



Brussels,

NOTE TO THE FILE

**Subject: Minutes of the ad-hoc expert meeting on EU physical water balances
– 7/09/2012**

1. BACKGROUND:

The project carried out by Pöyry for DG Environment, with technical support from the European Environmental Agency, for the elaboration of physical water balances at sub-catchment level with monthly resolution, for developing water accounts based on UN SEEA-W methodology, is coming to an end. The project demonstrates the benefits of building a consistent framework for physical water accounts at EU level with a high degree of geographical, temporal and sectoral accuracy, for the consistency of data collection, the development of water accounting methodologies and the assessment of water balance and water efficiency. This will allow the checking of the new Water Exploitation Index (WEI+), as agreed by the Water Directors at the above-mentioned meeting, and the improvement of water resource indicators.

The data collection and calculation was carried out in coordination with the collection of water quantity data by EEA. The water use data reported at EU level via various reporting streams can be reviewed and compared in WISE. However, the project also highlighted important gaps in the availability of key data and confirms the need to design a more cost-effective process for reporting as well as the need for statistics for the assessment of quantitative water resources. In addition, it demonstrates the need for further interaction between modelled and reported data.

A presentation of the methodology and of the draft results took place on Friday 7/9/2012, from 9:30 to 16:30 in Brussels (Centre Albert Borschette - 36, rue Froissart - 1049 Brussels, room 1A). Experts have been nominated by the Member States and stakeholders represented in WFD-CIS SCG. It was required that representatives have a good knowledge of the data sets and reporting processes for quantitative aspects of water resources management, covering climate, soil, hydrology, water abstraction and use. The meeting was held back to back with the 3rd meeting of the Ad-Hoc Expert Group on Modelling for the Blueprint (on 6/9). It was also recommended in the invitation to coordinate at Member State level with the EIONET National Focal Points.

Two reports were available as background documents:

- A 1st report from the EEA on the contents and elements of the data sets submitted for analysis. This report, delivered on 12/7/2012 enable each country – or sectoral

organisation - to compare with its best estimates and decide if they agree with the approach and consider that supplementary data deliveries are not likely to improve the final results, or if they feel their situation is likely to be inaccurately depicted with the existing data sets and they wish to provide supplementary data / propose correcting the coefficients for the sub-basin aggregates.

- A 2nd report giving the draft results was delivered on 27/08/2012.

Reports, presentations and contributions are publicly available on CircABC: <https://circabc.europa.eu/w/browse/fe77a65b-f167-456f-8070-976092b046ab>

2. PRESENTATIONS AND DISCUSSION

The meeting was introduced by Jacques Delsalle (JD), from DG Environment, who briefly presented the objectives of the project.

The representative from EEA, Philippe Crouzet (PC) presented the methodology.

The representative of **CEFIC** raised the question of public water supply used by sectors, and how double counting is avoided, as well as of how water balances deal with water reused from treatment plants in industry. PC answered that that the scope of the study does not include water exchanges between sectors (except water supply and sewerage) and that when available data was insufficient, proxies had to be found. Further cooperation will be needed with ESTAT who develop water accounts from the perspective of input/outputs between sectors. This could allow e.g. measuring the degree of water re-used or recycled.

The representatives of **Spain** referred to the comments sent in written (available on Circa). He welcomed the exercise, and (1) raised the question of possible trade-offs between EU-wide homogeneity and reliability at national/local level. As an example, water demand for irrigation is 4.000 hm³ in the water accounts, while national estimates are 24.000 hm³. (2) recalled that longer time series are also available at national level, e.g. 40 years of precipitation, runoff, discharge, etc. and (3) questioned the sub-catchments defined for the exercise, asking why sub-basins (management units) were not used. For (1), PC acknowledged that irrigation could be largely underestimated by the JRC source. In Spain, this data source had not been corrected yet, since no spatially distributed data could be handled. For (2), PC recalled that water accounts require water use data are also available, which could be problematic for longer time series. For (3), PC recalled the importance of having units consistent from a hydrological perspective, which may not be the case for management units. He highlighted that a revised reference system (EU-Hydro) based on GMES is in preparation, that will be the unique system for all EU reporting.

The representative of **COPA-COGECA** welcomed the tool and its usefulness for awareness-raising. She mentioned the importance to take into account local regulations (e.g. mandatory rainwater harvesting). She also questioned the validity of groundwater data. For the latter, PC answered that a lot of work has been done already over the past 2 years for an EU-wide map of aquifers, and that we are facing huge licensing problems. Some countries are well documented, but for others information is not available. This was done for soil in 3 years.

The representative of **The Netherlands** raised some concerns about the consistency of the methodology, mixing observed data (e.g. river discharge) and modelled data (e.g. water use). She also asked how the WEI calculated at monthly level and sub-catchment resolution would be aggregated at national level. On the former, PC explained, referring to the presentation that relying mostly on observed data is the objective, and therefore modelled data are used as surrogates. On the latter, PC recalled that the actual objective of the exercise is to provide the adequate level of analysis, as annual/country level does not allow a proper understanding of the water resources problem, but technically the system could produce annual/country level indicators (albeit the aggregation technique is not yet fully developed).

The representative from **Italy** welcomed the project, referred to ES comments, and expressed concerns for the potential publication of data not submitted by Member States. She also asked why the project was not using the same reference system than the one reported under art 3. EEA mentioned that the delineation of sub-catchments could be modified in Italy as it is an aggregation of FEC, but the main problem for Italy is that data was lacking, e.g. we have only 5 runoff measures for the Po. If Italy provides data from gauging stations with localisation, this will improve the system. National data, e.g. Eurostat statistics, can be used for calibrating the system.

The representative from **Romania** welcomed the project and referred to ES and IT comments. He explained RO can support further development, by supplying supply data for the 11 sub-basins, e.g. monthly registered water uses. He asked how the results will be integrated into the Blueprint. JD thanked for the support and replied that the most relevant output at this stage is to highlight the knowledge gaps and define a roadmap for further improvement, so that proper tools are available for the assessment of RBMPs.

The representative from **Austria** highlighted the importance of involving national experts for such a large scale process. He will check the methodology and provide data if necessary. He asked whether/how hydropower is taken into account (especially thinking of consideration of multiple counting in case of chains of run-of-river hydroplants), whether FAO Aquastat were taken into account for irrigation, clarifications about the scope of domestic use and why NACE classification is not used, as it gives more details than ISIC. He also proposed to move section 3.1 to the beginning of the report, to make the purpose of the process clearer. On the latter, PC explained that a full report from the EEA is being drafted, that will describe methodology and datasets. He explained, regarding hydropower, it is difficult to assess the volumes at stake (bypass and evaporation); however this is important to calculate "water wearing" indices, as hydropower is a good case of water used several time in the cycle. Pöyry explained that for agriculture, monthly use for irrigation from the JRC is applied, more accurate than FAO's. There are some local better datasets. Regarding domestic uses, a distinction is made between urban consumption between households and services. Regarding sector classification, ISIC is required by SEEA-W methodology, and equivalence tables with NACE are provided.

The representative from **DG ESTAT** raised the issue of the resources necessary to ensure the continuity of the project. He also mentioned the current project of physical flow water accounts in Eurostat, explaining that the latter was focusing on providing information at national/yearly level on the exchanges of water (supply and use of water) between environment and economy and within the economy (economic sectors), ensuring a link to national accounts. This work allows water entering into macro-economic and Sustainable Consumption and Production (SCP) policies, and should be perceived as

complementary to what the EEA is doing in the domain of water as they address different policy needs. He also mentioned pilot studies performed by National Statistical Offices supported by Eurostat's grants such as the just released German study on "[Water consumption in Germany including water consumption in the production of imported goods](#)".

The representative from **Eurelectric** thanked for the opportunity for contributing to this project and referred to the comments sent in written. He stated that methodology used for assessing cooling volumes is still a basic approximation. He expressed concerns on the separation between nuclear and conventional thermal power plants. There are concerns with a misleading use of some results. E.g. there is the hypothesis that 70% of gross abstraction by nuclear plants is consumed, which is not the case. The report should focus on the methodology, but not include the data tables themselves. JD explained that the best available values were used, and as long as better data is not available, it is better to rely on proxies than not producing data at all. The separation of nuclear power is due to the fact that for conventional plants, CO₂ emissions are used to estimate water use.

The representative from **France** questioned the best way for getting information, there is a need to better use EIONET and ensure an efficient use of administrative resources to meet our needs, and ensure data presented will not be rejected. EEA explained that official reporting is used as much as possible, and referred to the experience of the WEI map based on a compilation of officially reported data, that was rejected by Member States. This was due to the fact that the geographical/temporal level of detail was not accurate, and that no ex-ante consistency was foreseen. EEA insisted on the need, when there are real problems with the data used in the project, to send revised data so that they can be used.

The representative of **Spain** mentioned the need not only to correct the data but also to think about the data flow, and what it would mean if the process is established on a permanent basis. She referred to former EEA-ETC guidelines on representatively of rainfall and gauging monitoring stations to be used for the computation of WEI at national level. She asked whether there were plans for defining the minimum level of monitoring stations to support the process and ensure consistent data flow in a continuous process. She referred to data e.g. from the 122 meteorological stations that are not consistent with the outcome of the FP6 project ENSEMBLES used in this project. EEA explained that the project starts from a different methodology, and instead of defining a set of monitoring stations to produce indicators at national level, aims at using EU-wide datasets with high level of geographical precision to produce water balances at sub-catchment level and monthly resolution. On the issue of ENSEMBLES, he recognises that if the data processed by the research project on the basis of national data does not provide rainfall data consistent with national estimates, there is a real problem that however goes beyond the topic of water accounts and cannot be solved here. However, in the short term it is essential that Spain (and other countries) provide alternative estimates when available (e.g. for irrigation demand, or rainfall). The representative from the **JRC** explained that indeed there is a need for a proper reanalysis of rainfall data. Pöyry explained that rainfall on coastal areas is likely to be sub-estimated.

The representative from **Belgium** asked whether the report would include information on the confidence interval for the data used for the computation of WEI+. PC replied there is no statistical distribution available for the computation of error level. However, there is

the possibility to calculate an uncertainty level, e.g. to identify basins where gauging data are incomplete or even absent.

The representative from **Pöyry**, Guillaume Le Gall (GL), presented a set of slides with the results, covering the whole process (climatic data, rainfall, evapotranspiration, runoff, water use by the different sectors) as well as maps processing the WEI indicators computed at monthly level (precision was given that computation of WEI were in this exercise called “normalized WEI” and “raw WEI” to avoid possible confusion with the “WEI+” which computation equation backs on data for the time being not checked as 100% equivalent to the data produced by the WA), e.g. 90% percentile for WEI or median WEI. PC explained that it is also possible to calculate e.g. WEI for the summer period, and highlighted that it is more important to agree on the quality of the source data. WEI maps are also a tool to assess the quality of the knowledge base.

The representative from **Italy** raised the issue of the subdivision used for central Italy, which puts together Adriatic and Tyrrhenian catchments and the calculation of water budget is affected by this wrong subdivision. PC explained that this issue had been recognised in the EEA for some time, that corrective data are ready but is not translated in the maps so far, as the quality of the data is very low in these areas. Sub-basins are a simple aggregation of Functional Elementary Catchments (FEC) so changing delimitations is not difficult.

The representative from **Austria** asked why the sub-units used in WFD reporting (i.e. RBD or national portions of international RBD according to Art. 5(1) WFD) were not used. PC explained how the reference system ECRINS has been build and how FEC have been defined on the basis of the 2 million catchments provided by JRC CCM catchment model, and insisted that these catchments (on average 60 km²) are functional for the purpose of the water balance. River Basin Districts are often very large and sometimes do not have hydrologic consistency, as they include administrative boundaries. Sub-basins are FEC aggregations; they make it possible making the “territories of reference” following SEEA-W definition, where resources can be easily shared, which is not the case at RBD level. Sub-basins have hydrological consistency; they correspond to natural catchments, and sometimes do not correspond to the sub-units reported under WFD. This was reviewed but it appeared clearly that the latter had no hydrologic consistency. However, an aggregation to sub-units (or NUTS2 e.g. for Regional Environmental Questionnaire) could be performed on the basis of FEC to make other aggregates for different purposes.

The representative from **Spain** insisted on the need to follow WEI+ definition agreed by WSD expert group. For monthly indicators, the quantification of stored volumes is essential. PC reinsured that the water balance is fully consistent with the work of WSD expert group but that full WEI+ consistency had not yet been verified. On reservoirs, he explained that both lakes and reservoirs are included in the system. Information on monthly variations is hardly available in some countries, e.g. in France, but was computed from the upstream and downstream gauging stations.

The representative from EWA asked for clarification on whether water accounts are computed at the level of River Basin Districts. PC referred to the above reply to the question from Austria.

3. CONCLUSIONS AND NEXT STEPS

JD presented preliminary conclusions from this workshop:

- There was no fundamental disagreement to the generic approach followed by the EEA and DG ENV. Nevertheless, a more active involvement of MS in technical details was required.
- The problems identified by the participants relate to concrete datasets and could be solved by bilateral coordination with the member states to clarify the interpretation of the used data and to look for a way forward for concrete contributions from Member States or stakeholders covering missing data. Uncertainties remain very high and it is not clear to what extent these uncertainties have an influence on the results.
- There were therefore concerns expressed on the potential publication of maps, in particular WEI / WEI+ maps, due to the lack of a large amount of data and the unclear interpretation of the used data.
- Finally, a better coordination with the work that has been done by the CIS Expert Group Water Scarcity and Drought should be established, more specific on the calculation of the WEI+, and the forthcoming analysis and agreement upon the thresholds of the WEI+, so that the calculated scores are meaningful.

JD recalled that feedback from Member States and stakeholders is expected by the end of September. We only received concrete contribution from Spain and Eurelectric at this stage.

Minutes of the meeting will be sent early October for validation by participants, and be annexed to a short report to be presented by DG ENV and EEA at the Strategic Coordination Group meeting of 7-8 November.

The report will provide an assessment of the water balance process (as well as the parallel hydro-economic modelling process), and propose a roadmap for further improvement and integration into the WFD Common Implementation Strategy.

JD thanked the interpreters for their work on this particularly difficult and technical issue. He thanked the participants for their contribution and closed the meeting at 16:30.

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Annex: list of participants:

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Agenda

9:30 introduction (DG ENV), presentation of the participants, objectives of the meeting

10:00 presentation (EEA) of the methodology (on the basis of the 1st discussion document, sent on 12/07/2012 and attached again for your convenience)

11:00 coffee/tea break

11:15 tour de table: assessment by participants of the data used in the process, availability of supplementary data deliveries

12:30 lunch break

14:00 presentation (EEA) of the draft results (on the basis of the 2nd document, attached), followed by discussion

15:30 follow-up in the context of the Common Implementation Strategy of the Water Framework Directive (DG ENV)

16:15 conclusions of the meeting, next steps

16:30 end of the meeting