



Development and Comparison of Sustainability Indicators

POLICY BRIEFS

Integrating traditional sustainability indicators

The challenge of integrating traditional SDIs and examples of emerging problems with traditional indicators

The issues that sustainable development is related to are grouped into social, economical, environmental and institutional dimensions. The EU SDIs related to those dimensions are grouped into the following 10 themes: 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 and global partnership. These themes are further divided into sub-themes, resulting in altogether 155 different indicators based on the 2005 indicator set, which makes it very hard to perceive and evaluate sustainability. Relationship between the indicators inside each indicator set also remains unclear, since the linkages between the different issues relevant to sustainable development are complex, and knowledge is often limited. Thus, integrating a selected set of SDIs operating in different scales, e.g. in the soil, in the household, in macro-regions or at the global level, is a difficult task. This is due also to the fact that the concept of sustainable development itself is an exceptionally elusive; it is hard or even impossible to measure or define it comprehensively and for all situations. Also other concepts related to sustainable development such as “health” or “quality of life” are rather vague. Due to the aforementioned reasons the indicators adopted are inevitably imperfect and integrating SDIs is problematic: the set of indicators used cannot always be considered as sufficient information to monitor adequately all the trends relevant to sustainable development.

Some of the serious problems with traditional indicators are the insufficient ecological knowledge on dealt phenomenon (e.g. lack of understanding of biophysical realities) and the difficulty of finding trade-offs and interlinkages between the different dimension of sustainable development. The two immediate problems with the current sustainable development indicator sets are that the users are unaware of them and the indicators are often unsuitable to their needs. The reasons for these major flaws are the irrelevance of the indicators for the policy needs, the technical shortcomings in the context and presentation, the failure to engage the users in the development process, the non-existent dissemination strategies and the lack of institutionalisation to promote and update the indicators.

Suggestions and possibilities for integrating traditional indicators

The challenge of sustainable development is about becoming more aware of interlinkages and also identifying the potential synergies and trade-offs that are an inherent part of individual actions and the policies of governments or international organisations. The integration of traditional indicators turns out to be very difficult because the aggregation always requires weighting of importance of different indicators. Since objective weighting does not seem to be possible, the outcomes are more subjective and expert based estimations, which usability in decision-making is questionable.

The same sets of indicators cannot always be used in different contexts. For instance investigation of the policy cycle (See Figure 1.) can be beneficial in order to explore the different uses and users of the SDIs and could be helpful in finding the correct SDIs in different contexts. The contextualization of indicators requires the ability of establishing bridges between the following issues:

- semantic definitions and formalizations of the concept of SD when dealing with different objectives and different contexts
- quantitative analysis referring to processes taking place simultaneously but at different scales
- quantitative analysis referring to the interaction occurring between socioeconomic systems and ecosystems, developed within different disciplinary fields (biophysical, economic, social, technical, ecological analyses)



The analysis of sustainability needs a dynamic (adapting to changing conditions with time) and integrated (responding to different scales and dimensions of analysis) set of indicators. The evaluation criteria for SDIs decided by the DECOIN consortium include analytical soundness, comprehensiveness, reporting capabilities, and easiness to use.

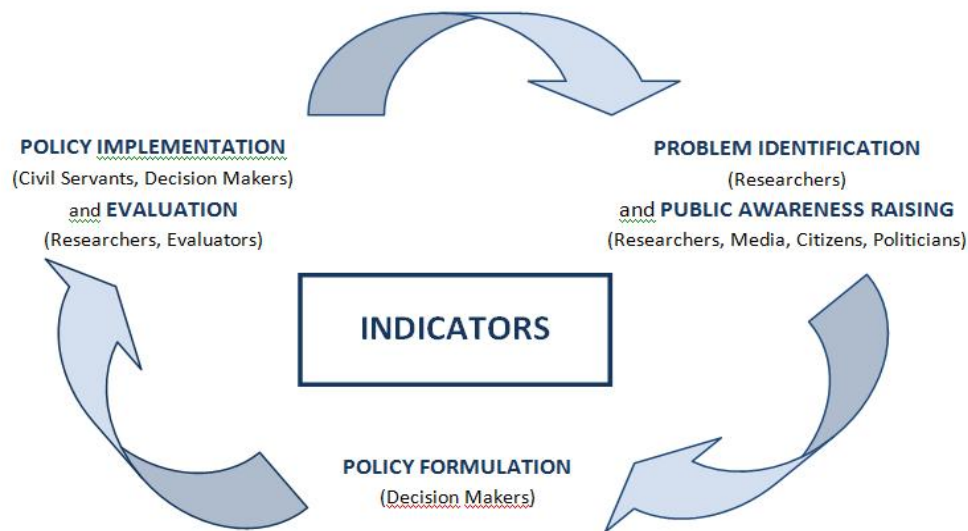


Figure 1. Policy cycle and the use of indicators

Policy recommendations

The links between policy and SDIs are being questioned by many scientists – there is little information on how SDIs have influenced real-life political argument and decision-making. There are serious problems related to the SDI set, since the indicators are grouped into ten themes but the relationship between the indicators inside each set remains unclear. Thus, the indicator set needs revisions if the usefulness of the SDI set is considered as an important issue. The European Union should e.g. start relevant R&D -program to develop standardized weighting and aggregation techniques needed in composite welfare indicators and sustainable development indicators. Availability of time series data, the short length of it and/or a lack of data are also serious problems. In many cases, it is extremely difficult to find yearly data of several indicators for a longer time period than a few (less than five) years. For instance the lack of relevant data for several indicators at other levels than national level causes a major problem. There are also limitations to some existing indicators, and some objectives are not adequately (or not at all) monitored due to the lack of appropriate statistics. In addition to aforementioned, although Eurostat is the official statistical office in the EU and rests on the data provided by e.g. national statistical authorities, information of the original data sources could be provided in more detail. Moreover, there are also the technical difficulties and problems related to the datasheets e.g. a reverse order of time series; subscripts related to individual data values placed in the same cell; lack of explanation of used codes, names of variables and definitions inside datasheets. These issues make the data use a very time consuming effort. Hence, the data should be more user-friendly if the aim is to enhance to the use of sustainable development indicators.

Important requirements for the indicator set data include availability of forecasts based on the indicator set, timeliness of indicator data, availability and suitability of time series data for a selected time period, cause-effect and interlinkage relationships inside the indicator set and data reliability. These requirements can be used as criteria for evaluation. Timeliness of the SDI data varies a lot between different indicators, between different indicator themes and between individual indicators inside one theme.