**Walter J. Radermacher** **April 2020**

**Comments on SEEA EEA – Public Consultation April 2020**

## 1 Comments on the General Approach

### 1.1 Efficiency vs. Sustainable Development

From a general point of view, it is to note that a so-called accounting approach is propagated, which is as such not yet telling a lot about the conceptual characteristics that should be followed. It is for example

- not explained and justified what the specific advantages of accounting actually are (compared to what other approaches?);
- not sufficiently specified what concretely is meant, when the term accounting is used (accounting in the narrower sense or accounting as a wider conceptual framework?).

Annex 1 (Background information), page 3 only confronts us with a bold and shallow statement: *"The approach best suited for this is natural capital accounting, which integrates nature and its benefits into existing decision frameworks."*. At this point it is necessary to further clarify: Which "existing decision frameworks" are meant here? Is the simple reference so clear and unambiguous that no further explanation is required?

It appears as if the authors want to express that these are decision-making processes in which the environment and its services have so far been ignored for one simple reason: They do not appear in the economic accounts. In other words, what does not cost anything is not taken into account, with the consequence of externalities that need to be integrated, thus closing existing gaps in the accounts. Once this internalisation of externalities is done and once prices tell us the 'truth', decisions and decision makers will come to correct and complete conclusions. Also, the books will (only then) inform us correctly and completely about whether we have become wealthier at the end of a year or not, if we (only) succeed in taking an inventory of all (and really all) items of assets (and liabilities), evaluating them and entering them in the balance sheet; sustainability is as simple as that.

While this is a well-known and widespread narrative, there is a lack of evidence that this hypothesis regarding the limitations of political decision-making processes is actually true. The core of this hypothesis is even more clearly expressed on page 7: *"In addition, one of the great advantages of an accounting framework is that it allows the contributions of ecosystems to be expressed in monetary terms. Most ecosystems services are public goods lacking markets that provide clear prices to aid in valuation. Their value, therefore, must often be estimated using economic valuation techniques. The SEEA EEA is at the forefront of the development of rigorous monetary estimation approaches that are consistent with national accounting frameworks and possibly building bridges with economic valuation based on welfare values. Monetary estimates supply useful information for decision-makers, for example in discussions with ministries of finance or in budget allocation processes. They are also helpful for the assessment of specific policies and projects using a benefit-cost framework, the development of environmentally adjusted economic aggregates and for raising awareness around the economic contributions of ecosystems."* Apparently, the focus is on efficiency and in particular on the efficient allocation of resources. As early as 1992, Hermann Daly[1] pointed out that the reduction of environmental issues to a single dimension, namely that of efficiency, is inadequate because it excludes the important aspects of absolute limits and of distribution problems.

While Herman Daly was still an outsider in the early 1990s, since the current COVID-19 crisis at the latest, circumstances have changed fundamentally. It is irrelevant for the purpose of this paper whether

[1] Daly, Herman E. 1992. 'Allocation, distribution and scale: towards an economics that is efficient, just and sustainable', Ecological Economics, 6: 185 - 93.

the focus on efficiency over the past decades has contributed to the poor state of many countries' health care sectors; one thing is however absolutely clear: The advisory crises task forces and expert teams, whose advice politicians seek today, include many scientific disciplines with very different approaches and methods[2]. The thesis of the necessity to trim, convert, evaluate and standardise environmental and social policy issues in such a way that they fit into the economic schemes thus seems to have been refuted. One-dimensionality is obviously not suitable for dealing with complex problems, neither scientifically, statistically nor politically.

It is therefore hardly surprising that the UN's long-term strategy until 2030 includes a total of 17 goals. All of these goals embody important dimensions of politics, beyond a desire to transform them to a common denominator. Such a weighing and comparison of different goals and goal attainment ultimately belongs in the sphere of politics with its complicated social manoeuvres.

With these remarks, much has already been said about the apparent necessity of monetary valuations of individual environmental resources. However, there are additional complicating arguments:

- First, even the most ‘rigorous’ economic valuation techniques are always on very thin ice when they are not only supposed to estimate individual missing prices on the margins of the markets, but to simulate entire markets. It is one of the fundamental convictions of market economics that prices emerge from the complex interactions and transactions of the numerous actors and are therefore not plannable/predictable (the Soviet Union failed precisely because of this attempt). It therefore seems implausible to assume that precisely this attempt could be successful if prices were to be simulated for non-existent markets of natural goods with considerable volumes.
- When applied to macro-economic conditions (i.e. for the economy of one country for example), such evaluations lose quickly their pretended character of being only a technique. On the whole, they conceal value judgements and axiomatic settings to a considerable extent, which have a decisive influence on the result.
- Finally, this very quickly leads to insoluble conflicts with basic principles of quality in official statistics. The facts produced and provided by statistics must in no case depend on parameters which are essentially determined by a scientific model and axiomatic settings of individual scientists. Statistical conventions and standards underlying the methodology for quantification require a broad (professional and social) consensus. It is not evident how these requirements could succeed with the (micro-economically oriented) monetary evaluation methods. However, this will be discussed in more detail when the corresponding chapter is available in draft form.

In summary, it can be stated here that the objectives of this accounting approach should be aligned with the sustainability strategy of the United Nations, and of course in the first place with the objectives 14 "Life Below Water" and 15 "Life on Land". The previous (implicitly assumed) goal of efficiency is thus absorbed in a multi-dimensional target range. Instead of closing down the different dimensions until the results fit through the gate of economic accounting, the concept of accounting should rather be opened up so that several dimensions can be reflected in a suitable form. This is indeed the approach that has characterised and made SEEA successful so far (e.g. in the material and energy flow accounts). And in fact, the chapters under discussion here and today are embodiments and pertinent examples of such an approach (fortunately).

If this is the case, however, the introduction to the SEEA EEA should also be formulated accordingly.

[2] https://officialstatistics.com/news-blog/crises-politics-and-statistics

### 1.2 Asset vs. Actor

Furthermore, the use of the terms "capital[3]" and "asset" requires reflection[4]. While there is little doubt that natural systems are of high value to people and the economy, it is not necessarily true (or at least not as a fundamental principle) that ecosystems are 'owned' by anyone, be it individually or politically and administratively. In the context of the statistical recording of the state of ecosystems and their services that is aimed at here, this does not actually play a decisive role, either.

As can be seen in the diagram on p. 6 of the cover note, ecosystems are located as part of nature outside the sphere of the economic and social systems. If this is the case, it is contradictory to treat them simultaneously as partial elements of the economy by calling them 'assets'. Such a conceptual contradiction should be resolved by treating ecosystems for what they are: independent actors/agents acting outside the economic system and providing services to it. In fact, this is already applied in the present chapters, especially when the statistical unit is defined in Section 3.2: *"EAs play a key role in ecosystem accounting. They are the statistical units for ecosystem accounting, i.e. the entities about which information is sought and about which statistics are ultimately compiled. This includes information concerning their extent, condition, the services they provide and their monetary value. In economic statistics terms, EAs are the equivalent of economic units and a complete delineation of all EAs within a country is the ecosystem accounting equivalent of a business register."* A statistical unit is something different than an asset. In order to avoid major changes in the current drafts, it is therefore proposed to rename the statistical unit "Ecosystem Actor (EA)".

### 1.3 Quality of Statistical Information (Official Statistics vs. Research)

The drafts of the different chapters do not (or not sufficiently) refer to which institution and under which quality label such statistical results should be produced and made available. However, this is of fundamental importance for the design of the methods discussed here. This is particularly true if SEEA EEA is envisaged as a statistical standard for official statistics[5]. Not every methodology that leads to results under research conditions is suitable to meet the considerably stricter quality criteria of statistics under public mandate. Official statistics are based on methodological conventions and statistical observations. Statistical conventions and standards are (further) developed very cautiously and with broad social participation and require adequate (democratic) governance with regard to their ultimately binding definition. In this way, normative, non-transparent evaluations and value judgements that influence the results should be under control and reduced to a minimum.

From this point of view, it seems questionable whether some of the methodological components of Ecosystem Condition proposed here are compatible with the criteria mentioned. For the creation of indicators, for example, it is proposed that 'normativity' should be ensured: *"ecosystem condition indicators should have a strong inherent 'normative' interpretation ('good' vs 'bad', this makes it possible to turn them into indicators with the use of appropriate reference levels".* Such an approach is - at least - unusual for official statistics. Normativity directly raises the question against which standard/norm is to be measured, how this standard is defined and who ultimately decides on it.

[3] Etymological Dictionary: *"1610s, "a person's wealth," from Medieval Latin capitale "stock, property," noun use of neuter of Latin capitalis "capital, chief, first" (see capital (adj.)). From 1640s as "the wealth employed in carrying on a particular business," then, in a broader sense in political economy, "that part of the produce of industry which is available for further production" (1793)."* https://www.etymonline.com/word/Capital

[4] See
Radermacher, Walter J., and Anton Steurer. 2015. 'Do we need natural capital accounts for measuring the performance of societies towards sustainable development, and if so, which ones?', Eurostat Review on National Accounts and Macroeconomic Indicators Eurona, 2015: 7-18.

[5] See for example Kenett RS, Shmueli G. From Quality to Information Quality in Official Statistics. Journal of Official Statistics. 2016;32:1-22
Radermacher WJ. Official Statistics 4.0 - Verified Facts for People in the 21st Century. Heidelberg: Springer Nature Switzerland AG; imprint Springer; 2020.

Another example is the use of weightings for aggregation with the aim of creating indices. Here, too, one quickly reaches the limits of what official statistics can and may do if well-founded quality standards are to be met.

### 1.4 Statistical Reporting System for Ecosystems and Biodiversity

Overall, the present chapters provide a broad conceptual framework for a statistical reporting system for a field of observation for which official statistics have so far largely lacked adequate information.

Compared to population and social statistics, it is astonishing to see that although there is a long tradition of population censuses, statistics on households, income, education, health etc., there is a complete lack of comparable data on natural elements. In view of their interpretation, the demand must therefore be to carry out an ecosystem census at regular intervals, similar to a census of the population. Similar to social statistics, it must be demanded that the condition of ecosystems be statistically recorded regularly and with sufficient representativeness. Unfortunately, we are very far from this. It is to be hoped that an important step in this direction can be taken with the SEEA EEA, as quickly and comprehensively as possible.

To this end, it would certainly be desirable if the many good guidelines in this chapter were to work out more clearly the character and structure of a representative statistical reporting system, with census components and samples (and subsamples), with remote sensing data and with data from crowdsourcing.

Finally, SEEA EEA will also have to acquire the necessary financial resources. To this end, it should include a draft programme that is as pragmatic as possible and can be implemented in the coming years, which can be seen as the decisive step forward towards the two sustainability objectives mentioned above.

### 1.5 Indicators, Composites, Indices

With regard to the methodology and the use of indicators, etc., two observations should be made:

- On page 4 of the cover note, an information pyramid is presented (diagram "From data silos to integrated information"), which states that there is a hierarchical relationship between basic statistics, accounts and indicators, according to which indicators should be derived from accounts. In this pyramid, indicators take on a very specific task, namely that of one-to-one orientation towards a clearly defined purpose, e.g. a political decision, monitoring the achievement of predefined targets (as with SDGs). In principle, indicators of this type can be individual indicators, indicator sets, composites or indices. However, this is less decisive for their nature than the clear commitment to their intended use.
  Now, in Chapter 5, indicators etc. are used in a different way, namely as aggregates which are based on and filtered from so-called variables (i.e. basic data), but whose orientation is not determined by a pre-defined use, but by a so-called reference value. In this respect, this procedure is an approach that is part of indicator methodology (direct derivation of aggregates from basic statistics without the use of accounting).
  For the use of indicator methodology in (official) statistics, far fewer guidelines or overarching standards are available than, for example, in the area of accounts. Nevertheless, it should be ensured that the procedures and conceptual guiding principles presented here correspond to the current state of the methodological discussion[6].

[6] See in particular
OECD and European Commission JRC (2008). Handbook on Constructing Composite Indicators - Methodology and User Guide. Paris.
Eurostat (2014). PART 1 - INDICATOR TYPOLOGIES AND TERMINOLOGIES. Luxembourg, Eurostat.
Maggino, F. (2017). Complexity in Society: From Indicators Construction to their Synthesis, Springer International Publishing.

- With the transition from empirical, descriptive variables to normatively oriented indicators, and even more so with composites and indices, there is a decisive change in the quality of information. Without wanting to judge whether such a change will actually benefit the addressed users[7], it is in any case important that this border crossing is clearly marked and communicated. This is not the case so far. In the event that SEEA EEA is supposed to be adopted by the community of official statisticians as an international statistical standard, however, a threshold has probably been reached at this point where official statistics will see the limits of its competence and mandate. In case users expect such indicator aggregates, there is the possibility of a partnership between official statistics (responsible for the empirical side) and research institutions (responsible for the normative-analytical side), with which a solution to the described problem of the shift in information quality can be found in a transparent way.

### 1.6 Resilience, Systems-Approach

In its current status, chapter 5 contains open questions and methodological options, which will lead to fundamentally different orientations (and consequently results). It matters a great deal whether (a) a static, natural state (whatever is to be understood by that) is used as the norm to which one refers (and scaled accordingly), or whether (b) the system character and its inherent dynamics are emphasized and the scaling refers to resilience/vulnerability, i.e. turning points at which the system fundamentally changes its character and dynamics.

A condensed selection of such contradictory definitions is summarised below:

- *5.32 (p.7): Using the natural state as the reference condition allows recording the change from the natural state to be reflected in ecosystem condition accounts. This is likely of direct interest in assessing many environmental policies and associated objectives concerning conservation.*
- *5.33 (p7): For those ecosystems in which humans have been influencing the environment for long periods of time, a 'natural' state will no longer represent a meaningful reference for condition accounts or may be impractical to use because it results in low values of indicators that measure the current condition.*
- *5.80 (p14): In the SEEA, the definition of ecosystems is from the Convention on Biological Diversity article 2, where ecosystems are a "dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit". Ecosystem condition is influenced by the ecological processes involving interactions of the biota and the physical environment.*
- *Annex 5.1 (p.19): The capacity of ecosystem assets for regeneration and reorganization should be considered a major criterion for assessing ecosystem condition, and hence the basis for selecting variables and indicators that reflect these ecological processes and functions recognising the complexities and non-linearities involved.*
- *The following interpretations and overlaps are considered relevant in the discussion of ecosystem condition for accounting purposes: Ecosystem integrity, Ecosystem resilience, Ecosystem health, Naturalness / hemeroby / degree of modification, Red List of Ecosystems – ecosystem status and risk of collapse.*

From my personal assessment, naturalness is not very suitable as an ideal type and reference point. At least for the more densely populated regions in Europe, I would ask myself what can be meant by this

[7] See for example
Saltelli, A. (2007). "COMPOSITE INDICATORS BETWEEN ANALYSIS AND ADVOCACY." Social Indicators Research 81: 65-77.
Paruolo, P., M. Saisana and A. Saltelli (2013). "Ratings and rankings: voodoo or science?" J. R. Statist. Soc. A(176): 609–634.
Porter, T. M. (2015). The flight of the indicator. The World of Indicators: The Making of Governmental Knowledge through Quantification (Cambridge Studies in Law and Society). R. Rottenburg, S. Merry, S. Park and J. Mugler. Cambridge, Cambridge University Press: 34-55.

at all. In this respect, as a global reference, I plead for the use of resilience/vulnerability as an overarching methodological orientation.

Similar critical comments apply to the inclusion of biodiversity with its different roles in the accounts (p. 15):

- *as a thematic account of an ecosystem asset, usually measured as changes in species richness or abundance (in which case, this would be referred to as species diversity accounts),*
- *one or more characteristics or aggregated indices of biodiversity are often encapsulated in ecosystem condition accounts, which have a range of measurements as variables,*
- *biodiversity metrics can provide indicators of ecosystem service flows.*

In this respect, it is to be expected that progress can be made quickly, and that solutions and definitions can be found for these important elements. From the perspective of statistics oriented towards sustainability goals, global risks[8] and global boundaries[9], an approach based on system features and the concept of resilience[10] would probably be closer to the needs of future policy.

[8] See World Economic Forum (2020). The Global Risks Report 2020. W. E. Forum. Davos.
[9] See Randers, J., J. Rockström, P. E. Stoknes, U. Golücke, D. Collste and S. Cornell (2018). Transformation is feasible - How to achieve the Sustainable Development Goals within Planetary Boundaries - A report to the Club of Rome, for its 50 years anniversary 17 October 2018. Stockholm, Stockholm Resilience Centre, Stockholm University, Norwegian Business School, Global Challenges Foundation.
[10] See De Smedt, M., E. Giovannini and W. J. Radermacher (2018). Measuring sustainability. For Good Measure: Advancing Research on Well-being Metrics Beyond GDP. J. E. Stiglitz, J.-P. Fitoussi and M. Durand. Paris, OECD Publishing: 241-281.