



Brussels, 2 May 2011

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

**1. Setting**

The meeting was attended by representatives from EC, JRC, ETC-W, EEA, IT, NL, FR, ES, FI, SK, HU, BE, PL, UK, EE, CZ, Turkey, EWA, Eureau and Eurelectric and took place in Budapest (HU), Ministry of Rural Development (MRD), and the Ethnographic Museum, on 31 March and 1 April 2011.

Objective of the meeting: Further development of the set of Indicators for Water Scarcity and Drought, discussion of the updated indicator factsheets

The Meeting Agenda included the following items:

**31 March Afternoon**

14:00 - Welcome

14:15 – 18:30 Presentation of the updated indicator factsheets, including discussion and conclusions (for each of the indicators)

14:20 – 14:50 SPI, in particular meteorological reference period (Lead JRC)

14:50 – 15:20 fAPAR (Lead JRC)

15:20 – 15:50 Groundwater (Lead FR)

15:50 – 16:00 Snowpack (Lead FI)

16:00 – 16:30 Coffee break

16:30 – 16:45 cont. Snowpack (Lead FI)

16:45 – 17:15 SRI and Soil moisture (Lead ES)

17:15 – 18:30 RWSI (Lead ETC-W), including a presentation from SK

18:30 – End/Dinner

**1 April Morning session**

09:00 – 09:30 Storage and Water usage (Lead ETW-C)

09:30 – 10:30 Coherence check of the currently proposed indicator set

10:30 – 11:00 Coffee break

11:00 – 12:45 Operational set-up of the indicators (how, who, by when, outputs)

12:45 – 13:00 Discussion and conclusions, next steps  
13:00 End

Meeting documents, available at CIRCA and sent out partially:

- Draft of last EG's meeting minutes in Den Haag
- Final version of EG's meeting minutes in Brussels
- Draft updated factsheets per indicator

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

There were no comments on the previous meeting's minutes, and it was agreed to open a process of another 2-3 weeks for comments, in order to prepare a final version of the minutes of the The Hague meeting.

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

### **3.1. SPI**

JRC presented the updated status of the factsheet, considering different comments on the first draft. The CIRCA version includes updates marked in red. The presentation uploaded at CIRCA gives an overview on the key aspects. The main action point for further development is the inclusion of probability levels for the different SPI categories provided in the table provided in the technical information (JRC).

Regarding the reference year period, another presentation was given by JRC, explaining the data submitted by different MS, some key issues (e.g. comparability, statistical and geographical meaningfulness, and the coherence with other processes). Though MS work have different frameworks at the domestic level, it was agreed to have a common EU reference period for this exercise and that this should cover the most recent dataset, in order to reflect recent drought periods.

Pending actions are the completing of the table on meteorological reference years by those MS that have not been able to fill-in the excel sheet and the check with the National Meteorological Institutes on datasets and data reliability until 2010 and the reasonable way back in time (without losing too many stations). A preliminary suggestion was to use the time series 1971-2010 if sufficient data exists. JRC wishes also to get additional feedback on experiences with different theoretical distributions used to calculate SPI (candidates are the Gamma distribution and the Pearson III distribution).

### **3.2. fAPAR**

There have not been any critical comments on the fAPAR factsheet before the meeting. JRC facilitated additional information on the current weakness of the indicator due to a limited number of years dealt with so far (i.e., a limited reference period of 13 years), but recognized that this issue is improving every year with satellite data being acquired.

COM informed that all factsheets are still open for comments, and that there will be a final revising and editing process for all factsheets in order to present a homogeneous set at the end of the exercise.

### **3.3. Groundwater**

FR informed about the major changes included in the new factsheet version available at CIRCA, and the complexity to deal with the overlapping of drought and water-user driven GW

level changes. There were several remarks on water levels vs. balance, and BE added that “reference GW levels” can be due to political reasons and are not necessarily based on the Good Status of a GWB. The factsheet should clearly indicate its relation to the WFD provisions on GW. In the same line, ES strongly supports the idea of relating the indicator to WFD guidelines, and remarks its useful methodology to assess GWB overexploitation. FR has insisted on the fact that GWL parameter, exactly as the other parameters (SPI, FAPAR ...), is a parameter useful for public awareness. FR has also reminded that many countries (FR, ES, PT, ...) used this parameter to reflect on drought situations. This is due to the fact that parameters on rainfalls (simple or composite) cannot explain alone the complexity of drought phenomena.

CZ informed of a research developed, revealing the few existing relations between meteorological and hydrological droughts, referring to a paper uploaded at CIRCA in the frame of the “WS&D call for evidence” end 2010. At the second day, NL wished to have some information on how to deal with deeper and shallow aquifers in an adequate way.

### 3.4. Snowpack

FI presented the updates of the factsheet (see presentation uploaded at CIRCA), defining its relevance for both drought and flood situations and explaining the use of GlobSnow – a near real time information provision. In order to have a deeper knowledge on this issue, and since many European rivers origin in the CH Alps, it was suggested to invite CH to comment on this indicator and/or participate in the EG. The link between Snowpack and Hydropower was also remarked, according to previous written comments from Eurelectric on this factsheet.

NL is using snowpack in the Alps. The Netherlands gets the information straight from the website of Institute for Snow and Avalanche Research (<http://www.slf.ch>). Comparing long term and actual snowpack gives a qualitative insight streamflow of the river Rhine during summer, but no calculations are made such as proposed in the factsheet on Snowpack.

### 3.5. SRI

ES presented a revised version of the factsheet, including changes in the key message, and explained the links with the composite management indicator CHS used at the Segura RBD level. UK raised concerns about the applicability to those WBs that are influenced by water abstractions, and ES remarked the need to know major relevant upstream abstractions in order to calculate the indicator. The added value to SPI is a broader viewpoint that includes more hydrological elements. Regarding the reference period, and though the discussions of the SPI might also apply, this issue is also depending on the availability of data from the gauging stations.

This factsheet should be revised (e.g. reducing the weight of the composite CHS indicator) and SRI should be tested by the pilot basins to assess its validity across Europe. At the second day, and in the light of the foreseen purposes of the indicator, it was agreed to stimulate collaboration between COM (via Rafael Sánchez), CZ and ES on a merged approach for a streamflow indicator, not necessarily limited to non-usage-influenced WBs.

### 3.6. Soil moisture

ES presented the first findings on a soil moisture indicator, reflecting its complexity and advantages and inconvenient of the different approaches, e.g. regarding the confidence of modeled data. It was agreed that this indicator is of a certain interest – in particular to identify drought impacts on agriculture – but the measuring network and its practical implementation are still in an early stage at the European level. ES was encouraged to continue its work with

the rest of EG members, and FR might present maps at the French scale at the next meeting, in particular due to the modelling of soil moisture taking place in FR and to evaluate its operationalization.

### 3.7. RWSI (water scarcity)/ WEI+

The indicator was presented by ETC-W, and the development and new aspects were related to the formerly used WEI as an improvement of the recognized WEI weaknesses (scale, return, e-flows, international treaties, seasonal variations, etc.). FI suggested to develop the indicator only in those RBDs where relevant WS problems might be expected and to avoid overloading work for RBDs not affected at all.

HU explained the application of WEI at different levels, indicating the strong variations in the results, e.g. whether an area (country, RBD, GWB and sub-basin level) is affected by WS or not. ETC-W explained that the RWSI is proposed to be developed at the minimum available unit.

BE, FR and NL expressed concerns about the complexity of the indicator, the modeling and availability (and the need/obligation for reporting) of data and the uncertainties (e.g. large errors in the data submitted to Eurostat and in the RBMPs, e-flows, scale, seasonality, etc.) and the sometimes misleading results of WEI for public, and these MS prefer to use a generally-accepted indicator, e.g. a WEI approach, or starting from a drought indicator and including water abstraction from the main sectors.

ETC-W argued that many of the data have already been collected by Eurostat, and that little extra modeling is required. COM argued that it should be at the RBD level (and not at the current National level) in order to be reflecting better the reality, and highlighted that the suggested approach is indeed an attempt to follow the broadly accepted WEI approach but improving it where shortcomings have been identified. EEA and IT raised their concern for the need to discriminate between WS and D, which should be addressed by this indicator, and that the discussions on this issue are ongoing since 2004 without success so far. Eurelectric remarks the need to consider adequately water consumption and returns from hydropower, thermal and nuclear power plants, in order to avoid misleading overall results at the RBD level.

COM remarked that the Mandate requires explicitly indicator on water scarcity, which was agreed to be developed ex-post for awareness purpose. For the next meeting, ETC-W will calculate provisional data of this indicator with assumptions and working with a number of MS for identifying missing data and checking the reality-fit, e.g. with FI, 3 RBs in IT, BE, NL, 2 RBs in HU, UK, Segura (ES) and possibly Garonne (FR).

ETC-W explained the other supporting datasets (measurement tools) on Storage (e.g. desalinization) and Water usage and their relationship with the Water scarcity indicator; and they should be considered in the pilot exercise. Eurelectric raised the point that the weight of cooling water in not densely populated areas can distort reality: they can represent great volumes of abstractions in the calculation while they are actually mostly returned to the waterbody after usage.

ES suggested that RWSI should only be assessed upon Long Term Annual Averages (LTAA) to remove D effect and simplify its calculation.

## 4. Coherence check of the currently proposed indicator set

In general, the set of indicators was considered adequate, with the following particular comments:

Regarding the soil moisture, there is still a certain way to go to define the most appropriate indicator, so a decision will be taken later.

Regarding the SRI, there were several comments on its lack of feasibility across Europe, and it might be revised though it is the most widely accepted indicator at international level

FI required indicators only being applied where they are relevant.

BE opposed to WEI+, and HU expressed its explicit support to this indicator.

NL considered less relevant soil moisture, SRI and WEI+.

ES proposed to develop (and even lead) a reservoir storage indicator with similarities to GW level indicator in terms of D monitoring, but the proposal was not considered adequate at this moment.

HU brought into the discussion the indicator set used by the US National Drought Monitoring Centre. COM insisted in the need to include one WS indicator, as explained above.

Regarding the EU relevance of the indicators, it was checked for each of the proposed indicators. All of them are considered useful for awareness purposes, and as an input into policy assessment (e.g. regarding the EU Blueprint on Water). Several indicators might be used for risk assessment and forecasting purposes, either on a short-term (soil moisture) or a longer-term (e.g. groundwater, storage dataset, snowpack).

FR considered that indicators on both WS and drought, as mentioned in the mandate, should be used for public awareness and that the purpose is not the use in discussions on exemptions under the WFD.

With respect to similar activities outside Europe, JRC informed that currently two initiatives for the development of a Global Drought Monitoring and Early Warning System are under discussion. The first initiative is lead by the World Meteorological Organization (WMO) and the Global Water Partnership (GWP) and the second one is developed under the GEO umbrella. JRC with EDO as well as the US National Drought Mitigation Centre and Australian colleagues are involved in both initiatives and are arguing for a single merged initiative.

## **5. Operational set-up of the indicators**

For each of the indicators, a number of actions were proposed for their further development, as shown in table 1.

In general terms, the next month (until end April) should be dedicated to a further refinement of the indicator factsheets, including specific information on

- the data requirements (UK) and the indicator calculations, in order to make the further implementation viable,
- the future usage of the indicators and the relationship between the indicators for future data interpretation.
- COM will realize a coherence check of all factsheets once all updated versions have been provided.

It was agreed to test all indicators (except fAPAR) at a number of pilot RBs. MS are requested to inform COM before 1<sup>st</sup> of May (via Guido Schmidt) on their proposal of PRBs, providing the following information, preferably in a table as below:

- Name and contact details (email, phone) of contact person at the PRB
- Indicators that will be tested at the PRB (refer to the list of indicators)
- Further comments (e.g. for CC the MS representative in all communications, etc.)

Name	Email contact	Phone contact	SPI test	Groundwater test	SRI/ streamflow test	Snowpack test	WEI+ test	Further comments
			Yes/no	Y/N	Y/N	Y/N	Y/N	

Once all factsheets are developed, PRBs will be contacted by COM and indicator leader to start their activity as explained in each of the factsheets or complementary information in the corresponding contact emails.

The next EG Meeting will be scheduled for 20-21 June in London (UK), in order to discuss the first findings from the testing exercise and/or to solve major obstacles identified in the meantime. Further testing will happen later, and the factsheets should be adapted to the provisional findings.

It is envisaged to hold another meeting in Italy in autumn to analyse the whole process, and to decide on the kick-off for an EU-wide implementation of the indicators. By that time, decision could also be taken on the soil moisture indicator.

## 6. Next steps

It was agreed to prepare a brief information note for WDs based on a COM draft, including the attached table on the indicators, and raising the interest of other MS (plus CH and e.g. the Ljubljana Drought Management Center) to get deeper involved in the indicator development, at this crucial stage, in particular regarding the London meeting.

The London meeting agenda might also include a first discussion about research priorities (re FP8), and a presentation (NL) on the Australian policy developments in the WS&D field.

The Italy meeting agenda might be coordinated with other international working groups (e.g. WMO) in order to harmonize approaches.

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