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SUSTAINABLE DEVELOPMENT INDICATORS AND ACCOUNTING: TWO SEPARATE WORLDS OR A DIALOGUE PROCESS BY STATISTICIANS, POLITICIANS AND MODELLERS?

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1. Work on sustainable development indicators (SDI) is in most cases carried out more or less independent from accountings systems like the National Accounts, Environmental Economic Accounting or Socio-Economic Accounting. But in spite of the obvious differences of both systems, there are also common features of SDI sets and accounting. Combining both, together with modelling tools, would offer big chances to address sustainable development in an appropriate way.

The present situation: Two separate worlds

2. The time being, only very few people would name SDIs and accounting with the same breath. The most probable reason for this: They are two types of statistical information with quite a lot of differences. We do not want to go into a very theoretical discussion of different quality aspects but want to highlight four main points:

- **Purpose:** SDIs – like indicators in general – are built for the purposes of **communication and of evaluation of policy**. Very often they cover specific topics of the political agenda for which they shall deliver short-term information. Accounts, on the contrary, aim at the **full description of a system** such as a national economy (national accounts) or the relationships between economy and environment (environmental economic accounts). They are set for the long term and try to respond to more general data needs.
- **Level of detail:** SDIs are on the top of the information pyramid; they provide a very condensed or **aggregated kind of information**. Accounts are more detailed, they are on a **meso-level** between indicators on the top and basic statistics at the bottom of the information pyramid.
- **Foundation:** Accounting systems have a very strong **theoretical foundation**. There is a set of classifications, rules and concepts which define how to describe the system. Indicator selection and formulation is not following such rigid rules. In most cases there is "only" a framework which helps to structure the indicator set. In an ideal case both framework and indicators are the outcome of **negotiation processes** among politicians, experts and stakeholders ("bazaar").
- **Main strengths:** Indicators are an appropriate tool to point to relevant political problems and to **visualize information** in a focussed way. Accounting systems benefit from their consistency and system orientation which **supports further analyses** of interdependencies and underlying causes and subsequently the formulation of political measures.

3. These differences in purposes, characteristics and strengths are mirrored by **two different communities** formed by the main players in the fields of SDI work and accounting work respectively. Speaking very generally, accounting systems are (in most cases) completely embedded in official statistics, whereas the formulation of SDI is closer linked to the political area. This of course does not mean that statisticians are excluded from the SDI process, but the way they are involved varies considerably, and there is a remarkable lack of participation of accountants. Let us have a look at three European examples:

- When the **German SD strategy** was formulated, the NSO was consulted but the indicator selection and the indicator definition were the outcome of nego-

tiation processes among political departments exclusively. Nevertheless, a number of accounting aggregates were selected for the national SDI set.

- The work on the **Swiss MONET[1] indicator system**, on the contrary, was steered by the NSO. Indicator selection was organised as a "bazaar process" involving statisticians, indicator experts, stakeholders and politicians. The resulting indicator set, however, does not show any clear link to accounting systems.
- The **SDI set of the European Commission** was elaborated by a Eurostat task force. The final report of this task force mentions the need for a stronger link of SDIs to the accounting world, but the indicator set does not reflect this yet.

4. Fortunately, not only Eurostat but also other national or international bodies begin to **promote the idea to link SDI work to accounting**. At the Conference of European Statisticians, organised by the UN Statistical Commission and the Economic Commission for Europe on 13-15 June 2005 in Geneva, one seminar with four sessions was devoted to sustainable development. Especially Statistics Canada and the OECD presented accounting systems as an appropriate "analytical framework" (Canada) or "statistical framework" (OECD) to address the measurement of sustainable development. In the Norwegian keynote speech it was argued that work on SDI core sets should be carried out "by Central Statistical Agencies competent in national accounting and social and environmental statistics".

The vision: A dialogue process by statisticians, politicians and modellers

5. But why should SDI and accounting be linked? The key point is that sustainable development has very much to do with **interlinkages** and with the **analysis of underlying causes**: Sustainable development policy requires a) having an idea which factors have to be influenced by measures to be taken in order to improve the respective SDI towards sustainability (underlying causes) and b) pursueing the goals for the respective SDIs without neglecting the side effects the measures taken might have on the other SDIs (interlinkages). Both causes and interlinkages cannot be analysed by means of the SDIs themselves but need a more comprehensive underlying data base describing the whole system of economic, environmental and social spheres to be sustainably developed. Because of its strength in consistency and system orientation (see point 2 above) accounting systems are best suited. On the other hand, if the accounting system were consistently linked to the SDIs the **political relevance** of the system would by increased. Moreover accounts could **benefit from the indicators' visualization potential** and the results could better be communicated to a wider public.

6. It is important to stress the fact that the proposed "fusion" of SDIs and accounting requires – besides politicians and statisticians/accountants – **a third party: scientists who build models that run scenarios and prognoses** for the trends of SDIs on the basis on accounting data. Especially these models would show the effects of measures taken not only on the SDIs primarily concerned but also the side effects on other SDIs with perhaps competitive sustainability goals. Such models can go far beyond the possibilities of mere descriptive analysis[2] of accounting data.

[1] MONET is the German acronym for "Monitoring sustainable development".
[2] Examples are given below.

7. Summing up, the **"vision"** is a **consistent data system where SDIs are rather completely underlayed with accounting data**, thus enabling further analyses of interlinkages and of causes for changes, completed by scenarios and prognoses on the basis on scientific macro-economic models. The development of SDIs, of accounting systems and of model tools will be a **rational iterative process where politicians, statisticians/accountants and modellers are in a permanent mutual dialogue**. In Germany already more than half of the 21 indicators of the national SD-strategy are already embedded into the accounting system. This holds especially for most of the economic and environmental indicators. On that basis Germany has already run a number of successful exercises of SD-modelling. The examples range from modelling scenarios of rather comprehensive SD-policy approaches, which included quite a number of political measures for improving simultaneously the performance of economic, transport related and environmental variables like energy use, air emissions and area use, to more specialised exercises. One example of the latter refers to the traffic-related SDIs of the German Sustainability Strategy: Hypothetical political measures to improve the performance of transport-indicators were modelled on the basis of Environmental Economic Accounting data. Besides effects on the performance of the transport-indicators the consequences for the trends of a number of other environment-related, economic and social SDIs were forecasted.

From separate worlds to dialogue: How to proceed …….

8. A strategy for the development of an integrated SD policy consists of **three elements** to be worked on: **further adjustment of existing SDI sets, expansion of the accounting system and development of appropriate modelling tools for integrated SD analysis**. This can only be achieved via a **long-term iterative process** with a threefold movement:

- Firstly, the new creation or the future revisions of the SDI set should, by having in mind the obvious advantages, try to **derive as much indicators as possible from an existing accounting data set by aggregation**. In any case, in future it will be necessary to review and improve existing SDI sets in the light of new problems, methodological progress and with the goal of attaining better international harmonisation.
- Secondly and probably even more important, the accounting system itself has to be adjusted to the new data needs. It has to be put high priority on **extending the accounting data sets towards the requirements of a policy for SD**. Integrating further issues of SD-policy into the accounting system will strengthen the political relevance of the accounting data set. The accounting framework offers rather good and cost efficient opportunities of generating the required data by reformatting already existing figures. But beyond this, depending on the quality requirement, in the long run it may also be necessary to improve some of the accounting estimates by new primary surveys.
- Thirdly, at the same time, also further investment in **developing appropriate tools (modelling approaches) for an integrated environmental, social an economic analysis** will be necessary. The feedback arising from concrete analytical applications of the data have also proven to be very important for a targeted development of the accounting data set.

……. step by step: A work programme for the next year(s)

9. The first steps towards a rational proceeding for a common development of SDI sets, accounting systems and modelling tools could be as follows:

(1) **Comparison of existing SDI sets with the accounting data** of the same country/organisation. Which indicators are already embedded, which are not?
(2) **Selection of some indicators** already embedded in the accounting system (or formulation of new SDI derived from the accounting system) for further integrated analyses.
(3) **Integrated analyses for the selected indicators (for pilot countries)**. Depending on the tools already available there are a number of approaches:

- **Breakdown by economic activities (economic branches and private households)**: Who is contributing to the overall figure to what extent?
- **Decoupling**: Indicator trend versus trend in economic growth (productivities/intensities, at macro-economic level and at branch level): Is the use (e.g. of nature) becoming more or less efficient?
- **Decomposition analysis**: To which extent are given underlying causes responsible for the SDI trend? E.g. the development shown by an indicator can be broken down into an efficiency effect, a structural effect and a growth effect.
- **Input-output analysis**: Calculation of indirect effects (e.g. cumulated emissions) associated with the final consumption of goods and services via combination of the branch breakdown of the respective SDI with the input output table of the national accounts, e.g. for estimating the effects of external trade flows on the environment.
- **Macro-economic simulation modelling**: Scenarios of political measures and prognoses of future trends.

(4) **International workshop** to exchange experience gained so far and to decide on further steps.

Questions to the UN Committee

- Do you consider that it is promising to link SDI work and accounting work (and to bring together the different “communities” involved)?
- What should be the task of the UN Committee on EEA (bearing in mind that SDI covers not only the economic and environmental but also the social sphere)?
- Do you have some ideas how to initialise the process of mutual dialogue among statisticians/accountants, politicians and scientists/modellers?
- Do you agree with the proposed work programme?