

## Experience in the elaboration and use of sustainable development indicators for the European Union

Paper submitted to workshop on indicators of sustainable development,  
Laval University, Quebec, Canada, 1 June 2006

Graham Lock<sup>1</sup>  
Eurostat<sup>2</sup> Unit D1: Key indicators for European policies  
Commission of the European Communities  
L-2920 Luxembourg  
Tel. +352 4301 33406  
Fax +352 4301 30039  
email Graham.Lock@ec.europa.eu

**Abstract:** This paper describes the experiences of Eurostat in elaborating and using sustainable development indicators. Early work involved supporting UNCSA in elaborating a global core set of indicators and subsequent testing. More recently a set of indicators designed to monitor the EU sustainable development strategy has been developed. The principle difficulty encountered has been in the conceptualisation of sustainability itself, and in the inadequacy of current frameworks to encompass the complex multi-dimensional nature of the subject. The final section of this paper describes some further actions needed to improve and develop the indicator set.

### BACKGROUND AND EARLY STEPS

As a signatory of Agenda 21 and the Johannesburg plan of implementation, the European Union has committed itself to the process of global sustainable development. Chapter 40 of Agenda 21 called on countries and the international community to develop indicators of sustainable development. The UN Commission on Sustainable Development (UNCSA) has stated that "such indicators are needed to increase focus on sustainable development and to assist decision-makers at all levels to adopt sound national sustainable development policies".

Since this work began in 1993, Eurostat has supported the efforts of UNCSA in developing a global set of indicators. These indicators were initially elaborated within the "four pillar" (economic, social, environmental, institutional) and "DSR" (driving force, state, response) framework.

In order to assess their suitability for monitoring progress towards sustainable development in different countries and regions, UNCSA organised the testing of the 132 indicators of the initial list over the period 1996 to 1999. Eurostat participated in this testing phase by compiling and publishing 46 of the UN indicators for the 12 countries of the EU of that time as well as Iceland, Norway, Switzerland, the United States and Japan<sup>3</sup>. The remaining indicators were not compiled due mainly to their lack of relevance to EU countries or the lack of comparable data from a sufficient number of countries. The results of this testing phase were discussed at the International Workshop on CSD Indicators of Sustainable Development held in Barbados in December 1999. An important conclusion was that "indicators have to be adapted to country specific

---

<sup>1</sup> The views expressed in this paper are those of the author and do not necessarily represent those of the European Commission.

<sup>2</sup> Eurostat is the Directorate-General of the European Commission responsible for the provision of statistical support across Commission Services and for the coordination and governance of statistics in the European Union.

<sup>3</sup> Eurostat (1997), *Indicators of sustainable development: A pilot study following the methodology of the United Nations Commission on Sustainable Development*, Office for Official Publications of the European Communities, Luxembourg.

conditions and requirements due to different priorities and circumstances in each country. A process of experimentation and iteration is often necessary to arrive at the most suitable list of indicators for a specific country". A further conclusion of the testing phase was that in order to emphasise policy issues, the indicators should be arranged in policy-relevant themes and sub-themes rather than according to their DSR category.

After deliberating on the results of the testing phase, the UN produced a revised list of 59 core indicators arranged in a more policy-oriented thematic framework. On the basis of this list, and taking account of the need to adapt to the specific conditions and priorities of each country, Eurostat embarked on a second compilation. On this occasion 63 indicators were published<sup>4</sup>, and although many of them were identical or similar to the UN indicators, the remainder were conceived to cover policy issues of importance within the EU but insufficiently covered in the UNCSO list. In line with the UN work, the indicators were arranged within four chapters representing the four pillars, each chapter being divided into themes and sub-themes. However, despite much interest in the two publications, there is no evidence that the indicators were ever used in the context of policy development.

#### **AN EU STRATEGY FOR SUSTAINABLE DEVELOPMENT**

Soon after this second publication, the European Council, meeting in Gothenburg in June 2001, launched an EU strategy for sustainable development. Although the Treaty establishing the European Communities sets sustainable development as an overarching concept underpinning all Union policies, prior to this declaration there had been no explicit statement as to how sustainable development was to be implemented, except in the area of environmental integration. The adoption of an explicit strategy led to the realisation that a set of indicators specifically tailored for the EU should be developed.

#### **... AND THE RESPONSE FROM THE EUROPEAN STATISTICAL SYSTEM**

In September 2001, a task force was established to develop a common response from the European Statistical System to the need for a set of EU indicators on sustainable development. This task force met nine times over the next three years. In addition to experts from 16 European countries, 12 policy Directorates-General of the Commission participated at one time or another. Further documentation can be found on a dedicated online interest group<sup>5</sup>.

#### **What to measure and how to structure the indicators**

The task force deliberated on a variety of key questions. One of the initial issues confronted was how to define the scope and purpose of the indicators. What should be measured? Should it be sustainable development per se? And, if so, how should sustainable development be defined? The Brundtland phrase about meeting the needs of the present without compromising the needs of future generations is notoriously difficult to turn into an operational definition, and indeed the Brundtland report elaborated a complex concept of sustainable development that went far beyond that single resonant phrase. Another, more analytical attempt in the Brundtland report at defining sustainable development was as "a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human

<sup>4</sup> Eurostat (2001), *Measuring progress towards a more sustainable Europe: Proposed indicators for sustainable development*, Office for Official Publications of the European Communities, Luxembourg.

<sup>5</sup> <http://forum.europa.eu.int/Members/irc/dsis/susdevind/home>

needs and aspirations". There are clearly a number of principles involved, including intergenerational and global (intragenerational) equity and justice, sustained economic growth that does not damage the environment or impoverish the local natural resource base, the eradication of poverty, participation in decision-making.

An issue related to the question of what to measure was how to structure and arrange the indicators into a coherent framework. It was generally recognised that some sort of framework to organise the indicators was essential, and that this framework should reflect the conceptual basis of what we are measuring. However, since sustainable development encompasses short-, medium- and long-term priorities as well as the integration of economic performance, social cohesion and environmental protection for present and future generations, it is not surprising that experts from different disciplines have produced different kinds of framework in accordance with the boundaries and concepts of their respective academic backgrounds. Conceptual approaches and aggregation methods such as green accounting, genuine savings, capital, human development index, ecological footprint, environmental sustainability index were discussed. All were viewed as having some merit, but no one framework seemed capable of covering the entire complexity and inter-relationships of sustainable development.

In the end, it was proposed that the answer to the two questions of what to measure and how to structure the indicators should be derived from the intended use. Consistent with the thinking of the UN, it was considered that the principal purpose of the indicators was to assist policy makers and inform their decision making. We should therefore provide indicators based on the principles and objectives of the EU SD strategy. And, again consistent with the UN model, the indicators would be best organised within a thematic structure that would be readily understood by policy makers.

### **Making sense of the strategy**

It was then necessary to develop a clear understanding of the EU strategy itself. This proved more difficult than expected. The Commission had presented a proposal<sup>6</sup> for a strategy to the Gothenburg European Council. This proposal did not provide a complete vision of sustainable development but focused "on a small number of problems which pose severe or irreversible threats to the future well-being of European society". The proposal also left unclear the distinction between the Lisbon<sup>7</sup> and sustainable development strategies. This lack of a clear distinction between the two strategies was maintained in the conclusions of the Gothenburg European Council.

The Commission followed its initial proposal with supplementary proposals on governance<sup>8</sup> and the global dimension of sustainable development<sup>9</sup>.

The priority areas of the initial proposal as well as the additional headings of governance and global partnership were then adopted by the task force as the main headings forming the backbone of an indicator system. In the course of discussions two further issues, (production and consumption patterns, and economic development) which are generally considered to cut across the eight other headings, were added instead as separate headings.

<sup>6</sup> A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development, COM(2001)264.

<sup>7</sup> In the Lisbon European Council in March 2000 the European Union set a strategic goal for the next decade "of becoming the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion".

<sup>8</sup> European governance, COM(2001) 428.

<sup>9</sup> Towards a global partnership for sustainable development, COM(2002) 82.

Each heading derived from the abovementioned commitments became a “theme” in a hierarchical structure, where indicators were divided into three levels to match the needs of different types of users. The 10 themes are:

- Economic development
- Poverty and social exclusion
- Ageing society
- Public health
- Climate change and energy
- Production and consumption patterns
- Management of natural resources
- Transport
- Good governance
- Global partnership

The themes were further divided into sub-themes and “areas to be addressed”. Indicators were proposed within each of the themes to match the major policy commitments and objectives of the strategy and related EU strategies. These indicators were classified into three levels of importance, creating a pyramid structure with one (or sometimes two) headline indicators for each theme at the top, supported by level 2 indicators in the middle and level 3 indicators at the bottom.

It was intended that the different layers of the pyramid should build on each other and tell a story. That is, if one wants to know why an indicator at a higher level is as it is, it should be possible to find the answer at the next lower level. And working in the other direction, taking the information contained at a lower level of the pyramid should lead to the information contained in the next higher level. In practice this has not proved possible for all themes, especially for those with a more environmental or institutional character.

In the selection of indicators, it was also borne in mind that the primary purpose of the exercise was to identify trends that were unsustainable or potentially unsustainable. Indicators were therefore selected on the basis of their ability to show EU trends, rather than opting for indicators which were better suited for comparing the relative performance of individual countries.

#### **SOME PARTICULAR LESSONS**

##### **The importance of timing**

It can be useful to set milestones for a project so as to deliver results at the most opportune moment. In the case of indicators measuring progress towards a certain policy, it is particularly valuable to tie in with political events. There is then much more chance that the work will be noticed and used.

With this in mind a website devoted to the indicators was set up just prior to the spring 2005 meeting of the European Council, where the SD strategy was to be discussed. Later on in the year our first report monitoring progress in the EU towards sustainable development was released during the week preceding the December 2005 meeting of the European Council which was to discuss the review of the SD strategy. A German version of the publication was produced early in 2006 to support the Austrian Presidency of the Council who intended to move the review of the SD strategy forward.

##### **The need for endorsement**

Endorsement by major stakeholders is desirable for a number of reasons, and is an important factor in achieving a successful outcome. Lack of endorsement and consultation with stakeholders may mean years of work to produce something that may be highly praised but never used.

Firstly, the support of one’s own management is essential to ensure sufficient resources as and when needed and to take any other action which may be necessary. If milestones and deadlines are particularly critical, as in the cases described above where timing was imperative, it may be necessary to react rapidly to unforeseen circumstances. For this

reason it was desirable that the SDI project was designated "critical" by Eurostat's management. This designation is applied by Eurostat to projects which are considered to be of particular importance to the organisation, and demands rigorous project management and reporting. Any change of circumstances presenting risks or threats to a critical project must be reported to Eurostat's management who are obliged to find solutions. Although requiring a moderately heavier workload, the critical designation of the SDI project has ensured the support of Eurostat's management so that any problems facing the project have been quickly resolved.

Secondly, and most importantly, the endorsement of the main target audience was sought to ensure that our work conformed to their expectations. In February 2005 the Commissioner responsible for Eurostat, Joaquín Almunia, presented the framework and indicator set to his fellow Commissioners in the form of an internal communication. This was an important step through which the Commission formally endorsed the work initiated by the task force. It entailed the consultation and agreement of the majority of the Commission's Directorates-General and this inevitably led to a new round of discussions on which indicators to include and at what level. The modified list of indicators was discussed in detail at the final meeting of the task force and not all of the modifications introduced were welcomed. Nevertheless, the involvement of end-users at this stage bolstered the role of indicators, monitoring and targets in the thinking about how to further develop the strategy and has guaranteed that these elements will be integrated into future versions of the strategy.

Finally, in order to ensure the continued cooperation and assistance of national experts, the final report of the task force was submitted to the directors of the national statistical institutes for their approval. This resulted in a renewed mandate to continue development within a working group and ensured continued support for the project.

#### **AREAS REQUIRING FURTHER ATTENTION**

The work described above has led to the adoption of a set of indicators which have been published in paper format and on the web, which have been endorsed by the European Commission and the European Statistical System, and which have found a role in assessing progress towards the EU's goal of sustainable development. Nevertheless, it should be recognised that further progress is needed in a number of areas, some of which are mentioned below:

##### **Insufficiency of data**

There are several areas for which no information or only partial information is currently available. To overcome this technical constraint and assure the production and compilation of the necessary data for policy-making in a longer time-frame, the indicators were divided into two categories, "best available" and "best needed". The "best available" indicators refer to indicators that can be compiled on the basis of existing data. Some of these indicators may not be the ideal indicators for sustainable development policy issues, but serve a useful function as proxies for the ideal ones, which we have in our jargon termed "best needed" indicators. Some of the indicators may also be classified as "best needed" due to data quality problems.

Depending on the indicator, different kinds of development efforts relating to concepts, methodologies and data collection procedures will be required. The Commission, in cooperation with the European statistical system and the research community, will investigate the feasibility of the "best needed" indicators and will report on progress in ensuring the availability of those indicators which are feasible. This development work forms a considerable task that will contribute substantially to further improve the homogeneity of the set of indicators.

### **Indicators of governance**

Governance has been a problematic topic to cover. For our purposes it should ideally cover the areas of participation, accountability, effectiveness and coherence, be focused on institutions (governance in the private sector is covered under the theme of production and consumption patterns), and also address the EU contribution to global governance. We are far from there.

Given the difficulty in obtaining appropriate data of sufficient quality and coverage, only two sub-themes were proposed: policy coherence and public participation. Policy coherence has proved particularly difficult to measure. There are two dimensions of coherence, vertical and horizontal. The vertical dimension refers to the coherence between the EU and member country levels, and the horizontal dimension refers to the extent to which measures are mutually consistent and supportive. At present we have only succeeded in covering the vertical dimension. Indicators proposed to address the horizontal dimension (such as perverse or environmentally harmful subsidies, administrative costs of legislation, and impact assessments) are still being looked into. Public participation has been rather more satisfactorily dealt with, at least in so far as voter turnout statistics being widely available. Nevertheless, gender-related issues and the situation of minorities and the socially excluded still need to be investigated. Another area which needs to be addressed is adherence to ethical standards.

It should also be pointed out that the headline indicator chosen for this theme was "level of citizens' confidence in EU institutions", which is rather weak. This is a perception indicator based on results from the Eurobarometer exercise in which opinions about the main EU institutions have been monitored over a number of years.

### **Inter-generational equity**

The current set of indicators has been developed with the objectives of the EU sustainable development strategy in mind. This strategy proposes policies which are to be implemented now and in the medium term. But steps taken now to correct unsustainable trends, e.g. by improving eco-efficiency, the management and conservation of resources, social cohesion, global equity and justice, are also aimed at improving the situation and possibilities of future generations. Inter-generational equity is therefore implicit in the strategy and the indicators.

But inter-generational aspects are not explicitly addressed in the Eurostat indicators. A joint Eurostat/OECD/UNECE working group is currently looking in detail at the capital approach, which shows promise as a framework for developing supplementary indicators which explicitly address the inter-generational management of resources from an economic perspective. Indicators will also be needed to cover non-market resources such as justice, governance, social cohesion and biodiversity.

### **Evaluation of trends**

The methods we have used so far to evaluate trends in individual indicators have been simplistic. Each indicator can be interpreted so that an upward, a downward, or a stable trend is consistent with sustainable development. But how much movement in the right direction is needed for the development of the indicator to be judged sustainable? For an indicator where growth is desirable, is growth always sufficient in itself? Or would a slow rate of growth actually be considered as unsustainable in some circumstances? We need clearly defined growth thresholds, and we need them for each indicator.

Where indicators are associated with quantified targets we have simply evaluated according to whether progress has been in line with the linear target path. But if the target is itself insufficient, this method is also insufficient.

For the remaining indicators, the method adopted in our recent publication was to positively evaluate when there has been an average annual change of at least 1% over several years in the right direction. This was a simple, consistent and transparent rule of thumb, but is of course inadequate in that it fails to differentiate between variables which are rather volatile, such as growth rate of GDP, and those which have higher inertia, such as life expectancy.

There is also a need to evaluate the overall trend of the indicator set taken as a whole in order to give some indication of whether we are on a sustainable or unsustainable path.

#### **Conceptual basis of sustainable development and indicator frameworks**

It can be argued that the Eurostat set of sustainable development indicators has no conceptual basis or framework and that its link to the EU strategy which will regularly be revised means that it will not stand the test of time.

It is true that the structural framework used was derived to a large extent from the EU strategy, and is therefore subject to change as the strategy evolves. Nevertheless, the indicator set is organised in a clear and easily communicable structure. It provides a tool which can help to implement change by measuring progress towards the objectives of the strategy and has indeed already found practical applications in EU decision-making. It is expected that as the strategy evolves, new indicators to address issues of emerging importance will be needed. The themes themselves may also need to be adapted.

We would also argue that there is at present no single conceptual basis and framework that represents adequately the multi-dimensional and interlinked entirety of sustainable development. There is a great need for multi-disciplinary research into such a conceptual framework, and this should involve social scientists, political scientists, economists, natural scientists, futurologists, systems analysts and statisticians.

#### **Other areas**

Other areas which are in need of further work include communication (how can one effectively communicate on 155 indicators organised within 10 themes and about 30 sub-themes?), metadata (information about sources, methodology and quality are needed for each indicator), aggregation and composite indicators, and interlinkages between issues and indicators.