

One year of implementation of the Stiglitz Commission recommendations

Towards a new generation of indicators

One year ago the Commission on the Measurement of Economic Performance and Social Progress, known as the Stiglitz-Sen-Fitoussi Commission, handed out its report to the President of France. The report - which took as a starting point the inadequacy of current statistical indicators to enlighten choices that will shape the future of society - contains recommendations intended to guide scientific investigation into progress towards the development of new and more relevant indicators able to meet the challenges of sustainable development. The report, published in 2009, was not intended to close discussions and thinking on these issues but rather to spur and guide the ongoing work that was already under way. This work, originally rather scientific by nature, aims at disseminating progressively new forms of official statistics. One year on, the moment is opportune to shed the light on what has been accomplished and what is foreseen in terms of data and indicators availability.

The gap between statistical measurements and public perception of economic performance and social 'progress' has been debated widely. It has been particularly true with Gross Domestic Product (GDP) considered as an overall indicator of such progress. Beyond this, numerous observers point out the inadequacy of current measurement instruments to make appropriate choices about the future of society. But decisions are affected by measurement tools: what we measure and the quality of the effective metrics determine the soundness and efficiency of the policies and actions undertaken, for both decision-makers and individuals.

The 'Stiglitz-Sen-Fitoussi' Commission, set up at the request of the President of France, reflected further from the identification of this inadequacy to scrutinise the possible improvements of the measuring instruments. In September 2009, the Commission handed out its report, structured in three parts: 'Classical GDP issues', 'Quality of life' and 'Sustainable development and the environment'. Its executive summary puts forward 12 recommendations (see box) intended to drive the scientific work underway in view to design and release new more relevant indicators, meeting the current challenge of apprehending social progress beyond the production of goods and services. Such indicators also aim at measuring the capacity for a long-term development of societies, so as not to overfeed growth today at the expense of future growth, thereby reducing the chances for future generations to meet their own needs.

Some important recommendations

The Commission advises against focusing on a single summary indicator since, whatever the methodology envisaged, aggregation of disparate data is questionable in essence and, above all, because such an indicator could not possibly encompass simultaneously all the complexity of economic activity, quality of life and sustainability of development. The Commission underscores the appropriateness of GDP as a measure of production in the market economy and consequently avoids suggesting that it should be abandoned. It recommends bringing in other approaches and indicators to measure wellbeing. Furthermore, the Commission advises against composite indicators which are normative since they aggregate heterogeneous information by assigning scores and weights. Nor does it adopt the 'ecological footprint', as it also relies on specific choices for aggregation that are potentially questionable and because most of the information carried by the footprint is explained by CO₂ emissions. It is therefore simpler to use these emissions to measure the **carbon footprint** expressing human pressure on the climate, which was done when it was adopted amongst the 15 Sustainable Development Indicators (SDIs) associated with the National Sustainable Development Strategy (NSDS) for 2010-2013.

The Commission emphasises the great complexity of measuring sustainability, since it involves both the present and the future, but nonetheless proposes some tracks to follow. Where natural resources are



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concerned, for which the stake is to ascertain whether they are being over-consumed or not, **the report recommends choosing indicators that can be interpreted as variations of underlying stocks**. It advises against the calculation of a 'green GDP' since monetary assessment of environmental damage is extremely difficult and, above all, does not give any indication about change in stocks of natural resources, thereby failing to signal possible over-consumption and consequently to measure the sustainability of development.

The Commission finds interest for the World Bank's **net adjusted savings** indicator since it integrates physical and human capital and the natural resources traded on markets. It suggests that an indicator of this family could be adopted as a monetary indicator of sustainability if complemented with physical indicators measuring pressures on the environment.

One year later, a number of recommendations are being implemented

France's President requested that the different administration services implement the Commission's recommendations without delay. One year after publishing of report, *Insee* (national statistics institute) and the *Service de l'Observation et des Statistiques du Commissariat Général au Développement Durable* (CGDD-SOeS - observation and statistics directorate of the office of the Commissioner General for sustainable development) started to implement most of the recommendations. Some of this work has already been published and it will continue in the coming months and years.

It is mainly in the third part of the report that the CGDD can offer appropriate solutions and make valuable contributions in the short and medium terms (see concrete examples presented thereafter); the other two parts fall rather in the sphere of competence of *Insee* and of the statistical services in other ministries.

But the CGDD is also contributing to these other parts. In the first part, on measurement of GDP, the report recommends emphasizing the household perspective and putting the focus on consumption or income, rather than a business perspective and a focus on production. These recommendations are mainly relevant for national accounting, but they have also influenced the design of new indicators such as the **carbon footprint**. Similarly, the second part, on quality of life, sheds the light on some dimensions of wellbeing, either objective or perceived. Social perception of the environment, of environmental risks, of quality of life in housing (damp dwellings, noise, etc.) and daily environmental habits are all new themes addressed in available and forthcoming publications. The population and housing exposed to natural hazards, such as floods, have also been estimated.

Fifteen sustainable development indicators (SDI) have been selected, to support the new NSDS adopted by the *Comité interministériel du développement durable* (CIDD - Interministerial Committee for Sustainable Development) in July 2010.

Among these, the environmental SDI follow the recommendations of the Stiglitz-Sen-Fitoussi Commission, as

several of them can be interpreted as variations of some 'stock', of capital used in the assessment of human wellbeing. Consequently, in each of their area, they indicate whether today's growth is depleting the capital that future generations will need to allow for tomorrow's growth. This is in particular the case for the carbon footprint, for material consumption **per capita** (see below), but also for artificialisation of land, or, where biodiversity is concerned, for common birds population. Moreover, these indicators could be the foundation of the 'set of physical indicators of environmental pressures' also recommended by the Commission.

The carbon footprint of final domestic demand

The Stiglitz-Sen-Fitoussi Commission recommends to use the carbon footprint indicator. It measures CO₂ emissions generated, not by businesses in their production activities, but by consumers when they purchase products. This innovative change in the point of view makes it possible to take into account the imports, component of household consumption, in order to measure the CO₂ emissions generated abroad as a result of domestic consumption.

The greenhouse gas (GHG) inventories drawn up under the Climate Convention are based on the national perimeters of the signatory countries. However, in a globalised economy it appears necessary to take into account the emissions embedded in all goods and services consumed, including those generated beyond national boundaries.

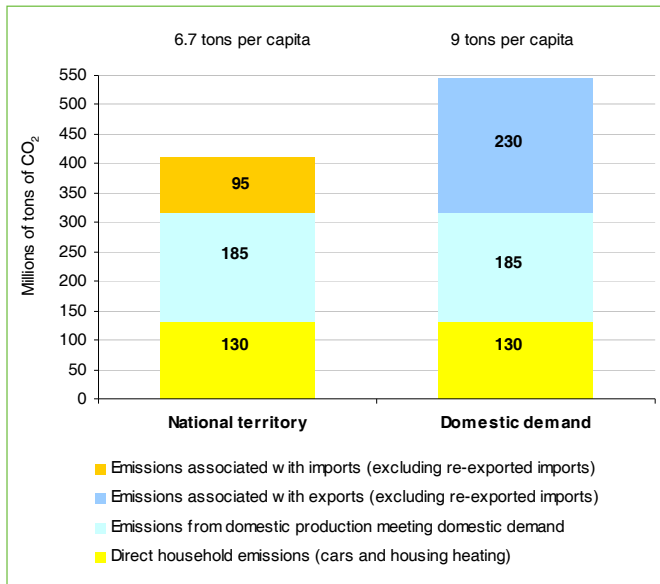
Widening the monitoring of GHG emissions beyond national territory to include the CO₂ equivalent component of international trade allows an appreciation of the global impact of a country's consumption on the climate, which is one of the global commons.

Hence, this 'carbon footprint', measured from an 'emissions embedded in domestic consumption' standpoint—wherever in the world the CO₂ emissions take place—provides the environmental pressures generated by each country with a more consistent picture than the footprint for 'emissions within national territory'. It is therefore more suitable for international comparisons.

A first estimate for France, with CO₂ emissions only, was made in 2005, the year for which the most complete data are available. It shows that France's imports alone are responsible for the emission of 230 million tons of CO₂ generated abroad to meet final domestic demand (excluding re-exported imports) out of a total of 545 million tons of CO₂. After taking account of all foreign trade, the resulting French carbon footprint for final demand per capita is 9 tons per year, whereas an average of 6.7 tons of CO₂ are emitted per capita within the French territory (see *Graphic 1*).

This indicator is relatively new and its estimation requires detailed and homogeneous data for a number of countries. It explains why there are currently few equivalent figures allowing for international comparisons. The OECD conducted a similar study in 2009 but it relates to results for 2000 (see *Table 1*). It shows that the carbon footprint was in 2000 significantly lower for France than for the other OECD countries.

Graphic 1 - In 2005, the carbon footprint for a French inhabitant amounted to 9 tons of CO₂ per year, taking account of imports and exports, i.e. of around 30% of the quantity emitted within the national territory



Note: CO₂ emitted in continental French territory in 2005, excluding CO₂ emitted from burning of biomass for energy production as well as from use or change of land and forests (UTCF).

Source: SOeS from Citepa, Insee, Eurostat and IEA. 2010

Table 1 - Comparison of carbon footprints in France and other countries

In tons of CO₂

Country	Per capita footprint from final demand standpoint (2000)
France	8.7
Germany	11.9
Italy	9.6
United Kingdom	12.3
United States	23.1
Japan	11.6
OECD countries	13.6
China	0.8
Russia	6.3

Source: OCDE 2009

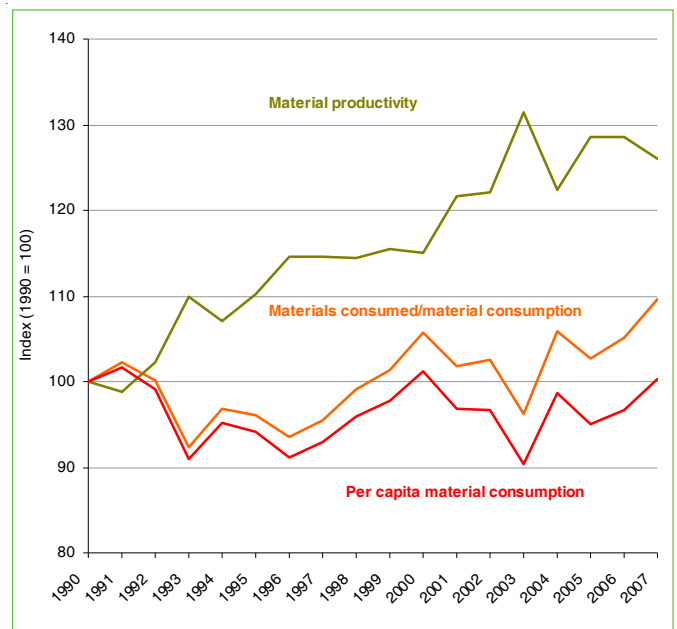
Material productivity and material consumption

Material productivity is another among the 15 SDI connected with new challenges to be met: reorienting our production and consumption towards a sober economy less intensive in resources is indeed a major stake. The EU sustainable development strategy (SDS), like the French SDS, aims at decoupling economic growth and the associated environmental impacts connected with the use of natural resources and raw materials. Progress towards decoupling can be evidenced by material productivity indicators.

Indeed, material productivity gives a picture of an economy's efficiency by establishing the link between economic growth and the use of materials extracted within the national territory or imported as raw materials or finished goods. In this sense, it is an indicator of sustainable production, whose development is recommended by the Commission. Material productivity is equal to GDP divided by apparent domestic consumption, like productivity of labour is GDP divided by employment. For France in 2007, it was €1.90 of GDP/kg of material used, to be compared with €1.71 for EU-15. A study conducted this year by the CGDD/SOeS shows that material productivity increased in France by 26 per cent between 1990 and 2007: we produce more today with the same quantity of materials.

Material consumption is an environmental pressure indicator (a type of indicator also recommended) as it measures what is taken globally from nature. Its evolution, compared to the evolution of population, gives a hint on the direction taken towards or away from sober consumption. Per capita material consumption was 14.3 tons in France in 2007, similar to the 1990 level. It was 16 tons in Germany and 20 tons for the EU-15 (see Graphic 2 and Table 4). But the 'hidden flows' associated with imports, exports and unused materials, are not accounted for in the apparent domestic materials consumption. In France in 2007, these were estimated at 12 tons per capita, to be added to the apparent consumption. Unfortunately, these results cannot be compared yet with those of other countries, since homogenous international statistics are missing on this subject.

Graphic 2 - Material productivity in France increased by 26% between 1990 and 2007; however, per capita material consumption was stable



Note: continental France and overseas regions. Apparent domestic material consumption aggregates (in tons) 'fossil energy', mineral and agricultural products extracted from national territory or imported as raw materials or finished products, minus exports.

Source: SOeS, Insee 2010

Table 2 - Comparison of material consumption in France and other countries

In tons per capita

Country	Apparent domestic material consumption (2007)
France	14.3
Germany	16.0
Italy	13.6
United Kingdom	12.4
Spain	19.7
EU-15	20.0
EU-27	16.5

Note: consumption including hidden flows (among which those associated with imports) is not available per country.

Source : Eurostat

These developments are also supported at the international level

Implementing the recommendations of the Stiglitz-Sen-Fitoussi report will be all the more beneficial if the ensuing work is carried out in cooperation with other countries. **In this international context**, several initiatives under way are noticeable :

- the Eurostat-Insee partnership associating the National Statistical Institutes of 15 other EU countries. Four Task Forces have been established, three of which correspond to the chapters of the report and one dealing with coordination activities. The CGDD-SOeS represents France in the 'Environmental Sustainability' Task Force, set up in May 2010.
- the Sarkozy-Merkel request for a Franco-German report on the issue of 'What is growth in the 21st century, what is prosperity for highly developed industrial nations?'. The report is to be built on the Stiglitz-Sen-Fitoussi report. It is the responsibility of the *Conseil d'analyse économique* (Economic Analysis Council) for France and of the 'Five Wise Men' Economic Council for Germany. A conference is planned in Berlin, in December 2010, with submission of the report to the two commissioning partners.
- the OECD has incorporated the Stiglitz-Sen-Fitoussi report's recommendations into its work programme and the green growth strategy.
- the United Nations Statistics Commission has decided to add a 'Stiglitz' item to the agenda of its 2011 meeting.

For more information

Recent publications from CGDD-SOeS:

- *L'exposition aux risques environnementaux davantage ressentie dans la grandes villes*. Le point sur N° 11. April 2009.
- *Matières mobilisées par l'économie française*. Études & documents N° 6. June 2009.
- *La consommation intérieure de matières par habitant est stable*. Le point sur N° 41. January 2010.
- *Les indicateurs de développement durable*. La Revue du CGDD. January 2010 (10 articles, 100 pages).
- *An expert examination of the Ecological footprint: an expert's view*. Études & documents N° 16. January 2010.
- *10 key environmental indicators for France*. In *Repères*, 2010 issue. April 2010.
- *Données de synthèse sur la biodiversité*. RéférenceS. May 2010.
- *Les Français et la biodiversité*. Le Point sur N° 55. June 2010.
- *Les opinions et les pratiques environnementales des ménages*. In *L'environnement en France* RéférenceS. June 2010.
- *Les enjeux exposés aux risques majeurs*. In *L'environnement en France*. RéférenceS. July 2010.
- *Les indicateurs de la stratégie nationale de développement durable 2010-2013*. Repères. July 2010. (English translation underway)
- *CO₂ et activités économiques de la France: Tendances 1990-2007 et facteurs d'évolution*. Études & documents N° 27. August 2010.
- *Opinions et pratiques environnementales des Français en 2009*. Chiffres & statistiques N° 153. September 2010.

CGDD-SOeS website:

www.statistiques.developpement-durable.gouv.fr

Insee publications:

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One year of implementation of the Stiglitz Commission recommendations

Towards a new generation of indicators (cont'd)

The three parts of the Stiglitz-Sen-Fitoussi report, its 12 recommendations, and completed or forthcoming corresponding work

Part 1: GDP related issues

Recommendations

- R1:** Look at income and consumption rather than production
- R2:** Emphasise the household perspective
- R3:** Consider income and consumption jointly with wealth
- R4:** Give more prominence to the distribution of income consumption and wealth
- R5:** Broaden income measures to non-market activities

Done and disseminated in 2009 and 2010 (1st half) in Insee publications

Recommendations

- R1 and R4:** inequalities between households in terms of income and consumption in national accounts
- R2 and R4:** taking into account social transfers in kind (education, health, etc.) when assessing inequalities
- R1, R2 and R4:** evolution of inequalities in standard of living between 1996 and 2007
- R2 and R3:** national economic wealth in 2009
- R1, R2 and R4:** evolution of very high incomes between 2004 and 2007
- R1 and R12:** a new approach to household consumption from national accounts: CO₂ emissions due to final household consumption per household category (jointly with CGDD-SOeS)

For further detail, see: www.insee.fr

Forthcoming

Recommendations

- R2:** 10 years evolution of households' purchasing power per household category
- R3:** a breakdown of households' wealth according to five household categories.
- R3:** households inequalities of wealth
- R2 and R5:** taking account of households' domestic activities as a complement to GDP, from time scheduling surveys

For further detail, see: www.insee.fr

Part 2: Quality of life

Recommendations

- R6:** 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.
- R7:** Quality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way.
- R8:** 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.
- R9:** Statistical offices should provide the information needed to aggregate across quality-of-life dimensions, allowing the construction of different indexes.
- R10:** 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.

Done and disseminated**Recommendations**

R6: estimates of populations and housing exposed to natural hazards (CGDD-SOeS)

R6 and R8: surveys on social perception of the environment, perception of risk and on sensitivity of French people to biodiversity (CGDD-SOeS)

R7 and R9: evolution of living standards, productivity and wellbeing over a long period (Insee).

Forthcoming**Recommendations**

R6 and R7: knowledge of bad housing (Insee)

R6, R7 and R8: social participation, membership of associations (Insee)

R6 to R9: objective measurement of quality of life (Insee)

R6, R7 and R9: time spent by households in their different activities (work, leisure, domestic, etc.) and how they perceive those activities (Insee)

R10: subjective appreciation of wellbeing (Insee)

For more detail, see: www.insee.fr

Part 3: Sustainable development and environment**Recommendations**

R11: 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.

R12: The environmental aspects of sustainability deserve a separate follow-up based on a well-chosen set of physical indicators.

Done**Recommendations**

R11 and R12: a table of 15 Sustainable Development Indicators for France is now associated with the NSDS (produced by CGDD-SOeS and Insee) and was presented in short booklet format at the meeting of the CIDD that addressed the NSDS. There are also 35 second level sustainable development indicators also associated with the key challenges for the NSDS and four context indicators (*not linked to NSDS challenges*).

Several key NSDS indicators 'can be interpreted as variations of underlying stocks' (R11): per capita material consumption, carbon footprint of final demand, changes in common bird populations, and expansion of the artificialisation of land. These can constitute the foundation of a set of physical indicators of environmental pressures (R12).

A joint action commission of the 'Governance at five' type and a national conference to define sustainable development indicators (organisers: CGDD, Cese, Criis - *general recommendation from conclusion to report*).

R12: France's 'carbon footprint': CO₂ emissions arising from final demand, including those due to imports (CGDD-SOeS)

R11 and R12: material consumption including that due to imports (CGDD-SOeS)

R12: compendium of biodiversity indicators (CGDD-SOeS)

R3 and R11: estimation of costs of environmental damage not borne by the economy: the case of global warming (CGDD-SOeS)

R11 and R12: An expert examination of the Ecological footprint (CGDD-SOeS)

R11: report on the biodiversity economy and environmental services (CAS)

R11: net adjusted savings and other approaches to sustainability, some theoretical bases (Insee)

Forthcoming (2nd half 2010-2011)**Recommendations**

R11: estimation of CO₂ component of a household consumption basket (CGDD-SOeS, Ademe)

R11 and R12: 1st estimate of France's 'water footprint' using same methodology as for the carbon footprint (CGDD-SOeS)

R12: development of a territorial potential of biodiversity indicator (CGDD-SOeS, IGN, MNHN, Dreif)

R11: work in progress on sustainable development indicators (CGDD-SOeS and Insee) and on unpaid costs of depletion of natural resources (CGDD-SOeS)

R11: report from *Commission des comptes et de l'économie de l'environnement* (Environmental accounts and economy Commission) on economic drivers for conservation of biodiversity and ecosystem services (CGDD-Seeidd).

For what has been done and disseminated, see bibliographic references:

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- www.statistiques.developpement-durable.gouv.fr

- www.insee.fr