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Summary of the report on measuring sustainable development

Note by the joint United Nations Economic Commission for Europe/Eurostat/Organisation for Economic Co-operation and Development Task Force on Measuring Sustainable Development

Summary

The paper provides a summary of the report being prepared by the joint United Nations Economic Commission for Europe (United Nations Economic Commission for Europe)/Eurostat/Organisation for Economic Co-operation and Development Task Force on Measuring Sustainable Development.

Following a decision by the Bureau of the Conference of European Statisticians, the summary is sent for consultation to seek feedback from the members of the Conference on the general direction of the report. The comments on the summary will be presented to the plenary session of the Conference in June 2011. The full report is planned to be submitted to the plenary session of the Conference of European Statisticians in 2012.

The comments will be also taken into account by the Task Force at its next meeting on 19-20 May 2011 where the draft of the full report will be discussed.

I. Introduction

1.   The paper provides a preliminary summary of the final report being prepared by the Joint United Nations Economic Commission for Europe (UNECE)/Eurostat/Organisation for Economic Co-operation and Development (OECD) Task Force on measuring sustainable development. The aim of the summary is to explain the thinking behind the report and to seek feedback on its general direction. The full report is planned to be submitted to the Conference of European Statisticians (CES) plenary session in 2012.

2.   The Joint UNECE/Eurostat/OECD Task Force for Measuring Sustainable Development (TFSD) builds on the work of its predecessor, the Working Group on Statistics for Sustainable Development (WGSSD). The objective of the new work is to further pursue a conceptual approach in identifying indicators to present the long-term, i.e. across generations, dimension of sustainable development. In addition, indicators to present the quality of life are also being developed. The Task Force proposes a set of indicators covering the human wellbeing of the present generation, quantifying the amount of economic, human, natural and social capital that is left to future generations (i.e. the inter-generational aspects of sustainable development) and provides information whether countries in the pursuit of their welfare goals have an impact on the rest of the world (the Brundtland report especially emphasized the impact of high income countries on the least developed economies). In other words, the indicators reflect on the basic trade-offs regarding human wellbeing 'here and now', 'later' and 'elsewhere'.

3.   The work of this Task Force is explicitly linked to and inspired by other initiatives such as GDP and Beyond (European Commission), Progress of Societies (OECD) and the Sponsorship Group for Progress, Wellbeing and Sustainable Development (Eurostat/INSEE). The members of this Task Force closely follow these initiatives and take on board the main outcomes of these initiatives in the Final Report. Furthermore, the Task Force for Measuring Sustainable Development also gives input to these other initiatives. The co-operation with the above international projects is further enhanced by the fact that a number of members in this Task Force are also active in these other initiatives.

4.   This report aims to provide not only statistical offices, but also international organizations and the public in general with the latest scientific and statistical methods to measure sustainable development. Based on the measurement theory a system of sustainable development indicators (SDI) is proposed. It should be noted that the work of the Task Force is of an academic nature and that it cannot be considered to lead to a statistical standard in the short run. As a huge part of the report focuses on methodological issues, the Task Force pays special attention to the quality requirements of official statistics when discussing the choice of potential indicators. These reflections on 'official statistics' should pave the way for a possible implementation of some of the ideas of this Task Force in the longer run. It should be noted that this Task Force primarily aims to build a SDI set based on conceptual grounds. However, the indicator set has also been designed in such a way, that it is relevant for SD policy.

5.   There is a wide-spread feeling that society needs a better statistical 'compass'. It is argued that in defining our societal goals we should go "beyond GDP" and that statistical tools need to be developed that address a broad range of issues relating to quality of life and sustainable development. It seems that after the publication of the seminal Stiglitz-Sen-Fitoussi report, co-chaired by two Nobel Prize winners and an outstanding French economist, the call for such a new statistical framework is stronger than ever.

6.   In this report we follow the definition of sustainable development as was proposed by the Brundtland Commission, which states that 'sustainable development is development

that meets the needs of the present without compromising the ability of future generations to meet their own needs'. This definition contains two key concepts: the concept of 'needs' and the idea of 'limitations' imposed by the state of technology and social organization on the ability to meet these needs.

II.   Background

7.   The predecessor of this Task Force, the WGSSD, was commissioned by the Conference of European Statisticians (CES) in 2005 to develop a broad conceptual framework for measuring sustainable development based on the capital approach, and to identify a small set of indicators that could serve for international comparisons. The work of the WGSSD resulted in the publication *Measuring Sustainable Development[1]*. The WGSSD noted in the report the need for further conceptual and methodological development to refine certain elements of the capital approach. With the finalization of this report, the mandate of the WGSSD was fulfilled. Basically, the WGSSD Report focused on the inter-generational aspects of sustainable development, following the so-called future-oriented view. The proposed set consisted of indicators covering economic, human, natural and social capital.

8.   In February 2008, the CES Bureau reviewed the report and recognized that many issues remain unresolved and should be developed further. The Bureau agreed on a proposal that a new Task Force be created which should further pursue the conceptual development of the capital approach in identifying indicators to present the long-term dimension of sustainable development. In addition, indicators to present the distributional aspects under each capital indicator should be considered to respond to the needs of the policy makers. The work should focus on those indicators where further research is most likely to result in improved statistical concepts or methods.

9.   The Task Force should further refine and, if necessary, expand the small set of indicators based on the capital approach proposed by the WGSSD in the Report on Measuring Sustainable Development and would also explore possibilities to include indicators that link the capital approach concept to policy-oriented indicators. The Task Force should examine the indicators in order to determine whether they capture the long-term conceptual perspective of the capital approach to measuring sustainable development.

10.   The work should follow up on dimensions unresolved in the final report of the WGSSD, focusing on - but not limited to- social and human capital. The Task Force should include in the set of indicators new or revised long-term social and human capital indicators that the Task Force might identify.

11.   The original mandate of the TFSD was very much based on the inter-generational aspects of sustainable development. However, during the first meeting of the Task Force it was concluded that the group should produce indicator sets for both the inter-generational aspects as well as the human wellbeing of the current generation. This change in the mandate was agreed upon by the CES. The Report of the CES Bureau meeting (3-4 November 2010)[2] mentioned that some Bureau members considered the future oriented view (focusing on capital indicators) to be too restrictive to measure sustainable development, while the integrated view (which also incorporates present-day human wellbeing) covers the broad concept of sustainable development. Besides, the CES Bureau indicated that the framework has to offer flexibility by including distributional and

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[1]   Available at http://www.unece.org/stats/archive/03.03f.e.htm

[2]   See Report of the CES Bureau meeting, Geneva, 3-4 November 2010; ECE/CES//2011/13

international aspects of sustainable development and to reflect on the outcomes of the Stiglitz Report. As the TFSD decided to operationalize sustainable development on the basis of the Brundtland approach, the above-mentioned aspects are all included in this report.

12.   The work of this Task Force for Measuring Sustainable Development clearly builds on the work of the previous Working Group on Statistics for Sustainable Development, but also presents important new work:

(a)   The work on human and social capital is much more elaborate as it builds on the most recent methodological insights derived from academic literature;

(b)   Where the previous working group was confined to the future oriented view, i.e. only focusing on the inter-generational aspects of sustainable development, the TFSD also takes into account aspects of human wellbeing of the present generation as well as international (distributive) issues. Therefore, the work of the TFSD will enable the statistical community to quantify the fundamental trade-offs (the 'here and now' versus 'later' and 'elsewhere') as were mentioned in the Brundtland Report much better than could be done on the basis of a dataset consisting of just capital indicators;

(c)   The TFSD pays more attention to the concept of 'official statistics' than the WGSSD did and provides guidelines as to how to decide whether statistical information can be classified as official or not. Special attention will be paid to the use of imputation techniques, which should be reduced to a minimum and should always be communicated in clear ways. In this light also the limitations of monetization techniques –due to the use they often make of imputations and theoretical assumptions- will be scrutinized;

(d)   The TFSD put a lot of effort in comparing various datasets (at country level or at the level of international organisations) to investigate the availability of high-quality data. The work of this Task Force was undertaken in response to the proliferation of sustainable development indicators aiming to propose a core set of indicators for international comparability. It is a challenge to balance international comparability and national relevance in this area;

(e)   Last but not least, the TFSD report presents the headline indicators along the definition of the Brundtland Commission, focusing on human wellbeing of the present generation and the effects of this pursue of wellbeing on later generations and on a global scale (this is what is called the *conceptual approach*). Besides, these headline indicators are also presented along more conventional thematic lines which represent classical policy themes (the *policy approach*). Here for each theme also *sub indicators* are added to the dataset. Where the headline indicators indicate how society is doing in terms of its human wellbeing ('here and now', 'elsewhere' or 'later'), the sub indicators indicate how certain (negative) trends might be reversed. These sub indicators often indicate the levels of investments or productivity/efficiency changes. These sub-indicators are particularly relevant for policy makers because they indicate how the headline indicators can be influenced.

III.   Structure of the report

13.   The final report of this Task Force consists of four sections.

14.   Section I presents the conceptual framework on the basis of which the SDI set is built. This part of the report builds on the work presented by the WGSSD, but is also in line with the recommendations of the Stiglitz report. Besides, it reflects the wish of members of this Task Force to broaden the discussion by also incorporating topics concerning the human wellbeing of the present generation. Special attention is paid to distributional issues.

15.   Section II delves deeper into the methodological aspects of measuring sustainable development and concludes with a list of sustainability themes (such as the different aspects of quality of life, various types of capital, etc.) that should be covered and presents so-called ideal indicators, i.e. the indicators that are desirable from a theoretical point of view and that also meet the requirements of official statistics, but which are not always at the disposal of the statistical community. This part of the report deals with the core issues which are mentioned in the mandate of this Task Force: extending and refining estimates on human and social capital as well as doing further work in the field of the measurement of economic wealth. Besides, a chapter is dedicated to conceptual issues regarding the measurement of quality of life. This section is based on statistical handbooks as well as on academic literature.

16.   In section III a list of indicators for the several sustainability themes is presented. These indicators correspond as closely as possible to the ideal indicators discussed in section II of the report. The Task Force decided not to adopt a one-size-fits-all approach. Even though the themes are universal (such as education, health etc), the actual indicators may differ from country to country. Besides, there are two different ways in which the indicators are being presented. The conceptual approach follows the Brundtland definition and distinguishes the quality of life in the 'here and now', 'later' and 'elsewhere'. Apart from this conceptual classification, also a more straightforward approach will be followed in which the indicators are categorized by policy areas.

17.   Section IV offers the main conclusions and recommendations for further work.

A.   Section I: conceptual framework

18.   The Brundtland definition implies that the wellbeing of future generations must be safeguarded by making sure that they have sufficient resources, while at the same time securing the wellbeing of the current generation. The issue of sustainable development thereby becomes a matter of intergenerational equity which is determined by the distribution of capital over time. The same applies to the intra-generational aspects of capital use. The Brundtland report put quite some emphasis on the fairness of societal developments on a global scale.

19.   According to the Brundtland report the core of the debate on sustainable development concerns the trade-offs between the present generation pursuing its welfare goals in the 'here and now', yet leaving enough assets for future generations as well as people elsewhere on this planet, to pursue their welfare. The fairness of distribution can therefore be considered to be a vital part of the discussion on sustainable development.

20.   It is clear that the quality of life of present and future generations crucially depends on how we use our resources. These resources or assets are estimated on the basis of the so-called capital approach, which does not only refer to the economic capital that is taken on board in the System of National Accounts, but which also includes non-market natural capital, human capital and social capital. Figure 1, similar to the graphical representations presented by the Global-project of the OECD and the National Accounts of Wellbeing of the New Economics Foundation, shows how the wellbeing is society is related to its resources (the different types of capital).

Figure 1
Human wellbeing and its relation to capital
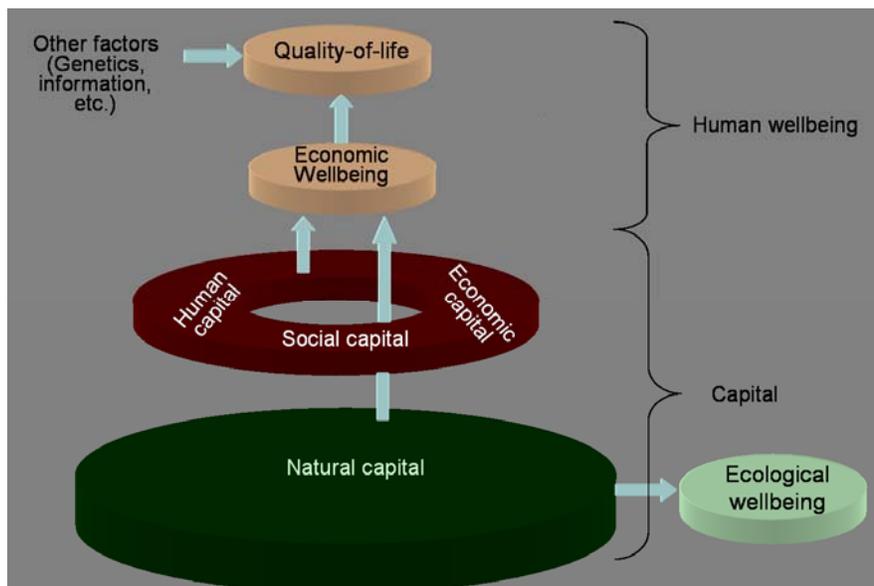
21.   Figure 1 introduces the main concepts that are used in this report and shows how capital, welfare and wellbeing are related.

22.   The following definitions are used in the Report:

        (a)   Human wellbeing: A measure of the life satisfaction. Can be subjective or objective;

        (b)   Quality of life: A broad concept which is not confined to the utility derived from the consumption of goods and services, but which is also related to people's functionings and capabilities (i.e. the freedom and possibilities they have to satisfy their needs). Quality of life is affected by the use of resources as well as factors of a psychological nature;

        (c)   Economic wellbeing: A measure which relates to people's access to goods and services. This concept essentially deals with people's command over commodities. Economic wellbeing is only affected by the use of resources;

        (d)   Sustainable development: A development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

23.   Quality of life is placed on the top of the pyramid. It should be noted that quality of life is a much broader concept than economic wellbeing. In the current revision of the handbook of the measurement of household income by the Canberra group, economic wellbeing is defined as follows: "A household's economic wellbeing can be expressed in terms of its access to goods and services. The more that can be consumed, the higher the level of economic wellbeing. While other theretical approaches have underlined the importance of other aspects of people's life as determinants of human wellbeing (reaching beyond the commodities that are available to them), here the focus is on the narrower concept of economic wellbeing".

24.   The TFSD follows this definition. However, to do full justice to the wellbeing of the present generation, other factors need to be taken into account. These additional factors are taken on board in the much broader quality of life concept, and they relate to the

'functionings and capabilities' which are strongly stressed by Amartya Sen. Here also the freedom and possibilities that people have to satisfy their needs are taken into account.

25.   Society has a number of available resources [economic capital (machines and buildings), human capital (labour, education and health); natural capital (natural resources, biodiversity and climate) and social capital (social networks, trust and institutional capital)]. These resources are necessary to maintain human wellbeing.

26.   Natural capital is a special type of resource because it is a critical capital stock. Without it humans could not exist. It is also important to note that the above discussion of quality of life and wellbeing is very anthropocentric: natural capital is only of value to society if it provides ecological services that benefit humans. In the literature many authors argue that certain types of natural capital, such as biodiversity, have an existence value, irrespective of its use by society. This aspect is represented by introducing the term "ecological wellbeing" in figure 1.

27.   Figure 1 is a static representation of human wellbeing. However, it does not show whether the wellbeing can be maintained towards the future. From an inter-generational perspective sustainable development is development that ensures non-declining per capita national wealth by replacing or conserving the sources of that wealth; that is, stock of produced, human, social and natural capital. It should be pointed out that in this definition only the *potential* for sustainable development as there are no guarantees that future generations will manage the capital stocks in an appropriate manner. However, while stable or growing total wealth per capita is no guarantee of sustainable development, the opposite is a guarantee of its impossibility. That is, in the face of declining per capita capital stocks, wellbeing will in the long run deteriorate and sustainable development will not be possible.

28.   The capital approach has special relevance to the Brundtland view. The capital approach provides us with tools to analyze the international aspect of sustainable development, i.e. to what extent high-income countries build up their quality of life at the expense of the developing countries. Simply by examining the extent to which high-income countries contribute to the depletion of vital (critical) resources of the poorer regions on our planet, will enable us to identify the non-sustainable aspects of societal developments.

29.   Figure 2 takes the time-dimension into account. It shows that through the production process, the capital stocks lead to the provision of goods and services that are consumed and also generate income which is required to buy these commodities. In economic terms, the goods and services that are produced lead to "utility" and thereby enhance human wellbeing.

30.   Not all of the income is consumed. A portion is reserved for investments. Together with the depreciation, this leads to new levels of capital in the future. Societies can therefore influence the intergenerational sustainability by the investments and depreciation in capital stocks as well as the efficiency with which these capital stocks are used.

Figure 2

A conceptual basis for human wellbeing in the future
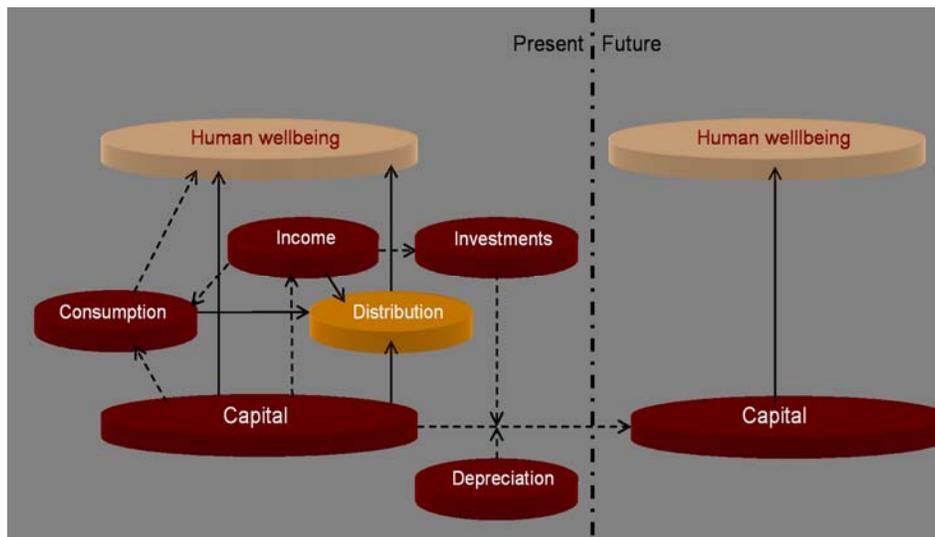
31.   The above is clearly inspired by economic theory and the statistical system which was been created to measure macro-economic developments: the national accounts. These conventional economic relationships are represented by the dotted lines in the figure. However, as the Stiglitz report correctly points out, there are a number of areas in which standard economic theory does not provide an adequate picture:

32.   Firstly, in most cases the economic mainstream literature and the system for national accounts do not take into account social capital and non-market natural capital. Similarly, in the conventional approaches the definition of commodities is often confined to market-based activities.

33.   Secondly, conventional economic analysis relates human wellbeing primarily to consumption. It is assumed that "utility" is only achieved through the consumption of goods and services. A wide range of social sciences literature convincingly shows that human wellbeing is affected by a greater range of factors than consumption (and most certainly when the definition of "consumption" in the national accounts is used). These additional factors are displayed with full lines .

34.   On the basis of these notions two additional causal links are added in figure 2 (full lines). The first line indicates that capital may have a direct effect on human wellbeing. For example, it has often been shown that persons with a higher educational level achieve a higher level of wellbeing, even when corrected for other factors. The second line shows that the distribution of income, consumption and capital may influence the wellbeing of individuals.

35.   With the help of this conceptual framework the main building blocks of a SDI set as well as they way in which they are interrelated, can be established. At least such a set of indicators should consist of objective as well as subjective indicators relating to the human wellbeing of the current generation. When turning to the factors which determine human wellbeing, it becomes clear that a SDI set should not be restricted to indicators on consumption. Also information on distribution and the different types of capital should be included. Capital indicators are of great importance as they do not only affect current quality of life, but are also of vital importance in securing the possibilities of future generations to ensure their wellbeing.

36.   The growing amount of literature on issues regarding welfare and sustainable development has had a substantial impact on the ways in which statisticians attempt to quantify these concepts. Until the 1980s composite indicators, which attempted to combine different aspects of sustainable development and quality of life into one single number, were quite popular. However, from the 1990s onwards many countries and international organisations have chosen to develop 'indicator sets' rather than composite indicators. An advantage of indicator sets is that they can be used to analyse relationships between several 'sustainability themes', where composite indicators generally conceal these trade-off relationships. However, because these sets often include many indicators they are more challenging to communicate to a wider audience.

37.   The growing consensus between statisticians becomes evident when comparing SDI sets as built by different national and international organisations. In section I of the report a systematic comparison has been made of SDI sets that have been created by the United Nations (CSD and MDG), Eurostat (SDI set), OECD (Progress measurement framework) and seven countries. The analysis of the commonalities shows that there are a number of themes that are dominant, which include labour, health, education, climate and ecosystems.

B.   Section II: measuring sustainable development

38.   Section II of this report describes the 'state of the art' of the measurement of human wellbeing and sustainable development on the basis of academic literature and statistical handbooks. The aim of this section is to identify the themes which should be part of a sustainable development framework and to propose so-called ideal indicators which cover these themes.

39.   The broad overview that was given in section I may serve as a good starting point to discuss the concept of sustainable development, but it does not give us a clear idea as to which aspects of human wellbeing and capital should be taken into account. The concepts of wellbeing, quality of life and sustainable development are that all-encompassing, that we run the risk of ending up with a 'theory-of-everything': a dataset which basically covers all topics that make life pleasant in the longer and/or shorter run.

40.   In this report we solve this issue by means of a thorough study of the theoretical and methodological literature on wellbeing and capital. Besides, by browsing through datasets from statistical bureaus and international agencies, a comprehensive overview of relevant themes can be given. This combination of academic insights and practical data availability results in a list of sustainability themes and suggested ideal indicators at the end of this section.

1.   Human wellbeing

41.   As there are no clear-cut theories which have resulted in the establishment of statistical standards, the selection of wellbeing themes will largely be based on a thorough screening of existing datasets. In section I of this report it was already concluded that there is broad consensus as to how to measure the main aspects of wellbeing and sustainable development. The Stiglitz report distinguishes the domains which seem to capture well the basic aspects of human wellbeing.

42.   The dashboard on human wellbeing makes a distinction between personal needs and social needs. Besides, a distinction is made between basic (physiological) and other (non physiological) needs. This differentiation is especially important when building world-wide datasets. The category of 'limitations/risks' stresses the ways in which the freedom of individuals to pursue their welfare goals may be constrained. Already in the 1940s Maslow underlined the importance of these limitations, a notion that has also been put forward by

Sen in his functioning and capability approach. The Eurostat feasibility report on wellbeing uses a similar theoretical justification.

2. Capital

43.	The choice of themes could rather easily be derived from the literature on capital theory and on economic growth literature. Besides, this choice is also based on the statistical practice as it is formulated in specific handbooks and statistical standards (such as the system of national accounts (SNA), the system of economic and environmental accounts (SEEA), handbook on measuring capital). The chapter will also deal with defining capital, role of technology in assessing sustainable development from capital perspective and the limitations of the capital approach. Capital here is defined in a broad sense, incorporating ecological and social phenomena that are often not measurable in monetary terms. Several assets are better measured in physical terms and the difficulties related to measuring their stocks and flows are acknowledged.

3. Economic and financial capital

44.	The measurement of economic and financial capital is governed by the System of National Accounts, which is one of the most important statistical standards available. On a global scale financial capital is a zero-sum capital stock. For every liability there is an equal in value and opposite in sign asset. However, if we take the national boundary as the demarcation line there is the possibility that the assets exceed liabilities or vice versa.

4. Human capital

45.	Human capital concerns itself with market and nonmarket labour of individuals and the quality of this labour. It focuses on individuals and their characteristics rather than interconnections between individuals as does social capital.

46.	Human capital is impacted by education, market and nonmarket work versus leisure decisions, birth rates, and individual's health, including their longevity. For the moment we will restrict ourselves to the discussion of education. The educational levels in a country are important for future welfare because a high quality workforce can produce more per capita and might lead to multifactor productivity improvements. However, it has also been shown that persons with higher educational levels also have higher levels of life satisfaction. Education is therefore an important component of sustainable development.

47.	It should be noted that human capital, measured in terms of education, is strictly seen as an input factor, as a type of capital. Of course, it is acknowledged that education and health both are important drivers of wellbeing. These aspects are also emphasized in the part of the report which deals with human wellbeing.

5. Natural capital

48.	The discussion of the measurement of natural capital starts with the system of environmental and economic accounts (SEEA). The 2003-version of the SEEA is currently being updated and is expected to become a statistical standard within two years.

49.	The SEEA is a satellite accounting system of the System of National Accounts (SNA). This means that it uses the national accounting concepts and principles to measure environmental aspects of society. In some areas it may choose to expand concepts. One area in which the SEEA differs from the SNA is the definition of an asset. The SEEA is broader in its definition so that it can incorporate "public goods" such as ecosystems".

50.	Natural capital is not just a capital stock, but it is also critical for the survival of life. There are certain limits which should not be exceeded. The measurement of these limits is

difficult (Röckstrom et al, 2009) but is a very important challenge in the measurement of sustainable development.

6. Social capital

51.   Social capital has its roots in sociology, but has gradually become an important topic for political scientists and economists. A survey of the literature reveals that social capital is a multi-dimensional phenomenon.

52.   Social capital should be defined in terms of networks as well as the trust and the shared norms and values that are being generated within these networks. The inclusion of trust is important as it comes closer to the concept of capital in an economic sense. From an *investment perspective*, one may prefer to focus on networks (individuals invest in networks as they expect network participation to increase their competitive strength). However, capital theory also shows that the investments result in building up a capital stock. The changes in the size of the capital stock can be followed in the course of time. From a capital *stock perspective* (following Fukuyama and to some extent Putnam), a focus on trust is needed. Rising or declining levels of trust can be interpreted in terms of a change in the volume of capital, whereas a change in the size of a network in itself has no meaning (a network can increase in size, while the frequency and quality of contact between its members actually declines). Even though far more difficult to measure, shared norms and values can be seen as a capital stock that is built up due to increasing social interactions.

53.   Social capital should refer to citizens as well as institutions. The indicators suggested for the social capital of citizens and on institutions are in line with the recommendations of the WGSSD and of the Stiglitz Report.

7. Total wealth

54.   Last but not least attempts are made to estimate the total amount of wealth (the monetized sum of all types of capital). The only dataset which comes close to this ideal are the wealth estimates produced by the World Bank. For approximately 150 countries measures of total wealth, with additional information on economic and natural capital, are presented for the period 1970-present.

55.   The World Bank approach is valuable as it gathers and presents a wide range of data covering large parts of the world, but there are still a number of serious data-related and methodological problems that need to be addressed as was also indicated in the WGSSD report.

8. International dimension

56.   The international dimension is an important aspect of the Brundtland report. The report clearly included the concept of equity between countries. In a globalized world the international relationships between countries are becoming more and more important.

57.   A country can influence many aspects of society in other countries. However, many of these are very difficult to measure. For example, it seems fairly clear that the rapid impact of international trade has had an effect on the social structures of society, but it is hard to quantify.

58.   There are a number of areas which are more easily measured. There are the direct income transfers (official development aid, remittances) from the developed to the developing world. Furthermore, it is also possible to measure certain environmental relationships. For example, there are the direct imports of resources (energy, metals and non-metals). However, there are also "footprint" indicators which calculate the

environmental pressures that are attributable to consumption both in the country itself and aboard (e.g. the ecological footprint).

9. The selection of sustainability themes and proposed indicators

59.   On the basis of the literature discussed in this section of the report, a list of 27 sustainable development themes has been identified. In the next paragraph we will discuss the choice of indicators and two alternative ways of setting up a SDI set. Note that the list of themes was discussed at the last meeting of the TFSD. Even though there was consensus regarding this approach the list is by no means definite. Some of the themes in this list may be combined in more general themes in order to reduce the number of topics.

C.   Section III: sustainable development indicators

60.   Section III of the report focuses on selecting an actual set of Sustainable Development Indicators (SDI) which is based on the methodological issues discussed in Section II. However, in the selection process also the practical aspects of data availability as well as the quality criteria of official statistics are taken into account. Finally, the policy relevance of the dataset is discussed. It is not our aim to provide a "one size fits all" system, but rather to provide a number of alternatives that can be varied, depending on the objective of the user. The only restriction is that the conceptual link to the measurement theory of section II is maintained.

61.   There are basically two ways to present the SDI set:

(a)   Conceptual categorization (Table 1): In this SDI set the dashboard is split into the conceptual categories: current human wellbeing, capital (as a pre-condition of future human well-being) and the international dimension. This dashboard consists of headline indicators which are chosen on conceptual grounds[3];

(b)   Policy categorization (Table 2). In this SDI set the themes are the basis for organising the dataset along the lines of policy areas. Here, the same headline indicators are presented as in the conceptual dashboard, but now they are categorized along more conventional (thematic) lines which represent classical policy themes. Here for each theme, it is possible to connect *sub indicators* to the headline indicators. Where the headline indicators indicate how society is doing in terms of its human wellbeing ('here and now', 'elsewhere' or 'later'), the sub indicators indicate how society (and policy makers in particular) might reverse (or stimulate) certain negative (or positive) trends.

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[3]   Those who adhere to an integrated view of sustainable development (i.e. focusing on the quality of life of the present as well as future generations) may use all themes in their SDI set. However, those who view sustainable development essentially as an inter-generational concept, can select the capital indicators from the light and dark grey areas of this table. Finally, those who prefer the monetised wealth estimates can confine themselves to the monetary aggregates in the dark grey area of Table 1

Table 1
Sustainable development themes: conceptual classification

Classification	Sub-classification	Themes
Current human wellbeing ('here and now')	Overarching indicators	HWB-A-Wellbeing
		HWB-B-Consumption
		HWB-C- Income
	Personal needs, Basic physiological needs	HWB1. Nutrition
		HWB2. Health
		HWB3. Housing
		HWB4. Air quality
	Personal needs, Non-physiological needs	HWB5. Education
		HWB6. Leisure
		HWB7. Labour
	Personal needs, limits, risks	HWB8. Economic security
		HWB9. Inequality
		HWB10. Physical safety
	Social needs	HWB11. Trust
		HWB12. Shared norms and values
		HWB13. Institutions
Capital (pre-condition of future human well-being, 'later')	Economic capital	EC1. Physical Capital
		EC2. Knowledge Capital
	Financial capital	FC1. Financial capital
	Natural capital	NC1. Land
		NC2. Energy reserves
		NC3. Metal and non-metal reserves
		NC4. Ecosystems
		NC5. Soil quality
		NC6. Water quality
		NC7. Water quantity
		NC8. Air quality
		NC9. Climate
	Human capital	HC1. Labour
		HC2. Education
		HC3. Health

Classification	Sub-classification	Themes
	Social capital	SC1. Trust
		SC2. Shared norms and values
		SC3. Institutions
	Monetary aggregates	EC-M Economic and financial capital
		HC-M. Human capital
		NC-M. Natural capital
		SC-M. Social capital
		EW-M Economic wealth
International dimension ('elsewhere')	Income	INT-C-Income
	Natural capital	INT-NC1. Land
		INT-NC2. Energy reserves
		INT-NC3. Metal and non-metal reserves
		INT-NC7. Water quantity
		INT-NC9. Climate

Table 2

Sustainable development themes: thematic classification

Themes	Code		
	Human wellbeing	Capital	International dimension
Wellbeing	HWB-A		
Consumption	HWB-B		
Income	HWB-C		INT-C
Nutrition	HWB1		
Health	HWB2	HC3	
Housing	HWB3		
Education	HWB5	HC2	
Leisure	HWB6		
Inequality	HWB9		
Physical safety	HWB10		
Trust	HWB11	SC1	
Shared norms and values	HWB12	SC2	
Institutions	HWB13	SC3	

Themes	Code		
Land		NC1	INT-NC1
Energy reserves		NC2	INT-NC2
Metal and non-metal reserves		NC3	INT-NC3
Ecosystems		NC4	
Soil quality		NC5	
Water quality		NC6	
Water quantity		NC7	INT-NC7
Air quality	HWB4	NC8	
Climate		NC9	INT-NC9
Labour	HWB7	HC1	
Economic security	HWB8		
Physical Capital		EC1	
Knowledge Capital		EC2	
Financial capital		FC1	
Monetary aggregates			
Economic and financial capital		EC-M	
Human capital		HC-M	
Natural capital		NC-M	
Social capital		SC-M	
Economic Wealth		EW-M	

1. Advantages of the conceptual categorisation

62. *Confrontation "here & now", "elsewhere" and "later".* The primary advantage of the conceptual categorization is that it enables the user to immediately detect the fundamental trade-offs between human wellbeing in the "here and now", "elsewhere" and "later". This way of presenting the data is rather unconventional, as most sustainable development indicator sets distinguish different policy areas. However, presenting indicators according to the policy themes makes it difficult to track down the fundamental trade-offs of human wellbeing between the current and future generations, or between people living in high income countries versus those living in the developing regions. This conceptual monitoring system will therefore serve the purpose at identifying the main problematic areas.

63. *Close connection to measurement theory.* The classification into human wellbeing, capital and the international dimension is closely linked to the measurement theory presented in section II of this report. This also means that expansions of the system, such as satellite accounts or household accounts, are better suited to this structure. Also, for modelling purposes, the conceptual approach has clear advantages.

2. Advantages of the policy categorisation

64. *Terminology of policy makers*. In the thematic approach the classification system is far more suited to the language and societal dimensions which policy makers recognize. Note that just because a policy approach is adopted, it does not mean that it is not a conceptual approach. Clearly all themes are still connected to the themes which were derived from measurement theory in section II.

65. *Sub-indicators for policy*. The policy approach also makes it far easier to introduce sub-indicators which give additional information and which are aimed at giving policy makers the tools to reinforce existing positive trends or to reverse negative trends. For example, next to the capital stock indicators, sub-indicators with information on investments or efficiency (productivity) are added, as they give additional information as to how society can enter a more sustainable growth path. (these sub indicators are given in ECE/CES/2011/4/Add.1, Table A2).

3. The use of one or both categorizations

66. In a way the conceptual and policy categorization can be seen as complements. The conceptual set aims at monitoring the main trade-offs while the policy set tracks the progress and sub-indicators for individual policy themes. Both these presentation styles (conceptual and policy oriented) can be used in combination, but it is also possible to select only one of them.

4. Choice of indicators

67. First, the actual availability of data is being scrutinized. This is done by browsing through a large number of datasets from statistical offices as well as international organizations such as the OECD, the World Bank, United Nations and Eurostat. ECE/CES/2011/4/Add.1 part 2 gives an overview of the data availability.

68. Next, the quality criteria for official statistics are discussed. This is important because it provides guidance on the minimum standards that the indicators in an SDI set must fulfill.

69. A number of concrete ways of assessing the quality of indicators is suggested:

    (a)   Theory. Does it measure what we want to measure?

    (b)   Assumptions. Which assumptions are used?

    (c)   Consensus: How commonly used is an indicator in the statistical world?

70. Apart from presenting the outline of an actual SDI set, section III of the report also discusses different ways in which the results can be visualized and communicated. Exploring different visualization techniques can be important in the light of the relatively large number of indicators suggested in this report. However, visualization and communication techniques may be helpful in getting the main message through to a general audience (for example by means of data reduction).

D. Section IV: conclusions

71. The report proposes an SDI set which is based on the conceptual framework as presented in section I and working on the basis of the methodological considerations that were discussed in section II. This SDI carefully distinguishes current from future human wellbeing. The needs of the current generation are expressed in objective as well as subjective terms. The inter-generational aspects of sustainable development are described with capital indicators (using a broad capital framework encompassing economic, human,

natural and social capital). Last but not least, international trade-offs in human wellbeing (especially between rich and developing countries) are measured.

72.   Even though in many cases no ideal indicators can be found, in most cases good proxies are available. A thorough survey of the data availability indicates that most indicators can be derived from the existing datasets.

73.   Basically the same data can be presented in two different ways. The conceptual dashboard stresses the main trade-offs of human wellbeing 'here and now', 'elsewhere' and 'later'. The policy dashboard organizes the data in a more straightforward manner and classifies them along the lines of classic policy domains (for examples see annex 2 on data availability).

74.   The report ends with main conclusions and recommendations for further work in the field of sustainable development.

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