

Report of the EIONET Workshop on Soil at JRC Ispra, 10-12 December 2012

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Introduction

The workshop was held in Ispra (Italy) at the Joint Research Centre (JRC) of the European Commission on 10 (afternoon), 11 and 12 (morning) December 2012. It was organized and hosted by the Institute of Environment and Sustainability (IES) of the JRC.

Representatives from a total of 25 EIONET countries attended the meeting, as well as representatives from the European Environment Agency (EEA) and DG Environment of the European Commission. (See Annex 2: List of participants). Nine (9) countries nominated a person to represent the country but finally did not register (Albania, Bulgaria, Macedonia, Lithuania, Montenegro, Romania, Slovenia, Spain, Sweden); five (5) countries could not attend (Cyprus, Ireland, Liechtenstein, Malta, Turkey)

The meeting was mainly chaired by Luca Montanarella, alternated by Arwyn Jones for two brief periods of time during the afternoons of 10 and 11 December.

All the documentation related to the meeting (including the presentations) can be found at: <http://eusoiils.jrc.ec.europa.eu/library/data/eionet/Workshop2012.html>

Background

Covering the thematic aspects of soil and soil related applications within the EU, the European Soil Data Centre (ESDAC) was established at the JRC following a specific agreement between the "Group of Four", namely DG ENV, DG ESTAT, DG JRC and EEA. In the "EIONET Workshop on Soil" held in September 2007 with representatives from DG ENV, the EEA and the JRC, together with representatives from the EIONET 'National Reference Centres for Soil' and members of the Steering Committee of the 'European Soil Bureau Network', the EEA and the JRC jointly decided that all soil data management activities carried out by the EEA in collaboration with EIONET NRC Soil were to be transferred to the JRC.

In March 2009, a first EIONET Workshop on Soil was organized by JRC in which a number of soil data management issues related to the data requirements for the ESDAC were discussed. A number of conclusions and actions in the short term were drawn.

The intention of the 2012 workshop was to discuss the soil information and data flow between the interested parties, specifically: 1) through reflection on the last two EIONET data collection exercises, held in 2009-2010 (soil organic carbon/soil erosion) and 2011-2012 (contaminated sites), 2) through discussion how new soil data requirements specified by DG ENV and EEA could be matched with contributions from NRCs for Soil, and 3) through discussion on the road ahead.

Summary

The prepared agenda of the workshop (Annex 1) was followed, with minor deviations for logistic reasons.

The first day of the workshop was dedicated to the experiences and achievements related to general information and dataflow since the last EIONET Workshop Soil of March 2009, to recent EU policy developments and to soil data and information needs from DG ENV and EEA.

The second day was mainly dedicated to discussions related to the specific EIONET data collection exercises and a few other topics.

The third day offered the possibility to make non-scheduled presentations and concluded with some further discussions on conclusions and the road ahead.

First day, Monday, December 10th

Maria Betti, Director of the JRC Institute of Environment and Sustainability (IES), opened the workshop.

Alan Belward, Unit Head Land Resource Management, introduced the participants to the work of the Unit to which ESDAC belongs and emphasized the strong link between soil and land management in general.

Marc Van Liedekerke (JRC) gave an **overview of the achievements since the last EIONET Workshop Soil of March 2009**. He went through the conclusions and planned short-term actions at the previous workshop and what JRC had done in collaboration with EIONET countries. He then put forward a number of questions that he would like to see answered during the remainder of this workshop.

The following has been achieved:

- Country NFPs (31 out of 39) nominated a lead institution that acts as Primary Contact Point (PCP) and networks within the country with the relevant NRCs or other organizations competent in the various topics to be covered by EIONET Soil.
- Soil Country Analysis (SCA) reports (initiated by EEA before 2007) had been compiled for 32 countries. Joint publication between EEA and JRC as 'JRC Scientific and Technical Reports' had been agreed and work was underway to do so (Austria, Belgium, Germany, Greece, Italy and Spain reports were ready to be published). However, in 2010 JRC + EEA suggested that the country reports would be better proposed for inclusion within part C of EEA's State of the Environment Report 2010 (SOER2010), however realizing that the quality of the information collected varied a lot. JRC uploaded all SCA material to EEA SOER2010 Part-C website, for subsequent use by the countries for their Part-C contribution.
- JRC has, in co-production with EEA, written the chapter on soil in part-B of the EEA SOER2010 and also turned it into a JRC Reference Report. This was done on the basis of data available already in ESDAC. JRC hoped to integrate soil erosion and SOC data for Europe with data directly coming from countries; therefore JRC launched an EIONET data collection on erosion and SOC in 2009. Unfortunately, the timing and the relatively limited amount of data received from countries made that data were not used for the chapter.
- In relation to the SOC and soil erosion data collection of 2009-2010, the JRC designed technical specifications and asked for feedback on them. Many countries replied positively and from the various detailed comments received, the JRC concluded that the proposed guidelines were suitable for carrying out the data collection. JRC sent out the request for data in July 2010, stating also that "If it was impossible to deliver the data in the format specified, JRC would welcome any soil erosion and organic carbon data that could allow the JRC to improve the data and maps it currently holds".
- For SOC: data from 13 countries was received: 8 countries provided datasets (Austria, Belgium, Bulgaria, Denmark, Italy, Netherlands, Poland, Slovakia); 5 countries provided limited coverage or point data (Estonia, Norway, Ireland, Serbia, Switzerland); 9 countries expressed the will to participate but they were not in position to present something valuable (France, Finland, Greece, Hungary, Iceland, Turkey, Lithuania, Luxembourg, Sweden); 17 Countries didn't reply at all.

For soil erosion: data from 14 countries was received. 8 EIONET countries provided complete or almost complete data according to the specifications set in the data request (Austria, Belgium, Bulgaria, Germany, Italy, Netherlands, Poland, Slovakia); 6 countries provided data that could not serve in an inter-nation comparison: France (classes); Macedonia provided a complete dataset in non-comparable measuring units; Ireland (PESERA data itself), Denmark (unrealistically high values); Norway and Estonia (limited coverage).

- For Contaminated Sites: since it was the explicit wish by EEA and DG ENV to maintain the indicator CSI015 "Progress in the Management of Contaminated Sites", JRC organized a data

collection in 2011-2012. The guidelines of 2006 were largely maintained, with the addition of a few questions that allowed responding DG ENV needs, and the deletion of a few other (for which there was almost no turnout in previous exercises (on “problem areas” and “brownfield management”). JRC pre-announced a request for data with NFP and PCP in July 2011 and launched the request for data in October 2011 with deadline end January 2012. For the operational work, JRC received the support by Environment Agency Austria (for questions, submission of data, clarifications, analysis, report creation, and proposal of the 2011 version of the CSI015); all of these results will serve as input to the next SOER. All work was finished by August 2012 and JRC created a full draft report in September 2012 with the intention to turn it into a JRC Reference Report (including future comments from EIONET countries).

- The questionnaire was sent to 39 countries; 27 countries returned the questionnaire; 6 countries (Bulgaria, Iceland, Liechtenstein, Romania, Slovenia, Turkey) replied that they were not able to complete the questionnaire due to various reasons, as for example lack of personnel or no available data in the requested format; 3 countries (Czech Republic, Luxembourg, Portugal) did not reply at all; 3 countries (Greece, Latvia, Sweden) promised to complete the questionnaire but did not do it.
- All material from the EIONET workshop 2009 was made available on the European Soil Portal (<http://eusoils.jrc.ec.europa.eu/library/data/eionet/Workshop2009.htm>)
- The JRC made corrections to the details of the NFP and NRCs for Soil lists on the European Soil Portal, but not systematically. To avoid this, it is proposed that in the future the JRC will use the ‘official’ NFP and NRC-soil lists and mailing lists (on the EEA/EIONET website) for distribution of the data, and maintain the list of PCPs on the European Soil Portal. Nominations to NRCs Soil (per country) have to happen through the respective NFP.
- On request by the EIONET countries, the JRC remained available for integrating in the monthly SOIL newsletter items that are provided by the countries, but no input was received

The following table was presented as an overview of how countries were involved in and contributed to the shaping of the EIONET Soil. *PCP* means: country provided JRC with name/person of Lead Institution; *SOC*, *erosion* and *CS* mean: data provided for the SOC, erosion and contaminated sites data collections; *WS2009*, *WS2012* indicate: participation in WS2009, WS2012. Green means ‘yes’; Red means ‘no’.

	PCP	SOC	erosion	CS	WS 2009	WS 2012
Albania	Red	Red	Red	Green	Red	Red
Austria	Green	Green	Green	Green	Green	Green
Belgium	Green	Green	Green	Green	Green	Green
Bosnia/Herz	Red	Red	Red	Green	Red	Green
Bulgaria	Green	Green	Green	Red	Green	Red
Croatia	Red	Red	Red	Green	Red	Green
Cyprus	Green	Red	Red	Green	Red	Red
Czech Republic	Green	Red	Red	Red	Green	Green
Denmark	Green	Green	Green	Green	Green	Green
Estonia	Green	Green	Green	Green	Green	Green
Finland	Green	Red	Red	Green	Green	Green
Macedonia	Green	Red	Green	Green	Red	Red
France	Green	Red	Green	Green	Green	Green
Germany	Green	Red	Green	Green	Green	Green
Greece	Green	Red	Red	Red	Green	Green
Hungary	Green	Red	Red	Green	Red	Green
Iceland	Red	Red	Red	Red	Green	Green

Ireland	Green	Green	Green	Green	Red	Red
Italy	Green	Green	Green	Green	Green	Green
Kosovo	Red	Red	Red	Green	Red	Green
Latvia	Green	Red	Red	Red	Red	Green
Liechtenstein	Red	Red	Red	Red	Red	Red
Lithuania	Green	Red	Red	Green	Red	Red
Luxembourg	Green	Red	Red	Red	Red	Green
Malta	Red	Red	Red	Green	Green	Red
Montenegro	Green	Red	Red	Green	Red	Red
Norway	Green	Green	Green	Green	Green	Green
Poland	Green	Green	Green	Green	Red	Green
Portugal	Green	Red	Red	Green	Red	Green
Romania	Red	Red	Red	Red	Green	Red
Serbia	Green	Green	Red	Green	Green	Green
Slovak Republic	Green	Green	Green	Green	Green	Green
Slovenia	Green	Red	Red	Red	Green	Red
Spain	Green	Red	Red	Green	Red	Red
Sweden	Green	Red	Red	Red	Green	Red
Switzerland	Green	Green	Red	Green	Green	Green
The Netherlands	Green	Green	Green	Green	Green	Green
Turkey	Green	Red	Red	Green	Red	Red
United Kingdom	Green	Red	Red	Green	Green	Green
	31	13	14	27	22	25

The table indicates that Austria, Belgium, Denmark, Estonia, Ireland, Italy, Norway, Poland, the Slovak Republic and the Netherlands have been very committed to the success of the network.

Then a number of questions were put forward:

1. What went well or not in the communication with JRC in general? And for the individual data requests?
2. What went well or not inside the country, when data request was made?
3. In relation to questions 1 and 2, what are the areas for improvement?
4. Can JRC continue to use its own email based communication for data requests? Or should it try to exploit more the ReportNet?
5. Does JRC need to adapt to the EEA tools?
6. Can JRC publish on European Soil Portal website the received data for erosion and OC? Do we need to involve the delivering countries for approval?
7. JRC intends to create a JRC Reference Report on CSI015 indicator, based on the data received (see preliminary report). EIONET countries to be involved?
8. What is our legal basis to ask for data (needed by EEA and/or ENV)? How to prioritize? Voluntary basis?

The following issues were raised after this presentation:

- Arwyn Jones (JRC): concerning the SOER2010: the bottom-up approach whereby countries should have provided data for part-C which then could be used for European assessment did not work well for soil as there was no soil component foreseen in the country reporting. It was difficult to show any trends in SOER2010; only (modelled) soil threats are in, no soil functional data, neither any economic data in relation to soil; the challenge is to look in the future more to the positive side, e.g. looking into its ecosystem functions. How would countries react if they were asked to provide such data (which could be more demanding than asking for soil threats data)?

- Fabio Wegmann (Switzerland) sees three reasons why some countries sometimes do not deliver data: there are no national data; there is no staffing; there is political resistance. JRC should operate on a country by country basis to find out why.
- Veronique Antoni (France): France did not provide OC data for political reasons: it was not known what use would be made of the data and felt that the countries should have been 'involved' more in the preparation of the data collection exercise.
- Arwyn Jones (JRC) agrees that the scope of each data request should and could be explained better; in the case of soil erosion and OC, the idea was to have a bottom-up approach to the construction of pan-European maps, where each country could contribute with its best estimate. For the OC request: it was meant to estimate the amounts of carbon stock.
- Arwyn Jones (JRC): concerning publication of the received OC and erosion data: JRC will address this issue together with the EIONET countries before any publication will be made.
- Panos Panagos (JRC): concerning the publication of the erosion and SOC papers that made use of the EIONET data: the purpose was not to present a pan-European map, but to investigate how the submitted country data compares to previous modelled pan-European data (OCTOP, PESERA); he stressed that such a publication also gives visibility to this EIONET group.
- Arnold Arnoldussen (Norway): concerning erosion and OC: Norway could only cover a part of the country; concerning contaminated sites: there were no problems to provide answers but there were no resources to fulfil the request.
- Caroline Key (UK): UK has OC data, but due to communication problems, the data were not delivered; UK would also need to know how the OC data would be used; erosion data were not available; CS data were provided and local government had been involved in fulfilling the request.
- Arwyn Jones (JRC) remarked that the data flow seemed to work well; Arnold Arnoldussen (Norway) commented that the establishment of a PCP was a big step forward for the coordination of the data requests; this view was shared by the other participants.
- Concerning the lack of legal obligations for the submitting of soil data, Fabio Wegmann (Switzerland) suggested that 'trust' should be built between JRC and the individual countries, guaranteeing that JRC will not create rubbish with the received data; JRC should give the country 'control measures', e.g. the right to veto a publication making use of the country data.
- Arwyn Jones (JRC) agrees to Fabio's vision and adds that there should be a 'feedback'-mechanism in place that informs countries on what is happening or is going to happen with their data.
- Dragana Vidojevic (Serbia) said that the country worked very hard to provide requested data; OC data were provided; erosion data were not available in a form compatible to the requested format; concerning CS, there is a new regulation in place in Serbia, with an increased capacity; for the next CS exercise she hopes to send even better data.
- Sid Theocharopoulos (Greece): for OC there was no full coverage and data were not delivered; for erosion: data could have been given as categories. Greece will see if, at a later stage, it can deliver these data according to specifications. The CS data are now available and will be sent to JRC.
- Judith Berényi Üveges (Hungary): Hungary delivered CS data and tried to find the resources to deliver OC and erosion data, but did not manage; in the case of such requests, Hungary would like a kind of cooperation and to have an overview of what JRC/EEA/ENV is going to do with the data and which decisions are going to be made on the basis of them.
- Arwyn Jones made a comment on the level at which data are collected: no field level data were requested but data at 1km resolution which most probably is not a threat to anyone and can be considered as a 'broad environmental level' (there is no 'hidden agenda' when asking for the data)

- Geertui Louwagie (EEA): the mode of operation when EEA requests data for other EIONET themes is that EEA works with the countries to define and decide on roadmaps during EIONET meetings.
- Arwyn Jones raised the question if it would make it easier for countries to provide data if there would be matching indicators formally defined and accepted in the EEA indicator system (e.g. SOC-indicator, soil erosion indicator, soil quality indicator, etc.)
- Luca Marmo (ENV) said that, since the EEA regulation does not provide for legal requirements for providing data, 'trust' should be built and clear explanation should be given why data are needed. It would certainly help if it is mentioned that data are going to be used for the construction of indicators. In general it should be realized that it is in the interest of the 'soil constituency' to have soil on the political map, and therefore contribution with data certainly helps.
- Stephan Marahrens (Germany) suggested it would be good to make a questionnaire for EIONET countries to find out the reasons why data were not delivered, if so.
- Esther Goidts (Belgium) was not happy with the 1-km grid approach which she saw as a request that would satisfy JRC's desire to make 'only' a map; she advocated more detail in the reporting; she would favour an approach based on soil type. Belgium also wants to know the exact purpose for the data collections and to know what use with the data is allowed or not.
- Fabio Wegmann (Switzerland) expressed that he was very happy with email based communication, where you know the face behind the text, instead of machine-like approaches. He appreciated very much the point-to-point bilateral approach.
- Veronique Antoni (France) agreed on this and also expressed that it would be useful to have information on EIONET NRC Soil also available on EEA's EIONET NRC Soil forum, not only on JRC's European Soil Portal. Geertrui Louwagie and Marc Van Liedekerke replied that this could be practically arranged by creating links on the form that point to the actual information and data on JRC's portal.

The next two presentations aimed at clarifying the data and information needs in the context of recent EU policy developments, European environmental reporting and policy analysis.

Luca Marmo (DG ENV) presented the **Recent EU policy developments and soil data needs by DG ENV**. After an introduction to the various policy developments in Europe and the world, and an introduction of currently available data, the following data needs to support policy were specified: data on soil organic matter (e.g. in relation to climate change and soil fertility), soil erosion data (elaboration of better soil erosion models), data on wind erosion, data on contaminated sites (including data on brownfield regeneration and budgets spent), data on land take.

- Referring to SOC data collection, Veronique Antoni (France) suggested to ask from countries data at administrative unit level (NUTS2, NUTS3) which would allow the better detection of trends.

Geertui Louwagie (EEA) presented the **Data requirements for European environmental reporting and policy analysis by EEA**. First an overview was given of the thematic assessment on soil, as included in EEA's SOER2010 (State of the Environment Report 2010) indicating the gaps and prospects in relation to the State, Trends and Outlook of various soil degradations. Also it was indicated how countries could contribute to furthering the data and knowledge on this: through harmonisation, verification, validation and better coverage. Then, as key in this presentation, it was proposed to look in the future to the positive aspects of land and soil as integrated parts of ecosystems and an inclusive green economy (and not only to the negative aspects like soil degradation) and collect data that serve this purpose, satisfying a number requirements such as: data completeness (both thematically and geographically), a spatial resolution towards 1kmx1km assessments based on 0.1 x 0.1 km reference

grids, including data quality assessment and control (harmonisation, accuracy, timeliness). The data should allow assessing the state and impacts of environmental change and show robust 'trends' (not necessarily absolute values) and focus should be on functionalities and an adequate spatial representation (e.g. interpolation), not only classification.

- DG ENV subscribes to this list of EEA.
- Sigbert Huber (Austria) wished that the EEA management board could subscribe to this proposed wish-list, so that it could receive later support from the countries' ministries.
- Arwyn Jones (JRC) raised the issue of soil monitoring and was of the opinion that not many data collection at national level was taking place, let alone systematically or in a harmonized way.
- Armin Keller (Switzerland) maintained that EU countries have good monitoring data but if you want to use them at European level you need to consider comparability of data and take a common European approach.

Second day: Tuesday, December 11th

Robert Tomas (JRC) from the JRC INSPIRE team and the INSPIRE data specification on Soil the EC contact point gave an overview of the state of play of the development of the **INSPIRE** Soil data specification covering the legal part (Implementing Rules) as well as the Technical Guidelines. He stressed that the final soil data specifications includes also elements of semantic interoperability/harmonization e.g. promoting of the use of internationally recognized classification systems for soil type (WRB) and horizon designation (FAO). The second aspect that was stressed was related to the set of soil related measurable parameters that were selected based on the analyses of the relevant European legislation.

Sigbert Huber (Austria) asked if any guidelines are foreseen if problems come up during the implementation process (once the data specification legislation is out) and how this will be dealt with. Robert answered that a change strategy is foreseen that technically specifies how maintenance will happen, but that it is not known how it will happen organizationally; it is also not clear yet if JRC will participate in maintenance after 2014.

Marleen Van Damme (LNE Vlaanderen) gave a presentation on the achievements of eContentPlus project “**GS SOIL**” (“Assessment and strategic development of INSPIRE compliant Geodata-Services for European Soil Data”) which aim was the establishment of an European network to improve the access to INSPIRE related spatial soil data, through the specification of a structure to describe spatial soil data (note: INSPIRE specifications were not made yet!), the harmonisation of spatial soil metadata (according to INSPIRE rules) and the “seamless” combination of spatial soil data (case studies), resulting in the bundling of soil data & metadata in one central Soil Information Portal. The project has accomplished all of this; the question is now who could benefit in the future from this work and how. The infrastructure is kept alive for 2 more years but no further developments or new data integration are taking place. It was hinted that ESDAC could take over some of the results, but this would need to be defined.

Fabio Terribile gave an introduction to the EU Life+ “**SoilConsWeb**”-project that consists of building a web based Spatial Decision Support System (SDSS) – strongly focused on soil - and operating in the field of rural landscape and forestry. The system has been implemented and currently is in a testing phase in a pilot area of about 2km². The system incorporates elements of a WebGIS but is much more since application logic in the domain field is programmed in and is able to address various domain-specific questions.

Luca Montanarella (JRC)’s presentation placed the envisaged future role of the **European Soil Bureau Network** in the context of the ESDAC which is currently involved in contributing to various global soil data initiatives, stressing that the work within the Soil Action is moving quickly towards a global dimension. He then presented the relatively new **Global Soil Partnership**, a FAO initiative that is a voluntary partnership, open to governments, international and regional organizations, institutions, and other stakeholders.



It offers also space to Regional Soil Partnerships (RSPs) that are to be established among interested and active stakeholders in the regions. For Europe, the stakeholders are: EU Member States and Candidate countries with also associated countries and neighbouring countries, the European Commission, EEA/EIONET, ESNB, ESSC, ECSSS, NGOs, etc. The GSP is advised by an Intergovernmental Technical Panel on Soils (ITPS) consisting of 27 recognized experts nominated according to a regional distribution.

- Sigbert Huber asked about the relation between the RSP Europe and other networks; Luca answered that the RSP is an attempt to bring various networks together to operate more effectively, avoiding duplication, and raising awareness through the RSP of the multitude of activities going on in the soil domain.
- In relation to GS Soil, Sigbert Huber asked how the results of such a 5 Meuro project can be made useful to the public through European initiatives. Luca Montanarella answered that ESDAC would be happy to embrace the GS Soil outcome but this should be based on a systematic approach for the various projects funded by the EU, which would clarify which resources are needed; such a system is not in place yet
- Carlo Jacomini (Italy) enquired about the Global Soil Biodiversity Initiative. Luca Montanarella informed us that a Global Soil Biodiversity partnership had been initiated with the objective of a global soil biodiversity assessment and atlas (to be ready by 2015); with a kickoff meeting in Feb 2013 in Fort Collins (USA).

Arwyn Jones (JRC) presented then the initiative towards a “Global Atlas of Organic Soils”, which would be one in the JRC Soil Atlas Series. He presented the foreseen outline of the atlas and launched the idea of a possible request to EIONET-Soil for contribution of data for various peat related aspects. Such an exercise would be defined during 2013. Luca Montanarella underlined that such a request from EIONET countries to contribute would be based on a number of politically oriented requests received from various stakeholders interested in the soil carbon stock.

- Various countries showed their interest to contribute; some underlined that this would need the mobilization of resources and that, if deadlines are to be respected, a request for data should start very well in time; others also suggested to base it on the emerging INSPIRE soil data specifications. Arwyn Jones mentioned that the envisaged scale at which to collect the data would be 1:1,000,000.

Panos Panagos (JRC) presented the results of the 2009 **data collection exercise on OC** in a very detailed way, comparing the received data with the ESDAC OCTOP dataset, ending his presentation with the questions if JRC can distribute these data to the wider public and if JRC could expect some more contributions.

- On the basis of the presented results, Luca Marmo (ENV) made the point that the current collected data can not really be used at European level and that, if data collection could be improved, we could make better estimates of the situation.
- Stephan Marahrens said that Germany, in the meantime, established a working group that came up with a SOC map, albeit not according to the specified 1km format; he will contact the WG in order to still provide SOC data in EIONET context.
- Armin Keller (Switzerland) suggested comparing the received SOC data with new data findings such as the ones from LUCAS_SOIL. Luca Montanarella replied that this has been done but not published yet. On which Geertrui Louwagie suggested to use the LUCAS_SOIL data also for an updated/improved version of the European Soil Database.
- Fabio Wegmann liked the SOC map based on EIONET data because it shows if things are working; he also suggested constructing with EIONET countries an iterative dialogue to improve on data and metadata, giving an example from the Swiss situation. Luca Montanarella agreed with this statement.
- Veronique Antoni remarked that EIONET members in this meeting are just a link between ESDAC and national data providers and that they cannot influence the decision of such data provider to deliver data or not.

- Ester Goidts asked how comfortable the EC would be to base future EU decisions on the received SOC data. Luca Montanarella replied that the EC considers the received data as 'official' because we asked from the countries their best estimate.

Panos Panagos (JRC) presented the results of the 2009 **data collection exercise on soil erosion** in a very detailed way, comparing the received data with the ESDAC PESERA dataset. He invited again countries to still send data or eventual updates.

- Various countries expressed their worries concerning publication of SOC and erosion data and the potential impact it could have on political decisions, but it was emphasized by Arwyn Jones that these data would only be used in pan-European assessments and not in relation to any legislation or compliance requirements.

Sigbert Huber presented the results of the **2011 Contaminated Sites data collection** was seeking feedback on it.

- Laura d'Aprile (Italy) informed us that Italy has some newer and more extended data that will be provided to JRC. She also raised the importance of background values when it comes to data that takes classes of pollutants into account.
- In relation to the estimated number of Contaminated Sites, Luca Marmo commented that there should be more clarity in specifying how this estimate has to be made.
- Ciro Gardi (JRC) suggested, to avoid the necessity of a clear and well-accepted definition of CS or PCS, one could look for criteria that allowed certain sites to classify as contaminated or potentially contaminated, based on size and pollutant levels. To which Sigbert replied that it could be useful to screen national legislation to see if similar approaches were taken.
- For Esther Goidts, a better and clearer terminology should be used throughout the questionnaire. She suggested that each country would use the definitions applied in their own country in order to make the classifications for CS and PCS.

In relation to INSPIRE and the contaminated sites, **Kees Versluijs** presented the **extension of the standard INSPIRE data model** with objects and attributes to accommodate the make exchange of CS data structurally possible.

Then a round of discussions and country views took place which was launched by Luca Montanarella with the question where countries saw the bottlenecks (in delivering SOC and erosion data) and how we could address them, e.g. following the Swiss model, which is about: building a community of interest based on trust; asking for data with a clear purpose; thinking about procedures to make the data 'open'; stress the importance of (cantonal) data contributors in improving (national) data sets.

- Arnold Arnoldussen was of the opinion that it is very important to find out (on country basis) why data could not be delivered, and use this information to improve the methodology for future data collection exercises.
- Belgium, Denmark, Hungary and Luxembourg mentioned the following points for improvement: when making a data request, more information should be made available on: the purpose for which the data is requested, the format (e.g. why 1km cells), what is going to be done with the data, arrangements for possible publication of the data.
- Luca Montanarella commented that JRC has requested data that are explicitly needed by EEA and DG ENV, responding to their data needs; the main purpose being a response to a policy request, not making publications.
- Portugal and Bosnia told about the organizational problems in their country to explain why no SOC and erosion data were delivered.

- Luca Marmo explained why it is important that countries contribute when requested for data (in view of the absence of legislation that forces them to do), namely for improving indicators needed for EU policy. EU is only interested in the general environmental situation, not in the situation in particular places (points, plots) and data are definitely not to be used in another context. In a way, countries should feel more free in such exercises as there is no stick (of legislation) behind the door.

From the discussions, Luca Montanarella concluded that it would be meaningful to ask countries for the reasons why they did not contribute and use the responses to look for solutions on a country by country basis; of course this exercise would generate a report. Sigbert then suggested having this exercise performed by an external (to the EC) organization or project, to which there was the reaction of several countries that they preferred such an exercise not to be performed by an external.

In the subsequent dialogue between Luca Montanarella and Geertrui Louwagie, the following elements were mentioned: it should be communicated precisely to countries why the data are needed and which use is going to be made of it; the overall purpose is to serve the SOER; a partnership should be built between all stakeholders; more SOC data are still needed for EEA; for soil erosion, validation by countries of modelling results is needed; the type of requested data depends on the policy context: e.g. for SOER2015, we would need to shift from soil degradation and threats to the functional aspects of soil (ecosystem capacity of soil). Luca Marmo agreed that SOC and erosion data are still high on the agenda, but explaining a 'specific' use of the data would be somewhat more complicated; he stressed the strategic importance of being visible; ENV needs soil data and information with the view of expanding its knowledge base, not to answer at this very moment specific questions.

Third day: Wednesday, December 12th

Carlo Jacomini (Italy) illustrated the **SIAS project**, Italian acronym for “Development of Environmental Indicators for Soil”, which is a pilot project aimed at determining two soil indicators (Organic Carbon content (OC), Soil Loss by water Erosion (SL)), based on contributions from Italian Regions (who actually have the lead on normative and management of Land) according to a specific procedure and format. The SIAS project has also been used as an exercise for the EIONET SOC and Soil Erosion Data Collection exercise, showing some strong and weak points. The main strong point is that the approach exploited delivers the most accurate, detailed and up-to-date soil data, elaborated directly by institutions and experts involved in soil survey at local level. The main weak points are 1) that there are very different situations for the regional soil services in terms of institutions involved, data availability and expertise (difficulties in enrolling in the project, different timing) and 2) that different methods are used in some Regions which sometimes makes comparability of results difficult.

Sid Theocharopoulos (Greece) made presentation on the situation in Greece concerning contaminated sites.

Arnold Arnoldussen (Norway) gave an overview on soil quality maps for Norway, which are used in relation to the policy that when soil is taken away for some constructions (e.g. a new road), it should be replaced by some soil of the same quality somewhere else (compensation for land taken).

Following these presentations a number of discussions took place guided by Luca Montanarella, reflecting on what had been previously discussed, keeping in mind that we want to improve the situation and we want to see answered the questions put forward by Marc Van Liedekerke. He invited participants to raise any topic that they want to see discussed.

- Veronique Antoni (France) raised a pertinent issue: many organizations (e.g. ESTAT, OECD) approach countries with questions and requests for data that are similar to the data that JRC-ESDAC requests. She suggested that these organizations should be directed to JRC for getting such information. Luca Montanarella fully agreed and said that this topic should be raised in the Group-of-4 (EEA, ESTAT, ENV, JRC) that established the environmental data centres. As a matter of fact, ESDAC was exactly established as the single point of contact for all soil data and information issues at European level.
- Judith Berényi Üveges (Hungary) thought that finding the resources to cover data requests is a serious problem as more and more requests seem to come in. In relation to this statement, she launched the idea of using pilot-projects within the EIONET group that would allow elaborating data collection methods and exchange experience.

Luca Montanarella asked if countries want to be involved in the finalization of the Contaminated Sites report, to which Geertrui added how far countries would feel comfortable with the publication of their data on the EEA website (update of the CSI 015 indicator as published on the EEA website - last update: 2007).

- Caroline Keay want the UK data separated from the other countries with a special license agreement.
- Sigbert suggested to move some of the recommendations made (as contractor) in the report.
- Esther Goidts suggested including a glossary on CS, PCS, etc. in the report; Marc Van Liedekerke said that definitions and terminology were already in the technical guidelines so there is no need to do that again.

After discussions, it was concluded that countries will have the time to comment on the current CS report until end-January or mid February 2013.

Arwyn Jones remarked that, if the SOER 2015 needs a CS component, with report ready beginning 2015, the EIONET group should start planning a new CS data collection exercise to be ready by the end of 2014.

Which brings Luca Montanarella to the question what EEA wants to see incorporated in SOER2015 in terms of soil. Geertrui informed the audience that the structure of SOER 2015 was still internally under discussion at the EEA, but that she expected a continuation of integrated assessments across environmental themes. However, she did not know whether there would be a separate soil chapter in SOER 2015 (as in previous SOERs) or rather a further integration of the soil theme (e.g. with land use, or as part of 'ecosystem capital') would be proposed. She took it as her homework to inform JRC and EIONET-Soil to provide with very specific messages as to what is expected that EIONET NRC Soil could contribute to the EEA SOER2015. She welcomes also suggestions made by the EIONET NRC Soil

- Carlo Jacomini (Italy) wanted that data contributors would receive recognition for their work through mentioning them explicitly.
- Fabio Wegmann launched the idea that, in the light of INSPIRE, it would be quite useful to have a directory that contains lists of all soil information in Europe available for policy-making (based on metadata). Luca Montanarella replied that ESDAC did have ideas in that direction but because of limits in resources, had not embarked on such a project yet.
- Luca Montanarella suggested that the EIONET NRC Soil group should set as objective SOER2015 with as (preliminary) themes for contribution: SOC, erosion, CS, Land-take; it is the task of the participant to find the necessary sources for data in their country. There seemed to be an agreement on the initiation of another reporting cycle for SOC, erosion and CS, as preparation for SOER2015, as countries are by now familiar with the approach and thus would avoid lead times.
- In the meantime, EEA (Geertrui) will prepare a clear statement on the soil data needs for SOER2015, with deadline 15 Feb 2013.

Luca Montanarella asked if countries would have a problem if the received (SOC and erosion) data were publicly available through ESDAC (as pan-European maps).

- In relation to the 'trust' issue, and when publishing such maps, Esther Goidts (Belgium) asked to add a sentence to make it clear that the map is not legally binding. She also would like to see a standard procedure for publishing such maps.
- Germany agreed on publishing as pan-European maps (single datasets), on the condition that the 1km datasets are well-described, including their limitation.
- Luxembourg would not allow publishing of the data.
- Luca Marmo and Geertrui Louwagie have nothing against explicitly mentioning that the data are not legally binding. They stress that the pan-European data are to be considered as information for the European citizen and support to the policy-making process.

On the question of Luca Montanarella if the same methodology could be applied for a new round of SOC and erosion data request, France and UK seemed to have a problem with the 1km resolution. For UK, that has data at 1km resolution, the 1km is considered too fine for reporting. For France, the holders of the data wanted to publish the data first at 16km cell resolution; now this is done, maybe it will be possible to obtain better (at 1km) data.

On the question of Luca Montanarella if email can still be used for communication and data-exchange, there was the general opinion that JRC should try to use as much as possible the official EIONET NRC lists maintained by country NFPs for general information and requests, so that all NRCs are informed. JRC answered that it will do so by addressing directly PCP's (who are supposed to deliver concerted replies) and putting all NRCs and NFPs in copy.

Coming back to the question how the results of the GS SOIL project could be preserved and used by ESDAC, it was proposed by Sigbert Huber to establish a small team, consisting of members of the project

and the JRC Soil Action to study what would be subject for take-over and the needed modalities. Considering that the GS Soil portal will be kept alive until May 2014 (by the partner in Thessaloniki), Ester Goidts asked if it would be open for contributions from non-GS-Soil partners, Marleen Van Damme replied affirmative.

Luca Montanarella closed the meeting, thanking all participants and expressing the wish to hold an EIONET meeting on a yearly basis but realizing that from budgetary point of view, it may not always be possible to do so.

Conclusions of the workshop

On the basis of the discussions, the questions put forward by Marc Van Liedekerke at the start of the meeting can be answered:

- *What went well or not in the communication with JRC in general? And for the individual data requests?*

Email-based communication has been generally smooth for the data requests; JRC proposes to use as much as possible the EEA maintained mailing lists to inform NRCs (with NFP in copy); the JRC also proposes to set-up and maintain a specific list of PCPs soil.

- *What went well or not inside the country, when a data request was made?*

The establishment of a lead institution (PCP) that 'officially' receives the request and co-ordinates the response in the country was generally seen as being effective and efficient, the participants accepted to keep this mode of operation.

- *In relation to the previous questions, what are the areas for improvement?*

See replies above.

- *Can JRC continue to use its own email based communication for data requests? Or should it try to exploit more the ReportNet?*

The email based communication is to be maintained; JRC is encouraged to place links on the (EEA maintained) EIONET soil forum to the information on the European Soil Portal. ReportNet should not be used.

- *Does JRC need to adapt to the EEA tools?*

JRC will continue to operate the way it has done in the period 2009-2012 and will not use the EEA tools apart from its mailing lists and the EIONET soil forum.

- *Can JRC publish on the European Soil Portal website the data received for erosion and OC? Do we need to involve the delivering countries for approval?*

The data cannot be published per country but only as pan-European maps. Before doing so, JRC would definitely need to consult the countries and seek consent.

- *JRC intends to create a JRC Reference Report on the CSI015 indicator, based on the data received (see preliminary report). EIONET countries to be involved?*

Countries indicated that they want to be involved. They will be given the opportunity to comment on the draft report, on the basis of which JRC will prepare an updated report that will go through the QC cycle for a JRC Reference Report. Countries (and organizations) will be acknowledged for their contribution.

- *What is our legal basis to ask for data (needed by EEA and/or ENV)? How to prioritise? Voluntary basis?*

There is no strict legal basis. In the past, countries have agreed to contribute to the CSI015 exercise and maintain the reporting cycle for the indicator. For new data collections, contributions are based on willingness and trust between asking and providing parties. This trust should be cultivated by a series of actions such as: provide the reasons why certain data are needed (in a policy context) and outline what exactly is going to be done with the data, involve the countries when making the specifications for the data (formats, etc.), give the countries full 'control' over the use of the data, provide feedback on received data.

Prioritisation should be done on the basis of the needs of ENV and EEA.

Other conclusions from the meeting:

- All follow-up actions since the last EIONET Workshop in 2009 were accomplished by the JRC and EIONET NRC Soil.
- It would be helpful to know the reasons why countries did not provide data for OC, erosion and CS, and/or why were partial data or data in another format provided.
- The overall purpose for the request and delivery of data is to feed the SOER.
- In the future, data needs could be more oriented towards the positive aspects of land and soil as integrated parts of ecosystems and an inclusive green economy (and not only to the negative aspects like soil degradation).
- When publishing pan-European datasets, countries should be acknowledged. A kind of standard procedure should be in place.
- Countries would like to report only once; when other (European) organisations ask countries for contributions of soil data, they should be referred to the ESDAC, since the ESDAC is to be considered as the single point of reference for soil data at European level.

Roadmap, future actions

In relation to the conclusions, the following concrete actions were decided:

- JRC will use the official EIONET NFP and NRC mailing lists for the dissemination of information
- JRC will complete the list of PCP-Soil and establish a JRC mailing list to communicate data requests and receive responses.
- JRC will refer to EIONET NRC Soil information on its European Soil Portal through links on the EEA's EIONET Soil Forum.
- EEA will provide JRC ESDAC with concrete data needs for SOER2015 (deadline 15 Feb 2013)
- JRC will reflect on the SOER data needs and make a proposal for future data requests (short-term).
- EIONET countries will provide JRC with comments on the draft report on CSI015 (deadline 15 Feb 2013)
- JRC will incorporate the comments and (possibly) new data in a new version of the CSI015 report and propose this report for publication as a JRC Reference Report.
- JRC will propose a procedure to the EIONET countries for the publication of pan-European datasets

Annex 1. Final Agenda

EIONET Workshop on Soil 2012 - Agenda

Joint Research Centre, Ispra, 10-11-12 December 2012

Chair: Luca Montanarella, JRC
Rapporteur: Marc Van Liedekerke, JRC

Monday 10 December – afternoon (14:00 – 18:00)

Building 36 – Room 2

14:00-14:15	Introduction + Roundtable	Luca Montanarella, SOIL Action
14:15-14:25	Welcome by JRC Institute for Environment and Sustainability	Maria Betti, Director
14:25-14:35	Welcome by IES Land Resource Management	Alan Belward (Unit Head)
14:35-15:00	Achievements since the last EIONET Workshop Soil of March 2009	Marc Van Liedekerke, SOIL Action
15:00-16:00	Feedback from countries on information flow and data collection processes	All
16:00-16:20	Coffee Break	
16:20-16:40	Recent EU policy developments and soil data needs	Luca Marmo, DG ENV
16:40-17:00	EEA Data and Information needs	Geertrui Louwagie, EEA
17:00-17:50	Discussion on data and information needs	All
17:50-18:00	Wrap-up of Day1	Luca Montanarella, SOIL Action

Tuesday 11 December – all day (9:00 – 17:30)*Building 58 – Auditorium*

09:00-09:25	Progress of INSPIRE in general and INSPIRE Soil in particular	Robert Tomas, INSPIRE Team JRC
09:25-09:40	GS Soil	Marleen Van Damme
09:40-10:00	Presentation of the LIFE+ “SoilConsWeb” project results and discussion on follow-up activities	Fabio Terribile, Federico II University, Naples
10:00-10:30	News of the European Soil Bureau Network; News on the Global Soil Partnership	Luca Montanarella, SOIL Action
10:30-11:00	Coffee Break	
11:00-12:00	Results of the 2009/2010 Soil Organic Carbon data collection + discussion	Panos Panagos, SOIL Action + All
12:00-12:30	New data requirements on peat areas in Europe	Arwyn Jones, SOIL Action
12:30-13:30	Lunch	
13:30-14:30	Results of the 2009/2010 Soil Erosion data collection + discussion	Panos Panagos, SOIL Action + All
14:30-15:30	Results of the 2011 Contaminated Sites data collection + discussion	Sigbert Huber (Environment Agency Austria + All)
15:30-16:00	Coffee Break	
16:00-17:30	Discussions and Country views Wrap-up of Day2	All

20:00: **Social Dinner** at Ristorante Belvedere, Ranco**Wednesday 12 December – morning (9:00 – 12:30)***Building 36 – Amphitheatre*

09:00-09:30	The way forward: proposal by JRC	Luca Montanarella, SOIL Action
09:30-10:30	The way forward: discussion and conclusions	All
10:30-11:00	Coffee Break	
11:00-12:00	Additional items proposed by EIONET countries; AOB	All
12:00-12:30	Conclusions of the Workshop	Luca Montanarella, SOIL Action

Annex 2. List of participants

	Attended
	No delegate

EIONET NRC Soil participants

Albania		
Austria	Sigbert Huber	Environment Agency Austria
Belgium	Marleen Van Damme	Vlaamse Overheid - Departement LNE - Afdeling Land en Bodembescherming, Ondergrond, Natuurlijke Rijkdommen - Dienst Ondergrond Vlaanderen
Belgium	Esther Goidts	SPW-DGARNE Département du Sol et des Déchets - Direction de la Protection des sols
Bosnia and Herzegovina	Hamid Čustović	University of Sarajevo Faculty of Agriculture and Food Sciences
Bulgaria		
Croatia	Ms Andrea Steinberger	Croatian Environment Agency
Cyprus		
Czech Republic	Mr Igor Dvorak	Czech Geological Survey
Denmark	Vibeke Ernstsén	GEUS – Geological Survey of Denmark and Greenland
Estonia	Tiina Köster	Agricultural Research Centre - Soil monitoring bureau

Finland	Teija Haavisto	Finnish Environment Institute - Centre for Sustainable Consumption and Production/Contaminants
Former Yugoslav Republic of Macedonia		
France	Véronique Antoni	Ministère de l'Écologie, du Développement durable et de l'Énergie (MEDDE) Commissariat Général au Développement Durable (CGDD) Service de l'Observation et des Statistiques (SOeS) Bureau de l'état des milieux environnementaux
Germany	Stephan Marahrens	Umweltbundesamt German Federal Environment Agency
Greece	Sideris Theocharopoulos	Soil Science Institute of Athens
Hungary	Gabor HASZNOS	Ministry of Rural Development
Hungary	Judit Berényi Üveges	National Food Chain Safety Office, Unit of Soil Protection Authority
Iceland	Rannveig Anna Guicharnaud	Agricultural University of Iceland
Ireland		
Italy	Carlo Jacomini	ISPRA (National Institute for Environmental Protection and Research)
Italy	Laura D'Aprile	ISPRA (National Institute for Environmental Protection and Research)
Italy	Fiorenzo Fumanti	ISPRA (National Institute for Environmental Protection and Research)
Kosovo under the UNSCR 1244/99	Gani Berisha	Ministry of Environment and Spatial Planning - Kosovo Environmental Protection Agency
Latvia	Intars Cakars	Latvian Environment Agency
Liechtenstein		

Lithuania		
Luxembourg	Simone Marx	Administration des Services techniques de l'Agriculture - Service de pédologie
Malta		
Montenegro		
Norway	Arnold Arnoldussen	Norwegian Forest and Landscape Institute - Section Soil Resources
Poland	Grzegorz Siebielec	Institute of Soil Science and Plant Cultivation - State Research Institute Pulawy
Portugal	Paula Virgínia Meireles	Portuguese Environment Agency
Portugal	Jorge Santos Garcia	Portuguese Environment Agency
Romania		
Serbia	Dragana Vidojevic	Serbian Environmental Protection Agency
Slovak Republic	Katarina Paluchova	Slovak Environmental Agency
Slovak Republic	Jozef Kobza	Soil Science and Conservation Research Institute
Slovenia		
Spain		
Sweden		
Switzerland	Fabio Wegmann	Department of the Environment, Transport, Energy and Communication DETEC Federal Office for the Environment Soil and Biotechnology Division
Switzerland	Armin Keller	Swiss National Soil Monitoring (NABO) - Agroscope Research Station (ART)

The Netherlands	Kees Versluijs	RIVM
Turkey		
United Kingdom	Caroline Keay	National Soil Resources Institute - Cranfield University

non-EIONET NRC Soil participants

Luca Marmo	European Commission - DG ENV
Geertrui Louwagie	European Environment Agency
Fabio Terribile	"Federico II" University of Naples - Soil, Plant, Environment, and Animal Production Science Department - Italy
Angelo Basile	CNR – ISAFoM (National Research Council) - Italy)

JRC participants

Alan Belward	JRC - IES Land Resource Management Unit - Unit Head
Maria Betti	JRC Institute for Environment and Sustainability - Director
Ciro Gardi	JRC - IES Land Resource Management Unit - Soil Action
Arwyn Jones	JRC - IES Land Resource Management Unit - Soil Action
Luca Montanarella	JRC - IES Land Resource Management Unit - Soil Action
Robert Tomas	JRC - Digital Earth and Reference Data Unit
Marc Van Liedekerke	JRC - IES Land Resource Management Unit - Soil Action