

EOWG Stewardship Subcommittee

Guidance for Documenting Indicators of Responsible Stewardship

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Purposes of Stewardship Indicators

Perhaps the most common admonition about indicators is: be clear about their purpose(s) -- Who will use the indicators and how? This is undoubtedly important. Unfounded preconceptions about specific users and uses of social indicators have been common.^{1,2} One investigator has noted that an effort to introduce a suite of U.S. social indicators taught social scientists more about the needs of politicians than it taught politicians about the needs of society.³ Important as it is to "know one's audience," I suspect that we too must anticipate surprises and learning.

Two purposes of stewardship indicators (below) seem evident. These purposes determine the expected users in broad terms, as described below. It does not seem useful to attempt much more specificity about user groups and applications of indicators until we have indicators and discuss them with intended users.

One obvious purpose of stewardship indicators was made explicit by the EOWG in its charge to the Stewardship Indicator Subcommittee: to measure progress toward the Stewardship Objective.⁴ The idea is to inform governments and the public about how good our stewardship practices and results are, thereby informing improved public policy. This implies important audiences of government offices that influence environmental uses, and the private individuals who want to keep track of Basin stewardship. The government audience embraces much more than traditional environmental agencies, of course. Environmental stewardship is influenced even more strongly by legislatures, the judiciary, and agencies responsible for economics, development, etc.

However important this passive purpose, we have also agreed that the most useful indicators will evoke action -- they should have promise for encouraging and stimulating the social and institutional change outlined in our Objective Statement. Evoking action is a distinctly different purpose from simply informing about the status and practice of stewardship. Stewardship (and other ecological) indicators can be expected to evoke action through clarifying unacceptable disparities between where we are and where we want to be, thereby prompting change in both public policy and actions of the entire Basin community.

Necessary Features of the Indicators

In order to accomplish the two purposes above, some features seem essential for each indicator. Despite the very different purposes, the same fundamental features seem to be necessary for both.

(1) Indicators must be quantitatively defined on an explicit numeric scale (dollars, tons, days/year of environmental volunteer effort, etc.). The scale need not be a measure. Many social phenomena can not be measured directly, so must be quantified on defined scales that are often dimensionless.

(2) The existing status of an indicator, e.g., 'days/year of environmental volunteer effort,' is quantified on the indicator scale. Specify the geographic scope of "existing status." Perspective on today's status will often require indicating past status of the indicator and status in different areas, all on the same scale. (Several examples are illustrated in Environment Canada's recent environmental indicator progress report.⁵

(3) The acceptable value (or range) of an indicator must also be specified on the same scale. The acceptable indicator value (more plausibly, the acceptable range) corresponds to our Objective. We want to be within some acceptable range of indicator values. (Some, extremely oversimplified, examples are: M to N days per year of environmental volunteer effort are expected when human activities and decisions ... embrace environmental ethics and a commitment to responsible stewardship. The degree of public access to governmental decisionmaking is expected to be within the range X - Y [defined on some scale] when our Objective is met. <X mgd of water can be transferred out of the Basin per year before unacceptably compromising our Objective.) I suggest calling the indicator values (or ranges) which accord with our objective, "acceptable endpoints" on the indicator scale. "Endpoint" is a common indicator term, and "acceptable" underlines that the objective is important to reach, not just aim for. (Obviously, indicator authors are only recommending acceptable endpoints, but they are recommendations for social commitments.)

Even before an indicator is formally adopted, these three features will provide most of the information wanted by most people. They capture the essence of a specific commitment to responsible stewardship. I envision these three features portrayed as one (or a few) graphics with minimal explanatory text. I emphasize such a graphic of all indicators for two reasons. It is simple: today's unacceptable status and the objective, on one graph, can be understood by nearly everyone. Secondly it is clear, clear enough that vagueness or ambiguity can not be an issue.

Identifying numerical scales which truly indicate consequential features of the Basin ecosystem may be the most difficult part of our task. As Bertram Gross has noted of social systems generally, our system has very loose relationships among components, is not very predictable or controllable, is only partly knowable -- indeed, can be seen as an "unsystematic" system.^{6, p 33} It should not surprise us that considerable insight into this fuzzy, loosely coupled system will be necessary to identify any single numerical scale for a facet of stewardship which indicates something important -- important enough to compel change in both public policy and individual actions.

We have also emphasized seven, important criteria for judging "the most important" indicators:

1. provides information useful to environmental managers/policymakers and the public
2. is sensitive to anthropogenic change in the environment
3. is scientifically defensible
4. is cost effective
5. is quantitative and, if possible, expressed probabilistically [slight change from original wording, to acknowledge that indicator may not be measurable]
6. embraces as much as possible of overall "ecosystem health"
7. evokes action toward more responsible stewardship.

I do not elaborate on these criteria because we seem to have consensus on their meaning and importance. Authors should include evidence that the indicators meet each of these criteria.

Format of Indicator Descriptions

I do not know, a priori, whether a single format is practical for all indicators. I suggest using the following format and lengths of sections unless reasons for departure become evident. Some indicators, for instance, may seem to require more than three indicator scales and graphics. If multiple indicators are necessary to capture what is important, I only encourage as much simplicity as possible. Our generally non-technical audience has limited tolerance for details. Please get in touch with me if large departures seem important.

EXECUTIVE SUMMARY

Nature of the Indicator (1-2 para.)

(very broadly, what is being indexed to indicate what? The indicator indicates something more consequential than the indicator, per se. For instance, an indicator of environmental volunteerism, however quantified, might indicate: socially acceptable solid waste disposal practices, expected effectiveness of volunteerism under different circumstances, etc.)

Illustration of the Indicator (1-3 graphics)

Description of the graphic(s) (1-2 pages)

(indicator scale and source data, geographic scope of the indicator, today's status, temporal change and pertinent spatial variation, acceptable endpoint. All text specifically addresses the graphic(s).)

Explanation of the graphic(s) (1 para.)

(explanation limited to that necessary for understanding the interpretation [below]. It is particularly important to clarify how the scale, and points on the scale, were derived from data.)

Limitations and Uncertainties (1 para.)

(Mention the issues that probably compromise utility of the indicator more than all others, referencing full description and assessment of all limitations and uncertainties contained in the main text.)

Interpretation of the Indicator (1-2 para.)

(What does the indicator imply regarding individual action/public policy? Given this insight, what should we do? [A really consequential implication may well require more support than one indicator. One might reference another indicator(s) or additional information contained in the main text.]

[The entire Executive Summary should be 2-3 pages of text, plus the graphics. The Executive Summary should refer to issues only if they are explained in the Main Text. If it is important enough to raise in a 3-page summary, the reader deserves a conveniently available explanation of it in the Main Text.]

I also suggest creating neat, colorful slides of the indicator graphic(s), together with any other information best presented graphically in a talk. Please create slides as the synthesized information is available -- we will be giving talks soon.

CONTENTS (if helpful to the reader)

MAIN TEXT

(The main text should be as concise as clarity allows.)

Purpose of the Indicator

Nature of the indicator
(expanded, from Exec. Summary)

Value of the indicator
(Why is the indicator useful? Where? In what context?)

Illustration of the Indicator

(Expansion of corresponding Exec. Summary section, with more complete explanation and documentation.)

Description of the graphic(s)
(expanded, from Exec. Summary)

Explanation of the graphic(s)
(full explanation. It is particularly important to clarify how the scale, and points on the scale, were derived from data.)

Limitations and Uncertainties

(Describe and fully assess issues that do [or may] compromise utility of the indicator. How costly would it be to update, publish, and distribute the indicator, say, every year?)

Interpretation of the Indicator

(What does the indicator imply regarding individual action/public policy? Given this insight, what should we do? How could it be done? At what social cost, social benefit? Brief logic trail from the indicator to the interpretation, with no more embellishment than necessary. Interpretive embellishment belongs in Notes or Appendices after References Cited.)

References Cited

1. Shonfield, A. and S. Shaw. 1972. Social Indicators and Social Policy. Heinemann Educational Books, London. 151 pp.
2. Wildavsky, A. Rescuing policy analysis from PPBS. Public Admin. Rev., 29: 189-202.
3. Rose, R. 1972. The Market for Policy Indicators. pp. 119-141, In: A. Shonfield and S. Shaw [Eds]. Social Indicators and Social Policy. Heinemann Educational Books, London.
4. EOWG (Ecosystems Objectives Work Group). 1990. Ecosystem Objectives for Lake Ontario. 13 pp.
5. Environment Canada, Indicators Task Force. 1991. A Report on Canada's Progress Towards a National Set of Environmental Indicators. SOE Report No. 91-1. Environment Canada. 98 pp.
6. Gross, B.M. 1966. State of the Nation: 'Social Systems Accounting. Tavistock Publications, London. 166 pp.

NOTES or APPENDICES (if useful)

file: GUIDANCE