Barometer of Sustainability

What it's for and how to use it

- Meaning and goal of a sustainable society
- Assessment framework
- Key features of the Barometer
- Main uses
- Choosing indicators
- Setting the scale
- Calculating indicator scores
- Combining indicators
- Analyzing the issues and drawing conclusions

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IUCN/IDRC project on
Assessing Progress Toward Sustainability

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The World Conservation Union

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This booklet was written by Robert Prescott-Allen. It draws on ongoing work by PADATA; a project of the Commission on Resources and Environment to report on the sustainability of British Columbia; and the project on assessing progress toward sustainability of the World Conservation Union (IUCN) supported by the International Development Research Centre (IDRC).

The IUCN/IDRC assessment project brought together an international team to address problems of monitoring and evaluating sustainable development. The team adopted a systemic user-driven approach that is founded on questions. With colleagues in Colombia, India and Zimbabwe, the team formulated and tested methods and tools that apply this approach to assessing sustainability. International team members were Ashoke Chatterjee, Eric Dudley, Tony Hodge, Alejandro Imbach, Diana Lee-Smith, Adil Najam, and Robert Prescott-Allen. The team was coordinated by Nancy MacPherson of IUCN.

The IUCN/IDRC project used the Barometer locally in India and Zimbabwe and nationally in Zimbabwe. The British Columbia project used the Barometer provincially to develop a synthesis and draw conclusions about human and ecosystem wellbeing and progress toward sustainability.

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What this booklet is about

The Barometer of Sustainability is a tool for measuring and communicating a society's overall wellbeing and progress toward sustainability.

The Barometer consists of indices of ecosystem wellbeing and human wellbeing combined into an index of sustainability without trading one off against the other.

It provides a systematic way of organizing and combining indicators so that users can draw conclusions about the conditions of people and the ecosystem and the effects of people-ecosystem interactions.

It presents those conclusions visually, providing anyone—from villager to head of state—with an immediate picture of where they are and where they are going.

The Barometer can be used at any level, local, provincial, national, or international. As a stand-alone method or as a tool for use in any other method of system assessment.
This booklet describes:

- The meaning and goal of a sustainable society
- An assessment framework
- Key features of the Barometer of Sustainability
- Main uses of the Barometer
- How to use the Barometer
  - Choosing indicators
  - Setting the scale
  - Calculating indicator scores
  - Combining indicators
- Analyzing the issues and drawing conclusions

The meaning and goal of a sustainable society

Human societies are kept alive by the ecosystem: the environment and resources of earth, air, water, and living creatures. People live within the ecosystem, just as the yolk of an egg is within the white (Figure 1). For an egg to be good, both the yolk and the white have to be good. So it is with sustainability. A society is sustainable only if *both* the human condition and the condition of the ecosystem are satisfactory or improving. If *either* is unsatisfactory or worsening, the society is unsustainable.

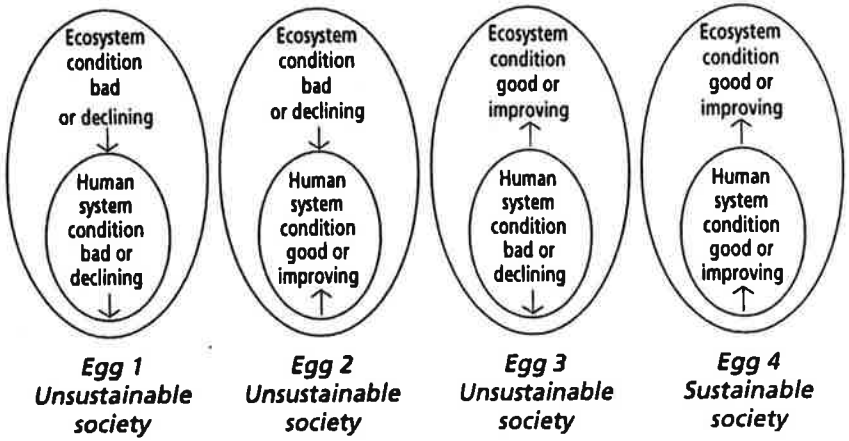

Figure 1: The Egg of Sustainability

The egg of sustainability expresses a basic truth: people are an integral part of the ecosystem. The wellbeing of one is bound up in the wellbeing of the other. In the short term, human progress may be won at the expense of the natural environment. It may be necessary to turn forests and wetlands into farms, and farms into towns. But ultimately, the only future for people is to find ways of living in harmony with the ecosystem. The two—people and ecosystem—are equally important.

Consequently, a logical goal for every society is ***to improve and maintain the wellbeing of people and the ecosystem***:

Ecosystem wellbeing is a condition in which ecosystems maintain their quality and diversity and thus their potential to adapt to change and provide a wide range of choices and opportunities for the future.

Human wellbeing is a condition in which all members of society are able to define and meet their needs and have a large range of choices and opportunities to fulfil their potential.

A sustainable society would be able to achieve both conditions—as well as the capacity to anticipate change and recover from setbacks —and maintain them over many generations.

Assessment framework

If a sustainable society is one that combines human and ecosystem wellbeing—and sustainable development is progress toward a sustainable society—then there can be only one indicator of sustainability: one that shows ecosystem wellbeing and human wellbeing together.

The sustainability indicator is constructed from indicators that allow us to answer the questions:

- What is the condition of the ecosystem, how is it changing and why?
- What is the condition of people, how is it changing and why?
- What are the main interactions between people and the ecosystem.

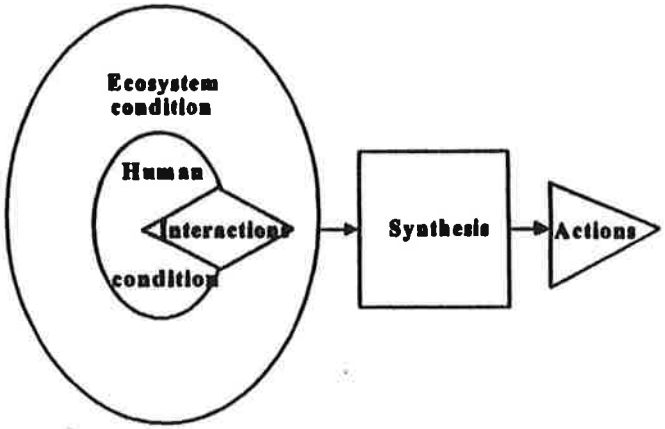

Figure 2. Framework for assessing sustainability (based on Hodge 1993, 1995).

The assessment framework is shown in Figure 2. The sustainability indicator is the synthesis or index derived from indicators of human and ecosystem wellbeing and people-ecosystem interactions. A key point is that the index of sustainability must combine human and ecosystem wellbeing, not trade one off against the other.

The framework consists of the two systems (or subsystems)—ecosystem and human society; and four components:

- Condition. The condition of people, and the condition of the ecosystem.
- Interactions between people and the ecosystem. The stresses people put on the ecosystem (such as pollution and resource depletion); and the support they give to it (such as protection and resource enhancement). The benefits the ecosystem gives to people (such as life support, resources, beauty); and the stresses that come from the ecosystem (such as disease, weather extremes, natural hazards).
- Synthesis. A sense of the whole system (human and ecosystem wellbeing together), not just of the parts. The Barometer of Sustainability is a way of obtaining the synthesis.
- Actions. The actions that are taken (or that need to be taken) to improve interactions and the wellbeing of people and the ecosystem.

References

Hodge, R.A (Tony). 1993. Reporting on sustainable and equitable development. Project paper 1: conceptual approach. International Development Research Centre (IDRC), Ottawa.

Hodge, R.A (Tony). 1995. Assessing progress toward sustainability: development of a systemic framework and reporting structure. PhD (interdisciplinary) dissertation. School of Urban Planning, Faculty of Engineering, McGill University, Montreal.

Key features of the Barometer of Sustainability

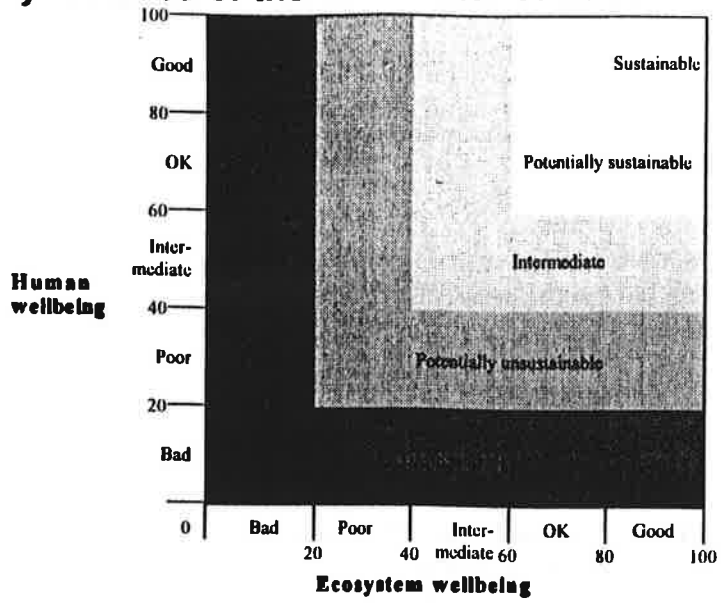

Figure 3. Barometer of Sustainability.

The key features of the Barometer of Sustainability (Figure 3) are that it:

- Gives a picture of the whole system, not just of the particular parts measured by specific indicators.
- Treats ecosystem wellbeing and human wellbeing as equally important.
- Facilitates a rigorous and transparent examination of the judgments involved in assessing progress toward sustainability.

The Barometer consists of two indices: an index of ecosystem wellbeing and an index of human wellbeing. Conclusions about human and ecosystem wellbeing are expressed as points on their respective scales. The intersection of these points provides a reading of progress toward sustainability.

Individual indicators can show what is happening to the issues they represent. But—although such information may tell a lot about the parts—it gives little sense of the whole system. It does not show if progress is being made toward sustainability—if the society concerned is improving and maintaining the wellbeing of people *and* the ecosystem.

The Barometer provides the necessary synthesis—a way of:

- Organizing and combining indicators to draw conclusions about ecosystem wellbeing and human wellbeing.
- Combining the conclusions about human and ecosystem wellbeing into a visually immediate portrayal of overall wellbeing and progress toward sustainability.

By design, the indices of ecosystem and human wellbeing are separate. This is to ensure that an improvement in human wellbeing does not mask a decline in ecosystem wellbeing, or vice versa. Also by design, a lower score on one scale overrides a higher score on the other: the reading of sustainability is based on whichever subsystem (the society or the ecosystem) is in worse condition. This is to prevent an improvement in ecosystem wellbeing being read as compensating for a decline in human wellbeing, or vice versa.

Thus the Barometer does not allow a trade-off between human wellbeing and ecosystem wellbeing. This is consistent with the view that people and the ecosystem are equally important and that sustainability is a combination of human wellbeing and ecosystem wellbeing. Although trade-offs between the needs of people and the ecosystem are a part of life, they are acceptable only at the micro level. Ultimately, at the macro level, there can be no trade-off between people and the ecosystem. People will live as an integral part of the ecosystem or not at all. The Barometer sums the effect of the micro trade-offs a society makes: if the reading is equidistant between human wellbeing and ecosystem wellbeing, an appropriate balance may have been found; if it is skewed toward one of the subsystems, it may be necessary to pay more attention to the other.

The indices of human wellbeing and ecosystem wellbeing are expressed on a performance scale of 0-100. The scale is divided into five sectors:

100-81	good
80-61	OK
60-41	intermediate
40-21	poor
20-0	bad

The qualitative labels (good, bad, etc.) serve as a reminder that value judgments are being made throughout. The numbers are a tool for qualitative measurement. They make explicit how positions on the scale have been arrived at.

This transparency is an essential feature. Assessment involves values and judgments, from the choice of issues to address, through the selection of indicators to represent the issues, to the compilation and interpretation of the data behind the indicators. These values and judgments should be made clear, so that people who disagree with them can see how alternative data, interpretations and judgments would alter the assessment.

The levels of assessment—from individual indicators to conclusions about human and ecosystem wellbeing—are presented in a way that allows people to use different indicators or alternative arrangements. For the same reason, the calculations involved in combining indicators have been made as simple and straightforward as possible.

Main uses of the Barometer

The Barometer may be used at any level (local, provincial, national, international) as:

- ***A tool for communicating*** human wellbeing, ecosystem wellbeing, and a society's progress toward sustainability.
- ***A tool for measuring*** human wellbeing, ecosystem wellbeing, and a society's progress toward sustainability.
- ***A tool for measuring a sector's impact*** on human wellbeing and ecosystem wellbeing, and hence its contribution to a society's sustainability.
- ***A method of assessing*** a society's wellbeing and progress toward sustainability, applying the Barometer to recommended dimensions of human and ecosystem wellbeing and a selection of recommended indicative issues. Users choose their own indicators.

Support teams helping villagers in Zimbabwe to prepare their own sustainable development action plans have used the Barometer primarily as a communications tool. Villagers defined their own categories and labels for different levels of human and ecosystem wellbeing. Then they discussed where they were on each scale. They went on to assess their condition and the state of their ecosystem in more detail. At the end of the assessment they reviewed their position on the Barometer. Positions on the two scales were not calculated but were estimated qualitatively.

The value of the Barometer was that it helped the villagers to consider people and the ecosystem together; and to see progress as improving both the condition of people and the condition of the ecosystem.

In India, a support team working with gram panchayats (local councils) and villages in Tumkur District (Karnataka) has used the Barometer as a measurement tool as well as for communication.

Villagers participated in a review of nine indicators of ecosystem wellbeing, nine indicators of human wellbeing, and three indicators of ecosystem-human interactions (Table 1).

The support team set the scale for each indicator and calculated the indicator scores, which it then discussed with the councils and villagers.

The value of the Barometer was that it provided a baseline measure of the human and ecosystem conditions of villages and of the taluk (sub-district) of which they are part.

In British Columbia, the Barometer was used as a measurement tool in the province's first assessment of progress toward sustainability (Commission on Resources and Environment 1996). Ten indicators of human wellbeing and 12 indicators of ecosystem wellbeing were used (Table 2).

The Barometer was found to be the only available device for converting different indicators to a common scale while giving equal weight to people and the ecosystem. It allowed coverage of the full range of issues needed for an assessment of sustainability. At the same time, it exposed the assumptions, interpretations and judgments that are an unavoidable (indeed essential) part of assessing human and ecosystem wellbeing.

In Zimbabwe, India and British Columbia, the assessment teams each used different ways of organizing the issues covered in the assessments. When the Barometer is used as an assessment method (not just as a measurement and communication tool), issues are organized into recommended sets or dimensions (see next section). As an assessment method, the Barometer has been tested successfully at the national level in Zimbabwe; and is being used in a global survey of the sustainability of nations (Prescott-Allen 1996a).

ECOSYSTEM	PEOPLE	INTERACTIONS
Index of land naturalness	Average annual population growth rate	Annual migration rate
Index of naturalness of water bodies	Infant mortality rate	Conflict resolution skills particularly relating to common property resources
Fertility (organic carbon content) of land	% of households with access to toilets	Level of awareness for crisis management
Decrease in productivity due to agrichemicals	% with adequate food supply	
Threatened species as % of total species	Quality of shelter	
Present productivity of finger millet as % of potential productivity	% of population with minimum income for a household	
% of land under tree cover	% unemployed	
Availability of wild fruits & livestock fodder	% of people at various levels of education	
Annual withdrawals of water as % of total water resources	Community capacity to get government development programmes	

Table 1. Indicators used to measure sustainability in Chikkanayakanahalli taluk, Tumkur District, Karnataka, India (Kumar 1996).

HUMAN WELLBEING	ECOSYSTEM WELLBEING
Life expectancy	Index of land naturalness
Infant mortality rate	Degradation of forest lands
% of population with more than 9 years of education	Water quality index
% of population with post-secondary qualification	Fine particulate concentrations
Unemployment rate	Carbon dioxide emissions
Real average weekly earnings	Use of ozone depleting substances
% of population below low-income cut-off	% of ecosystems threatened
Major crimes per 1,000 people	Ecosystem coverage by protected areas
Vitality and dynamism of businesses and organizations	% of species threatened
Strength of the economy	% of salmon populations threatened
	Status & trends of harvested marine animals
	Annual waste disposal per person

Table 2. Indicators used to measure sustainability in British Columbia (Commission on Resources and Environment 1996).

A full account of these uses of the Barometer is given in Prescott-Allen (1996b).

References

Commission on Resources and Environment. 1996. Report on British Columbia's progress toward sustainability. Interim draft: March 1996. Ministry of Environment, Lands and Parks, Victoria, British Columbia.

Kumar, C. Ashok. 1996. Personal communication, March 1996.

Prescott-Allen, Robert. 1996a (in preparation). *The Wellbeing of Nations*.

Prescott-Allen, Robert. 1996b. Measuring wellbeing and sustainability with the Barometer of Sustainability.

Choosing indicators

Indicators are chosen in a three-step process:

1. Define the dimensions of ecosystem wellbeing and human wellbeing. Dimensions are universal sets of issues that need to be considered by any society. For ecosystem wellbeing, they are: land, water, air, biodiversity, and resource use. For human wellbeing they are: health and population, wealth and livelihood, knowledge, behaviour and institutions, and equity.
2. Define indicative issues for each dimension. Indicative issues are widely (but not always) applicable issues that represent a dimension. For water, they include fresh water quality, marine water quality, and water use. For knowledge, they include education, communication, research, and information.
3. Define indicators for each indicative issue. Indicators are context-specific measures of particular issues. An indicator of water use is water extraction as a percentage of supply. An indicator of education is the adult literacy rate. Because the Barometer uses a performance scale, the indicators must be performance indicators. That is, it must be possible to define values for the indicator that would be desirable, acceptable or unacceptable with respect to human or ecosystem wellbeing. Indicators that are neutral or of unknown significance cannot be used.

Dimensions, indicative issues and indicators are different levels of a hierarchy:

SUBSYSTEM:		ECOSYSTEM	PEOPLE
dimension:	e.g.,	**water**	**knowledge**
indicative issue:	e.g.,	***water use***	***education***
indicator:	e.g.,	water extracted as % of supply	adult literacy rate

When the Barometer is used as a full assessment method, ten dimensions are recommended to capture the essentials of ecosystem wellbeing (five dimensions) and human wellbeing (five dimensions):

ECOSYSTEM DIMENSIONS

Land. The condition of the land (how much is natural, modified, cultivated, or built) and the quality of modified and cultivated land.

Water. The condition of fresh waters and the land-water interface, marine and fresh water quality, and pressure on water supplies.

Air. Local air quality and the condition of the atmosphere.

Biodiversity. The diversity of ecological communities, wild species, and genetic variants such as crop varieties, livestock breeds, and wild populations.

Resource use. Pressure on resources; stresses to the ecosystem as a result of resource use (benefits to people as a result of resource use are included in wealth and livelihood); ecological efficiency of resource use.

HUMAN DIMENSIONS

Health and population. Fertility, mortality, disease, food and nutrition, health practices, and health services. A long and healthy life increases the opportunity for a person to pursue goals and develop abilities.

Wealth and livelihood. Income, employment, housing, transport, infrastructure, technology, and other resources that enable people to survive or that expand opportunities and provide means to exploit them.

Knowledge. Formal and informal education, research, and communication. Knowledge equips individuals, organizations and society to fulfil their potential, improve understanding of the ecosystem and human system, and develop the information and skills required to live sustainably.

Behaviour and institutions. Social behaviour and institutions in their widest sense: the values, customs, laws, incentives and organizations that enable societies to manage people's relationships with each other and the ecosystem.

Equity. Disparities in wellbeing among groups, such as females and males, young and old, rural and urban people, one ethnic group and another, the most advantaged fifth of the population and the least advantaged fifth.

A partial list of indicative issues is given at the end of this booklet.

Setting the scale

The scale needs to be set for each indicator. To set the end points of the scale, best (100) and worst (0) values are defined for each indicator. These are usually ideal values—the best and worst possible—and are set sufficiently far apart to encompass the range of performance (from best to worst) that has been experienced in the recent past or could be experienced in the forseeable future. Performance in other countries can be included, if international data are available. Best values are not necessarily targets (target setting is a separate activity).

The scale is highly sensitive to the choice of best and worst values. A high position on the scale may mean that performance is good or that a low best value has been set. Conversely, a low position may mean that performance is poor or that the best value is very ambitious.

The scale may be ***uncontrolled***, ***partially controlled***, or ***fully controlled***.

The scale is left ***uncontrolled*** when best is set at 100 and worst at 0 and intermediate values are not defined. This is done if it is acceptable for the scale to determine which intermediate values are good, OK, intermediate, poor, or bad.

Life expectancy at birth is an example of an indicator with an uncontrolled scale:

sector	*point on scale*	*life expectancy at birth*
best	100	90 years
good-bad	99-1	89-31 years
worst	0	30 years

The scale is ***partially controlled*** when the good (100-81) sector, the bad (20-0) sector or both are defined. This is done when it is useful

to distinguish between good and best or between bad and worst (or both), but it is not important to define OK, intermediate and poor performance. Partial control allows users to establish a range of good and bad values. In the good (81-100) sector, good is 81, better is any higher point up to 100. This can reflect diminishing returns from improvements above 81 (for example, $1 million would make a big difference to your life; but if you then got a second $1 million it would make much less of a difference); or it may mean that 81 is the minimum that is considered good, and better performance is hoped for. Similarly, in the bad (20-0) sector, bad would be 20, worse would be any lower point down to 0. This could mean that 20 is unacceptably bad but that even worse performance needs to be taken into account.

Area of degraded land as a percentage of modified and cultivated land provides an example of an indicator with a partially controlled scale:

sector	*point on scale*	*% degraded land*
good	100-81	0-4.9
OK-poor	80-21	5-49.9
bad	20-0	50-100

The scale is ***fully controlled*** when all sectors of the scale are defined. This is done when distinctions among the sectors are considered particularly significant. Full control of the scale allows the user to take account of thresholds and non-linear effects.

Threatened species as a percentage of all species is an example of an indicator with a fully controlled scale:

sector	*point on scale*	*% threatened species*
good	100-81	0-4.9
OK	80-61	5-9.9
intermediate	60-41	10-19.9
poor	40-21	20-39.9
bad	20-0	40-100

Calculating indicator scores

If best is set at 100 and worst at 0, the indicator reading is plotted on the scale, using the formula:

If best is the maximum value and worst the minimum:

([actual minus minimum] divided by [maximum minus minimum]) multiplied by 100.

Or, if best is the minimum value and worst the maximum:

1 minus ([actual minus minimum] divided by [maximum minus minimum]) multiplied by 100.

As an example of the former, using life expectancy at birth as an indicator of longevity: average life expectancy at birth in Zimbabwe is 61 years. If 90 is considered best (maximum) and 30 is considered worst (minimum):

61 (actual) - 30 (minimum) = 31
90 (maximum) - 30 (minimum) = 60
31 ÷ 60 = 0.52
0.52 × 100 = 52

As an example of the latter, using eroded land as % of land area as an indicator of land quality: 4.7% of Zimbabwe's land area is eroded. If 0% is considered best (minimum) and 100% is considered worst (maximum):

4.7 (actual) - 0 (minimum) = 4.7
100 (maximum) - 0 (minimum) = 100
4.7 ÷ 100 = 0.047
1 - 0.047 = 0.953
0.953 × 100 = 95

When the scale is partially controlled, the good (100-81 sector), the bad (20-0) sector or both are defined. For example, land degradation scores could be grouped into three sectors:

sector	*point on scale*	*% area eroded*
good	100-81	0%-0.9%
OK-poor	80-21	1%-9.9%
bad	20-0	10%-100%

With 4.7% of its area eroded, Zimbabwe's position on the scale would be somewhere between 80 and 21. It would be calculated in the usual way, except that the maximum is now 9.9 (instead of 100), the minimum is 1 (instead of 0), and the multiplier is 60 (instead of 100). The result would be added to 20, since that is the zero point of that sector of the scale:

4.7 (actual) - 1 (minimum) = 3.7
9.9 (maximum) - 1 (minimum) = 8.9
3.7 ÷ 8.9 = 0.42
1 - 0.42 = 0.58
0.58 × 60 = 35 (34.8)
35 + 20 = 55

For societies in the upper or lower sector of the scale, the minima and maxima would be changed to the minima and maxima of the sector concerned. The multipliers are changed to 20; and the results are added to 80 (upper) or 0 (lower).

When the scale is fully controlled and all sectors are defined, the maxima and minima are the end points of the sector concerned: 100 and 81 if the reading is in the good sector; 80 and 61 if it is in the OK sector; 60 and 41 if it is in the intermediate sector; 40 and 21 if it is in the poor sector; 20 and 0 if it is in the bad sector. The multiplier is 20 and the result is added to 0 for the bad (0-20) sector, 20 for the poor (21-40) sector, 40 for the intermediate (41-60) sector, 60 for the OK (61-80) sector, and 80 for the good (81-100) sector.

Combining indicators

Indicators are combined up the hierarchy: from indicator to indicative issue; from indicative issue to dimension; and from dimension to system.

If an indicative issue is represented by one indicator, that indicator's score (number on the scale) is the issue's score. If the issue is represented by two or more indicators, the indicators have to be combined or aggregated. Standard procedures for aggregation are:

- If the indicators are considered to be equally important, they are added together and then the average is taken.
- If some are regarded as more important than others, they need to be weighted according to their relative importance before they are added and averaged.
- If one indicator is judged to be critical, it can be given a veto function, overriding the other indicators.

Similarly, if a dimension is represented by one indicative issue, that issue's score is the dimension's score. If the dimension is represented by two or more indicative issues, the issues have to be aggregated following the same procedure as for indicators.

The dimensions are seen as equally important. Consequently, they are added together and the average is taken.

Analyzing the issues and drawing conclusions

Providing a clear sense of progress toward ecosystem wellbeing, human wellbeing and sustainability is one function of the Barometer. Another is to organize and present indicators and supporting data in a simple but conceptually sound framework. A third function is to stimulate and focus debate on sustainability: on the relative importance of ecosystem and human wellbeing; on the dimensions of ecosystem and human wellbeing; on the key issues; on targets; and on actions to achieve them.

Therefore a Barometer reading is simply a means to an end, not the end itself. Its purpose is to stimulate people to pay more attention to the underlying issues. Consequently, the Barometer results need to be accompanied by an analysis of the key issues. Together, the results and the analysis will enable politicians, officials and the public to draw conclusions about the conditions of people and the ecosystem, the main interactions between people and the ecosystem, and priorities for action.

Assessment involves values and judgments, from the model of the system and the goal, through decisions about aggregation, to the interpretation of indicators. These values and judgments should be made clear, so that people who disagree with them can see how alternative judgments would alter the assessment. Every part of the assessment needs to be presented in a way that allows people to use different indicators or alternative arrangements. For the same reason, the calculations involved in aggregation should be obvious and as simple as possible.

Because standards and targets are open to political manipulation, it is important to provide the information behind the Barometer readings. Users need to know what data support the indicators, the confidence in the data, and the interpretations and judgments involved in choosing, calculating and combining indicators and aggregating indicators and issues.

Partial list of indicative issues

ECOSYSTEM

Land
- Land conversion (or land naturalness)
- Land degradation

Water
- Conversion (or naturalness) of water bodies
- Fresh water quality
- Marine water quality
- Water use

Air
- Local air quality
- Condition of the atmosphere (greenhouse gases, stratospheric ozone depletion)

Biodiversity
- Ecosystem (ecological community) diversity
- Species diversity
- Genetic diversity (wild populations, crop varieties, livestock breeds)

Resource use
- Food and agriculture
- Fishing and aquaculture
- Trapping and other wild resources
- Logging
- Mining, quarrying, and oil well drilling
- Energy
- Recreational services and tourism
- Ecological efficiency of resource use
- Waste generation and disposal

HUMAN SYSTEM

Health and population
- Fertility and population (including migration)
- Mortality, disease and injury
- Food and nutrition
- Psychological health
- Health practices
- Health services

Wealth and livelihood
- Income (including debt and poverty)
- Trade and aid
- Employment
- Leisure
- Housing
- Transport
- Settlements and infrastructure

Knowledge
- Education
- Research
- Communication
- Information
- Technology

Behaviour and institutions
- Family stability
- Community empowerment
- Human rights
- Conflicts and violence
- Values and customs
- Laws and incentives
- Organizations and management
- Adaptive capacity

Equity
- Disparities in wellbeing among different groups

Booklets in the Strategies for Sustainability series:

Questions of Survival
Assessing Rural Sustainability - 40 Steps
Planning Action for Rural Sustainability - 40 Steps
Barometer of Sustainability: what it's for and how to use it
Community-based Indicators
Participatory and Reflective Analytical Mapping
Reflective Institutions

IUCN - World Conservation Union

Founded in 1948, the World Conservation Union brings together states, government agencies, and a diverse range of non-governmental organizations in a unique world partnership: over 800 members in all, spread across some 129 countries.

As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

The World Conservation Union builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

The intention of this booklet is to contribute to these goals by helping develop practical frameworks for action at local level.

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