

# Minutes of the 22<sup>nd</sup> meeting of the London Group on Environmental Accounting

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*28-30 September 2016, Oslo*

*Background documentation presentations here:  
<http://unstats.un.org/unsd/envaccounting/londongroup/meeting22.asp>*

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## **Brief summary**

The 22<sup>nd</sup> meeting of the London group showed that the group is engaged and highly active in developing, extending and further visualising the data from the environmental and ecosystem accounts.

Part of the agenda was devoted to the up-date of the mandate, now 10 years old and to a new proposal for a three year work plan for the group. Both of these were supported by the group. The LG was invited to propose changes to the documents in question to the Chair by 30 November 2016.

The three days covered among other things the research agendas of the SEEA-Central Framework and the Experimental Ecosystem Accounting and applied methods and thoughts stemming from the items in the agendas. The London group recommends the Technical Committee on SEEA CF to propose a time table for moving the research agenda forward. With regards to the TC on EEA it is not yet populated with experts.

The LG can expect a list of priority issues from the research agenda of the SEEA-CF to be sent out in the beginning of next year for the possibility to contribute papers to topics of interest. The Technical committee on SEEA CF is working on this task.

The London Group also covered areas of new developments related to bio economy, crop residues, integrated SEEA and land accounts, and up-dates on progress of the work on the SDGs and on capacity building globally. The group also learned about policy application of the data including best opportunities in policy cycles to use SEEA-related data.

Steps forward in ecosystem accounting were taken. An example of such steps was a discussion that took place with regards to the use of spatial units. The LG recommends moving away from the proposal in the SEEA-EEA to use fixed spatial units and instead apply flexible units that fits the measured objects instead. The LG also discussed the implications of different philosophical premises for the policy relevance of monetary evaluations of ecosystem services and natural.

## **Feedback to the UNCEEA**

The LG was informed about the work of the UNCEEA and the implementation plan with the vision of 100 countries implementing SEEA CF and 50 countries implementing SEEA-EEA by 2020. The LG encourages the UNCEEA to develop a plan for the success of this vision. The plan would assist in visualising where current initiatives are ongoing, globally, bilaterally or otherwise. Through this plan the experts in the LG can identify support to be expected or to be given.

The LG also asks the UNCEEA for a clarification of how the experts of the Technical Committees are chosen and also asks for a process plan for the finalisation of the technical notes that are under development.

## ***Session A: Introduction***

*The goal of this session was to welcome the participants and provide a platform to begin the meeting. Among other things, at the 21st meeting of the London Group it was decided to up-date the mandate and governance structure for the group. The final document was presented and the LG was invited to approve the document. The 11th meeting of the UNCEEA has also taken place. The LG was informed about the outcomes of that meeting, including updates about e.g. the SEEA implementation strategy and the progress of the technical notes.*

### ***1. Welcome address by Statistics Norway (Torstein Bye, Director of Department of economics, energy and the environment, Statistics Norway)***

Mr. Bye welcomed participants to the 22<sup>nd</sup> meeting of the London Group on Environmental Accounting. He discussed the statistical office structure in Norway and the coming reorganisation, which will bring the Energy and Environment Statistics Division with the Business sector statistics and the National Accounts Division. He wished the group a good and interesting meeting, as well as a nice visit of Oslo city.

### ***2. Opening remarks and previous meeting notes (London Group Chair – Nancy Steinbach) ([LG/22/A2](#))***

Nancy welcomed the participants. She thanked Statistics Canada and Joe St. Lawrence for the work done as the former chair of the London group. The minutes of the 2015 meeting received comments and some minor changes will be made and a new version up-loaded.

### ***3. Round table of participants (Please present yourself briefly – name and institution)***

The participants presented themselves briefly.

### ***4. UNCEEA business and UNSD update – for information (Viveka Palm, UNCEEA member and Leila Rohd-Thomsen, UNSD) ([LG/22/A4](#))***

Viveka provided information on the recent UNCEEA meeting held in New York in June 2016. The Committee has among other things defined a target for the implementation of SEEA CF and EEA, where the goal is to implement CF and EEA by 2020 in 100 and 50 countries respectively. “Implementation of the SEEA” will be defined as a country that has published a SEEA account at least once and has regular budget funding for repeat compilation. Furthermore the Committee has suggested that a module specific course (e.g. energy accounts, water account etc) should be developed to improve the capacity building in the area. The courses should in particular focus on priority areas in SEEA, decided by the UNCEEA. The UNCEEA also adopted the SEEA Energy and the SEEA Agriculture, Forestry and Fisheries as methodological documents in support of the SEEA Central Framework, which is a statistical standard. This reflects the decision of the Statistical Commission in March 2016 that the SEEA CF should be the overarching standard and that sub-systems will be supporting documents.

The Committee also discussed the SEEA-CF research agenda, where IO techniques, material flows and SDMX were identified as important areas as well as of the need to develop global

SEEA databases based on already available data. Finally a subgroup of the Committee has been formed as a tactical approach to facilitate the usage of SEEA data in the SDGs.

Leila provided an update of UNSD work.

The SEEA Energy and the SEEA Agriculture, Forestry and Fisheries are in the process of being finalised and published. UNSD also intends to revisit the Compilation Guide for Water Accounts and Statistics for finalisation in the first half of 2017. Furthermore, the Technical Note on Water is finalised, and notes for MFA, Air Emissions, Energy, EGSS, EPEA and Land will be finalised soon. It was noted that the Technical Notes will be sent to the Technical Committee on the SEEA CF for final review.

Until now, UNSD has run regional training on SEEA CF in Latin America, in English speaking Africa, and in the Asia-Pacific region. UNSD is now in the process of developing more in-depth training modules on water, energy and ecosystems which will be available in 2017. Furthermore, UNSD is providing technical assistance to Kenya, Uganda and Malaysia, where more in-depth training on water accounts is being provided.

Leila also provided an update on behalf of UNWTO, which is looking to develop a framework for measuring sustainable tourism. UNWTO will have a working group meeting on 20-21 October in Madrid. A document with general introduction about the meeting is available on the London Group website. Furthermore nine issue papers will be available closer to the meeting, and can be found on the UNWTO website.

### **Discussion**

The London group took note of the work done by UNCEEA the past year and the engagement of the UNSD in furthering the implementation practices of the area.

The London group welcomes the plans foreseen in the work plan of UNCEEA and the UNSD and wishes to see in the up-coming work:

- A clarification of the working process of the technical notes, the group welcomes their finalization.
- The work on the global datasets to be developed is welcomed and the LG encourages international organisations to work together for efficiency and comparability across databases in environmental accounting.
- The LG encourages the UNSD and UNCEEA to look at a development plan on how to reach the implementation goal of 100 countries/50 countries in the field.
- Members encouraged UNWTO to involve the London Group on the work related to Sustainable Tourism, noting that the SEEA experts in the London Group represent an important resource in advancing this area.

### ***5. LG Mandate, Governance structure – for discussion and approval (LG Chair)***

[\(LG/22/A5\)](#)

Nancy provided background for the review of the mandate and governance. The mandate is now 10 years old and developments have made the mandate out of date. The new update is to clarify the mandate of the group and the role of the bureau, and to ensure it covers the CF and EEA.

### **Discussion**

The London group supported the draft mandate and governance document. Issues raised focused on the balance that needs to be struck between methodological and technical development and the issue of how to use the data, in policy or research studies.

The LG is invited to provide proposals to the mandate (in track changes) by November 30<sup>th</sup> 2016 to the chair. The LG Bureau will provide final verification of the changes before the mandate is submitted to the UNSC for information, via the UNCEEA report.

### **5. *LG tentative work plan for discussion and approval (LG Chair)* [LG/22/A5](#)**

Nancy provided background for work plan development, and underlined that the plan can help the group to plan the contributions in time for each meeting. The small survey done at the previous meeting in the Hague helped to write this work plan. The principal goal is to increase transparency of the work done by the group and facilitate the work by establishing milestone dates to submit e.g. topics and have enough time to prepare the following meeting well, for example by having the Agenda ready, prior to the UNCEEA meeting in June. Nancy opens the floor for discussion.

#### **Discussion**

The LG welcomed the work plan development and supported it. Discussions that followed focused on the importance of creating a balance of not covering too broad work programme but still be in line with the mandate agreed upon in the previous session. The group also discussed a possibility to establish a meeting agenda in cooperation with the chairs of the technical committees to reflect priorities in the research agendas, for which the LG is in support to work with. The discussion also provided enhancement to the importance to make progress on the research agendas and to be able to plan the contributions in timely fashion. The draft work plan can help to do this.

The LG is invited to provide proposals to the draft work plan (in track changes) by November 30<sup>th</sup> 2016 to the chair. The LG Bureau will provide final document by the end of the year 2016.

### ***Session B: Sustainable development goals, Agenda 2030***

*The goal of sections B-C-D is to provide an up-date of the current status of the sustainable development goals, of international initiatives for data collections and capacity-building.*

### **6. Current up-date from the IAEG-SDGs and – for information (Viveka Palm, Statistics Sweden) ([LG/22/B6](#))**

Viveka Palm (SCB) provides an update from the IAEG-SDGs work. She informs the LG how the group is working and what they are focused on. She also points out the existence of different interests within different UN groups. Viveka also informs the LG about tasks from the UNCEEA recently developed. The UNCEEA has tasked a small sub-group to work on a common plan according to UNCEEA discussions on how to move forward. The group has previously written and submitted a paper of methods for policy makers during the first stage of the work of the IAEG-SDGs.

### **7. National, regional or international initiatives related to SDG indicators and SEEA –**

- *An assessment of the capacity to track the SDG indicators and transposition of the SDGs within a national strategy – an example from Montenegro (Alessandro Galli, Global Footprint Network) (deck: [LG/22/B7](#) – paper: [LG/22/B7](#))*

Alessandro Galli (Global Footprint Network) presents the experiences from the implementation of the SDGs in Montenegro, where the government has decided to test the SDG within the national strategy for sustainable development. Montenegro is working toward an integrated framework which includes the SDGs indicators, the national indicators and the composite indicators. The process followed was presented as well as the outcomes and the recommendations. By 2020 Montenegro will be able to track about 50% of SDGs – Natural resources and economics Resources are the area with the best coverage. Alessandro also explained the process of compiling the National and composite indicators. Montenegro is in the implantation phase; steps were presented.

- ***Monitoring the shift to sustainable consumption and production patterns in the context of the SDGs (Nancy Steinbach, Statistics Sweden)*** (deck: [LG/22/B7](#) – paper: [LG/22/B7](#))

Nancy Steinbach (SCB) presents the work in monitoring the shift to sustainable consumption and production patters in the context of the SDGs, a joint project with the environmental ministry in Chile and UNEP. The project focused on SDGs number 12 and how the environmental accounts can be used to monitor the goal. It also shows how other indicators can be monitored with the help of SEEA. The project also looked at capacity building and how it can be strengthen in this area. For example the importance of using existing work on statistics and accounts and the need to strengthened the communication with users and experts outside of the statistics offices as well as to provide budget.

Report is available at: [www.sepclearinghouse.org/upload/file\\_management/file/170.pdf](http://www.sepclearinghouse.org/upload/file_management/file/170.pdf)

### **Discussion**

The LG took note of the work ongoing in the field. Discussions that followed surrounded the future work of the IAEG-SDGs, and how the work on defining and finding appropriate data is foreseen to be done. There is no fixed process yet within the IAEG-SDGs on these issues, but other organisations, for example the UNECE are now working on designing a road map.

### **8. How do we employ SEEA and national accounts for the monitoring of the progress towards the targets in the SDGs – *for discussion***

Viveka informed the group that the UNCEEA will form a tactical group to better inform users of the possibilities of using SEEA in the SDG context. This point of the agenda focused on how the LG can contribute to the work. Nancy opened the discussion.

### **Discussion**

It was proposed that the LG should develop a suggestion on how the SEEA can be useful in the context of policy applications, such as e.g. the SDGs, taking heed of the UNCEEA strategic work on SDGs and SEEA. The proposal would encompass practical examples as the accounts have a role to play as a background in the integration of several SDG goals – and provide information for pursuing the indicators. Discussions that ensued related to the fact that the SDG process itself is not yet stabilised so that any work done now should not be too extensive. Other aspects to consider is who we would like to target; i.e. ourselves? users? or the custodians?

Nancy and Viveka will develop a proposal, and thereafter invite the LG to bring the proposal into practical application. It is anticipated that this work could be presented in the up-coming LG meeting in 2017.

*Link to UNCEEA – contribution to the work on the SDG indicators:*

<http://unstats.un.org/unsd/envaccounting/ceea/>

*Link to UNDP-UNEP Poverty Environment initiative:  
[http://unstats.un.org/unsd/envaccounting/londongroup/meeting22/BK\\_7.pdf](http://unstats.un.org/unsd/envaccounting/londongroup/meeting22/BK_7.pdf)*

### ***Session C: Capacity building***

*The goal of session C is to provide an up-date of the current status of capacity-building, globally.*

#### **9. World-wide capacity building – news from the UNSD (*Leila Rohd-Thomsen, UNSD*) ([LG/22/C9](#))**

Leila presented the work done by UNSD on Capacity building. The first, more introductory course on the SEEA-CF comprised an on-line course, in-person, and follow-up component. The online phase has been completed by roughly 250 people, and roughly 120 of those have also finalised the in-person seminar. UNSD is now planning to develop more in-depth training courses on Water and Energy, as requested by countries.

Further training material on the SEEA EEA is also being developed; an online course will launch in the first half of 2017 based on the material developed during the Norwegian funded project on “Advancing the SEEA EEA in 7 pilot countries”. Further guidance will be developed during UNSD’s upcoming project on ecosystem accounting funded by the EU.

A list of notes and guidelines accessible at the moment was provided. It was also noted that in order to support coordination of capacity building activities in countries, an overview of what is taking place was developed for the UNCEEA meeting<sup>1</sup>.

#### **10. Regional capacity building – experiences from the WAVES programme (*JP Castaneda and Michael Vardon World Bank*) ([LG/22/C10](#))**

Michael presented the implementation objectives of WAVES. The objective to address is become better to promote how you can use the SEEA and apply it in “real life”. He splits the classes in different groups such as: 1) those that will use the account and, 2) those that compile the account. Michael discussed the different needs of training, and the lessons learned from the “First 5” Core implementing countries (Botswana, Colombia; Costa Rica; Madagascar and the Philippines. Some other issues were presented, as the importance of establishing institutional mechanisms not relying on the help of external organisation, and the implementation inside the institution that will survive government change, etc. Key lessons from building accounts and on capacity building were presented. Again, the importance of using wisely the expert’s time, the expansion of the experts list and the need to prepare material in different languages were discussed. Michael ended the presentation showing the areas of future work:

1. Workshop – forum on national capital accounting for better decision-making (The Hague 22-23 Nov 2016)
2. Building the library of case studies
3. Developing info material outlining types of uses; indicators; models, other tools.
4. Developing knowledge about successful institutional set ups and processes.
5. Developing processes for identifying and designing institutional mechanism

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<sup>1</sup> This is available at: [http://unstats.un.org/unsd/envaccounting/ceea/meetings/eleventh\\_meeting/lod11.htm](http://unstats.un.org/unsd/envaccounting/ceea/meetings/eleventh_meeting/lod11.htm) - refer to BK/5(2)

**11. SEEA Agriculture Forestry and Fisheries: current status and country implementation plans - for information (Silvia Cerilli, FAO) ([LG/22/C11](#))**

Overview of SEEA-AFF and updates were presented. The manual was endorsed by UNCEEA as an Internationally Methodological Document in Support of the SEEA-CF. It covers 10 primary data domains, in PSUT and Asset Accounts. Base accounts are prepared from a Basic Statistics and Data Tables. From the Base accounts are extracted selected data to form the Combined presentation, from which we can extract indicators and make links with SDGs. FAO developed a Capacity development module, available online, which focus on EEA and GHG Emissions. It was applied in Uganda earlier this year. Additional activities were presented.

**Discussion**

The LG welcomed the work done by the presenting organisations. There is a high interest in the material used in courses and who is eligible to participate in the courses. The LG highlighted the importance of not only targeting the policy experts and management, but also the technical resources that would compile the accounts.

**12. Involvement of LG members – for discussion (All)**

This point was postponed.

**Session D: SEEA CF Research agenda**

*The goal of sections D is to provide an up-date of the current status of the research agenda of the SEEA CF and learn from a few projects related to the research agenda.*

**13. The SEEA CF research agenda – for information (Sjoerd Schenau, CBS) (deck: [LG/22/D13](#) document: [LG/22/D13](#))**

Sjoerd informs the group about the latest progress of the research agenda, which is an appendix to the SEEA CF and contains topics that would benefit further research and considerations. New from this year is that lead agencies have been identified for the different topics. The proposed process of a research agenda was explained, as well as the prioritisation of issues from UNCEEA.

**14. SEEA Agriculture Forestry and Fisheries: Land use, land cover and GHGs: relations between SEEA CF and the IPCC - a discussion (Francesco Tubiello, FAO) ([LG/22/D14](#))**

Francesco presented FAO work with SEEA AFF for land use, land cover and GHG emissions and its relations with SEEA CF and the IPCC. Opportunities with this work is that many countries have legislations, institutional arrangements and that UNFCCC is an established process linked to Climate policy since 1992. Most developing countries also report national inventories. Important in this work is for example the tier approach where countries can start reporting even though they don't have all data. Francesco informed the group about available international databases including their own that presents data on air emissions that could be used as a start.

Francesco presented some conceptual distinctions; for example SEEA AFF accounts land use change into grassland and agriculture as emissions from Agriculture, differently from the UNFCCC, which reports it as LULUCF. As conclusion, SEEA AFF provides a complement to the tables for Air Emissions Accounts, and they may also provide a link with SEEA-EEA.

**15. SEEA Agriculture Forestry and Fisheries: Methodological issues identified – an example of the Seychelles – a presentation (*Julie Hass, ADB*) (deck: [LG/22/D15](#) document: [LG/22/D13](#))**

Julie presented two inconsistencies found while working on fishery flow account development in the Seychelles. Background information were provided on the Tuna canning industry in this country, as well as the ownership of fishing boats. The first topic related to trade statistics and the missing link between imports and exports of the products produced within transshipment. The SEEA AFF applies the flag of the fishing vessel as a proxy of the residence of the operator of the vessel. Albeit this is in line with instructions of the SEEA CF the approximation can sometimes cause irregularities in countries where there is a complex situation.

The second topic covered changes made in the SUT in the SEEA-AFF compared to the SEEA CF. The different tables causes concerns about which table to use and if all items becomes properly accounted for when they differ. Different angles of analysis might require some changes in the table, but it is important that the same base information is available. A question was also raised about the minor focus on the fishery accounts in the SEEA-AFF and the old manual on fishery accounts. The old manual might still contain vital information and could still be useful, taking into account recent development of the SNA and the SEEA CF.

**16. Reviewing agricultural statistics and linking it to SEEA agriculture (*Mark Lound, ABS*) (deck: [LG/22/D16](#))**

Mark explained how the ABS did the assessment of the agriculture statistical data (project called NASA) when two departments merged, as well as how SEEA-AFF has been used during the process. The 5 identified enduring goals and their linked data variable were presented. ABS tried to link this NASA review to SEEA-AFF, identified outcomes, and linked those with the Endurable goals previously identify. An innovative approach was the use of “Big Data” – administrative data from producers, spatial information, soil mapping and climate data. ABS, with exploring SEEA-AFF, addressed response burden too.

They have also had round table discussions with a number of industry people as well as pilot studies to further investigate what kind of data could be used from these groups.

**17. Integrated framework for environmental activity accounts– a presentation (*Sjoerd Schenau, CBS*) (deck: [LG/22/D17](#) document: [LG/22/D17](#))**

Sjoerd explained why an integrated set of monetary accounts is needed. SEEA-CF provided different modules that differ in scope, coverage, valuation methods. Eurostat wanted to uniform monetary valuation concept among those modules. This will make it easier to compilers to understand. Characteristics of integrated set of monetary activity account were listed. New terminologies were added to actual tables – Environmental production account table (EGSS can be derived from this table, as well as some EPEA, the total is linked to the expenditure account), Expenditure account table (from this table you calculate National expenditure and find financing environmental expenditure), Supply-Use table. Test of those tables with real data has been tried – which provide you to improve data, get coherent data with SNA and helps us not to compile twice (EGSS\_EPEA).

Activities were distinguished as Characteristics and Non-Characteristics activities, environmental products were distinguished in primary purpose environmental product and secondary purpose environmental product.

**18. Environmental goods and services sector - a presentation (*Arturo de la Fuente, Eurostat*) ([LG/22/D18](#))**

Arturo presented work done in Europe to precisely define the scope of EGSS. It is a moving target; efficiency item today will be different tomorrow because of technology advancement. Europe is setting up a system with 3 layers: SEEA-CF chapter 4, EU indicative compendium, and national lists. SEEA-CF is stable and the foundation, but not completely useful to identify environmental protection and resource management activities and products since the data sources follow general purpose classifications of activities and products which do not distinguish between environmental and non-environmental activities/products. The 2<sup>nd</sup> layer are two lists of activities and products which constitute the core of the EGSS in Europe. The lists are in an EU legal act and are complemented by other EU lists at technical level (compendium with share, and link to CEPA and CReMA). Layer 3 gives more flexibility to countries to highlight nationally relevant items that do not exist at European level.

Arturo presented the possible knock-on effects – EGSS list must be enhanced in order to facilitate that the same list is used for EPEA and ReMEA. Next steps and the two new EGSS Eurostat handbooks were presented – to be published by the end of 2016. There are upcoming handbooks on EPEA(2016) and ReMEA (2017) too.

**Discussion**

Specific discussions on how to assist in the work of the research agenda is described below, under agenda item 19.

The LG took note and welcomed the five work areas presented under the research agenda. Discussions ranged from how to handle the fishery accounts in the context of SEEA-AFF, a paper on treatment of losses was proposed as a possible thread for a solution, the process of finalising the manual in question, and what the next steps are for FAO in this field.

Discussions also took the area of integrated monetary accounts and the EGSS forward considering the work on adapted goods and measurement issues in these respects.

**19. The role of the London Group in the future work of pushing the research agenda – for discussion (All)**

The LG was invited to discuss and propose ideas on how the group could contribute to moving the research agenda of the SEEA CF forward.

**Discussion**

The LG welcomed the possibility to push the research agenda forward. It also welcomed the new lead agencies on each topic so as to speed up the process of working through the list of topics. . However, more effective communication and actual involvement of all the involved parties seems necessary.

The LG took note of the fact that not only budgetary constraints to pursue the research agenda are important but also finding the right skills.

Specific discussions on the work of the TC on SEEA CF and how the work on driving the research agenda forward took place. It was recommended that the chair of the TC and LG could work together on developing a meeting agenda where people could be asked/volunteer to contribute in an annual basis with, e.g. issue papers. The LG could after this receive a list of priority issues in preparation for the up-coming LG meeting.

The LG welcomes the up-coming TC on SEEA-EEA and supports the work to be in close cooperation with the TC on SEEA CF and the LG.

Several new topics were identified, among others: fishery accounts from SEEA-AFF, environmentally related transfers, the link between SEEA CF and the SEEA-EEA and the use of big data. However, it was also made clear that if any of the new topics identified were to make it to the research agenda the proposee would have to contact Sjoerd (as the chair of the technical committee (TC SEEA CF) under which the research agenda sits) and propose a text to describe the issue concerned.

### ***Session E: SEEA domains and extensions***

*The goal of this section is to provide a platform for exchanges of implementation done nationally and internationally. It will also enable sharing best practises and extensions in the context of SEEA CF. This knowledge will feed into e.g. the continued push in the area of environmental accounts. Critique and inspiration are aspired for.*

#### **20. Bio economy (*Sami Hautakangas, Statistics Finland*) ([LG/22/E20](#))**

The statistics is based on the Finnish bio economy strategy where a number of goals have been put forward and the objective to achieve: 100 euro billion by 2025 and 100 000 jobs.

The basic data is National Accounts data where certain industries are chosen. Some industries are used full (for ex agriculture) and others are taken as a percentage. According to this method, the largest industries, according to output are: pulp and paper manufacturing, and in term of employment: agriculture and construction.

Several improvements to the method are planned, for example the proportions of bio economy of certain industries, such as the chemical manufacturing and construction. They are also looking into including the recreational values for hunting and fishing as well as to include export of services.

#### **21. Estimating flows of ancillary biomass resources associated to permanent and temporary crops production and their uses (*Aldo Femia, Istat*) (deck: [LG/22/E21](#) document: [LG/22/E21](#))**

Aldo (IT) presents their work on crop residues in Italy and the way this material flow is dealt with in the manuals. There are a number of different ways crop residues can be used: returning them to the soil; using them in agriculture and animal production, directly or indirectly; using them for energy production or as industrial materials; wasting (such as burning or landfilling). Since each management model has different environmental consequences, it is important to understand how this flow is dealt with in the SEEA CF. In standard PSUT crop residues will partly be included in the tables for products and parts in those for residuals, according to their fate. A unitary description of these flows would also be useful. This is easier in the context of the “harvest approach” taken in EW-MFA, also present

in the SEEA-CF but not in a complete way. Eurostat and OECD manuals are recommended as for EW-MFA and its reconciliation with standard PSUTs are concerned.

Supply and management of residues were investigated in Italy with two different surveys, one on temporary crops, the other on permanent crops.

As conclusion, occasional inclusion in agricultural surveys of questions on crop residues – to provide benchmarks - was suggested as way forward, as well as the suggestion to unify the description of biomass circulation in AFF and crop residues PSUT.

## **22. Research project PRINCE (*Viveka Palm, Statistics Sweden*) ([LG/22/E22](#))**

Viveka (SCB) presents the research project Prince (Policy relevant indicators for national consumption and environment), which is a collaboration between a number of different actors in Europe in trying to quantify the environmental impacts of the Swedish consumption both in Sweden and abroad.

The questions that the project will answer are: what is the environmental pressure, how can we monitor it? The analysis is developed for industries, government and household consumption and to distinguish different product groups and to identify those that have the largest impact.

Several environmental extensions are being looked at for example: 1. pollutants such as emissions of GHG and traditional air pollutants, and chemical. 2. Resource use such as land and water use, chemical use.

The review of the existing methods, data and calculations show for example that different models give consistent trends for CO<sub>2</sub> and therefore that the choice of the model is not too important.

## **23. Land accounts in Canada (*Gabriel Gagnon, Statistics Canada*) ([LG/22/E23](#))**

Gabriel presented the strategic direction to the land account research in Canada, which actually targets LCLU in large cities, but will in the future covers all of the country. Outputs for the latest publication released, HEA 2015, was shown. The objective was to compare LCLU change, over 30 years, of the 33 large cities in Canada (CMAs). A distinction were made on the geographical and environmental boundaries of large cities of the country. Graphs and maps of finding were presented. The use of GIS was essential for this project, and layers are accessible to be downloaded from Statcan website. Examples of the policy uses are to inform public and government on the agricultural land loss, urban sprawl, Census of the environment, etc. Future work was listed.

## **24. Land and Forest accounts in South America (*JP Castaneda, World Bank*) ([LG/22/E24](#))**

JP presents their work with forest account in Latin America. He starts by pointing out that their work in LA has shown that forests are very important. Why? Deforestation is still a big issue and there is a global agenda to look more in depth into this. On a national agenda, it is important since it is important to enhance revenues from forests, tourism; food security, to monitor illegal logging etc.

Questions that the account can answer are what is the real contribution of forests, what are the trade-offs, who are the stakeholders, what are the priorities? The account can help in linking

these different scopes and questions. For example, you can use the account to improve the ecosystem, while another can use the account to increase the production from the forests. For example, in Columbia the account could be used to answer questions regarding the impact from the conflict. In Guatemala the creation of a forestry account affected policy by showing the need for more information, which in turn led national strategies to control illegal logging, and in the end resulted in institutional strengthening.

Some conclusions from the work show that integration to SNA is extremely important and that countries are especially interested in this integration. Thematic integration is also very important, for example in relationship with food and energy. The relationship between evidence and data is not clear and that there are not enough accounts in this area.

**25. Australian Environmental Economic Accounts – a compilation of integrated accounts (Mark Lound, ABS) ([LG/22/E25](#))**

Mark shared with the group history about the ABS program, and the Environmental economic accounts. The environmental accounts are produced by many groups, and the fear to loss track and dilute the information brought the idea of AEEA Australian Environmental Economic Accounts, same as the Australian System of National Accounts publication. Structure of the AEEA publication was presented with a few examples of graphs and tables published. Focus is on highlights, integrated graphs (env and economic) and some feature research articles. Future work on the AEEA was presented.

**Discussion**

The LG took note and welcomed the work presented to them. Each topic was discussed and showed the engagement of the group into furthering the area of environmental accounts.

**Session F: SEEA Experimental Ecosystems Accounts**

*The goal of this session is to reach agreement on some of the key issues to be addressed in taking Ecosystem Accounting forward.*

**26. State of Play on guidance, research agenda, and development of standards for EEA (Rocky Harris, UK) ([LG/22/F26](#))**

Rocky presented the state of play of SEEA-EEA. The UNCEEA had agreed that the LG, among others, should help to establish international standards by 2020. Although data issues will continue to be relevant, the main focus of the following sessions should be on defining the conceptual and methodological issues that need to be addressed. To help frame the discussions, Rocky set out the relationship between the sequence of accounts and the research agenda of EEA.

**27. Delineation of spatial units (Per Arild Garnåsjordet, Statistics Norway) (deck: [LG/22/F26](#) document: [LG/22/F26](#))**

Per Arild (SSB) presented an approach to provide a comprehensive picture of ecosystem assets and the services they supply across the country without gaps and overlaps in measurement. The Norwegian project sets out to map up the ecosystem services in the greater Oslo region. In the project different types of data are used together with geographic data to show information both with maps and tables.

Ecosystem capacity accounts and a hierarchy of spatial unit are at the heart of the approach, providing examples of indicators created from ecosystems data. In conclusion, the solution to the spatial problem is to go for a flexible spatial unit over a fixed one which was suggested in the SEEA-EEA. As examples, reporting units can be of different categories and over time the ecosystem may change in both extent, condition and supply of services, which may require a change in the reporting units in order to illustrate the most important changes. Different policy applications may require different choices of geographical scale.

### **Discussion**

The LG took note of the work done and welcomed the proposal to move away from fixed spatial units in the SEEA-EEA. It was clearly important is to pick the relevant geographical scale to account properly for the links between ecosystems and services.

#### **28. Indicators of condition (*Michael Vardon, ANU, Australia*) (deck: [LG/22/F28](#) document: [LG/22/F28](#), [LG/22/F28](#))**

Michael (ANU) presented thoughts on a set of questions about the indicators of condition within the condition account.

- The condition of an ecosystem could be viewed from an anthropocentric or non-anthropocentric perspective. From the anthropocentric perspective the emphasis is on the condition of the asset in terms of its capacity to continue to provide service to society. From a non-anthropocentric perspective the emphasis is on the extent to which the ecosystem is in its ‘natural’ state..
- The characteristics of condition set out in the SEEA-EEA are workable, however extent is often used as a measure of condition and the importance of connectivity between different ecosystems and vegetation structure within an ecosystem can get overlooked.
- How best to aggregate indicators of condition across different ecosystem types is a continuing issue. The LG should be able to help and provide guidance. From a non-anthropocentric perspective, any ecosystem heavily influenced by man is always in a poor condition. Michael presented a case study done in Australia.
- How you aggregate the data matters. An example was presented.

Future work could be to compile a catalogue of characteristics and indicators used for ecosystem account so far (started by Australian and UK), and to address how thematic accounts such as carbon, water and biodiversity relate to the condition accounts.

### **Discussion**

The LG took note of the work presented. Ensuing discussion showed how the area is still under development and a shared understanding as to what is to be measured and why has not yet been reached . The LG should be closely engaged at reaching this consensus. The topics raised by Michael could be placed in the research agenda of the EEA, taking account of any development in thinking expected in the revised Technical Recommendations on EEA.

#### **29. Carbon accounting/thematic accounts (*Brendan Freeman, ONS, UK*) (deck: [LG/22/D13](#) document: [LG/22/D13](#))**

Brendan (ONS) presented the current work on carbon accounting from the point of the compiler’s perspective, to test the feasibility of producing a Carbon Accounts (SEEA-CF).

Current data sources were assessed and compatibility of classifications was looked at among other things. The ONS felt that accounting for carbon stocks complements measurements within the IPCC framework on greenhouse gases. The test covered coal, oil and gas stocks

and accounted for bio carbon. The issue faced in relation to bio-carbon was to define the boundary of the stock. Reporting of bio-carbon was disaggregated by ecosystem type in the ONS project. Other issues included the link between the IPCC and SEEA classifications, and the identification of carbon flows within the IPCC Land Use Land Use Change Forestry class of GHG emissions.

### **Discussion**

The LG took note of the work done by ONS. Discussions ranged from the potential inclusion of monetary aspects in the balance sheets to the extent to which the carbon accounts can complement the IPCC measurements.

### **30. Biodiversity accounting (*Steven King, UNEP-WCMC*) (deck: [LG/22/D13](#) document: [LG/22/D13](#))**

Steven presented biodiversity accounts in the SEEA-EEA context, covering the ecosystem diversity / species diversity characteristics of ecosystem condition and the capacity to deliver ecosystem services. It is necessary to prioritize the selection of species and not cover all, taking into account concerns about ecosystem condition, functioning, management and the delivery of services (such as charismatic species). The group was told about the issue of scale and the options of Bottom-up and Top-down approaches. Integration to SEEA-EEA was a challenge and some guidance will be required.

The work has the potential to inform Sustainable Development by contributing to a more holistic picture of the environment, fitting in with the thematic picture available from the SEEA EEA and providing basis for integrated decision making. Steven welcomed comments and suggestions on the three UNEP-WCMC publications on this topic.

### **Discussion**

The LG took note of ongoing work within the UNEP-WCMC. The group discussed the potential for other countries to build up similar sets of information bases and welcomed the macro-approach taken by UNEP-WCMC. Issues such as integration and species crossing ecosystems and thresholds and safe operating spaces were also raised. In this field the topic of Big Data could be a potential source for further exploration.

### **31. Classifications of ecosystem services (*Jan-Erik Petersen, EEA; Mark Eigenraam, IDEEA*) (deck: [LG/22/F31](#) document: [LG/22/F31](#), [LG/22/F31](#), [LG/22/F31](#))**

#### **Classifications of ecosystem services – CICES (Jan-Erik Petersen, EEA)**

Jan-Erik (EEA) presented the comparative exercise of the ecosystem services classifications that is in process - (CICES, FEGS, NESCS). The general structure of CICES 4.3 was presented with the issues faced in a paper. Actual state, key outcomes from the last meeting in June 2016, and next milestones were presented. Ecosystem classifications serve various different purposes – description/assessment, quantifying/accounting, and valuation (aka SEEA). This creates an issues since CICES needs to be multi-purposes. Jan-Erik listed and discussed different problems faced; among others, if we can't really disentangle the share of each component of an ecosystem production function, does it make sense to base the services classification on this perspective?

#### **A transaction based approach to defining and measuring ecosystem services (Mark Eigenraam and Carl Obst, IDEEA)**

Mark presented a transaction based approach to defining and measuring ecosystem services. There is a clear need to understand the accounting units that engage in the transaction. The

model may be viewed from the Benefits (anthropocentric) perspective or from the Ecological (natural) perspective. These different starting points lead to different descriptions/definitions of the services. Both approaches leave a number of issues unresolved from an accounting perspective (e.g. the treatment of intermediate services).

Land is at the interface between the Lithosphere (soils and groundwater) and the Biosphere and atmosphere. So it is an economic construct, not really an environmental unit. The flows of services through this interface may take the form of physical transfers or transactions .

Using a farm institution example, to the link between the SNA, SEEA CF and SEEA EEA descriptions of ecosystem flows, transactions and production was presented, leading to ecosystem services (products), economic processes, and economic products (benefits), which may be an intermediate or final consumption. Comments and suggestions on the paper are welcome. [LG/22/F31](#)

### **Discussion**

The LG took note of the work in the EEA and IDEEA on the development of a classification for ecosystem services. The LG is interested in the work on CICES and favours a multi-functional classification but this has to work with wider community applications as well. A modular approach in the CICES was agreed to be a good path forward and while the aspect of lack of additivity in the current CICES is an issue it might not be generally possible due to the structure of each group in the classification. More work is anticipated to clarify abiotic flows, which are currently included separately. The work on improving and further develop the classification goes on.

The idea that ecosystem service is a production, similar to that of the SNA was welcomed by the LG. The group discussed the issue of soil in particular in the approach.

### **32. Valuation of ecosystem services and assets (*Lars Hein, Wageningen University; J-P Castaneda, World Bank; Emily Connors, ONS; Mark Lound, ABS*)**

#### **Valuation of ecosystem services and assets (*Lars Hein, Wageningen University*) [LG/22/F32](#)**

Lars presented his work on valuation of services. There are a range of options to consider, for example near market reasonability, that are well established but some challenges remain: far market options require more work. Since ecosystem assets will generally supply a large “basket” of services, a global valuation is not enough detail. The fundamental issues of valuation and a number of specific questions of valuation were also listed.

#### **Presentation of a WAVES initiative (*Juan-Pablo Castaneda, World Bank*).**

JP presented the current work within WAVES. Three initiatives were the focus: coastal and marine accounts; testing approaches on natural water purification, pollination, and urban green open spaces; and working on a conceptual approach for Natural Capital Accounting. The last related to work on a paper by Giles Atkinson and Carl Obst [LG/22/F32](#)

#### **Valuing cultural services: Including the value of time? (*Emily Connors, UK*) (deck: [LG/22/F32](#) document: [LG/22/F32](#))**

Emily presented the work of the ONS in relation to valuation of time. There are several methods available to estimate a cost for leisure time, e.g. travel cost, admission fees, value of time, willingness to pay surveys and hedonic pricing. In physical term, the ecosystem service can be measured on the basis of the number of people visiting the ecosystem. But no guidance on the valuation is provided in the SEEA-EEA, only a few warnings given for each method.

The ONS had moved ahead by compiling value using Travel cost + entrance fees + time (hrs x UK average wage\*0.75). The result was that only 15% of the value of recreation was due to travel costs and entrance fees, with the remaining 85% attributable to the value of time.

### **Tourism Satellite Accounts and Resources Rent in the Great Barrier Reef Environmental Account (Mark Lound, ABS) ([LG/22/F32](#))**

Mark presented a few issues in relation to calculating resource rents for tourism. For example: attribution to ecosystems, GFCF and returns to capital, subnational industry-specific tourism information, and linkage to other SEEA accounts to measure sustainable development. He highlighted issue 1, that tourism rent should be attributed to tourism attractions, but not all tourism rent is attributable to ecosystem (some is religious, etc.). ABS is progressing slowly on resolving this issue.

#### **Discussion**

The LG took note of the work done in the four presentations provided. The group discussed the challenge between meeting user demands for valuation of costs to the challenges of compiling results that are reliable and do not undervalue the externalities in question. It is also important to note that there is not one discount rate available to use but several, depending on the assumptions and weight given to future generations.

The group recommends ensuring proper communication of what value means in the context of SEEA-EEA. Lack of knowledge may lead user to assume the monetary value in the account represents the total welfare value of the ecosystem.

### **33. Measurement of ecosystem capacity and degradation (Lars Hein, Wageningen University) ([LG/22/F33](#))**

Lars (Wageningen University) presented his continued work on capacity accounting. Conceptual questions on capacity brought to the 2015 LG had been addressed over the last year, which lead in this presentation, and in a paper to be published soon. Four concepts needed to be defined and clearly delineated: ecosystem services flows; ecosystem capacity; potential Supply; and ecosystem capability. The concept of capacity is an important link to the measurement of ecosystem degradation. Lars presented examples of maps of capacity and capability in Limburg Province, and of flows and capacity in Telemark to show the possible applications.

#### **Discussion**

The LG took note of the work done over the year. Issues raised concerned the assumption that sustainable flow could be considered the same as potential supply. The area is still in development and further work is foreseen.

### **Session G: Policy uses: push and pull**

*The goal of this section is to provide a platform for exchanges on how SEEA can be used in policy and the drivers of increasing the use of SEEA.*

### **34. National, regional and international uses of environmental accounts – for information. Quick presentation from the LG ([LG/22/G34](#))**

13 presentations were given in quick succession. The presentations ranged from how the accounts had been used in policy work, to how the process of reaching out with the data had been made to thoughts in when to best fit in the data stemming from the SEEA into policy cycles. The presentations are available in the link above.

#### **Discussion**

The LG took note of the work done in policy application and use done in so many countries and organisations. The LG appreciated this type of short presentations and recommends a similar approach for LG 2017.

### **35. An heterodox view on the relation between natural capital accounting (evaluation), physical flow accounting and environmental sustainability policy (*Aldo Femia, Istat*) ([LG/22/G35](#))**

Aldo presented a philosophical approach to our field of work. Policy is linked to the ideology environment you are in - valuation is not policy neutral. Valuation is often considered a way to overcome the lack of attention from economists/government, but it brings focus on creating markets and exploiting specific ecosystem services rather than on conservation of Nature as a whole.

From a theoretical economics point of view, monetary valuation is related to actual Values only under a utilitarian, neoclassical approach. Valuation implies reduction of all things to a single unit of measure or aspect, and this mono-dimensionality is the expression of an epistemological closure, i.e. the ultimate negation of the specific relevance in its own right of the very information in physical terms that supports valuation. Total value of nature cannot be calculated, rather only the marginal contribution. The utilitarian approach however is not the only legitimate one, even in economics. Two examples of different policy-relevant philosophical positions were showed. Non-marginalist production functions were presented; among others Leontief's, putting emphasis on non-substitutability (in our case, of Nature and man-made capital) and Nicholas Georgescu Roegen's, which explicitly includes the state of stock elements after production among the outputs of production (considered per se, not as depreciation), thus dealing with the irreducible multidimensionality of the world without denying it. Satellite accounting in physical terms and expanding the production boundary are two radically different approaches, with quite different policy implications.

#### **Discussion**

The LG took note of this presentation. It is beneficial to reflect on our field of work and see where is it taking us and what are the implications. Communicating and understanding experts from other fields of work is a challenge and leads, when overcome, to greater results than before. Expanding the knowledge in our surroundings are welcome.