

The Role of the National Accounts and its Satellite Systems for the German National Strategy for Sustainable Development

K. Schoer

Environmental Economic Accounts, Federal Statistical Office Germany

Data requirements for sustainability policy and the role of accounting systems

The general objective of sustainable development (SD) requires a holistic policy approach. Regarding an indicator set for measuring SD in principle two different levels of users and uses have to be distinguished.

The indicators itself are on the first hand a communication tool directed to the general public and the media. They are used for describing important problems under a sustainability perspective and they serve as an instrument for general performance controlling of political measures.

The second level refers to those steps that follow the pure description of a problem. That is the analysis of the underlying mechanisms and reasons for change and the formulation of measures and the assessment of the effects of these measures.

Therefore the individual indicators firstly should be embedded into an underlying, more detailed database from which they can be derived by aggregation. The disaggregated data for the individual indicators provide the necessary information for a detailed analysis.

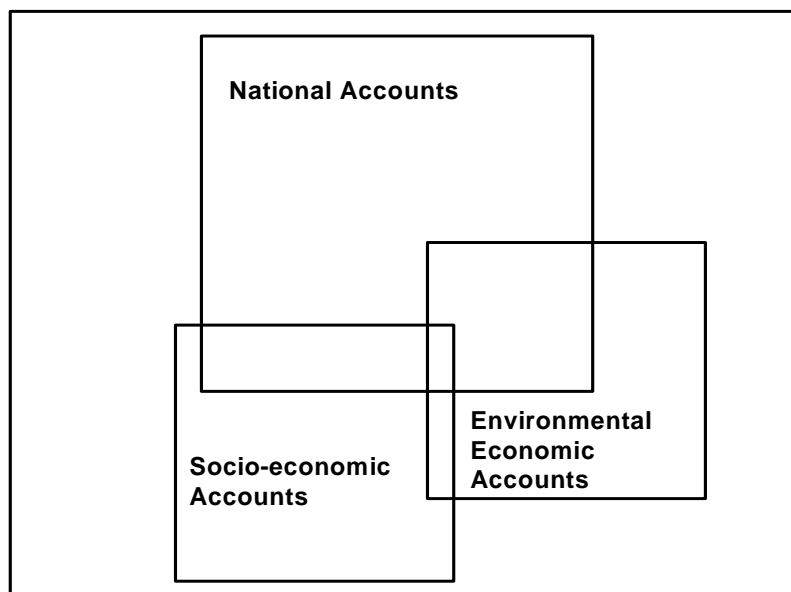
Secondly, the underlying data for the individual indicators should be part of a comprehensive framework that ideally integrates all relevant topics, as a policy for SD is characterised by not only looking on how far the goals for the individual indicators can be achieved, but has to have in mind the interdependencies between the topics and the simultaneous achievement of different economic, environmental and social goals. The central point is the integration, *i.e.* the policy for SD cannot be a policy of its own. The subject of such a policy rather is co-ordination of the different sector policies with the objective of finding a balance between conflicting goals. Decisions on measures aiming at the improvement of one indicator at the same time have to consider the effects that may occur on the other relevant goals of the overall strategy for SD. The rather complex analytical tools required for that type of policy approach demand an a homogeneous and coherent database depicting the interdependencies between the different indicators.

The relationship between the indicator set on top of a data pyramid and the underlying data have to be regarded already in the process of selecting and demarcating the indicators and their database.

The System of National Accounts (SNA) form together with its satellite systems Environmental-Economic Accounts (EEA) and the Socio-economic Accounts (SEA)

an expanded accounting data set. Such an expanded data set is an ideal framework to meet the above mentioned requirements (figure 1).

Figure 1. **National Accounts and its satellite systems**



An accounting approach is the most comprehensive and efficient way to provide the required a database. Conceptually as a systems approach the accounts provide a most complete and theoretically sound system description of the relevant stocks and flows. Practically the accounts, as a secondary statistical approach, are a rather cost-efficient tool for generating an underlying database by bringing together and harmonising otherwise scattered, not fully coherent and incomplete primary data in a systematic manner and by providing the basis for estimates to close remaining data gaps.

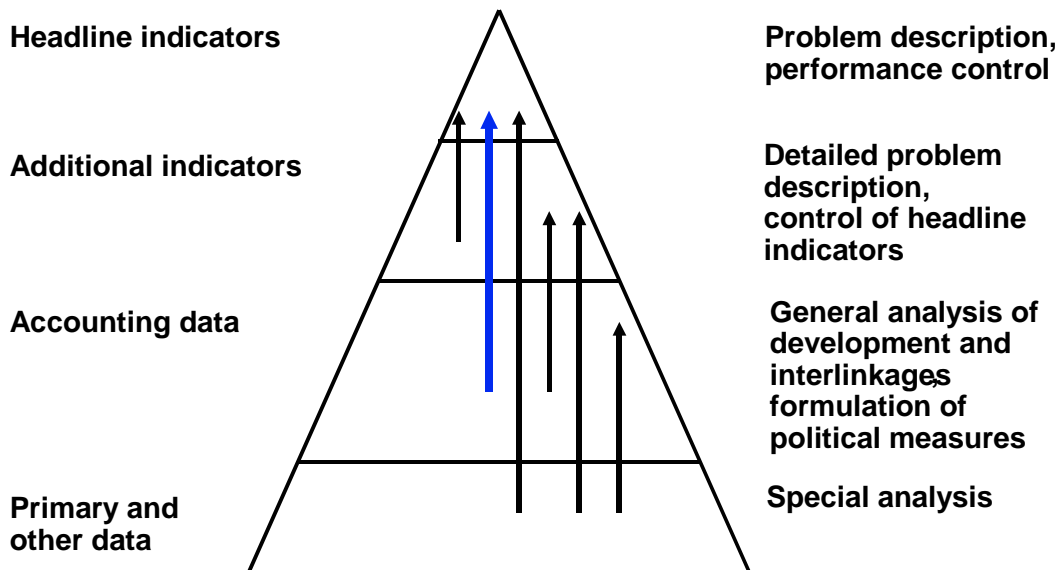
The SNA is the world wide accepted standard for describing the economic process. The EEA and the SEA extend the economic accounts by a description of the interrelationships of the economic to the environmental and the social system and between the environmental and the social system. The satellite systems in principle use the same concepts, definitions and classifications as the SNA. That guaranties that the data of all three sub-systems can be combined with each other, *i.e.* they form an integrated database that covers the three principal topics of a sustainability approach.

One central classification of the accounting system which is shared commonly by all three sub-systems is the NAMEA-type break down (National accounts Matrices Including Environmental Accounts) by economic activities (homogeneous branches of production or industries and private households). Others are the subdivision of consumption of private households by use categories and of the private households by household-types.

From the data set of the SNA most of the economic and partly also social indicators can be derived. The SNA data set is the basis for already existing and proven analytical tools that are related to the economic process. The extension of this tool for analysing environmental-economic questions has already been put into practice successfully in Germany and other countries.

The relationship between the indicator set for sustainability and the accounting system is shown by the data pyramid in figure 2. The main relationship (bold arrow) exists between the headline indicators (level one indicators) and the accounting data set. Ideally all headline indicators can be derived from the accounting data set by aggregation. Beside that there are a number of further elements and relationships, *i.e.* a set of additional indicators (level two), which supplement the level one indicators, as well as primary and other data, which above all are required for special analysis.

Figure 2. **Data requirement for a strategy on sustainable development**



The type of analysis discussed hitherto is directed at deepening. That is, the indicators are disaggregated in order to get an insight into the reasons of the development of the specific indicator and the interrelationship to other topics of the set. However, the indicator set for SD is usually comprised of headline indicators (level one), which were selected for representing a specific topic. Having in mind this it may also be necessary to broaden the scope of the analysis by supplementing the headline indicators by additional indicators (level two indicators) in order to obtain a more comprehensive description of the problem and especially to control whether a headline indicator is representing the problem under consideration in a sufficient manner also in future. In Germany, at least for the environment related indicators, the Ministry of Environment is about to develop such a second level indicator set. Embedding these types of indicators also into the accounting data set could be useful, but seems to be less urgent.

Moreover not all data needs coming up in the course of sustainability analysis can be covered by the accounting data set. Certainly the accounting framework should play a central role for the sustainability indicator set. But the advantage of the accounting framework compared to other data may differ from case to case. It should be noted that there could be politically important indicators for which the integration-aspects do not play an important role. In such cases the embedding into the accounting database is of minor or even without any relevance. Moreover, even with regard to indicators, for which in principle the integration aspect is relevant, there might be analytical approaches and measures related to sustainability policy, which do require more detailed or even other type of data than the accounting data set can provide. An example may be the instrument of legal provisions prescribing the use of certain technical standards. For that type of policy rather data in a breakdown by production techniques than in a breakdown by economic branches are required. In those cases it may be necessary to use appropriate special data in addition to the principal accounting framework.

The role of the German Federal Statistical Office in formulating the national sustainability indicators

The Federal Government adopted the German National Strategy for Sustainable Development in April 2002. The approval was preceded by a discussion of the draft with major groups and institutions of the society. With the approval of the strategy by the government broadly agreed indicators on SD are available. The strategy was developed by the “Committee of State Secretaries for Sustainable Development” which was headed by the advisor to the Federal Chancellor. The strategy has different elements, like defining the key focus points for SD, selecting indicators, formulating quantitative or qualitative goals related to the indicators and a set of measures related to some of the key focus points. The sustainability indicator set is comprised of 21 indicators (figure 3).

Figure 3.

Indicators of the German national strategy for sustainable development

Nb.	Indicator
1	Productivity of energy and raw materials
2	Emissions of the 6 greenhouse gases specified in the Kyoto Agreement
3	The proportion of renewable energy sources in overall energy consumption
4	Increase in land use for housing and transport
5	Development of the stocks of specified animal species
6	Balance of public sector financing
7	Private- and public-sector expenditure on research and development
8	Capital-outlay ratio
9	Educational outcomes for 25-year-olds and number of new students
10	Gross domestic product
11	Transport intensity and share of the railways in providing goods transport
12	Proportion of ecological agriculture and general statement on nitrogen surplus
13	Air pollution
14	Satisfaction with health
15	Number of burglaries
16	Labour force participation rate
17	Full-time care facilities
18	Relationship between male and female gross annual earnings
19	Number of foreign school-leavers who have not completed secondary school
20	Expenditure on development collaboration
21	EU imports from developing countries

By the selection of the indicators the responsible policy makers defined those issues which are particularly relevant under sustainability considerations. By formulating target values the policy side signals that they are prepared to promote the attainment of the goals by appropriate political measures.

The National Strategy for Sustainable Development contains, beyond the indicators, an identification of a number of priority areas for which political measures were formulated. But many of the measures still have to be put into concrete terms. The first progress report is scheduled for spring 2004. Content and structure of this report is still rather vague. A central point certainly will be the development of the indicators in relation to the target values. As far as the environmental issues are concerned, it is very likely that the tools and practical experiences of environmental-economic analysis that have been developed so far on the basis of the EEA data will play a role in the report.

The role of the German Federal Statistical Office (FSO) in developing the national sustainability indicators was rather limited. Though the statisticians from the FSO took part in different stages as experts, they were not involved in a systematic way with clear responsibilities. Insofar, even in the field of formulating the indicators, there was an obvious dominance of the political side.

Prior to the process of developing the National Strategy for Sustainable Development there were a number of efforts on the national level which also dealt with the issue of SD. Two important initiatives should be referred to, which had a rather

direct impact on the final national strategy, the German contribution (national pilot project) to the world wide indicator project of the United Nations Commission on Sustainable Development (UNCSD) and the environmental headline indicator set of the German Ministry of Environment (Environment Barometer), which was published in 1999. Experts from the EEA department of the FSO were involved as statistical advisors in the above mentioned activities which preceded the developing of the final national strategy as well as in the final strategy itself.

Already in the national report to the UNCSD project the interlinkages between the CSD-indicators and the role the EEA database could play in analysing these interrelationships were an important issue. As far as the development of the environment related indicators was concerned the strategy for SD could heavily draw on the work on the German Environment Barometer. The Environment Barometer considerably influenced the public discussions about environmental issues. The indicators of the Barometer became also part of the annual Report of the Federal Government on the economic situation. The development of the Barometer was closely related to the development of the EEA, because the advisory board for the EEA played also an important role in developing the Barometer. Therefore it is not surprising that five out of six indicators of the Barometer (raw material use, the energy use, CO₂ emissions, emissions of acidification gases and land use for housing and transport) were fully embedded into the EEA data-set. That is, these indicators can be derived from the EEA data by aggregation. These five indicators from the Barometer, with a few changes, are also used as the core of environment related indicators of the sustainability indicator set.

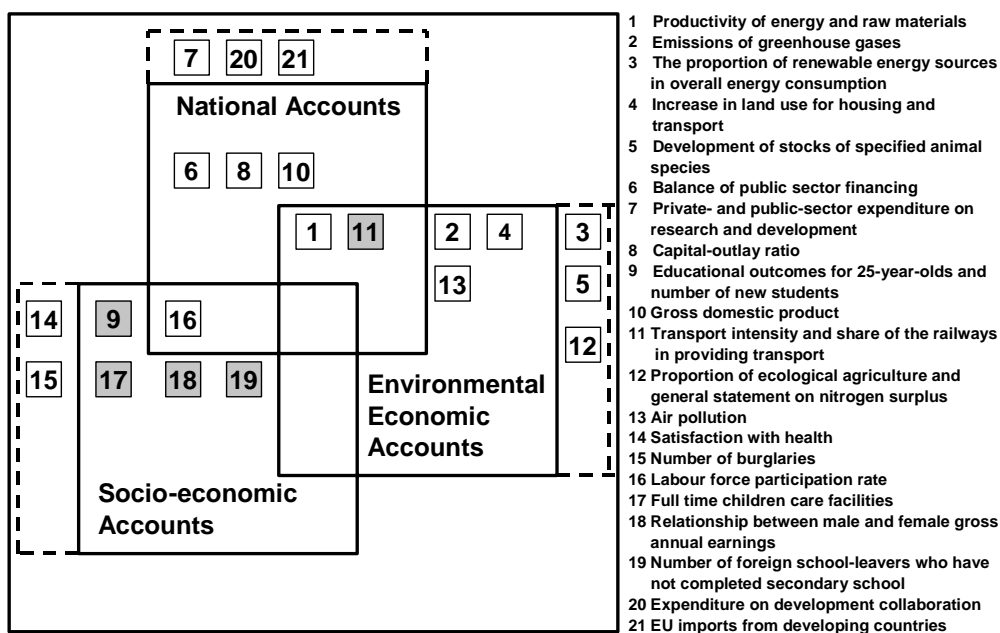
German accounting data and the national sustainability strategy

On an international level comprehensive and comparable accounting data for the purpose of sustainability analysis, as far as data beyond the national accounts are concerned, are only available in a fragmentary manner at the moment. Compared to this, in Germany as well as in some other countries the situation is much more favourable.

The German EEA of the FSO from the very beginning was viewed by the Ministry of Environment as a contribution to the sustainability debate and the sustainability paradigm played a central role in developing the concepts and the data of the EEA. In Germany a considerable proportion of the indicators of the National Strategy for Sustainable Development is already embedded into the accounting system. Such there is already available a comprehensive accounting database which is being used for environmental-economic analysis and which can be directly utilised for the sustainability debate. The work on the development of a socio-economic accounting satellite is under progress and will contribute a rather comprehensive coverage of social issues in the accounting data set in near future.

Figure 4 shows which indicators of the national strategy for SD are already integrated into the accounting system. Already covered are especially those sustainability indicators for which the embedding into the accounting system offers high comparative advantages.

Figure 4. Embedding of the indicators of the German strategy for sustainable development into the accounting data set



Comparative advantages especially appear, if an indicator is strongly related to other indicators of the set or if the accounting framework is needed to generate the required data in a cost-efficient manner. At the moment the indicators public sector financing (6), capital-outlay ratio (8), gross domestic product (10), productivity of energy and raw materials (1), emissions of greenhouse gases (2), increase in land use for housing and transport (4), air pollution (13), labour force participation rate (16) are already embedded into the accounting data set. Disaggregated data regarding the indicator transport intensity and share of railways in providing transport (11) are being compiled and will be included into the data set of the EEA during the year 2003. It is also planned to integrate the indicators educational outcomes and number of students (9), children care facilities (17), relation between male and female earnings (18) and final examination of foreign school leavers (19) into the SEA. These indicators together cover about three third of the total strategy's indicators. The remaining indicators (box with broken line) are expenditure on research and development (7), expenditure on development collaboration (20), imports from developing countries (21), renewable energy sources (3), stocks of specified animals (5), ecological agriculture and nitrogen surplus (12), satisfaction with health (14) and number of burglaries (15). These indicators in principle could also be integrated into the accounting data set. But at least for some of these indicators integration into the accounting system seems to be less urgent.

The NAMEA-type break down, *i.e.* a detailed break down by about 60 homogenous branches of production or industries and private households, is one of the central classifications of the accounting system, which links the economic, environmental and social data. Figure 5 gives an overview on which EEA data for

Germany are available at present or will be available in the course of this year in such a detailed break down.

Figure 5.

Available German EEA data in a NAMEA-type breakdown

	Unit
Primary material by aggregated categories of material	Tonnes
Abstraction of water from nature and water flows within the economy	m ³
Primary energy consumption (total and emission relevant)	Terajoules
Air emissions	Tonnes
Greenhouse gases by type	Tonnes
Air pollution by type	Tonnes
Waste water and other discharge of water into nature	m ³
Waste by waste categories ¹⁾	Tonnes
Land use for housing and transport by land use categories	km ²
Figures on the transport sector by mode of transport	
Transport related energy consumption, fuel consumption, selected air emissions	Terajoules Tonnes
Kilometres driven, person kilometres, tonnes kilometres	km
Transport related environmental taxes by type	Euro
Stock of vehicles by type	Number and Euro

1) Only figures until 1995, old classification

At present NAMEA-type data are provided for Germany on a regular basis for energy flows, air emissions, waste, water and wastewater flows, land use for housing and transport and some partial data on the new sectoral reporting module "transport and environment". Further results on the reporting module "transport and environment" will be available by the end of this year. Around the end of the year also figures in a detailed NAMEA-type breakdown on the supply and use of primary material (raw materials and imported material) and first results of the new sectoral reporting module "agriculture and environment" will be compiled. It is also planned to extend the supply of data on the topic private households and environment considerably in close co-operation with the activities on developing the SEA.

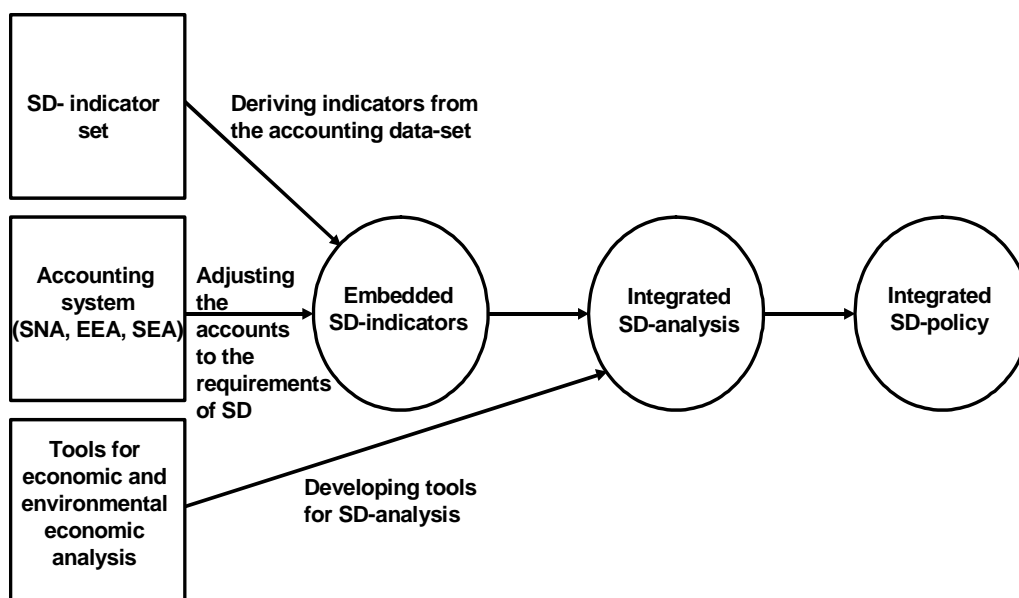
The classic NAMEA-approach concentrates on supplementing the monetary system of national accounts by material flows (physical flow accounts) which are not covered in the monetary description. Especially the reporting modules on land use and transport contain elements which use the basic idea of the NAMEA-framework, but to some extent go beyond the classic approach. They comprise variables in a NAMEA-type break down which do not belong to the material flows. For such variables the same analytical instruments as for material flows can be applied in combination with input-output tables to calculate indirect effects, to carry out decomposition analysis or, above all, the data can be used for multi-sectoral modelling approaches.

The area used for housing and transport is shown in the NAMEA-format in a further breakdown by land use categories. In the international manual SEEA 2000 (System for Integrated Environmental-Economic Accounting) land and land use is not assigned to the physical flow accounts but to the asset accounts. The land use category housing and transport area indicates a particularly intensive structural pressure on the natural assets category land respectively on the eco-systems to be localised there. A number of variables related to transport appear in the German accounts also in the NAMEA-format. In the sense of the SEEA 2000 a part of them can be assigned to the world of physical flow accounting (transport related energy use and air emissions). Some belong to the category of environment related disaggregation of monetary SNA flows or stocks (e.g. environment related taxes, stock of vehicles). Others, like kilometres driven, person kilometres, tonnes kilometres, are not covered in the SEEA-concept up to now.

Further development of the national strategy for sustainable development and the accounting data set

A strategy for the development of an integrated SD policy consists of three elements to be worked on: further adjustment of the indicator set, expansion of the accounting system and development of appropriate tools for integrated SD analysis (see figure 6).

Figure 6. Strategy for an integrated sustainable development analysis and policy



The formulation of an indicator set for SD and the creation of an integrated database required for this purpose necessarily has to be a long-term task. On the one hand policy demands indicators on relatively short notice for describing the sustainability problem. But on the other hand the methodological concepts for approaching the sustainability problem scientifically and politically and, above all, the

appropriate database are still under development. This dilemma can be solved only by a stepwise approach.

It is the task of the political side to identify the priority issues to be included into the indicator set for SD. On that basis concrete indicators can be formulated on relative short notice by using already existing data. That was what happened in developing the present national indicator system in Germany. But indicators which were developed in such an ad-hoc manner necessarily run the risk of putting together indicators which are not linked with each other and which therefore can only be of limited use for an integrated policy on SD.

Developing an indicator set for SD that on the one hand perfectly covers the politically important issues and on the other hand is embedded into a coherent and rather comprehensive database can only be an iterative process with a threefold movement.

Firstly, future revisions of the indicator set should, by having in mind the obvious advantages, try to derive as much indicators as possible from the existing accounting data set by aggregation. In any case, in future it will be necessary to review and improve the existing indicator set 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, provided the necessary financial and personal resources are available. It has to be put high priority on extending the accounting data set towards the requirements of a policy for SD. As already mentioned, 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. As was shown above, in Germany there already exists a broad supply of expanded accounting data that can be used for the purposes of sustainability policy. Therefore the most important task in Germany for the next time will be to intensify the utilisation of these data by politicians and by those institutions which provide scientific policy advisory services in this area.

Thirdly, not only the accounting data set should be expanded. At the same time, also further investment in developing appropriate tools (modelling approaches) for an integrated environmental, social and 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.

Conclusions

The relation between the process of developing the SD indicators set on the one hand and of developing the accounting system as presented in the case study for Germany may at least implicitly give answers to some of the issues of the meeting to be addressed.

In principle the suggested pragmatic national approach towards a strategy for an integrated SD-policy could also be applied on the international level. The national approach is directed on stepwise bringing together the indicator system on SD and the accounting approach. Whereas the indicator system is first of all orientated towards the

political demand of providing meaningful information on SD rather quickly, the accounting method follows a strict system orientation and has rather a long-term perspective. For reconciling these two approaches, above all, it will be necessary to provide sufficient resources for developing and extending environmental-economic and socio-economic satellite accounts. The task for the accountants on the international level will be, to work on developing a comparable accounting data set along the priorities formulated by the political decision makers for a policy on SD. The priorities can either be revealed by the politically defined priority areas, or even better, by politically defined indicators.

References

Radermacher, W.: Indicators, green accounting and environment statistics – information requirements for sustainable development, paper for the 51st Session of the International Statistical Institute, Istanbul, 18.-26. August 1997.

Radermacher, W.: Societies' Maneuver Towards Sustainable Development: Information and the Setting of Target Values. In: Müller, F./Leupolt, M. (eds.): Eco Targets, Goal Functions, and Orientors; Berlin 1998.

Radermacher, W.: “Green Stamp” Report on an EU Research Project. In: European Commission (publisher): Proceedings from a Workshop, Luxembourg, 28-29 September 1998.

Schäfer, D.: Interpretation und Verknüpfung von Nachhaltigkeitsindikatoren (Interpretation and interlinking of sustainability indicators). In: Hartard, S./Stahmer, C./Hinterberger, F. (eds.): Magische Dreiecke – Berichte für eine nachhaltige Gesellschaft, vol. 1: Stoffflussanalysen und Nachhaltigkeitsindikatoren; Marburg 2000.

Schoer, K., Flachmann, C., Heinze, A., Schäfer, D., Waldmüller, B.: Environmental-Economic Accounting in Germany 2001, Federal Statistical Office, Wiesbaden 2001.

http://www.destatis.de/allg/e/veroe/e_ugr02.htm

Schoer, K., Räth, N.: Environmental-Economic Accounting in Germany 2002, Federal Statistical Office, Wiesbaden 2002.

http://www.destatis.de/allg/e/veroe/e_ugr02.htm

Stahmer, C.: The Magic Triangle of Input-Output-Tables, 13th International Conference on Input-Output Techniques, 21.-25. August 2000, Macerata, Italy.

The Advisory Committee on “ Environmental-Economic Accounting ” at the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety: Environmental-Economic Accounting, Fourth and final opinion on the implementation concepts of the German Federal Statistical Office, Berlin 2002.

http://www.destatis.de/allg/e/veroe/e_ugrbeirat.htm

Steurer, Anton: The use of National Accounts in developing SD Indicators, Second Meeting of the ESS Task Force on Methodological Issues for Sustainable Development Indicators, Meeting of 3-4 February 2003.

References

- Feeney, Patricia (2001),
“The Trust Business,” *OECD Observer*, No. 225, March 2001.
- Oldenziel, Joris (2000),
“The 2000 Review of the OECD Guidelines for Multinational Enterprises: A New Code of Conduct?”, SOMO, Amsterdam.
- Organisation for Economic Co-operation and Development (2001a),
“The OECD Guidelines for Multinational Enterprises and Global Instruments for Corporate Responsibility”, Background and Issues Paper, May 16, 2001, Paris.
- Organisation for Economic Co-operation and Development (2001b),
“OECD Roundtable on Global Instruments for Corporate Responsibility”, Summary Report of the Roundtable Discussion, June 19, 2001, Paris.
- Organisation for Economic Co-operation and Development (2001c),
“The OECD Guidelines for Multinational Enterprises – First Annual Meeting of the National Contact Points”, Summary Report of the Chair, September 21, 2001, Paris.
- Sabel, Charles, Dara O’Rourke and Archon Fung (2000),
“Ratcheting Labour Standards: Regulation for Continuous Improvement in the Global Workplace”, Washington, DC: The World Bank, Social Protection Discussion Paper No. 0011.
- Trade Union Advisory Committee (2001a),
“TUAC Survey of the Functioning of National Contact Points”, Paris.
- Trade Union Advisory Committee (2001b),
“The OECD Guidelines on Multinational Enterprises: A User’s Guide”, Paris.

Table of Contents

FOREWARD	3
ACCOUNTING FRAMEWORKS FOR SUSTAINABLE DEVELOPMENT: WHAT HAVE WE LEARNT? <i>Enrico Giovannini</i>	7
OPENING REMARKS “THE ROLE OF THE OECD” <i>Berglind Ásgeirsdóttir</i>	15
THE ROLE OF INSTITUTIONS IN BUILDING FRAMEWORKS TO MEASURE SUSTAINABLE DEVELOPMENT: THE CANADIAN EXPERIENCE <i>Robert Smith</i>	21
ACCOUNTING FOR SUSTAINABILITY <i>Kirk Hamilton</i>	29
SUSTAINABLE NATIONAL INCOME AND MULTIPLE INDICATORS FOR SUSTAINABLE DEVELOPMENT <i>Bart de Boer and Roefie Huetig</i>	39
ACCOUNTING FOR SUSTAINABLE DEVELOPMENT: COMPLEMENTARY MONETARY AND BIOPHYSICAL APPROACHES <i>Kirk Hamilton, Jonathan Loh, Jerome Sayre, Thierry Thouveno, and Mathis Wackernagel</i>	53
A FEW REMARKS ON METHODOLOGICAL ASPECTS RELATED TO SUSTAINABLE DEVELOPMENT <i>Isabella Pierantoni</i>	63
ASPECTS OF SUSTAINABILITY: THE AUSTRALIAN EXPERIENCE <i>Barbara Dunlop</i>	91
A CAPITAL-BASED SUSTAINABILITY ACCOUNTING FRAMEWORK FOR CANADA <i>Robert Smith</i>	111
A FRAMEWORK FOR ESTIMATING CARBON DIOXIDE EMISSIONS EMBODIED IN INTERNATIONAL TRADE OF GOODS <i>Nadim Ahmad</i>	129
RESULTS FROM THE NORWEGIAN ENVIRONMENTAL AND ECONOMIC ACCOUNTS AND ISSUES ARISING FROM COMPARISONS TO OTHER NORDIC NAMEA – AIR EMISSION SYSTEMS <i>Julie Hass</i>	155
ACCOUNTING FOR SUSTAINABLE DEVELOPMENT: THE NAMEA-BASED APPROACH <i>Mark De Haan and Peter Kee</i>	183
THE NEW ZEALAND EXPERIENCE WITH ENVIRONMENTAL ACCOUNTING FRAMEWORKS IN MEASURING INTER-RELATIONSHIPS BETWEEN THE ECONOMY, SOCIETY AND THE ENVIRONMENT <i>Chase O’Brien</i>	199

INTEGRATED ENVIRONMENTAL AND ECONOMIC ACCOUNTING IN ITALY <i>Cesare Costantino, Federico Falcitelli, Aldo Femia and Angelica Tudini</i>	209
THE DANISH ENVIRONMENTAL ACCOUNTS WITH EXAMPLES OF ITS USE <i>Ole Gravgard Pedersen</i>	227
MATERIAL FLOW ACCOUNTS AND BALANCES TO DERIVE A SET OF SUSTAINABILITY INDICATORS <i>Luisa Bailon Chico and Félix Alonso Luengo</i>	247
THE ROLE OF THE NATIONAL ACCOUNTS AND ITS SATELLITE SYSTEMS FOR THE GERMAN NATIONAL STRATEGY FOR SUSTAINABLE DEVELOPMENT <i>Karl Schoer</i>	275
THE DEVELOPMENT OF ENVIRONMENTAL ACCOUNTING FRAMEWORKS AND INDICATORS FOR MEASURING SUSTAINABILITY IN JAPAN <i>Noritoshi Ariyoshi and Yuichi Moriguchi</i>	287
SUSTAINABLE DEVELOPMENT INDICATORS FOR SWEDEN: CONCEPTS AND FRAMEWORK <i>Madeleine Nyman</i>	305
SOCIAL ACCOUNTING MATRICES AND EXTENDED INPUT-OUTPUT TABLES <i>Carl Stahmer</i>	313
ON SAMS ACCORDING TO ESA95 <i>Hubertus Kal</i>	345
A PILOT SAM FOR ITALY: METHODOLOGY AND RESULTS <i>Federica Battellini, Alessandra Coli and Francesca Tartamella</i>	365
USING ENVIRONMENTAL ACCOUNTS TO PROMOTE SUSTAINABLE DEVELOPMENT: EXPERIENCES IN SOUTHERN AFRICA <i>Alessandra Alfieri, Rashid Hassan, and Glenn Marie Lange</i>	405



From:
Measuring Sustainable Development
Integrated Economic, Environmental and Social Frameworks

Access the complete publication at:
<https://doi.org/10.1787/9789264020139-en>

Please cite this chapter as:

Schoer, Karl (2004), "The Role of the National Accounts and its Satellite Systems for the German National Strategy for Sustainable Development", in OECD, *Measuring Sustainable Development: Integrated Economic, Environmental and Social Frameworks*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264020139-18-en>

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.