UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: JUL 09 1993

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SUBJECT: Brief on Scope of Responsible Stewardship

FROM: Joel O'Connor Joel O'Connor

TO: Subcommittee Membership

At the conclusion of our June 29 conference call I promised a written brief to help the Subcommittee clarify the scope of stewardship indicators for EOWG purposes. It is attached. Comments from all addressees are welcome prior to our next (yet unscheduled) meeting.

I also attach a new Subcommittee report hastily drafted for EOWG in June, and an updated membership list. Please let me know of any errata or addenda in either.

Attachments

cc: Paul Bertram, GLNPO
Trefor Reynoldson, CCIW
Susan Bloss, EPA, Niagara Falls
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Responsible Stewardship:

How to Indicate It, for EOWG Purposes

Joel O'Connor

July 1993

My main thesis is that a sufficient, useful suite of Lake Ontario responsible stewardship indicators should, early on, weight the full spectrum of environmental perspectives within the Basin community. This is important because recommendations for cultural improvements based upon one or a few perspectives alone are so often misguided. A planner put it well:

People concerned with information, education, morals, civic law or law enforcement, and norms, traditions, and informal social controls characterize or diagnose environmental problems from their own perspectives. They see the problems as failures of information, of education, of self-control and public-spiritnedness, of administration, of social norms or of the legal system. Each emphasizes the absence of whatever his own profession looks to in the exercise of social control. More than that, each will seek a solution by repairing or extending or creating a price system, an information system, an administrative system, an adjudicatory system, or a system of ethics and morality according to what his own discipline understands best. There is nothing necessarily wrong with that unless each supposes his own perspective to be uniquely correct.

T.C. Schelling
Incentives for Environmental Protection.
MIT Press, 1983.

Our Stewardship Indicator Subcommittee embodies perspective in engineering, the natural and social sciences, the law, and administration. Our collective perspective is probably broader than most governmental committees, but it does not begin to embrace "environmental stewardship." As a direct consequence I believe we risk unduly limiting the scope of stewardship indicators to: (1) those "with identifiable stewards" (reflecting understandable agency proclivities to deal with identifiable individuals or institutions?), (2) those 'reflecting voluntary activity more than command/control and other coercive influences' (reflecting professional adherence to the dictionary definition of "stewardship?") and (3) those 'which indicate stewardship, per se, relatively uncontaminated by regulatory coercion, economic trends, self interest and other influences' (reflecting a professional desire for neat, rigorous results?).

The above three criteria for acceptable stewardship indicators have been emphasized by Subcommittee members from time to time. The same criteria were stressed without strong objection again at the May 1993 Stewardship Indicator Workshop in Buffalo. As recently as June 1993, I understood four of six Subcommittee members in teleconference to view the scope of stewardship indicators as limited to voluntary, environmentally responsible

thought or behavior. I suggest we consider each of these criteria appropriate so long as none of them are invoked so rigidly as to rule out truly valuable indicators with substantial stewardship content. Which indicators are "truly valuable" will become evident only in the future of course, but the Subcommittee has agreed that the most important indicators will "evoke action toward more responsible stewardship." It seems to me that this 'action evoking' criterion (together with the six additional criteria in our agreed "Guidance for Documenting Indicators of Responsible Stewardship," April 27, 1972) should balance our emphasis on the three criteria in the first paragraph.

I am particularly concerned about emphasis upon the third criterion above (p. 1, para 1) if the contaminating coercion, self interest, etc. can be shown to derive from responsible stewardship in the traditional sense. For instance, most environmental laws, taxes, regulations and judicial interpretations (all coercive) derive with near certainty from the prior exercise of stewardship [however complex, even opaque, its contribution to social/legal coercion]. Some must first voice and initiate the ethical imperatives of stewardship necessary for sustainable development. But, as Garrett Hardin has convincingly stressed, relying just on our conscience [just on responsible stewardship] inescapably rewards the consciencesless and leads to social cruelty. Sooner or later conscience and voluntary activity must evoke action by the community. Effective community action requires "mutual coercion, mutually agreed upon." This is as close as we can expect get to the freedom we want -- "freedom through law" [G. Hardin, Exploring New Ethics for Survival, Viking Press, 1968, pp. 128-132]. The degrees of reliance upon coercion <u>vice</u> conscience and moral suasion vary from culture to culture of course.

However accurate and clearly defined some of our indicators may seem to be, we should keep in mind the indistinct and loosly coupled social phenomena they "indicate." For instance, the responsible stewardship content of the proposed indicator, Toxicant Loss from Manufactured Products has been challenged because the stewards who would cause changes in the indicator are not immediately identifiable. But, assume that the indicator does clarify which manufactures contribute estimable losses of mercury, and reliably quantifies the mass contributions of batteries, paint, etc. to L. Ontario. Say that this knowledge, together with stewardship exercised variously, suffices to implement cost-effective and reliable programs (voluntary, regulatory and green taxes) which virtually eliminate mercury loadings to L. Ontario from manufactured products in 10 years. According to this plausible scenario, the indicator has both evoked action and measured progress toward consequent, more responsible stewardship by the Basin community. In such a case, only some of the specific stewards would probably be identifiable, among the public, in legislatures, agencies and

firms. However, this component of virtual elimination would not have occurred without the prior voluntary activity driven by ethics, nor without later contamination by coercion and self interest. The indicator will have stimulated and documented responsible stewardship by the community, however fuzzy and confounded "stewardship" is in this context. In sum, given my scenario, I suggest that the community is appropriately considered the steward of virtual elimination of mercury loss from manufactured products. Similarly, few could doubt that many of the most promising trends toward EOWG objectives owe much to voluntary, selfless stewardship motivations, intentions and behaviors: e.g., (1) legal and regulatory frameworks indicated by the very existence of EC, EPA, the GLWQA, LOTMP, etc.; (2) strengthening of community support for somewhat coercive, green actions by government and industry, presumably indicated by rapid growth in corporate and public volunteerism; (3) increasingly open and honest accounting of our wastes and resources (actual toxic release inventories, progress toward true national resource accounts, etc.), indicated by initial efforts to define these accounts.

This argument can obviously be carried too far. Indicators, however valuable to someone or other, which lack substantial and evident stewardship content are outside the Subcommittee's terms of reference.

Broadly, I believe that we will pick truly valuable indicators by energetically seeking the broadest feasible perspectives within the Basin community on what responsible stewardship is, not by emphasizing constraints on its scope or insisting on its minimal contamination by other factors.

This brief has not yet addressed the issue of what constitutes a "sufficient" suite of responsible stewardship indicators for EOWG purposes. Our Subcommittee charge is to identify (but not necessarily fully specify) one or more measurable indicators of progress toward attainment of ecosystem objectives which, in turn, ensure achievement of the EOWG ecosystem goals for Lake Ontario. The directly relevant goal is societal recognition of our capacity to cause great changes in the ecosystem and conduct of societal activities with responsible stewardship for the Lake Ontario Basin. Our explicit stewardship objective is: "Human activities and decisions shall embrace environmental ethics and a commitment to responsible stewardship" (P. Bertram and T.B. Reynoldson, J. Aquatic Ecosyst. Health, 1:85-95, 1992).

All of the proposed indicators reviewed at the May 1993 Stewardship Indicator Workshop, and subsequently recommended by the Subcommittee to EOWG, seem to be viewed generally as useful indicators of stewardship, although some reviewers require additional evidence that particular indicators will be useful or truly indicate stewardship when fully defined. However, this

suite of eight indicators does not seem sufficient to indicate progress in stewardship. The suite does not address three components of stewardship, changes in each of which is often cited as essential to achieving sustainable development: education, economics and true resource accounting. Barbara Knuth's proposed survey of stewardship motivators, intentions, behaviors and barriers could indicate perceptions regarding each of these lacunae, but is not designed to indicate the consequences of greener education, economics or resource accounts.

It now seems appropriate for the Subcomittee to develop a recommendation for the EOWG regarding how we should address or defer these gaps in stewardship characterization and quantification of our objective. Please consider this issue before the Subcommittee meets again.

file: STEWIND.DEF

EOWG Subcommittee on Lake Ontario Stewardship Indicators

Progress Report

June 1993

The several Lake Ontario stewardship indicators discussed or partially developed by the Subcommittee have been narrowed down to eight indicators hereby proposed to the EOWG. The Subcommittee feels that these indicators have been discussed widely enough to recommend their application although none of them are yet fully documented for the entire Lake Ontario Basin.

Several indicators previously discussed by the Subcommittee are no longer under consideration. Some of these seemed unsuitable within our terms of reference, others were unduly difficult to quantify or interpret. Leaders have not come forward to develop some additional indicators which seem to have promise. The Subcommittee is now seeking additional expertise which might help us develop this last category of promising indicators.

Indicators Under Consideration and Recommended to EOWG

The eight recommended indicators are outlined on the attached figure within a "matrix" structure which seems to be a useful categorization of the proposed indicators, and others which may be defined in the future. The matrix attempts to capture environmental "stewardship" within four broad categories of human values, thought and action:

Stewardship Motivators: the extent to which people believe they should engage in responsible stewardship.

Stewardship Intentions: the extent to which people express a commitment to responsible stewardship.

Stewardship Behaviors: the extent to which people's activities reflect responsible stewardship.

Barriers to Stewardship: The extent to which people perceive that they are prevented from acting on their motivations and intentions to practice responsible stewardship.

In addition to using these categories to clarify the structure of "stewardship," we propose a Stewardship Indicator Survey of people within the Basin to quantify these these facets of stewardship as indicators. The Subcommittee recommends to EOWG that this proposal be supported in two parts: (1) an inexpensive pilot survey designed to illustrate the value of survey

stewardship indicators and optimize the design of a full-scalke survey, and (2) a more expensive, full-scale survey which will provide useful indicators. A formal proposal for the pilot survey is soon to be submitted to the EOWG for joint U.S. and Canadian support.

1. Stewardship Motivators

Purpose: Quantify values, concerns, perceptions of gain and loss and other stewardship motivations. Determine how motivated particular subpopulations are to act as stewards.

Features of the Indicator: Quantified values, etc. of the public and leaders in Federal, state and local governments, business, education, environmental and research organizations. Endpoints will be proposed relative to the motivations presumed necessary for sustainable development. Formal, governmental endpoints would obviously require extensive debate by the community.

Illustration: The indicator will be summarized by very few graphics. Indicators of motivation can be displayed for the Basin community; groups with particular sociodemographic and economic characteristics; and for particular public, corporate and governmental groups.

Limitations and Uncertainties: The indicator will estimate motivations of people in the L. Ontario Basin when surveyed. Historical estimates are not possible. The indicator is subject to the same uncertainties and limitations as all carefully designed surveys. Subgroups of particular interest must be identified before the survey to ensure adequate sampling of the subgroups.

Interpretation: Useful inferences can be made about the distribution of values, perceived gains and losses, etc. These interpretations of how specific groups are motivated will be much more reliable than the unanalyzed assumptions commonly used by government, other institutions and the public. With more reliable understanding of stewardship motivations, it will be easier to achieve the common goals of agencies and other groups within the Basin.

2. Stewardship Intentions

Purpose: Quantify the extent to which people, and specified groups,express commitmentenvironmental stewardship. For example, estimate the extent to which people are willing to pay "pollution taxes," help environmental remediation efforts, etc.

Features, Illustration and Limitations: similar to above

Interpretation: Reliable inferences about the Basin community's intentions are routinely sought by government, the private sector and other groups. Such inferences are valuable not only to these groups, but would indicate how far people are actually willing to go as stewards.

3. Stewardship Behaviors

Purpose: Quantify what people are doing, and how often, to fulfill stewardship responsibilities. E.g., resource consumption levels, avoidance of degrading products, and significance of the behavioral indicators estimated apart from the survey (# 5-8, below).

Features, Illustration and Limitations: similar to above, but particular endpoints are more readily defined than for motivations and intentions. For instance, many are already required to recycle, dispose of toxicants in prescribed ways, etc.

Interpretation: Reliable measures of stewardship behaviors indicate what is actually being done to and for the environment. Given an agreed endpoint, this indicator clarifies unacceptable disparities between where we are and where we want to be.

4. Barriers to Responsible Stewardship

Purpose: Analysis of perceived reasons why personal/institutional behaviors do not equal intentions. The measure is the distribution of perceptions, classified by group.

Features, Illustration and Limitations: similar to above

Interpretation: Specific barriers to responsible stewardship can be identified: misperceptions about costs of responsible stewardship, perceived access to information and influence, perceptions about L. Ontario fishes and fisheries. Inaccurate perceptions, within government and elsewhere, inhibit responsible stewardship often dramatically.

5. Corporate Volunteerism

Purpose: Numbers of firms making voluntary, corporate initiatives to: reduce mass loadings on the environment, inform others of corporate activity, support environmental remediation, etc.

Features of the Indicator: Summary of corporate, volunteer, stewardship activities throughout the Basin.

Illustration: The indicator will be summarized by very few graphics.

Limitations and Uncertainties: Incomplete data gathering and potential reporting bias, which are to be clarified to the extent possible.

Interpretation: Documented successes and failures of Corporate Volunteerism will highlight opportunities for additional areas of toxics control, voluntarily and by the LOTMP and the prospective Lake Ontario LAMP.

6. Environmental Volunteerism by Public.

Purpose: The indicator attempts to quantify the level and kinds of voluntary environmental stewardship actually practiced within the Basin. This improved understanding of the activities and concerns of volunteer groups will make it easier for the Parties to form partnerships with the public.

Features of the Indicator: It summarizes the number of groups engaged in voluntary activities, and number of volunteer hours devoted to particular environmental activities, e.g., encouraging "green" consumer behavior, environmental cleanup, information gathering and exchange, lobbying, education, monitoring, advocacy, restoration, and RAP participation.

Illustration: The initial report on Environmental Volunteerism by the Public (now limited to Ontario) interprets a table of the numbers of volunteer groups and person hours devoted to specific voluntary activities.

Limitations and Uncertainties: The indicator has the uncertain and potentially biased coverage of all voluntary activity in the Basin which accompany inexpensive polling of data from volunteer groups. However, this inexpensive means for gathering volunteer activity seems to be reliable enough for our purposes.

Interpretation: Interpretations of temporal change will be aided by insights from the Stewardship Behaviors indicator. The Behaviors indicator will include survey questions designed to help interpret the reasons for changes in the level and types of Environmental Volunteerism. Even with limited knowledge of such changes, however, understanding the intensity of specific kinds of volunteer activity would help indicate the strengths and weaknesses of the Parties' policies and programs.

Schedule: Canadian side done
U.S. side in progress w/ help of NYS DEC

Cost: $0-5 K

7. Toxics Release Inventory

Purpose: The Toxics Release Inventory (TRI), compiled by the U.S. EPA, supplies useful information, for the U.S., on about 302 toxicants released to the environment by firms, and toxicant transfers across state lines. This indicator can be used to estimate geographic distributions, and changes over time, of specific toxic releases to particular media from manufacturing and storage sites. This knowledge can help refine toxicant mass balance estimates of the LOTMP and the prospective Lake Ontario LAMP.

Features of the Indicator: The TRI charts the actual release data, in millions of pounds, for each industrial plant which must submit release data, in each of the New York counties within the Lake Ontario Basin. The data comes from reports submitted annually. The endpoint of the indicator would be the virtual elimination of persistent toxicant releases.

Illustration: The indicator is to be summarized annually. A draft indicator summary for U.S. data (provided to EOWG) is presented as bar graphs depicting both the total emissions and emissions by county for the years 1987 through 1990. [1991 data will be available this spring, and will then be added.] Data will also be summarized geographically (on a base map), providing better illustration of where emissions come from and how they have changed over time.

Limitations: Dince industries must report their toxic emissions annually, gathering data for this indicator requires little effort. The indicator is limited to manufacturing and storage emissions only, and from rather high thresholds of emissions which must be reported. The accuracy of the data is debatable because the toxics emissions reports are not audited by the EPA.

Interpretation: The TRI provides useful quantitative information on emissions of individual and total toxic emissions, to help monitor toxicant fluxes in the environment, and as an indicator of industries' stewardship behavior. Although some emission reductions result from a reduced industrial base in recent years, much of the recent reductions can be attributed to genuine efforts on the part of industry to decrease chemical usage and lower toxic emissions.

8. Toxicant Loss from Manufactured Products.

Purpose: This indicator provides the only apparent estimate of toxicants lost to the environment from use, disposal and breakdown of manufactured products (often largest fraction of toxicant release, but typically estimated only qualitatively as non-point sources).

Features of the Indicator: Report every 3-5 years, estimating individual and total toxicant loss to environment from products manufactured within the Basin, and within watersheds.
The measure is mass of individual and of total toxicants incorporated in manufactured products, and rates of toxicant loss from products to the L. Ontario Basin.Estimates of these toxicant losses are made inexpensively from knowledge of the particular toxicant mass used by Standard Industrial Categories of industry, and knowledge of each industry's operations and toxicant losses.

Illustration: Emphasis will be on simple, graphical illustrations of mass emissions and the media receiving them. The indicator, per se, for each toxicant indexed, will be presented within the context of a Lake Ontario mass balance for the chemical. (Many of the mass reservoirs and fluxes will already have been estimated by others of course.) This mass balance context of the indicator should improve the accuracy and veracity of both the indicator and current mass balance estimates.

Limitations and Uncertainties: The major uncertainties derive from the relatively few peer-reviewed examples of the inexpensive strategies used to gather the data for the indicator. Toxicant losses are generally considered too costly to measure, and are estimated by difference within a mass balance model.

Interpretation: For at least some chemicals, the indicator estimates should improve the reliability of existing mass balances (which seldom quantify toxicant loss from manufactured products). For many chemicals seldom measured in the environment, mass balances can not be estimated. But these estimates may provide the missing components needed for mass balances for these additional chemicals.
Also, new knowledge of large loadings of particular toxicants, and the products from which large loadings derive, would be important in decisions to impose or encourage pollution prevention, recycling and modifying consumer behavior (public, corporate and governmental).

In addition to the above indicators, population density of watersheds within the Basin is being summarized to help interpret most of the indicators. However, population density summaries will not constitute an indicator.