



Brussels, 29 June 2011

**DRAFT MINUTES  
WS&D INDICATORS EG MEETING**

**1. Setting**

The meeting was attended by representatives from EC (Henriette Faergemann), JRC/IES (Jürgen Vogt), ETC/ICM (Maggie Kossida), EEA (Robert Peter Collins), IT (Guisèppina Monacelli), NL (Luit-Jan Dijkhuis, Max Linsen and Gert-Jan de Maagd), FR (Thierry Davy), ES (Jorge Ureta, Adolfo Mérida, Javier Gras,) FI (Olli-Matti Verta, Jouni Polliainen), BG (Violeta Roiatchka), HU (Márta Konkoly), BE (Didier D'hont, Philippe Meus), PL (Malgorzata Koszalka, Anna Mikolajczyk, Jolanta Cabalska, Agnieszka Kowalczyk), UK (Mike Walker, Jane Allam, Richard Davis), CZ (Katerina Cudkova, Magdalena Mrkvickova), Eureau (Dominique Gatel) and Eurelectric (Benoit Desaint) as well as support staff (Guido Schmidt, Rafael Sánchez) and took place in Nobel House, 17 Smith Square, London, on 20-21 June 2011.

Objective of the meeting: Feedback from Pilot River Basins on the testing exercise of the set of Indicators for Water Scarcity and Drought

The Meeting Agenda included the following items:

- Welcome by the chairs (IT, ES, FR, CE) and UK as host country and introduction (COM)
- Overall comments on the PRB indicator testing exercise (all)
- Feedback from the PRB indicator testing exercise and comments regarding each of the different indicators. Session 1: Drought indicators
  - Snowpack
  - SPI
  - fAPAR
  - Coffee break
  - SRI
  - Groundwater
- Session 2: Water scarcity indicator
  - WEI+
- Overall discussion and roadmap for the indicator development, in particular until the Venice meeting

- Presentation on the developments in the Murray-Darling basin (Australia). Gert-Jan de Maagd (NL)
- Presentation of the state of play on RBMP assessment (COM)
- Draft proposal for a consolidated drought definition (COM)
- AOB
- Conclusions and set-up for next meeting

Meeting documents, available at CIRCA and sent out partially:

- Draft of last EG's meeting minutes in Budapest
- Draft updated factsheets (and some complementary information such as spreadsheets) per indicator
- Draft reports on “revised definitions of water scarcity & droughts” and “Topic report on WS&D in the RBMPs”

## **2. Minutes of the previous meeting**

The minutes from the previous meeting in Budapest were agreed, though comments arriving in the next week would still be considered in the version that will be uploaded at CIRCA.

## **3. Presentation and discussion of the indicators**

COM presented a spreadsheet including the comments from the PRB testing exercise that have been raised so far, and that should be discussed on and agreed at the meeting. Additionally, it was asked whether a fully harmonized set of factsheets and data is aimed with this exercise. The comments were discussed in the afternoon and morning next day.

### **3.1. Snowpack**

Jouni Pulliainen from the Finnish Meteorological Institute presents the climate data records and RTM data provision by Globsnow ([www.globsnow.info](http://www.globsnow.info)), an ESA-funded project with partners from FI, CH, AT, NO and Canada. The presentation with the information on the data gathering will be uploaded at CIRCA. On request of NL, he explains that the Alps (and other geographically more complex areas) will be included in the project in 2011/2012.

FI explains (with a power point presentation, uploaded at CIRCA) the relevance of the indicator (as included in the new updated version of the factsheet presented just before the meeting), and its usefulness; as well as highlighting the difference between the static and the dynamic indicators. The results from the Paimionjoki pilot show that in several years extreme data appeared, but they are not always related to drought events (e.g. water is stored in lakes or soil in warm winters). Testing should be developed also in larger catchments, where snowmelt can be retained in lakes and avoid drought situations in spring.

NL remarks the use of snowpack data from CH in order to forecast water data in river Rhine for the summer season, and requests to coordinate work with CH. EEA asks for calculations to define snowpack and water equivalent; and FI adds that Globsnow has the best data available covering whole Europe, and calculations can be easily done with RBDs delimitations. NL will contact CH in order to get some input on the factsheet and the indicator; and a testing e.g. of the Alps – comparing datasets – could be useful. FR raises the issue that WMO is developing work in this line, and Jouni Pulliainen responds that WMO is coordinating the different developments currently in place. FI offers to develop testing for interested PRBs.

### 3.2. SPI

JRC is preparing a new version of the factsheet, and Juergen Vogt is explaining the contents and results of the most recent EDO Drought News (May 2011), with the new visual representation in ranges (and trying to plot the stations). Needs were raised regarding better explaining the methodology, the preferred distribution, refer clearly to the reference period (start, end) and the clustering of stations.

Regarding the methodology of distribution, there should be a homogeneous approach (or maybe two choices should be given). Gamma is “excluding” 0 precipitations, which is negative in case of no rainfalls (e.g. arid regions); ES argues that the distribution curve decision should be done by managers because they reflect the deviations from the standardized data. EL uses for Gamma distributions with changing to slightly above 0 precipitations in order to maintain those records in the calculations. JRC asks for information regarding the experience in MS with the distribution, in order to prepare a well-reasoned proposal. With early years (1971-1980), no data are available for many reference stations, and this aspect should also be addressed in the factsheet. Eurelectric asks for using SPI-6 instead of SPI-12, because the whole rainfall over the winter might be more relevant than for the whole year; JRC responds that the full datasets are available; and explains that the programme can be used by everybody.

Comparing SPI and SRI data in the Segura basin, they are not overlapping completely (as happens in the river Thames); therefore several indicators should be used. JRC can calculate the whole series, and for different target audiences (agriculture, hydropower) or different regions (according to the aim, and even the local conditions e.g. soil structure), different SPI periods are more relevant, and show different severities of droughts. In particular, if you compare the different SPI sets with other indicators, then conclusions can be taken. NL asks for additional comments/information in the factsheet on the communication messages associated to the different SPI sets.

EDO calculates at a 20km grid cell level, but water managers can calculate even in a 5 km resolution with much more detail; nonetheless the calculation methodology should be similar and only similar data should be compared. JRC explains that SPI is calculated at the station's level. Factsheet version 4 should also include information on the interpolation methodology, which is standardized.

### 3.3. fAPAR

JRC explains the data from the most recent Drought News, with a strong negative trend in Western-Central Europe in spring 2011. fAPAR can be interpreted much better with information on landcover and vegetation type; some noise might still be in the data due to the relatively short time period available for this indicator. EEA explains that there is a context behind the indicators and the different indicators fit together and this needs to be explained in the communications. It might be checked with Farm Advisory Services on getting data on yields related to fAPAR.

### 3.4. SRI

ES informs that the factsheet has been updated recently; and explains how SRI overlaps with the specific Segura RBD drought index, and what happens if you don't have natural gauge stations. Drought perception in population is often more related to dam releases than to natural streamflows, at least in regulated Mediterranean areas. ES explains also a comparison between SRI and NDVI testing results that show similar patterns. NDVI uses empirical distribution vs. the Gamma distribution of the SRI.

CZ presents also their testing exercise and the comparison done with the indicators. CZ suggests to work more on SRI+, in order to have better fitting results. UK shows the results from the testing of SRI-SPI in the Thames, suggesting to use more than one indicator; in the longer-term the variability is less and “clearer” results on the relevance of a drought appear.

ES advocates for using gauging stations related with water demands as they reflect water problems. Gauging stations in non-demand related settings can reflect drought effects on freshwater ecosystems. The message regarding the indicator should be associated with what are drought or water scarcity situations/definitions; in particular when dam releases are considered. FR raises the need to consider the complexity of drought situations, and not to simplify too much.

COM sums that a non-natural indicator will be used to develop the work further; and ES will develop the indicator. CZ and ES are mandated for a new version of the factsheet to later develop testing. FI reminds trying to make simple indicators.

### 3.3. Groundwater

FR explains the current situation of drought and water use restrictions in France; and the search for a sample zone, the Beauce region; with a combination of natural data of the aquifer plus integration of irrigation abstractions. The level of aquifer in the area is connected to river flow. FR wants to get more data on this aquifer, and put it into the factsheet.

In the UK testing, not all aquifers have responded in the same way to the drought situation this year. UK works with a similar indicator with 7 categories (FR with 5) to reflect the stress and levels of GW. BE has tested the GW indicator, and has some questions on percentiles and other aspects; and considers the indicator relevant for management and awareness raising. UK uses the GW levels for raising awareness on water supply; and FR for ensuring the reduction of abstractions.

ETC-W asks for separating GW abstractions from natural variations and how surface water abstractions are considered. BE considers that this percentage is much lower; FR highlights that the importance is the trend; and NL remarks the relevance of the scale. In ES some aquifers are continuously overexploited and the natural and induces abstractions/changes cannot be identified. COM suggests that the result is that all overexploited aquifers should be painted in red. FR to have a look at what’s happening in the different countries, but showing the trends is relevant. Another set of comments that have raised from the testing should still be better explained in the indicator factsheet.

The indicator adds trends and early information regarding data on the information regarding GQS of GW bodies.

BE shows the results of the testing in the Scheldt; and the indicator works for BE, though they have problems with the reference period. Further discussion is needed regarding the percentile formula (inclusive, exclusive of 0 and 100, very relevant due to measuring once per month in BE), and BE suggests discussion between UK, FR and BE regarding the outliers.

### 3.6. Soil moisture

ES explains the overlaps realized between soil moisture data (from JRC) and the historical tracking of droughts in the Segura RBD. There is much consistency, though minor differences can be seen (e.g. in the recent years). SM applies to natural data across the EU, maybe with the exception of irrigated areas. According JRC, the soil texture can also affect the results; and by

next year a more reliable indicator can be provided. Soil moisture is much demanded. The model should be validated in another PRB with a longer horizon than the other indicators.

### 3.7. WEI+

ETC/ICM thanks all parties for the numerous comments that feedback into the indicator development. The presentation (uploaded at CIRCA) explains the differences between WEI and WEI+ calculation results for the RBDs though not all datasets of the testing comply with the set indications (e.g. one year vs. multiannual average). A number of comments have been prepared in an additional paper for the EG.

Regarding scale issues, the following feedback is given by ETC with further discussions: Monthly WEI+ calculations are complex, and storage data should be considered; as well as RBD aggregation and the assessment in stressed and near-stress areas according to preliminary checks every x years (similar to approach of floods directive). Regarding hydropower, those should be excluded or a change in the calculation (from ratio to deduction) should be made. Return water (treated and non-treated) is also considered. Water requirements for the environment (and treaties, etc.) have been calculated but are complex; a 20-40% proxy could also be considered (similar to WEI). Data comparison is shown on how the different environmental water requirements affect the WEI.

Several MS complained about non-availability or –homogeneity of data. This is a common problem for all environmental data. ETC advocates that every indicator and parameter should clearly state assumptions, calculations and methods to avoid misinterpretation. ETC suggests reviewing the way of calculation for easier handling and better integration of different elements.

UK raises the concern that reservoir data are fine for storage, but GWB data might be too complex. FR is concerned that by calculating the water availability via storage data, this can reflect non-real situations, because e.g. the water might be earmarked for using months later (e.g. electricity), and put additional pressure from water demands. Several MS have different management indicators to show water thresholds, and WEI+ should be coherent with those and add value at the EU level. ETC/ICM explains that the thresholds of WEI+ reflect certain management playing game, and water commitments can be included in the WR. IT raises the issue of multi-annual drought situations that should be considered. BE is concerned about the complexity and assumptions made by MS that can harm comparability, in particular if different European institutions publish data without including the references to the assumptions made previously. BE remarks that water requirements are not WFD obligations, but this discussion was not continued in this EG. NL proposes that the EG should discuss on which assumptions should or not be considered for the indicator development. COM reminds that WDs mandated EG to develop and test indicators, and asks for a more positive approach from MS. EEA raises the issue on available data at WISE, and the somehow contradictory arguments on data complexity and reliability; and that it would be better to calculate WEI with MS-agreed data and not with WISE data that apparently do not reflect all concerns of the EG though reported by MS.

Eurelectric asks for how to deal with multi-purpose dams; where hydropower is not the main consumptive use, and how to deal with the evaporation from the dam surface.

Regarding the water requirements, not necessarily they are environmentally focused; BE raises again the concern on data complexity and assumptions (to be reflected in a whole additional book), and the concern that the way of calculating WEI at the MS level might be criticized in comparison with other MS. JRC explains that the EG should be confident that the WEI+

indicator should reflect relevant MS data with maybe (slightly) different datasets or calculations behind it, and reflect reality. FR is concerned that the WEI might not be coherent with RBD-water management indicators. COM argues that maybe the RBD management indicators need (also) to be updated.

NL raises the need to take into account different years for getting results, and ETC explains that 10 years' data were requested for the testing exercise. HU and ETC comment on the use of data for individual years vs. long-term averages. According different MS, a standard proxy for environmental flows should not be used, as it is very local and complex and political; EEA suggests to make an overall table with the assumptions and to give the precise data for water requirements in the different RBDs.

Storage data depend on MS-specific models, and they are available across a large number of MS, though others are more reluctant. ETC will assess on how to incorporate the storage data in the calculations, before gathering them from MS. In comparison with WEI, WEI+ is more intellectually rigorous and defensible. HU explains the current results, and plans to complete the dataset, including storage data. HU considers the need to go for monthly data because National data don't reflect WS situations, an opinion shared e.g. with IT. BE objects the monthly calculations considering their non-existing added value and complications for political argumentation, similar to NL that suggests starting at annual basis and then enlarging datasets with a step-by-step approach (similar to FI); and FR suggests going for an intermediate time approach (3 months, seasons, etc.). COM advocates for revising data collection (e.g. WISE), to gather those monthly relevant datasets. COM considers that the Mandate obliges to identify the extent and magnitude of the problem, and monthly data are needed to reflect the problem; a time series with a reasonable frequency should show upcoming problems, but possibly not even at a yearly basis. ETC explains that a lot of monthly data are already being reported by SoE, but for water usage most datasets are annually (and according to UK they cannot be collected on a monthly basis; though CZ explains that they collect them annually with a monthly split). COM asks MS that have monthly data available (e.g. HU, ES, CZ) to calculate the indicator at 3-monthly and seasonal level in order to assess differences (CZ and IT agree). COM explains that the Blueprint will include aspects on the indicators, and the available datasets; this window of opportunity could be used by the EG to go ahead with data gathering and processing. BE is concerned about putting more reporting pressure on farmers, and FR explains that abstraction data should adequately be allocated to the months when abstractions take place (e.g. in May-July) by using adequate proxys.

#### **4. Step forward**

COM explains that the feedback on indicators to WDs will include a full assessment on complexity, difficulties and cost-benefit assessments, which will be developed for the Venice meeting.

Revised factsheets should be ready by end of July, including all the comments so far, plus the text and structure comments that will be sent out by COM individually as specific as possible. By end of July, a consolidated package of will be sent out to everybody. The FAQs and aspects discussed here should be included. The testing should be developed over August and September, until end September, and be reported previously to the meeting to the members of the EG, according to the template circulated previously.

ES asks for including a reservoir storage indicator, which has a high acceptance in Spain. Maybe ES will make a specific presentation on the issue.

The Venice meeting should focus on the real issue, less focused on each of the indicators.

## 5. Presentations and different issues

Gert-Jan de Maagd (NL) explains the history of the recent Basin Plan proposal for the Murray-Darling Basin in Australia, incl. a video. Some of the key messages for the EU context are: (1) brief public discussion papers (live on internet) can facilitate public participation (better management of time to digest information, e.g. for small NGOs); (2) create awareness and solidarity by addressing domestic water usage (e.g. households should also feel the pain); (3) be clear about governmental role in promoting innovation (buy-back vs. efficiency investments), assessments show that efficiency subsidies are much less efficient than buying back water rights; e.g. according to profit losses (e.g. mills, etc.), not only investing funds in water-rights-holders; (4) perform a stress test on policy plans and instruments (e.g. also working under high-flow conditions); (5) use of internet, facebook, twitter and apps; (6) integrated approach towards the use of groundwater and surface water (“one-source-strategy”); (7) assess all water uses, avoid leaks in the water balance (e.g. farm dams that collect run-off, for domestic use and cattle; but they are often much bigger and apparently used for irrigation, 50% of boreholes unmetered); (8) prioritise negotiating international agreements on shared water in transboundary RBs; (9) draft a common vision on water use together with the main stakeholders (e.g. as a counter-argument against food-dependency when reducing irrigation on cotton farming); (10) discuss system assumptions and draft a ‘do nothing’-scenario (e.g. expensive solutions of transferring water from North, prepare responses to ‘stupid solutions’ that will pop-up at the discussion); (11) have an open and critical look at water governance (e.g. exemptions for certain regions in implementing the plan); (12) policy laboratory – learn from other countries (e.g. CIS is a good step forward).

Guido Schmidt presents the draft outcomes from the screening assessment of the RBMPs (presentation uploaded at CIRCA and files also at CIRCA). FR comments on the need to review adequately possible misunderstandings on causes of D. All MS are asked to feedback on the report. Regarding the revised definitions, FR suggests to edit it as a “reminder”, avoiding a new discussion opening. COM explains that the definitions need to be made clearer and that the work will be based on the group’s results from 2006. Some other comments were made on the time scale and some wording, and this will be revisited. Further comments are expected from MS over the next weeks.

ES suggests attendance to a meeting for linkage between this activity and climate change on 22-23 Sep 2011 in Madrid. ES will present comments from the EG if nobody volunteers.

ES, though not leading the EUWI working group on WS&D indicators had sent a document on the status of this group (drafted by ETC) to this EG in order to report on developments of the Med/EUWI Process, according to the EG Mandate.

## 6. Next steps

The next meeting is scheduled for Venice. The Italy meeting agenda might be coordinated with other international working groups (e.g. WMO) in order to harmonize approaches, and should focus on key issues of the EGs work.

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