not available in the system: Detailed information about future measures to bring non-compliant agglomerations into compliance/ to keep compliance, their timetables, costs, expected dates of compliance, funds,...

## Ireland

On its web-site the Irish Environment Protection Agency (EPA) provides pdf-reports on the situation of urban waste water treatment in the reference year 2008/2009 ("Focus on Urban Waste Water Discharges in Ireland", published in February 2012), as well as two up-dates of this report for reference date 2010 (report published in June 2012) and reference date 2011 (report published in December 2012)<sup>45</sup>.

Besides different summary graphs, which for instance explain the situation of urban waste water treatment, the reports explain not only the compliance situation for each agglomeration in detail (indication of responsible authority, available treatment, treatment requirements, reason for failure with legislative requirements, but - in case of non-compliance – also the expected date for reaching compliance. In the context of the water service investment programme 2010 – 2012, the EPA-website also presents information as regards the estimated costs for implementing different measures.

The core elements of the reports are the 'urban areas', which seem to be identical to agglomerations in the sense of the UWWTD. In the maps the 'urban areas' are coded, with the numbers on the maps corresponding to the Waste Water Discharge Licence Guidance (WWDL) Registration Number of each agglomeration e.g. 34 is D0034-01. One shortcoming of the reports is, that the IDs, names and sensitivity criteria of receiving SA are not provided in the pdf-reports.

The web-page also gives detailed information as regards the licencing process of waste water treatment plants<sup>46</sup> (all documents and correspondence from application to final decision). Although this information guarantees a high level of transparency for the informed public, this information is regarded as too detailed at least in the context of the UWWTD SIIF requirements.

<sup>45</sup> [http://www.epa.ie/pubs/reports/water/waste\\_water/uww/#d.en.45292](http://www.epa.ie/pubs/reports/water/waste_water/uww/#d.en.45292)

<sup>46</sup> <http://www.epa.ie/terminalfour/wwda/index.jsp>





Compliance of all larger urban areas (165 no.) in 2011 with the effluent quality (BOD, COD & TSS) and sampling standards in the Urban Waste Water Treatment Directive.

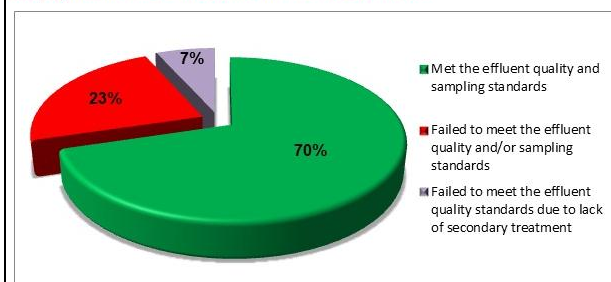


Figure 28. Example of summary graphs on the Irish web-site

Table 4.2: Compliance in 2010 and 2011 with the Directive's requirements on total phosphorus in waste water discharged to sensitive areas from urban areas >10,000 p.e.

Water services authority	Urban area	Reg. No.	Phosphorus pass or fail in 2010	Reason for fail in 2010	Phosphorus pass or fail in 2011	Reason for fail in 2011
Carlow	Carlow town	D0029-01	Pass		Pass	
Cavan	Cavan	D0020-01	Pass		Pass	
Cork County	Carrigrohilly <sup>25</sup>	D0044-01	Fail	Quality & sample no.	Pass <sup>26</sup>	
Cork County	Fermoy	D0058-01	Pass		Pass	
Cork County	Mallow <sup>26</sup>	D0052-01	Pass		Pass	
Donegal	Killybegs <sup>27</sup>	D0011-01	Fail	Quality & sample no.	Fail	Quality & sample no.
Dublin City	Dublin City (Ringsend)	D0034-01	Fail	Quality	Fail	Quality
Fingal	Swords <sup>28</sup>	D0024-01	Fail	Quality	Pass	
Kerry	Killamey	D0037-01	Pass		Pass	
Kerry	Tralee <sup>28</sup>	D0040-01	Pass <sup>30</sup>		Pass <sup>30</sup>	
Kildare	Athy	D0003-01	Pass		Pass	
Kildare	Leixlip	D0004-01	Pass		Pass	
Kildare	Osberstown	D0002-01	Pass		Pass	
Kilkenny	Kilkenny City <sup>28</sup>	D0018-01	Fail	Quality	Fail	Quality
Laois	Portlaoise	D0001-01	Pass		Pass	

Figure 29. Example of presenting compliance status of single agglomerations (I)

Urban area	Reg. No.	Pass or Fail	Reason for failure	Persistent failures	Urban area (p.e.)	WWTP (p.e.)	Level of treatment provided	Receiving water	Sensitive area	River Basin District
Achill Island Central	D0072-01	Pass			2,169	4,000	Secondary	Coastal		Western
Achill Sound	D0511-01	Pass <sup>41</sup>			599	1,200	Secondary	Coastal		Western
Balla	D0216-01	Pass			884	1,200	Secondary	River		Western
Balina	D0016-01	Pass			12,095	25,000	Secondary & nutrient	Estuarine		Western
Balindine	D0385-01	Pass			706	730	Secondary & nutrient	River		Western
Balintrobe	D0070-01	Pass			8,409	8,000	Secondary & nutrient	River		Western
Ballycastle	D0366-01	Pass			340	600	Secondary	River		Western
Ballyhaunis	D0069-01	Pass			5,944	4,000	Secondary & nutrient	River		Western
Banger Emis	D0215-01	Fail	Quality		583	1,080	Secondary	River		Western
Belcarra	D0366-01	Fail	Quality	✓	400	500	Secondary	River		Western
Belmullet	D0074-01	No secondary			800		No treatment	Coastal		Western
Bohola	D0360-01	Pass			250	650	Secondary	River		Western
Castlebar	D0047-01	Fail	Quality		26,794	35,000	Secondary & nutrient	River	✓	Western
Charlestown	D0214-01	Fail	Quality	✓	1,356	1,200	Secondary	River		Western
Chenormis	D0071-01	Pass			3,051	5,333	Secondary & nutrient	River		Western
Comp.	D0086-01	Pass			844	2,324	Secondary & nutrient	Lake		Western
Crossmolina	D0073-01	Pass			2,154	3,150	Secondary & nutrient	River		Western
Doogort	D0387-01	Fail	Quality		420	700	Secondary	Coastal		Western

Figure 30. Example of presenting compliance status of single agglomerations (II)

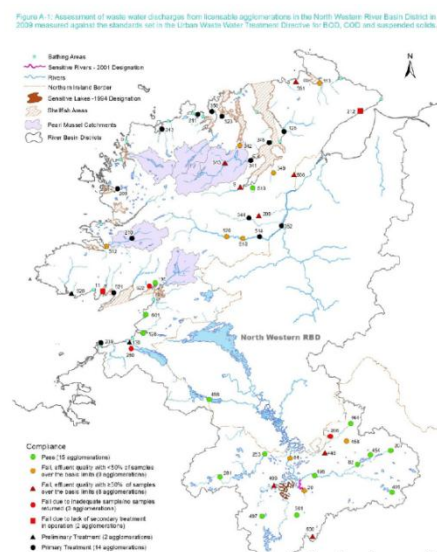


Figure 31. Example of presenting compliance status of single agglomerations (III)

Water services authority	Urban area	Date secondary treatment required	Estimated completion date <sup>2</sup>
Fingal	Lusk	2005	mid 2012 connection to Portrane
Cork	Skibbereen	2005	end 2012
Wicklow	Bray	2000	2012 pipeline to Shanganagh
Galway	Clifden	2005	2013
Cork	Cobh	2005	2014 <sup>3</sup>
Cork	Passage West/Monkstown	2005	2014 <sup>3</sup>
Cork	Ringskiddy/Crosshaven/Carrigaline	2000	2014 <sup>3</sup>
Donegal	Moville	2005	mid 2014
Donegal	Killybegs	2008	end 2014
Cork	Youghal	2005	end 2015
Wicklow	Arlow	2005	end 2015

Figure 32. Example of presenting the date of reaching compliance

Scheme Name	Contract Name	W/S	Estimated Cost €
<b>Dublin City</b>			
Ballymore Eustace Water Treatment Plant Phase 3	Contract 1 (Civil Works)	W	65,535,000
Ringsend Wastewater Treatment Plant Extension	Contract 2 (M&E Works)	W	21,698,000
Water Conservation Stage 3	Sludge Treatment Plant Works	S	21,245,000
<b>Dun Laoghaire/Rathdown</b>			
Bray Shanganagh Scheme	Dublin Region Watermain Rehabilitation Project (Dublin City) Tranche 1	W	26,642,000
<b>Sandford High Level Water Supply Scheme</b>			
	Contract 1 (Wastewater Treatment Plant - DBO)	S	80,337,000
	Contract 1 (Civil Works)	W	16,244,000
	Contract 2 (M&E Works)	W	1,781,000

Figure 33. Presentation of estimated costs for construction of waste water infrastructure

The achievements and shortcomings of the Irish information system as regards UWWTD SIIF principles can be summarized as follows:

- 1) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of physical nature:





- + ) This principle is well implemented by provision of the following information: ID and name of 'urban area' (i.e. 'agglomeration' in the sense of the UWWTD), Name and organic design capacity (p.e.) of the UWWTP, Size of the agglomeration (p.e.); Treatment type (preliminary/primary/ secondary/secondary with nutrients reduction)
  - 0) The link to other water-related topics is provided by: Seriously/ moderately or slightly polluted river locations where there is a high probability that the principle cause of pollution can be attributed to urban waste water discharges: names of rivers and river codes)
  - ) The following information, which is required under the UWWTD, seems to be currently not available in the system: Differentiation of more stringent treatment into N- and/ or P-removal
- 2) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of administrative nature:
- + ) This principle is well implemented by provision of the following information: Water service authority for each 'urban area'; Name of river basin districts (RBD), the agglomeration is located in, general information as regards the UWWTD and its implementation into national law
  - 0) It needs to be clarified whether the link to WFD-elements can be established sufficiently. It might helpful, if also the ID of the RBD or the WFD waterbody was given
  - ) The following information seems to be currently not available in the system: Communes included in the agglomeration; legal acts designating SA, the UWWTP discharges to
- 3) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Further parameters relevant for implementation and compliance:
- + ) This principle is well implemented by provision of the following information: Type of receiving water (freshwater/ coastal water/estuarine); Type of receiving area and in case of a sensitive area: date of designation; Status of compliance at reference date 2011, 2010 and 2009 as regards secondary treatment (pass/ fail/ fail due to lack of secondary treatment in operation/ failure due to incomplete sampling); Status of compliance at reference date 2011, 2010 and 2009 as regards nutrients removal (pass/ fail/ failure due to incomplete sampling)
  - ) The following information, which is required under the UWWTD, seems to be currently not available in the system: % of the generated load of the agglomeration collected in collecting system, addressed through IAS and not collected at all; % of the generated load of the agglomeration collected in collecting system and treated in one UWWTP; No information as regards compliance with Article 3 on agglomeration-level
- 4) Ensuring transparency and public access:
- 0) Data is publically available, but scattered in the pdf-report between different tables and Annexes. It is difficult to get a quick overview on all information available for one agglomeration
  - 0) The following functionality might be additionally helpful: Data download functionality, layers accessibility via web-services
- 5) Keep information regularly up to date:





- + ) This principle is well implemented by provision of the following information: At reference date 13/5/2013 the latest available data refers to reference year 2011

6) Perspective on getting (or staying) into compliance:

- + ) This principle is well implemented by provision of the following information: Date, when secondary treatment/ nutrient reduction was required according to the Directive (for non-compliant agglomerations); Estimated completion date, when secondary treatment/ nutrient reduction will be implemented (for non-compliant agglomerations)

Apart from the information, which is made publically available at the EPA web-site, Ireland has recently elaborated a project dealing with the elaboration of a tool to prioritize measures under the WFD. The reason for elaborating this project was that information as regards WFD measures and actions is usually recorded on wide variety of stakeholder systems and that this type of information is typically unstructured. It was clear that not only a better segregation of actions and measures was required, but also that data needed to be more relatable. Therefore, Irish authorities defined Action to Implement a Measure (AIM), which are planned to be recorded instead of measures and which should be clearly linked to pressures (which again are linked to one or multiple waterbody). In this context all actions relating actions to improving water quality are categorised under one or multiple measures.

The reason for this methodology was the fact that there are more AIMS than resources and that there is the need to collate all AIM's in a comparable manner across multiple directives. This was done by auditing of existing data and cleansing of data to reporting database (the data warehouse). Afterwards an overarching risk methodology for all pressures based on risk to catchment was created. In order to prioritise on waterbody/ catchment – level, a score/index was assigned to waterbodies using Beneficial Use Index/Eco System services methodology.

In order to test this new Programme of Measures approach, Irish authorities have chosen the UWWTD as prototype for this approach. In this context Irish authorities engaged with internal and external stakeholders, finalised business requirements (including key definitions of measures and pressures) and the technical architecture, assessed and defined the data architecture for WFD – master data sources for the future, built a Data Warehouse, created an infrastructure to collate data from Line of Business systems to the Data Warehouse and built a system to interact easily with Warehouse data.

The reason for establishing a data warehouse was, that it represents a central location and permanent storage space for various data sources needed to support analysis and reporting. It is intended to consolidate data from multiple source systems, to save time, as users can access data in one location, to improve data quality and consistency by converting data to common format, to allow decisions to be made based on 'complete' picture and to store historical data allowing trend analysis over time, analysis for a particular period and future predictions.

An overview of the Irish Programmes of Measures (POM) approach and the data warehouse is given in Figure 34 and Figure 35. The benefits of the POM approach are summarized by Irish authorities as follows:

- Single National System to plan, manage and report on measures and meet WFD requirements for 2015 and beyond,







- Provide information to stakeholders to support decision making and allocation of resources to measures that will deliver greatest benefit at local and national level,
- Utilise existing data being captured in 'line of business' systems to greater effect by providing interactive data tools and data visualisation,
- Drive enforcement effort and compliance with Daughter Directives by providing integrated view of non-compliances at waterbody level,
- Support WFD goal of achieving and maintaining good water quality status,
- Consolidate information to give the complete 'environmental' picture for a waterbody allowing actions to be coordinated across stakeholders.

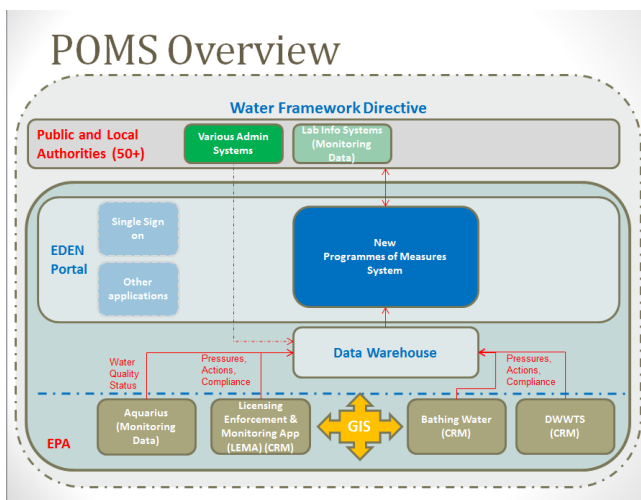


Figure 34: Overview on Irish POM-approach

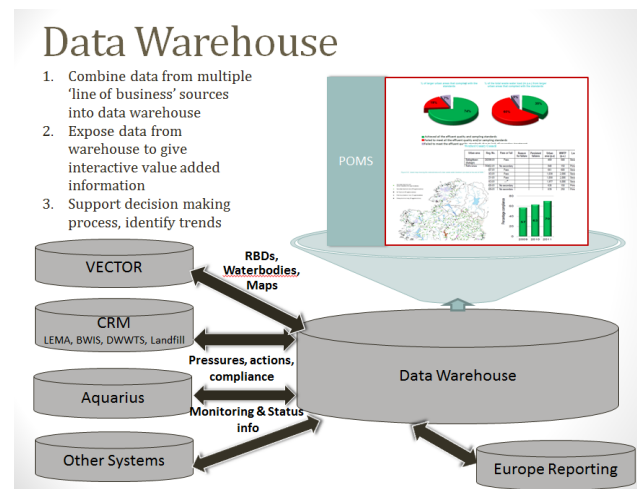


Figure 35: Irish Data Warehouse

There seem to be a lot of similarities between the Irish POM approach and the SIIF approach:

- The basic question is whether a MS/ agglomeration/ etc. is compliant with a directive (implementation of basic measures)
- In case of non-compliance, the reasons must be clarified (inducing the need for more and up-to-date information)
- The measures to bring the MS/ the agglomeration/ etc. into compliance have to be clearly identified (AIMs and measures)
- Rather than reporting, data collection is driven by integrating with stakeholder systems, WebServices, SQL Server Integration Services (SSIS), etc.
- One stop shop for stakeholders to get information about improving/maintaining water quality
- Provides clear link:
  - ✓ From the action to the directive
  - ✓ What the action costs
  - ✓ Why a stakeholder prioritises one action over another
  - ✓ Who is responsible
  - ✓ Where the data comes from







## Poland

Taking into account the fact that Poland has to implement the UWWTD until 2015, Polish authorities have introduced the tool of national programs of urban waste water treatment (Krajowy Program Oczyszczania Ścieków Komunalnych - KPOŚK), which identify the actual needs for sewage management and prioritize their implementation in such a way that the requirements of the Directive will be met on time.

The first KPOŚK was developed in the year 2003 and listed 1378 agglomerations  $\geq 2,000$  p.e. in conjunction with a list of the required activities for the construction, expansion or modernization of sewage treatment plant and the construction and upgrading of sewerage systems to be achieved in these areas by the end of 2015.

The first up-date of the KPOŚK was done in 2005, the second one in 2010 and the third one in 2011. Preparatory work for the next up-date of the report (reference date 2012) is currently on-going.

The KPOŚK are publically available from the internet<sup>47</sup> in terms of downloadable Excel-files, with one file for each of the 16 NUTS2-regions of Poland. Each agglomeration is identified in terms of an ID, which is identical to the IDs reported under Article 15(4). The tables provide very detailed information for each agglomeration including information relevant for the current reporting under Article 15(4) of the UWWTD and also relevant for the future UWWTD SIIFs. The following list gives an extract of most relevant parameters and summarizes the achievements and shortcomings of the Polish information system as regards UWWTD SIIF principles:

- 1) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of physical nature:
  - + ) This principle is well implemented by provision of the following information: ID, name and size (p.e.) of agglomerations; Share of waste water from resident population, industry and non-resident population; Type and length of the sewer system and information of type and length of the sewer system built and/ or renovated in the last year; Number of sewer overflows and methods to minimize pollution from them; ID, name, address, treatment type, organic design capacity (p.e.), average/ maximum/ target treatment capacity ( $\text{m}^3/\text{d}$ ), receiving water of the UWWTPs serving the agglomeration; Average annual concentrations of  $\text{BOD}_5$ , COD, suspended solids,  $\text{N}_{\text{tot}}$  and  $\text{P}_{\text{tot}}$  in the influent and effluent of the UWWTP, reduction rates for  $\text{N}_{\text{tot}}$  and  $\text{P}_{\text{tot}}$  and total annual amount of treated waste water; Generation and management of sewage sludge
  - ) The following information seems to be currently not available in the system: No links to other water-related topics are provided
- 2) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of administrative nature:
  - + ) This principle is well implemented by provision of the following information: Name, email and telephone number of the person providing information for each agglomeration; District, province, name of water region and basin the agglomeration is located in; Communities

<sup>47</sup> <http://www.kzgw.gov.pl/pl/Krajowy-program-oczyszczania-sciekow-komunalnych.html>





belonging to the agglomeration and main community; number of the resolution establishing the agglomeration

- 0) It needs to be clarified whether the link to WFD-elements can be established sufficiently. It might be helpful, if also the ID of the water basin or of the WFD waterbody was given
- ) The following information seems to be currently not available in the system: Legal act designating SA
- 3) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Further parameters relevant for implementation and compliance:
  - +) This principle is well implemented by provision of the following information: Number of residents connected to collecting system, served by rolling trucks and served by individual systems,
  - ) The following information seems to be currently not available in the system: Type of receiving water (freshwater/ coastal water/estuarine); Type of receiving area and in case of a sensitive area: ID, name, date of designation and criteria of designation; Treatment type required according to the UWWTD, Information on UWWTD compliance
- 4) Ensuring transparency and public access:
  - +) Current and historical data is publically available in terms of down-loadable Excel-files
  - 0) The presentation/ visualization of data could be developed further to provide e.g. interactive maps
- 5) Keep information regularly up to date:
  - +) This principle is well implemented by provision of the following information: At reference date 13/5/2013 the latest available data refers to reference year 2011
- 6) Perspective on getting (or staying) into compliance:
  - +) This principle is well implemented by provision of the following information: plans for the period 2012 – 2015 and causes for delays as regards their implementation
  - ) The following information seems to be currently not available in the system: Clear definition of the measures to implement the plans for future implementation, financial resources required and sources of financing

The sections dealing with the treatment requirements originating from receiving areas, compliance with the UWWTD and future measures to reach compliance is not yet very advanced and could be developed further. However, besides detailed information as regards the current status of the agglomeration (comprising relevant information going beyond the requirements of UWWTD Article 15(4)- reporting), preliminary information on future measures is already available.





## Spain

Spain provides a very well structured web-site in terms of the national information system for water (El Sistema Integrado de Información del Agua, SIA)<sup>48</sup>. SIA covers the following four main sections:

- Interactive maps covering different water related elements (e.g. UWWTPs, bathing waters, watersheds). As regards the UWWTD relevant elements cover agglomerations, UWWTPs (both reference date 2008) and SA (reference date 2010)
- Digital Water Book: gives structured access to information on water to provide a better understanding of environmental information by those persons who do not have specific knowledge in hydrology.
- Water System Indicators: aggregated data access in the form of indicators that reflect, in a few values, the most relevant aspects of water in Spain.
- SIA Download: raw data for analysis and advanced studies with information.

### Interactive maps

In the interactive maps different water related elements can be selected to be shown on the map (see Figure 36). Data can be displayed in terms of interactive maps or in terms of lists, which can be also downloaded as Excel-tables (see Figure 37). When clicking on the section 'more information', several key parameters for agglomerations/ UWWTPs/ SA are displayed (see Figure 38 and Figure 39)

As regards the requirements of future UWWTD SIIFs the available information is not very up-to-date. In addition, compliance with the Directive on agglomeration- and/ or UWWTP-level, as well as remedial actions for UWWTPs which are not compliant with the requirements of the UWWTD is/ are currently not made publically available via the SIA.

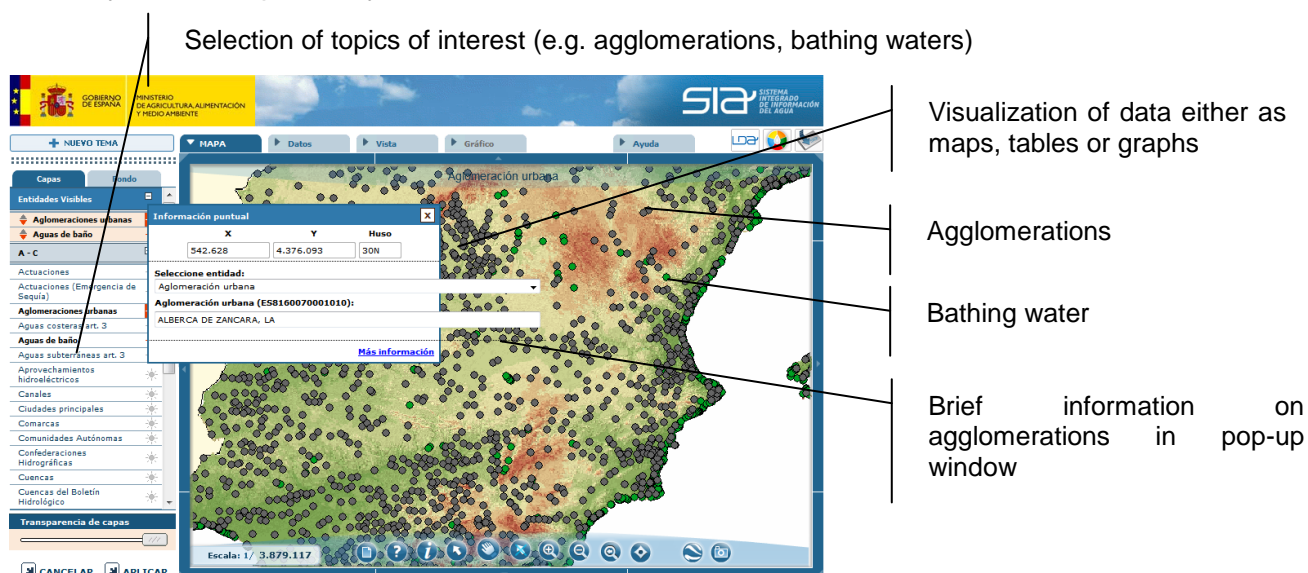
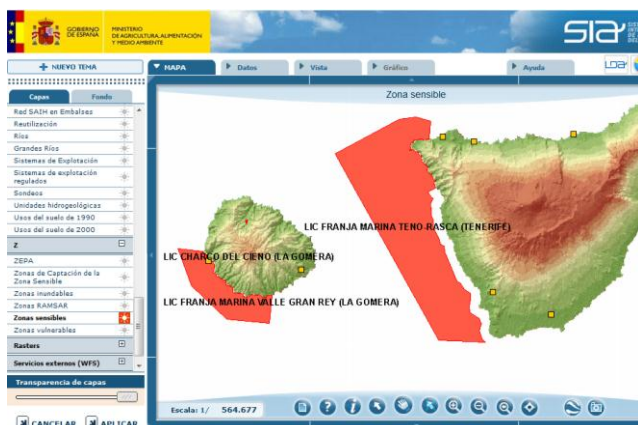


Figure 36. Example of presenting water related items in SIA in terms of interactive maps

<sup>48</sup> <http://www.magrama.gob.es/es/agua/temas/planificacion-hidrologica/sia/>





Available information on SA:

- ID
- Name
- Size (km<sup>2</sup>)
- Competent authority
- Date, when designation was published
- Name of the river basin
- Name of the legal act of designation of the sensitive area
- Name of the autonomous community

Figure 40. Example of presenting information as regards SA in the interactive maps of SIA

## Digital Water Book

La evolución del grado de conformidad con la [Directiva 91/271/CEE](#) a lo largo del periodo que abarcó el Plan de Saneamiento y Depuración 1995-2005 se encuentra en el siguiente gráfico expresado como la carga contaminante tratada (en % de habitantes equivalentes).

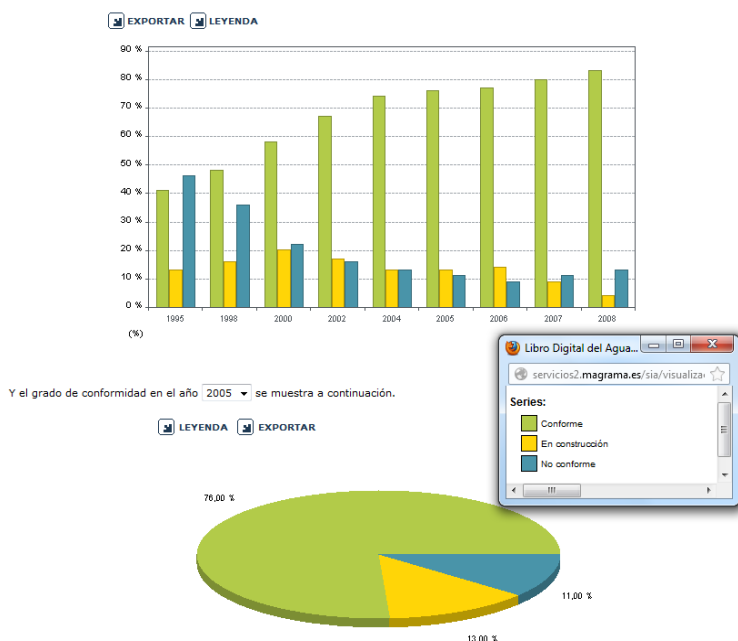


Figure 41. Example for information presented as regards urban discharges in the SIA-section 'Digital Water Book'

## Water Indicator System

The Water Indicator System is a set of key measures that characterize the state of the aquatic environment and the impact of human activity on it. It is part of an effort to synthesize the most relevant information contained in the environmental and socioeconomic data collected by the Ministry of Environment and Rural and Marine Affairs.







The Water Indicator System is part of the DPSIR (Driving force, Pressure, State, Impact and Response), whose acronym means determining factor, pressure, state, impact and response, and has been developed by the EEA to describe the interactions between human activity and the environment. The single elements can be described as follows:

- **Determinants:** determinants indicators describe the environmental, social, demographic and economic pressures significantly influence the environment.
- **Pressures:** are human activities that cause or may cause problems in the environment. Pressure indicators describe the emission of pollutants, and the use of natural resources.
- **Status:** the status indicators describe the status of various aspects of the environment at any given time. The state also depends on natural conditions, pressures on the environment and measures of environmental protection have been implemented.
- **Impact:** impact indicators show the consequences of changes in the state of the environment or population.
- **Answer:** the response indicators reflect society initiatives and management to improve environmental problems.



Figure 42. Example for water indicators presented in SIA

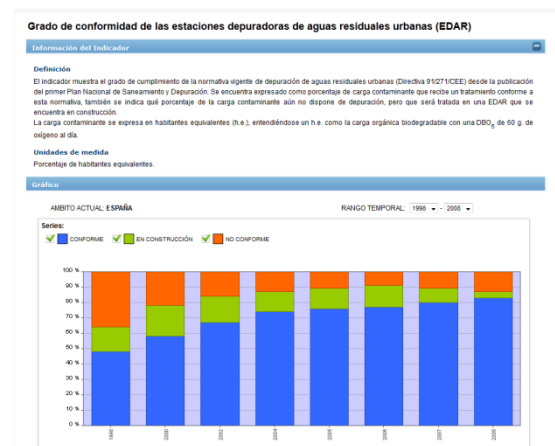


Figure 43. Example for indicator 'Status of UWWTD compliance

## Data down-load section







#### ■ Descargas :::

Documentos Datos por tema Datos por entidad Series de datos Directiva Marco del Agua

- Marco Físico
- Marco Administrativo y de Gestión
- Marco Socioeconómico / Presiones
- Recursos hídricos
- Zonas protegidas
- Redes de Medida
- Objetivos medioambientales y Evaluación de riesgo
- Otros
- Medidas / Actuaciones

### Litología

Título	Tipo	Tamaño	
Datos alfanuméricos	Archivo de hoja de cálculo	104 KB	Descargar
Mapa temático	Archivo Adobe Acrobat	181 KB	Descargar
Más información sobre hidrogeología en la Web del Ministerio.	Enlace	-	Abrir

subir

### Sondeos

Título	Tipo	Tamaño	
Más información sobre Sondeos de investigación hidrogeológica y geotécnica en la Web del Ministerio.	Enlace	-	Abrir

subir

### Afloramientos permeables

Título	Tipo	Tamaño	
Datos alfanuméricos	Archivo de hoja de cálculo	103 KB	Descargar
Mapa temático	Archivo Adobe Acrobat	196 KB	Descargar
Más información sobre hidrogeología en la Web del Ministerio.	Enlace	-	Abrir

subir

### Ríos

Título	Tipo	Tamaño	
Archivo de información			

The SIA download page offers direct access to all alphanumeric and geographic data available in the system. Through a structured menu items and variables can be downloaded in Excel or pdf file format or as shape files. This direct access to 'raw' data is designed for those who need to have the basic information to run specialized studies or analyzes.

Figure 44. Example for data down-load section in SIA

The achievements and shortcomings of the Spanish information system as regards UWWTD SIIF principles can be summarized as follows:

- 1) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of physical nature:
  - + This principle is well implemented by provision of the following information: ID, name and size (p.e.) of agglomeration; Name(s) of municipalities forming the agglomeration; Fraction of the load originating from inhabitants and industry; Location of the agglomeration (coordinates); ID, name, treatment type and location (coordinates) of the UWWTP, link between agglomeration and UWWTP seems to be only available via names
  - + The link to other water-related topics is provided by: Provision of several water-related topics in the interactive maps (e.g. Bathing waters)
- 2) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of administrative nature:
  - + This principle is well implemented by provision of the following information: Name of hydrographical basin and province, the agglomeration discharges to; Responsible authority for designation of SA
  - The following information seems to be currently not available in the system: Operator of UWWTP; responsible authority for agglomeration and UWWTP, Legal acts designating the SA
- 3) SIIFs relate (only) to information which is relevant for implementation and compliance at national level: - Further parameters relevant for implementation and compliance:





- + ) This principle is well implemented by provision of the following information: Reduction rates for BOD<sub>5</sub>, COD, suspended solids, Ntot and Ptot on agglomeration level; Discharge into sensitive/ normal area; In case of discharge into a sensitive area, the name of the SA is given
  - ) The following information, which is required under the UWWTD, seems to be currently not available in the system: In case of discharge into a SA, the ID, designation date and designation criteria; % of the generated load of the agglomeration collected in collecting system, addressed through IAS and not collected at all; % of the generated load of the agglomeration collected in collecting system and treated in one UWWTP; No information as regards compliance with Article 3, Article 4 (and Article 5) on agglomeration-level
- 4) Ensuring transparency and public access:
- + ) This principle is well implemented by provision of the following information: Clear structure of the web-site; good information for informed public, interactive maps, down-loadable datasets
  - 0) More comprehensive information could be made available for waste water experts and the EC
- 5) Keep information regularly up to date:
- ) At reference date 13/5/2013 the latest available data refers to reference year 2008 (agglomerations and UWWTPs) and 2010 (SA). This means that the information is not up-to-date
- 6) Perspective on getting (or staying) into compliance:
- ) The following information seems to be currently not available in the system: Detailed information about future measures to bring non-compliant agglomerations into compliance/ to keep compliance, their timetables, costs, expected dates of compliance, funds,...

## Cyprus

As can be seen from Annex II Cyprus provides very detailed information as regards the UWWTD on a national basis via two web-sites<sup>49</sup> and on the web-sites of eight sewerage boards, with information from sewerage boards being inhomogeneous as regards structure and completeness. The information is very comprehensive and partly covers the requirements of future SIIFs (e.g. information on waste water infrastructure projects co-financed by different funds), but as the information is scattered between the different web-sites and not homogenous for all agglomerations/ UWWTPs, the Cyprus system cannot be regarded as best-practice example for a national UWWTD SIIF.

However, in the context of the UWWTD SIIF workshop in December 2012, Cyprus authorities presented current developments for monitoring the UWWTD national implementation plans in

<sup>49</sup>Water Development Department:

[http://www.moa.gov.cy/moa/wdd/Wdd.nsf/cofinance\\_en/cofinance\\_en?OpenDocument](http://www.moa.gov.cy/moa/wdd/Wdd.nsf/cofinance_en/cofinance_en?OpenDocument)

Department of Environment - Pollution Control :

<http://www.moa.gov.cy/moa/environment/environment.nsf/All/164774A9C2FAEFE0C2257949002C022F?OpenDocument> and [http://www.moa.gov.cy/moa/wdd/Wdd.nsf/sewage\\_schemes\\_en/sewage\\_schemes\\_en?OpenDocument](http://www.moa.gov.cy/moa/wdd/Wdd.nsf/sewage_schemes_en/sewage_schemes_en?OpenDocument)





Cyprus. The last national implementation plan was elaborated in 2008 (NIP 2008, see also Figure 56) and a new one is currently under preparation. In Cyprus many different organisations are involved in the elaboration of the NIPs (Council of Ministers, Ministry of Agriculture, Natural Resources and Environment, Ministry of Interior, Ministry of Finance, Planning Bureau, Rural and Urban Sewerage Boards). Information and data for the NIPs are obtained from census, the Cyprus Tourist Organization and sewerage boards. Information required for the NIP covers data regarding the progress of the design, tendering, construction works and cost and are up-dated regularly, as they are necessary and helpful for better planning due to the long procedures and periods required until construction. Data arising from the operation of the sewerage systems (e.g. flows, loads, population equivalents etc.), are obtained on demand for reporting purposes, according to the frequencies and the requirements of the Directive. Data is currently kept in tabular form (see Figure 45, but currently expanded to a newly installed GIS system).

The current Excel-table including a clear colour code allows the prompt identification of the current status of implementation, as well as the current plans and main obstacles for implementing the Directive. Therefore, this table can be regarded as best practice example for an UWWTD SIIF element.

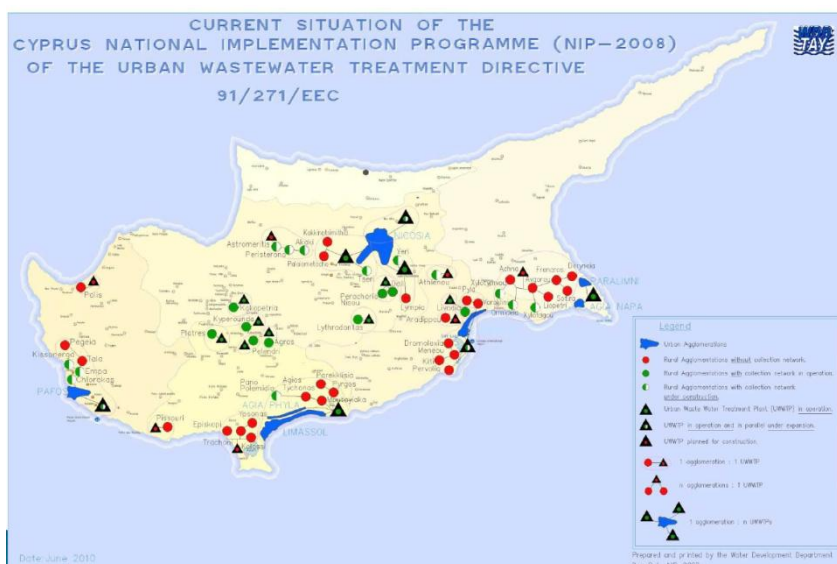


Figure 45. Example of presenting the current status of the national Implementation Plan in Cyprus (map is not publically available, but only used for internal purposes)

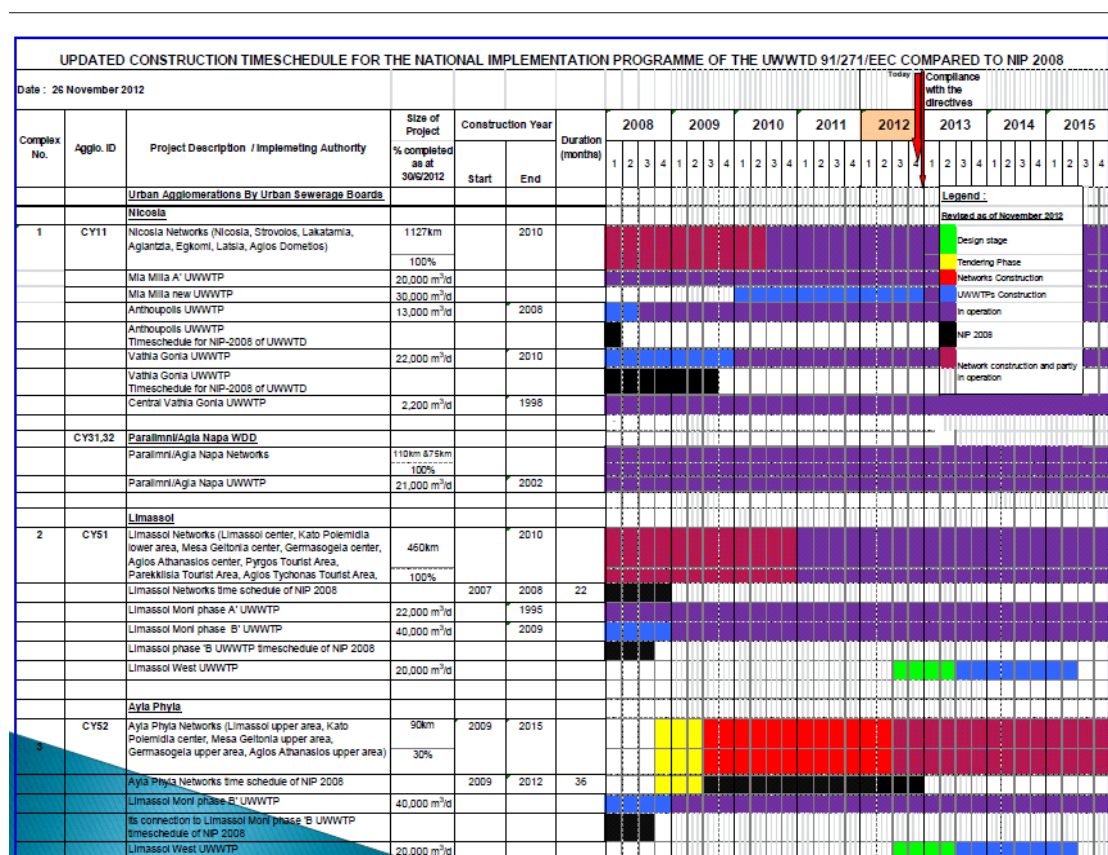


Figure 46. Cyprus example of up-dating information for the NIP

The achievements and shortcomings of the Cypriot information system as regards UWWTD SIIF principles can be summarized as follows (only national systems were investigated in detail)

- 1) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of physical nature:
  - 0) This principle is basically implemented by provision of the following information The last report provided under Article 15(4) in the year 2011 (reference date of information: 2009) is made publically available for down-load as xml-file; Effluent concentrations of urban waste water treatment plants from reference year 2008 – 2011 (BOD, COD, suspended solids, Ntot, Ptot, E. coli, Boron, Chlorides, conductivity), information whether a collecting system is in place
    - ) The link to other water-related topics is provided by: No link to other water-related topics is provided
- 2) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of administrative nature:
  - ) The following information seems to be currently not available in the system: responsible authority for agglomerations/ UWWTPs, operators of UWWTPs, communes included in an agglomeration





- 3) SIIFs relate (only) to information which is relevant for implementation and compliance at national level: - Further parameters relevant for implementation and compliance:
  - + ) This principle is well implemented by provision of the following information: All relevant information is provided by means of the last Article 15(4) - report
- 4) Ensuring transparency and public access:
  - 0) General information as regards the UWWTD is given on the web-site and for the EC, the last Article 15 – report is made available. However, the Article 15 – report is in fact not useable , as no definition of parameters is provided and as this report is in fact not readable in the provided format (xml – format)
  - + ) For the purpose of public information, general information as regards the UWWTD is provided through the Article 16 report, which is published in the website of the Department of Environment as well as in the Government Newspaper. This report is readable and is available as pdf-report in national language. The NIP is very transparent as regards the future measures to bring non-compliant agglomerations into compliance. The use of different color codes allows a quick overview. The Excel-table with the clear color code, which presents the status of implementation, plans and main obstacles for implementing the Directive, is publically available via the National Implementation Program (the last NIP-2008), which is published in the website of WDD. The updated one will be published via the new NIP, which is under preparation.
- 5) Keep information regularly up to date:
  - 0) Latest available information available to the public refers to the reference year 2009 and hence – cannot be regarded as up-to date. For the NIP, which is however not publically available, the latest available information is 2012. Effluent concentrations provided by the Department of Environment, under the last Article 15(4) reporting exercise, refer to the reference year 2009.
- 6) Perspective on getting (or staying) into compliance:
  - + ) This principle is well implemented by provision of the following information in the NIP: date when compliance will be achieved, date of /timeline for design of measures on waste water collection and treatment, date of /timeline for tendering of measures on waste water collection and treatment, date of /timeline for construction of measures on waste water collection and treatment, date of operation of waste water collection and treatment
  - ) No complete information is currently provided as regards the financial resources required for future measures and the funding of these measures. The National Implementation Program 2008 (NIP-2008) includes some information regarding the financial resources required for the implementation of the Directive and the funding of these resources.







## Slovenia

Slovenia provides information as regards the UWWTD in two different databases, which are made publically available/ visualized on two different web-sites<sup>50</sup>. The “Atlas okolja” – English: “Environmental Atlas” represents an interactive map, which gives SA, agglomerations and UWWTPs and allows linkages to other water related issues (e.g. bathing waters, water protection areas) (see Figure 47 and Figure 48). The reference date of information is not explicitly given on the web-site. The WEB- application on emission data provides downloadable information on emissions from WWTP and industrial facilities (see Figure 49). Latest available information dates back to 2012.

Although many elements, which are made publically available, need to be further developed in the context of UWWTD SIIF principles, the visualization of data especially in the “Atlas okolja” – English: “Environmental Atlas”, can be regarded as good example for the implementation of SIIF principles. Not all information, which is available in the Slovenian water information system, is currently made publically available: hence, the system might already be improved by the publication of more comprehensive data.

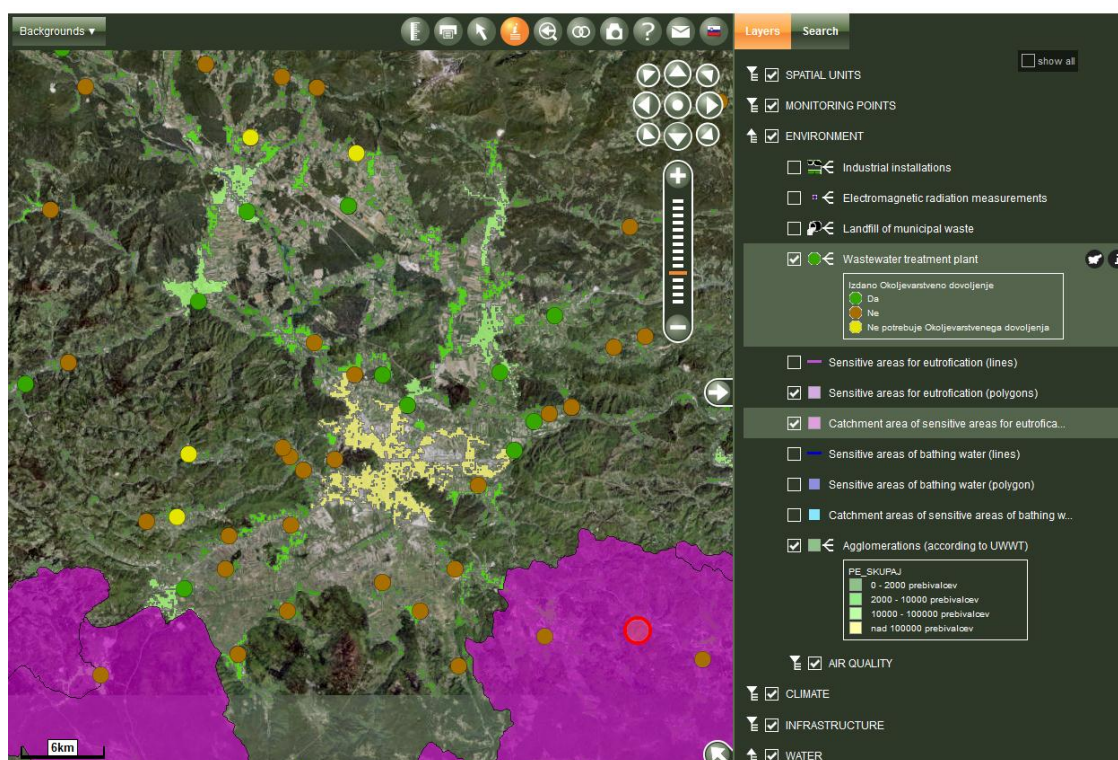


Figure 47. Example of UWWTD- presentation in Slovenia

<sup>50</sup> “Atlas okolja” – English: “Environmental Atlas can be found under: <http://gis.arso.gov.si/atlasokolja/>.



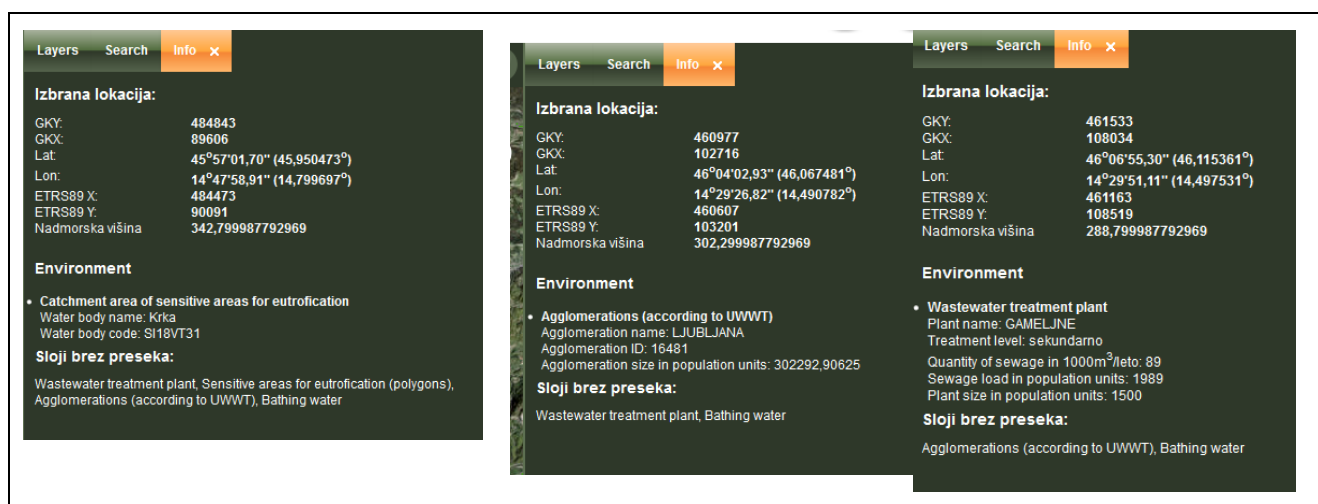


Figure 48. Information made available for SA, agglomerations and UWWTPs

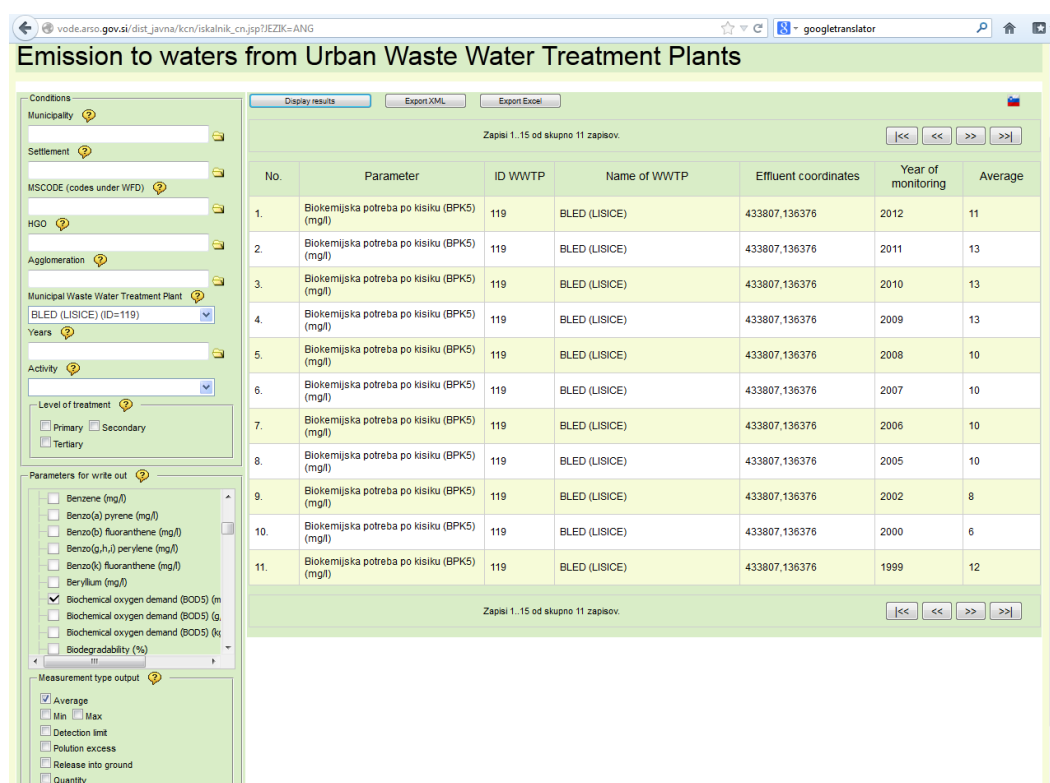


Figure 49. Information made available in the Slovenian web application on water emission

The achievements and shortcomings of the Slovenian information system as regards UWWTD SIIF principles can be summarized as follows (only national systems were investigated in detail)

1) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of physical nature:

+) This principle is well implemented by provision of the following information: ID, name, location (coordinates) and size (p.e.) of the agglomeration, ID, name, location (coordinates)





and organic design capacity (p.e.) of UWWTPs; quantity of sewage load (m<sup>3</sup>/year) at the UWWTP, annual sewage load (p.e.); as regards SA: criteria for designation (e.g. eutrophication), waterbody code, waterbody ID. ID and name of the SA correspond to the code and name of the surface water body according to WFD (the ID and name of SA = code and name of the relevant surface water body). There is information on ID and name of the SA, but no designation date of the SA is published.

+ ) The link to other water-related topics is provided on the interactive map

- ) No differentiation of more stringent treatment (N- and/ or P-removal), no link between agglomerations and UWWTPs, no designation date of SA, no differentiation of criteria of sensitivity into N- and/ or P-sensitivity, on the “Atlas okolja” – English: “Environmental Atlas” web-site no clear reference to the reference date is given.

2) SIIFs relate (only) to information which is relevant for implementation and compliance at national level - Parameters of administrative nature:

- ) The following information seems to be currently not available in the system: responsible authority for agglomerations/ UWWTPs, communes included in an agglomeration.

+ ) Information on operators of UWWTPs is available but it is not translated and only available in the Slovenian version of “Atlas okolja”.

3) SIIFs relate (only) to information which is relevant for implementation and compliance at national level: - Further parameters relevant for implementation and compliance:

- ) The following information, which is required under the UWWTD, is not yet visualized: % of the generated load of the agglomeration collected in collecting system, addressed through IAS and not collected at all; % of the generated load of the agglomeration collected in collecting system and treated in one UWWTP; No information as regards compliance with Article 3 on agglomeration-level, No information as regards compliance with Article 4 (and Article 5), no information on type of receiving area (and in case of a Sensitive Area: ID and name of sensitive area), date when compliance needs to be achieved, treatment requirements in order to achieve compliance

4) Ensuring transparency and public access:

0) Although several UWWTD-elements are already visualized in a good way, the publication of UWWTD-related data could be further extended (especially as most of the data is already available in the Slovenian databases)

5) Keep information regularly up to date:

0) On the “Atlas okolja” – English: “Environmental Atlas”- web-site the reference date of latest available information is not perfectly clear

+ ) For the web-application on water emissions, latest information is available for 2012. Historical data is available for the last 10 years

6) Perspective on getting (or staying) into compliance:

- ) No information is publicly provided as regards the financial resources required for future





measures and the funding of these measures. Internally this information is available from different resources (ministries, municipalities) upon request

## **Annex C: National Websites (see separate document)**

