

# **Report by the Commission on the Measurement of Economic Performance and Social Progress**

---

**Professor Joseph E. STIGLITZ, Chair, Columbia University**

**Professor Amartya SEN, Chair Adviser, Harvard University**

**Professor Jean-Paul FITOUSSI, Coordinator of the Commission, IEP**



## Other Members

Bina AGARWAL	<i>University of Delhi</i>
Kenneth J. ARROW	<i>Stanford University</i>
Anthony B. ATKINSON	<i>Warden of Nuffield College</i>
François BOURGUIGNON	<i>School of Economics,</i>
Jean-Philippe COTIS	<i>Insee,</i>
Angus S. DEATON	<i>Princeton University</i>
Kemal DERVIS	<i>UNPD</i>
Marc FLEURBAEY	<i>Université Paris 5</i>
Nancy FOLBRE	<i>University of Massachusetts</i>
Jean GADREY	<i>Université Lille</i>
Enrico GIOVANNINI	<i>OECD</i>
Roger GUESNERIE	<i>Collège de France</i>
James J. HECKMAN	<i>Chicago University</i>
Geoffrey HEAL	<i>Columbia University</i>
Claude HENRY	<i>Sciences-Po/Columbia University</i>
Daniel KAHNEMAN	<i>Princeton University</i>
Alan B. KRUEGER	<i>Princeton University</i>
Andrew J. OSWALD	<i>University of Warwick</i>
Robert D. PUTNAM	<i>Harvard University</i>
Nick STERN	<i>London School of Economics</i>
Cass SUNSTEIN	<i>University of Chicago</i>
Philippe WEIL	<i>Sciences Po</i>

## Rapporteurs

Jean-Etienne CHAPRON	<i>INSEE</i>
<i>General Rapporteur</i>	
Didier BLANCHET	<i>INSEE</i>
Jacques LE CACHEUX	<i>OFCE</i>
Marco MIRA D'ERCOLE	<i>OCDE</i>
Pierre-Alain PIONNIER	<i>INSEE</i>
Laurence RIOUX	<i>INSEE/CREST</i>
Paul SCHREYER	<i>OCDE</i>
Xavier TIMBEAU	<i>OFCE</i>
Vincent MARCUS	<i>INSEE</i>



# Table of contents

---

## **EXECUTIVE SUMMARY**

### **I. SHORT NARRATIVE ON THE CONTENT OF THE REPORT**

<b>Chapter 1: Classical GDP Issues .....</b>	<b>21</b>
<b>Chapter 2: Quality of Life .....</b>	<b>41</b>
<b>Chapter 3: Sustainable Development and Environment .....</b>	<b>61</b>

### **II. SUBSTANTIAL ARGUMENTS PRESENTED IN THE REPORT**

<b>Chapter 1: Classical GDP Issues .....</b>	<b>85</b>
<b>Chapter 2: Quality of Life .....</b>	<b>143</b>
<b>Chapter 3: Sustainable Development and Environment .....</b>	<b>233</b>



## EXECUTIVE SUMMARY

### Why has this report been written?

- 1) In February 2008, the President of the French Republic, Nicholas Sarkozy, unsatisfied with the present state of statistical information about the economy and the society, asked, Joseph Stiglitz (President of the Commission), Amartya Sen (Advisor) and Jean Paul Fitoussi (Coordinator) to create a Commission, subsequently called “The Commission on the Measurement of Economic Performance and Social Progress” (CMEPSP). The Commission’s aim has been to identify the limits of GDP as an indicator of economic performance and social progress, including the problems with its measurement; to consider what additional information might be required for the production of more relevant indicators of social progress; to assess the feasibility of alternative measurement tools, and to discuss how to present the statistical information in an appropriate way.
- 2) In effect, statistical indicators are important for designing and assessing policies aiming at advancing the progress of society, as well as for assessing and influencing the functioning of economic markets. Their role has increased significantly over the last two decades. This reflects improvements in the level of education in the population, increases in the complexity of modern economies and the widespread use of information technology. In the “information society”, access to data, including statistical data, is much easier. More and more people look at statistics to be better informed or to make decisions. To respond to the growing demand for information, the supply of statistics has also increased considerably, covering new domains and phenomena.
- 3) What we measure affects what we do; and if our measurements are flawed, decisions may be distorted. Choices between promoting GDP and protecting the environment may be false choices, once environmental degradation is appropriately included in our measurement of economic performance. So too, we often draw inferences about what are good policies by looking at what policies have promoted economic growth; but if our metrics of performance are flawed, so too may be the inferences that we draw.
- 4) However, there often seems to be a marked distance between standard measures of important socio economic variables like economic growth, inflation, unemployment, etc. and widespread perceptions. The standard measures may suggest, for instance that there is less inflation or more growth than individuals perceive to be the case, and the gap is so large and so universal that it cannot be explained by reference to money illusion or to human psychology. In some countries, this gap has undermined confidence in official statistics (for example, in France and in the United Kingdom. only one third of citizens trust official figures, and these countries are not exceptions), with a clear impact on the way in which public discourse about the conditions of the economy and necessary policies takes place.
- 5) There may be several explanations for the gap between the statistical measurement of socio-economic phenomena and citizen perception of the same phenomena:

- The statistical *concepts* may be correct, but the measurement process may be imperfect.
  - In many cases, there are debates about what are the right concepts, and the appropriate use of different concepts.
  - When there are large changes in inequality (more generally a change in income distribution) gross domestic product (GDP) or any other aggregate computed *per capita* may not provide an accurate assessment of the situation in which most people find themselves. If inequality increases enough relative to the increase in average per capital GDP, most people can be worse off even though average income is increasing
  - The commonly used statistics may not be capturing some phenomena, which have an increasing impact on the well-being of citizens. For example, traffic jams may increase GDP as a result of the increased use of gasoline, but obviously not the quality of life. Moreover, if citizens are concerned about the quality of air, and air pollution is increasing, then statistical measures which ignore air pollution will provide an inaccurate estimate of what is happening to citizens' well-being. Or a tendency to measure gradual change may be inadequate to capture risks of abrupt alterations in the environment such as climate change.
  - The way in which statistical figures are reported or used may provide a distorted view of the trends of economic phenomena. For example, much emphasis is usually put on GDP although net national product (which takes into account the effect of depreciation), or real household income (which focuses on the real income of households within the economy) may be more relevant. These numbers may differ markedly. Then, GDP is not wrong *as such*, but wrongly used. What is needed is a better understanding of the appropriate use of each measure.
- 6) Indeed, for a long time there have been concerns about the adequacy of current measures of economic performance, in particular those solely based on GDP. Besides, there are even broader concerns about the relevance of these figures as measures of societal well-being. To focus specifically on the enhancement of inanimate objects of convenience (for example in the GNP or GDP which have been the focus of a myriad of economic studies of progress), could be ultimately justified – to the extent it could be – only through what these objects do to the human lives they can directly or indirectly influence. Moreover, it has long been clear that GDP is an inadequate metric to gauge well-being over time particularly in its economic, environmental, and social dimensions, some aspects of which are often referred to as *sustainability*.

### **Why is this report important?**

- 7) Between the time that the Commission began working on this report and the completion of this Report, the economic context has radically changed. We are now living one of the worst financial, economic and social crises in post-war history. The reforms in measurement recommended by the Commission would be highly desirable, even if we had not had the crisis. But some members of the Commission believe that the crisis provides heightened urgency to these reforms. They believe that one of the reasons why the crisis took many by surprise is that our measurement system failed us and/or market participants and government officials were not focusing on the right set of statistical

indicators. In their view, neither the private nor the public accounting systems were able to deliver an early warning, and did not alert us that the *seemingly* bright growth performance of the world economy between 2004 and 2007 may have been achieved at the expense of future growth. It is also clear that some of the performance was a “mirage”, profits that were based on prices that had been inflated by a bubble. It is perhaps going too far to hope that had we had a better measurement system, one that would have signalled problems ahead, so governments might have taken early measures to avoid or at least to mitigate the present turmoil. But perhaps had there been more awareness of the limitations of standard metrics, like GDP, there would have been less euphoria over economic performance in the years prior to the crisis; metrics which incorporated assessments of sustainability (e.g. increasing indebtedness) would have provided a more cautious view of economic performance. But many countries lack a timely and complete set of wealth accounts – the ‘balance sheets’ of the economy – that could give a comprehensive picture of assets, debts and liabilities of the main actors in the economy.

- 8) We are also facing a looming environmental crisis, especially associated with global warming. Market prices are distorted by the fact that there is no charge imposed on carbon emissions; and no account is made of the cost of these emissions in standard national income accounts. Clearly, measures of economic performance that reflected these environmental costs might look markedly different from standard measures.
- 9) If the view expressed in the preceding paragraphs is not necessarily shared by all members of the Commission, the whole Commission is convinced that the crisis is teaching us a very important lesson: those attempting to guide the economy and our societies are like pilots trying to steering a course without a reliable compass. The decisions they (and we as individual citizens) make depend on what we measure, how good our measurements are and how well our measures are understood. We are almost blind when the metrics on which action is based are ill-designed or when they are not well understood. For many purposes, we need better metrics. Fortunately, research in recent years has enabled us to improve our metrics, and it is time to incorporate in our measurement systems some of these advances. There is also consensus among the Commission members that better measures may enable us to steer our economies better through and out of crises. Many of the indicators put forward by the report will lend themselves to this purpose.
- 10) The report is about measurement rather than policies, thus it does not discuss how best our societies could advance through collective actions in the pursuit of various goals. However, as what we measure shapes what we collectively strive to pursue – and what we pursue determines what we measure - the report and its implementation may have a significant impact on the way in which our societies looks at themselves and, therefore, on the way in which policies are designed, implemented and assessed.
- 11) The Commission notes the important progress in statistical measurement that has occurred in recent years, and urges continued efforts to improve our statistical data base and the indicators that are constructed from this data base. The report indicates avenues for more or different measurement efforts in various domains, and we hope that it will influence future statistical policies in both developed and developing countries, as well as the work of international organisations that play a key role in the development of statistical standards worldwide.

**By whom has the report been written?**

- 12) This is a report written by economists and social scientists. The members of the Commission represent a broad range of specialisations, from national accounting to the economics of climate change. The members have conducted research on social capital, happiness, and health and mental well-being. They share the belief that it is important to build bridges between different communities – between the producers and users of statistical information, whatever their discipline – that have become increasingly distant in recent years. Commission members see their expertise as a complement to reports on similar topics that were written from a different perspective, for instance by scientists on climate change or by psychologists on mental health. Although the core of the report is rather technical, the summaries of the technical chapter have been written using, as much as possible, non-technical language.

**To whom is the report addressed?**

- 13) The Commission hopes that the Report will find a receptive audience among four distinct groups, and it has been written with that in mind. The Report is addressed, first of all, to political leaders. In this time of crises, when new political narratives are necessary to identify where our societies should go, the report advocates a shift of emphasis from a “production-oriented” measurement system to one focused on the well-being of current and future generations, i.e. toward broader measures of social progress.
- 14) Second, the report is aimed at reaching policy-makers who wish to get a better sense of which indicators are available and useful to design, implement and assess policies aimed at improving well-being and foster social progress. Policy-makers are reminded both of the richness and of the shortcomings of existing data but also of the fact that reliable quantitative information ‘does not grow on trees’ and significant investments need to be made to develop statistics and indicators that provide policymakers with the information they need to make the decisions confronting them.
- 15) Third, the report has been written for the academic community, statisticians, and intensive users of statistics. They are reminded of how difficult it can be to produce reliable data and of the numerous assumptions that underlay all statistical series. Academics will, hopefully, become more cautious in the confidence they place in certain statistics. Those in national statistical offices will, hopefully find helpful suggestions about areas where further developments might be particularly valuable.
- 16) Lastly, the report has been written for civil society organisations that are both users and producers of statistics. More generally, it is addressed to the public at large, whether from richer or poorer countries and whether rich or poor within societies. We hope that through a better understanding of the statistical data and indicators that are available (their strengths and limits), they can make a better assessment of the problems facing their societies. We hope the report will also serve journalists and the media who have a responsibility in enabling citizens to get a sense of what is happening in the society in which they are living. Information is a public good; the more we are informed about what is happening in our society, the better will our democracies be able to function.

### **What are the main messages and recommendations?**

- 17) The report distinguishes between an assessment of *current well-being* and an assessment of *sustainability*, whether this can last over time. Current well-being has to do with both economic resources, such as income, and with non-economic aspects of peoples' life (what they do and what they can do, how they feel, and the natural environment they live in). Whether these levels of well-being can be sustained over time depends on whether stocks of capital that matter for our lives (natural, physical, human, social) are passed on to future generations.

To organise its work, the Commission organized itself into three working groups, focusing respectively on: Classical GDP issues, Quality of life and Sustainability. The following main messages and recommendations arise from the report

#### ***Towards better measures of economic performance in a complex economy***

- 18) Before going beyond GDP and tackling the more difficult task of measuring well-being, it is worth asking where existing measures of economic performance need improving. Measuring production – a variable which among other things determines the level of employment – is essential for the monitoring of economic activity. The first main message of our report is that time has come to adapt our system of measurement of economic activity to better reflect the structural changes which have characterized the evolution of modern economies. In effect, the growing share of services and the production of increasingly complex products make the measurement of output and economic performance more difficult than in the past. There are now many products whose quality is complex, multi-dimensional and subject to rapid change. This is obvious for goods, like cars, computers, washing machines and the like, but is even truer for services, such as medical services, educational services, information and communication technologies, research activities and financial services. In some countries and some sectors, increasing “output” is more a matter of an increase in the quality of goods produced and consumed than in the quantity. Capturing quality change is a tremendous challenge, yet this is vital to measuring real income and real consumption, some of the key determinants of people's material well-being. Under-estimating quality improvements is equivalent to over-estimating the rate of inflation, and therefore to under-estimating real income. The opposite is true when quality improvements are over-stated.
- 19) Governments play an important part in today's economies. They provide services of a “collective” nature, such as security, and of a more “individual” nature, such as medical services and education. The mix between private and public provision of individual services varies significantly across countries and over time. Beyond the contribution of collective services to citizens' living standards, individual services, particularly education, medical services, public housing or public sports facilities, are almost certainly valued positively by citizens. These services tend to be large in scale, and have increased considerably since World War II, but, in many cases, they remain badly measured. Traditionally, measures have been based on the inputs used to produce these services (such as the number of doctors) rather than on the actual outputs produced (such as the number of particular medical treatments). Making adjustments for quality changes is even more difficult. Because outputs are taken to move in tandem with inputs

productivity change in the provision of these services is ignored. It follows that if there is positive (negative) productivity change in the public sector, our measures under (over)-estimate economic growth and real income. For a satisfactory measure of economic performance and living standards it is thus important to come to grips with measuring government output. (In our present, admittedly flawed, system of measurement based on expenditures, government output represents around 20% of GDP in many OECD countries and total government expenditure more than 40% for the OECD countries.)

- 20) While there are methodological disagreements about how to make the adjustments to quality or how to go about measuring government output, there is a broad consensus that adjustments should be made, and even about the principles which should guide such adjustments. The disagreements arise in the practical implementation of these principles. The Commission has addressed both the principles and the difficulties in implementations, in its Report.

### ***From production to well-being***

- 21) Another key message, and unifying theme of the report, is that the time is ripe for our measurement system to *shift emphasis from measuring economic production to measuring people's well-being*. And measures of well-being should be put in a context of sustainability. Despite deficiencies in our measures of production, we know much more about them than about well-being. Changing emphasis does not mean dismissing GDP and production measures. They emerged from concerns about market production and employment; they continue to provide answers to many important questions such as monitoring economic activity. But emphasising well-being is important because there appears to be an increasing gap between the information contained in aggregate GDP data and what counts for common people's well-being. This means working towards the development of a statistical system that complements measures of market activity by measures centred on people's well-being and by measures that capture sustainability. Such a system must, of necessity, be plural – because no single measure can summarize something as complex as the well-being of the members of society, our system of measurement must encompass a range of different measures. The issue of aggregation across dimensions (that is to say, how we add up, for example, a measure of health with a measure of consumption of conventional goods), while important, is subordinate to the establishment of a broad statistical system that captures as many of the relevant dimensions as possible. Such a system should not just measure *average* levels of well-being within a given community, and how they change over time, but also document the diversity of peoples' experiences and the linkages across various dimensions of people's life. There are several dimensions to well-being but a good place to start is the measurement of material well-being or living standards.

### ***Recommendation 1: When evaluating material well-being, look at income and consumption rather than production***

- 22) GDP is the most widely-used measure of economic activity. There are international standards for its calculation, and much thought has gone into its statistical and conceptual bases. Earlier paragraphs have emphasized some of the important areas where more progress is needed in its computation. As statisticians and economists know very well, GDP mainly measures market production – expressed in money units – and as such it is

useful. However, it has often been treated as if it were a measure of economic well-being. Conflating the two can lead to misleading indications about how well-off people are and entail the wrong policy decisions. Material living standards are more closely associated with measures of net national income, real household income and consumption – production can expand while income decreases or vice versa when account is taken of depreciation, income flows into and out of a country, and differences between the prices of output and the prices of consumer products.

*Recommendation 2: Emphasise the household perspective*

- 23) While it is informative to track the performance of economies as a whole, trends in citizens' material living standards are better followed through measures of household income and consumption. Indeed, the available national accounts data shows that in a number of OECD countries real household income has grown quite differently from real GDP per capita, and typically at a lower rate. The household perspective entails taking account of payments between sectors, such as taxes going to government, social benefits coming from government, and interest payments on household loans going to financial corporations. Properly defined, household income and consumption should also reflect in-kind services provided by government, such as subsidized health care and educational services. A major effort of statistical reconciliation will also be required to understand why certain measures such as household income can move differently depending on the underlying statistical source.

*Recommendation 3: Consider income and consumption jointly with wealth*

- 24) Income and consumption are crucial for assessing living standards, but in the end they can only be gauged in conjunction with information on wealth. A household that spends its wealth on consumption goods increases its current well-being but at the expense of its future well-being. The consequences of such behavior would be captured in a household's balance sheet, and the same holds for other sectors of the economy, and for the economy as a whole. To construct balance sheets, we need comprehensive accounts of assets and liabilities. Balance sheets for countries are not novel in concept, but their availability is still limited and their construction should be promoted. Measures of wealth are central to measuring sustainability. What is carried over into the future necessarily has to be expressed as stocks – of physical, natural, human and social capital. The right valuation of these stocks plays a crucial role, and is often problematic. There is also a need to “stress test” balance sheets with alternative valuations when market prices for assets are not available or are subject to bubbles and bursts. Some more direct non-monetary indicators may be preferable when the monetary valuation is very uncertain or difficult to derive.

*Recommendation 4: Give more prominence to the distribution of income, consumption and wealth*

- 25) Average income, consumption and wealth are meaningful statistics, but they do not tell the whole story about living standards. For example, a rise in average income could be unequally shared across groups, leaving some households relatively worse-off than others. Thus, average measures of income, consumption and wealth should be accompanied by indicators that reflect their distribution. Median consumption (income,

wealth) provides a better measure of what is happening to the “typical” individual or household than average consumption (income or wealth). But for many purposes, it is also important to know what is happening at the bottom of the income/wealth distribution (captured in poverty statistics), or at the top. Ideally, such information should not come in isolation but be linked, i.e. one would like information about how well-off households are with regard to different dimensions of material living standards: income, consumption and wealth. After all, a low-income household with above-average wealth is not necessarily worse-off than a medium-income household with no wealth. (The desirability of providing information on the “joint distribution” of the dimensions of people’s well-being will be raised once again in the recommendations below on how to measure quality of life.)

*Recommendation 5: Broaden income measures to non-market activities*

- 26) There have been major changes in how households and society function. For example, many of the services people received from other family members in the past are now purchased on the market. This shift translates into a rise in income as measured in the national accounts and may give a false impression of a change in living standards, while it merely reflects a shift from non-market to market provision of services. Many services that households produce for themselves are not recognized in official income and production measures, yet they constitute an important aspect of economic activity. While their exclusion from official measures reflects uncertainty about data more than conceptual difficulties, there has been progress in this arena; still, more and more systematic work in this area should be undertaken. This should start with information on how people spend their time that is comparable both over the years and across countries. Comprehensive and periodic accounts of household activity as satellites to the core national accounts should complement the picture. In developing countries, the production of goods (for instance food or shelter) by households plays an important role. Tracking the production of such home-produced goods is important to assess consumption levels of households in these countries.
- 27) Once one starts focusing on non-market activities, the question of leisure arises. Consuming the same bundle of goods and services but working for 1500 hours a year instead of 2000 hours a year implies an increase in one’s standard of living. Although valuation of leisure is fraught with difficulties, comparisons of living standards over time or across countries needs to take into account the amount of leisure that people enjoy.

**Well-being is multi-dimensional**

- 28) To define what well-being means a multidimensional definition has to be used. Based on academic research and a number of concrete initiatives developed around the world, the Commission has identified the following key dimension that should be taken into account. At least in principle, these dimensions should be considered simultaneously:
- i. Material living standards (income, consumption and wealth);
  - ii. Health;
  - iii. Education;
  - iv. Personal activities including work
  - v. Political voice and governance;

- vi. Social connections and relationships;
- vii. Environment (present and future conditions);
- viii. Insecurity, of an economic as well as a physical nature.

All these dimensions shape people's well-being, and yet many of them are missed by conventional income measures.

***Objective and subjective dimensions of well-being are both important***

*Recommendation 6: Quality of life depends on people's objective conditions and capabilities. Steps should be taken to improve measures of people's health, education, personal activities and environmental conditions. In particular, substantial effort should be devoted to developing and implementing robust, reliable measures of social connections, political voice, and insecurity that can be shown to predict life satisfaction.*

- 29) The information relevant to valuing quality of life goes beyond people's self-reports and perceptions to include measures of their "functionings" and freedoms. In effect, what really matters are the capabilities of people, that is, the extent of their opportunity set and of their freedom to choose among this set, the life they value. The choice of relevant functionings and capabilities for any quality of life measure is a value judgment, rather than a technical exercise. But while the precise list of the features affecting quality of life inevitably rests on value judgments, there is a consensus that quality of life depends on people's health and education, their everyday activities (which include the right to a decent job and housing), their participation in the political process, the social and natural environment in which they live, and the factors shaping their personal and economic security. Measuring all these features requires both objective and subjective data. The challenge in all these fields is to improve upon what has already been achieved, to identify gaps in available information, and to invest in statistical capacity in areas (such as time-use) where available indicators remain deficient.

*Recommendation 7: Quality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way*

- 30) Inequalities in human conditions are integral to any assessment of quality of life across countries and the way that it is developing over time. Most dimensions of quality-of-life require appropriate separate measures of inequality, but, as noted in par. 25, taking into account linkages and correlations. Inequalities in quality of life should be assessed across people, socio-economic groups, gender and generations, with special attention to inequalities that have arisen more recently, such as those linked to immigration.

*Recommendation 8: Surveys should be designed to assess the links between various quality-of-life domains for each person, and this information should be used when designing policies in various fields*

- 31) It is critical to address questions about how developments in one domain of quality of life affect other domains, and how developments in all the various fields are related to income. This is important because the consequences for quality of life of having multiple disadvantages far exceed the sum of their individual effects. Developing measures of

these cumulative effects requires information on the “joint distribution” of the most salient features of quality of life across everyone in a country through dedicated surveys. Steps in this direction could also be taken by including in all surveys some standard questions that allow classifying respondents based on a limited set of characteristics. When designing policies in specific fields, impacts on indicators pertaining to different quality-of-life dimensions should be considered jointly, to address the interactions between dimensions and the needs of people who are disadvantaged in several domains

*Recommendation 9: Statistical offices should provide the information needed to aggregate across quality-of-life dimensions, allowing the construction of different indexes.*

- 32) While assessing quality-of-life requires a plurality of indicators, there are strong demands to develop a single summary measure. Several summary measures of quality of life are possible, depending on the question addressed and the approach taken. Some of these measures are already being used, such as average levels of life-satisfaction for a country as a whole, or composite indices that aggregate averages across objective domains, such as the Human Development Index. Others could be implemented if national statistical systems made the necessary investment to provide the data required for their computation. These include measures of the proportion of one’s time in which the strongest reported feeling is a negative one, measures based on counting the occurrence and severity of various objective features of people’s lives, and (equivalent-income) measures based on people’s states and preferences.
- 33) The Commission believes that in addition to objective indicators of well-being, subjective measures of the quality-of-life should be considered.

*Recommendation 10: Measures of both objective and subjective well-being provide key information about people’s quality of life. Statistical offices should incorporate questions to capture people’s life evaluations, hedonic experiences and priorities in their own survey.*

- 34) Research has shown that it is possible to collect meaningful and reliable data on subjective as well as objective well-being. Subjective well-being encompasses different aspects (cognitive evaluations of one’s life, happiness, satisfaction, positive emotions such as joy and pride, and negative emotions such as pain and worry): each of them should be measured separately to derive a more comprehensive appreciation of people’s lives. Quantitative measures of these subjective aspects hold the promise of delivering not just a good measure of quality of life per se, but also a better understanding of its determinants, reaching beyond people’s income and material conditions. Despite the persistence of many unresolved issues, these subjective measures provide important information about quality of life. Because of this, the types of question that have proved their value within small-scale and unofficial surveys should be included in larger-scale surveys undertaken by official statistical offices.

***Use a pragmatic approach towards measuring sustainability***

- 35) Measuring and assessing sustainability has been a central concern of the Commission. Sustainability poses the challenge of determining if at least the current level of well-being can be maintained for future generations. By its very nature, sustainability involves the future and its assessment involves many assumptions and normative choices. This is

further complicated by the fact that at least some aspects of environmental sustainability (notably climate change) is affected by interactions between the socio-economic and environmental models followed by different countries. The issue is indeed complex, more complex than the already complicated issue of measuring current well-being or performance.

*Recommendation 11: Sustainability assessment requires a well-identified dashboard of indicators. The distinctive feature of the components of this dashboard should be that they are interpretable as variations of some underlying “stocks”. A monetary index of sustainability has its place in such a dashboard but, under the current state of the art, it should remain essentially focused on economic aspects of sustainability.*

- 36) The assessment of sustainability is complementary to the question of current well-being or economic performance, and must be examined separately. This may sound trivial and yet it deserves emphasis, because some existing approaches fail to adopt this principle, leading to potentially confusing messages. For instance, confusion may arise when one tries to combine current well-being and sustainability into a single indicator. To take an analogy, when driving a car, a meter that added up in one single number the current speed of the vehicle and the remaining level of gasoline would not be of any help to the driver. Both pieces of information are critical and need to be displayed in distinct, clearly visible areas of the dashboard.
- 37) At a minimum, in order to measure sustainability, what we need are indicators that inform us about the change in the quantities of the different factors that matter for future well-being. Put differently, sustainability requires the simultaneous preservation or increase in several “stocks”: quantities and qualities of natural resources, and of human, social and physical capital.
- 38) There are two versions to the stock approach to sustainability. One version just looks at variations in each stock separately, assessing whether the stock is increase or decreasing, with a view particularly to doing whatever is necessary to keep each above some critical threshold. The second version converts all these assets into a monetary equivalent, thereby implicitly assuming substitutability between different types of capital, so that a decrease in, say, natural capital might be offset by a sufficient increase in physical capital (appropriately weighted). Such an approach has significant potential, but also several limitations, the most important being the absence of many markets on which valuation of assets could be based. Even when there are market values, there is no guarantee that they adequately reflect how the different assets matter for future well-being. The monetary approach requires imputations and modelling which raise informational difficulties. All this suggests starting with a more modest approach, i.e. focusing the monetary aggregation on items for which reasonable valuation techniques exist, such as physical capital, human capital and certain natural resources. In so doing, it should be possible to assess the “economic” component of sustainability, that is, whether or not countries are over-consuming their economic wealth.

### ***Physical indicators for environmental pressures***

*Recommendation 12: The environmental aspects of sustainability deserve a separate follow-up based on a well-chosen set of physical indicators. In particular there is a need for a clear*

*indicator of our proximity to dangerous levels of environmental damage (such as associated with climate change or the depletion of fishing stocks.)*

39) For the reasons mentioned above, placing a monetary value on the natural environment is often difficult and separate sets of physical indicators will be needed to monitor the state of the environment. This is in particular the case when it comes to irreversible and/or discontinuous alterations to the environment. For that reason members of the Commission believe in particular that there is a need for a clear indicator of increases in atmospheric concentrations of greenhouse gases associated with proximity to dangerous levels of climate change (or levels of emissions that might reasonably be expected to lead to such concentrations in the future. Climate change (due to increases in atmospheric concentrations of greenhouse gases) is also special in that it constitutes a truly global issue that cannot be measured with regard to national boundaries. Physical indicators of this kind can only be identified with the help of the scientific community. Fortunately, a good deal of work has already been undertaken in this field.

### **What is next?**

- 40) The Commission regards its report as opening a discussion rather than closing it. The report hints at issues that ought to be addressed in the context of more comprehensive research efforts. Other bodies, at the national and international level, should discuss the recommendations in this report, identify their limits, and see how best they can contribute to this broad agenda, each from its own perspective.
- 41) The Commission believes that a global debate around the issues and recommendations raised in this report provides an important venue for a discussion of societal values, for what we, as a society, care about, and whether we are really striving for what is important
- 42) At the national level, round-tables should be established, with the involvement of stakeholders, to identify and prioritise those indicators that carry to potential for a shared view of how social progress is happening and how it can be sustained over time.
- 43) The Commission hopes that this Report will provide the impetus not only for this broader discussion, but for on-going research into the development of better metrics that will enable us to assess better economic performance and social progress.