THE USEFULNESS OF SUSTAINABILITY INDICATORS

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Indicators are quantitative information which may be used to explain changes over time, or across subjects (say across countries). In the field of economics, GDP per capita is often used as an indicator of development. The attraction of such indicators is that they can be used to represent complicated phenomena in a format which permits comparison over time, or across countries.

In the case of the environment, indicators can be used to assess the extent to which, for example, pollution, is increasing or decreasing over time. Very often, a number of indicators are combined together to produce a composite index.

For example, the UNDP combines GDP per capita, Education and Health indicators into a composite index called the Human Development Index.

There are various criteria which could be used to assess whether an indicator is good or bad:

Relevance. It must be linked to matters which are useful and which require some form of monitoring or assessment over time.

Simplicity. It must be easily understood, and utilizes minimum possible information. It is not always possible to simplify phenomena into a simple indicator, and there is always a trade-off between simplicity and usefulness of the indicator.

Transparent. The indicator must be verifiable and reproducible by persons other than the producer of that indicator

Affordable. The data required for the indicator must be procurable at reasonable cost, monetary and otherwise.

Comparable. The indicator has to be standardized in such a way as to render it comparable over time or across subjects.

PURPOSES OF USING INDICATORS

It should be kept in mind that the main purpose of an indicator is to explain complicated phenomena in a simple format which can be compared over time, and that therefore some loss of detail is to be expected.

An example is given here to stress this point. When we want information about the age of a person and we ask him/her "How old are you?" generally we are content with a simple answer, fore example "I am 30". This answer is the simplest possible and possibly the most informative for the purpose for which it was asked. We measure between birth and the present. We can complicate matters by stating that we should start measuring from conception, or that the baby was overdue and should have been born 7 days earlier, or he/she was premature, and should have been born 20 days later. Instead, we choose a simple, verifiable indicator, namely current date minus date of birth. Also the body has different parts and some age faster than others. Yet nobody ever imagines that when we enter age we should complicate the indicator by giving a weighted average of the age of different parts of the body. Also we know that some person's age faster than others, there are 50 year olds who look forty, and forty year olds who look fifty. Yet, nobody ever considers qualify the indicator by stating "I am forty years old, but I look fifty". The age indicator we use, which is very simple, and which satisfies all the criteria listed above, is probably the best we can devise.

For certain purposes, we will need to give more information, such as for example when we apply for certain jobs, we will need to give our age accompanied by a health certificate, in which case the indicator is refined. That is why we need to be clear as to the reason, for which the indicator is going to be used, and some trade offs between simplicity and detailed information is always called for.

This is also true with other common indicators we use. Another example relates to colour of eyes. When we are asked about such colour we say brown or maybe dark brown, but we do not give the combination of magenta, blue, yellow and black that when mixed, give the exact hue of our eyes. It is enough to say brown. This is a simple and verifiable indicator, and for most purposes it is enough.

Also when constructing indicators, one has to be clear as to what purpose it is going to serve. For example annual profit and loss business statistics are not generally useful to measure sustainability, since the former measure business performance in the short run, while sustainable development has a long term dimension.

Understanding Sustainability

In the case of sustainability Indicators, it goes without saying that we need to understand what sustainable development really means.

As we all know, the concept is multifaceted. It has environmental, economic and social dimensions, so there is a balancing act, which in the long run, should theoretically be beneficial to all three dimensions, environmental, economic and social.

It we protect the environment in such a way as to bring about long run economic misery, we would be defeating the whole purpose of development. If we promote economic well being in the short run, and lead to environmental and social degradation, we will be winning one battle and losing another, with the end result of ending up worse in the long run.

This long run dimension is very problematic, because it begs the question as to how long is the long run. I am sure you heard Keynes' famous uttering that "in the long run we are dead".

How long is the long run. Should we now control our economic development to promote development in a million years' time? Or in half a million years' time? This is a very important question to be answered and it is relevant to the concept of indicators. The natural environment seems to evolve and develop in terms of millions of years, whereas for us humans, a lifespan is about 75 years. There is therefore some incompatibility between the long run for a human and the long run for – say – a forest or a marine habitat.

To complicate matters, sustainable development has other dimensions as well, including the ethical dimension, which involves inter and intra generational considerations, democratic decision making, and other matters which lead an individual to take into consideration gains of persons other than him/herself. These ethical dimensions are often considered in sets of sustainability indicators.

A more profound consideration is whether or not sustainable development should be pursued for human welfare or for the welfare of the planet with all its living and not life forms. Some would also associate sustainable development with the well being of the Universe. Such considerations would of course complicate matters to such an extent, that we may give us trying to measure anything. We can also end up arguing that current human activity is so minimal over 1000

million years of what looks to us as natural catastrophes, devastations and upheavals, that we need not bother at all. This argument is of course even stronger if the sustainable development objective covers the Universe, which has not until now been well defined.

So coming back to more human dimension, generally speaking sustainable development is defined in terms of welfare of the current human generation, taking into consideration the welfare of future generations – which in practical terms should be confined to maybe 5 generations, so that the future span of time we will be considering would be in the range of 200 to 300 years.

This would make things more practical and would lead to more meaningful indicators. In other words, when we take GDP per capita as one of the indicators, we would be considering the material welfare on the current generation and when we consider rate of use of renewable resources, we would be considering the welfare of future generations.

Main functions of Indicators

The main functions of indicators are the following:

To support decision-making. Decision making by the government and other authorities should lead to action which is systematic and coherent and based on transparent information. The indicators may also be used to justify certain priorities for action.

*To set targets and establish standards**.** For example, reduction of emissions of green house gasses, can be measured and targets sets for its gradual reduction over time.*

To disseminate information. Indicators can be used to make the public more aware of certain problems, and to give high profiles to certain trends which are considered mostly undesirable. In this regard, indicators can be used for communication and for alerting stakeholders about issues, including dangers, failures and success stories.

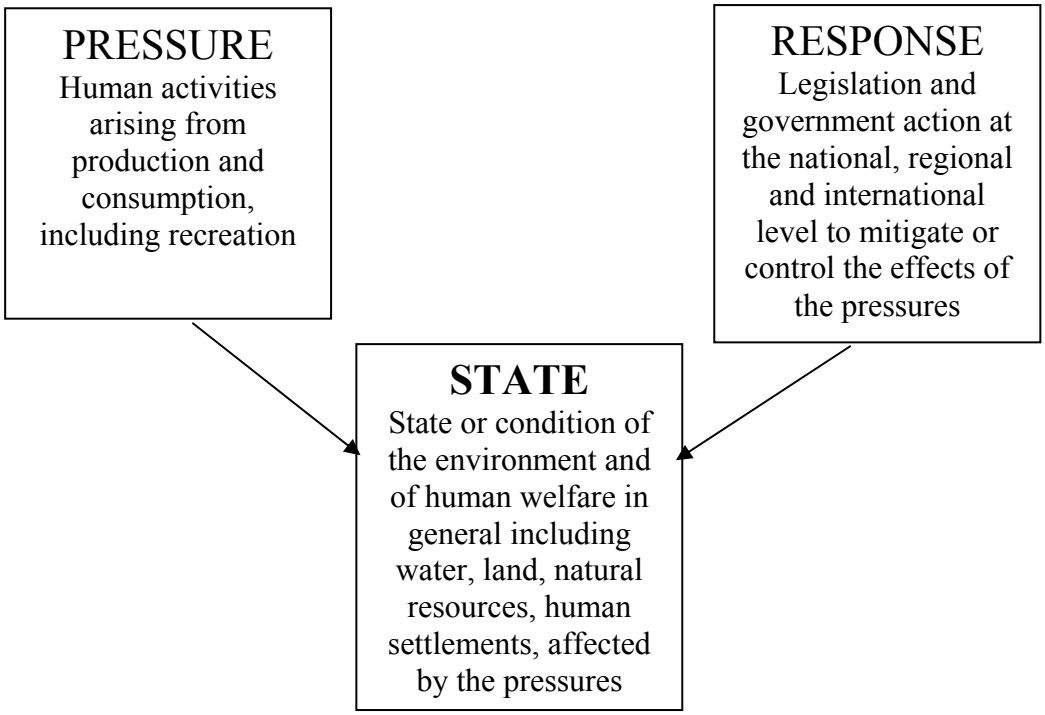
To focus the discussion. Indicators can help to develop a common language for discussion. Often one finds that persons engaged in debate go off at tangents because of lack of common definitions. Indicators could avoid this happening, and could help focus the discussion on matters directly relevant to the issue.

To promote the idea of integrated action. Given the sustainable development is multifaceted, it is often counterproductive to take action in isolation from others,. For example there is a clear connection between transport, pollution and conservation of biodiversity. Very often statistical information is published on one aspect of human condition only, say on the number of cars imported, and on the liters of petrol used, without making any connection with the polluting effects of emissions, or the intrusion of road building into areas of importance for biodiversity. The indicators could help to foster an awareness of these interconnections.

To monitor and evaluate developments. Indicators are of utmost important to assess whether a given policy or decision is yielding the desired results and to assess whether changes of direction are needed. In this way, decisions are not taken blindly or based only on haunches and feelings, but will be based on scientific information presented in indicator format.

Types of Indicators

Generally sustainability indicators are couched in the PSR framework, where PSR refers to Pressure, State and Response. It is assumed that human activities exert pressures, including pollution, which lead to changes in the state of the environment. Response refers to environmental and economic policies which aim to work against the pressures.



How to translate qualitative facts into quantitities

It is often possible to represent certain pressures, states or responses into quantities. For example, greenhouse emissions can be quantified in terms of volume. In some cases however incidence is not easily quantifiable. For example, how do we measure the extent to which a country has environment

legislation in place to respond to certain pressures. In such cases it is still possible to translate this into a quantifiable mode, by mapping the incidence along a seven point scale, ranging from zero (i.e. no legislation) to 7 (the highest possible legislative framework), where 4 would refer to the average. These scores can, furthermore, be weighted by another seven point scale of effectiveness ranging from zero to seven.

Conclusion

Sustainability Indicators have a number of useful functions, and have been adopted by a number of countries to monitor their path towards sustainable development. In Malta, such indicators have been computed, but they have as yet not been given due importance, although Malta has committed itself to computes such indicators as a contracting partner to the Barcelona Convention. The Mediterranean Commission on Sustainable Development has served as forum for this work, and has adopted a set of 130 indicators for sustainable development in the Mediterranean.

The 130 Mediterranean indicators were selected at the two Mediterranean workshops in Tunis, June 1998 and Sophia-Antipolis in May, 1999 and were adopted in November, 1999, in Malta by the Contracting Parties.

Malta also has a mandate and an obligation to compute sustainability indicators as one of the countries adhering to Agenda 21, which in chapter 40 states that "indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems".