

December 14, 1991

To: Joel O'Connor, Chair  
EOWG Subcommittee on Indicators of Responsible Stewardship

From: Sally Lerner  
Dept. of Environment and Resource Studies  
University of Waterloo, Waterloo, Ontario, Canada N2L 3G1

We have been asked to identify measurable indicators of progress toward the stewardship objective, described in these terms: "responsible stewardship includes educating society about current resource uses and practices which jeopardize ecosystem integrity; advocating environmentally-sound behaviour in individuals and communities; and making changes to activities which contribute to the degradation of the ecosystem."

Because this is a very general description of stewardship, it seems to me that our selection of indicators will inevitably shape and sharpen the concept.

Interestingly, the definition above does not say who should do the educating, advocating and changing. However, it seems likely that stewardship efforts would be undertaken by both government and non-government actors. As I mentioned to you, and you noted in your memo of Oct. 10, the number and activities of local environmental groups (which I call "volunteer environmental stewardship" groups) could constitute one indicator of the extent of responsible stewardship for Lake Ontario. Of the 200 Canadian Great Lakes groups for which I have data, 60 percent engage in educational activities, 58 percent in some type of monitoring, 54 percent in advocacy efforts, 45 percent in restoration, 28 percent in conservation and 25 percent in preservation. Most groups engage in more than one of these stewardship activities. While it is possible to obtain estimations from the groups as to what they have accomplished through their efforts, these are difficult to validate or quantify, and an argument can be made that simply the extent of engagement in stewardship activities is a useful indicator.

Umbrella organizations such as the Ontario Environmental Network (OEN) and its US counterparts that annually publish directories of these groups are well-positioned to gather the data required to track the groups' numbers and activities. I will soon transfer my data base to the OEN, which will annually update the information on activities (and needed resources) for the groups in the data base as well as for their larger membership. This is the beginning of one type of indicator system.

An interesting approach to developing indicators for the stewardship activities of government agencies is suggested by Knuth and Nielsen: (1989) Social and Institutional Performance Indicators for Wildlife and Fishery Resource Management Systems, a copy of which is included with this fax.

Also included is a draft set of "Indicators for a Sustainable Society" developed by John Robinson and several of us who are part of the Sustainable Society Project (SSP) here at U. of Waterloo. I will soon (when time permits!) be preparing a paper to develop the concepts in Chart B., which is of particular interest to us.

I hope these thoughts will stimulate some good discussion at the January meeting.

Best regards,

Sally

## **Notes on SSP Indicator Diagrams**

**John B. Robinson**  
**Department of Environment and Resources Studies**  
**University of Waterloo**

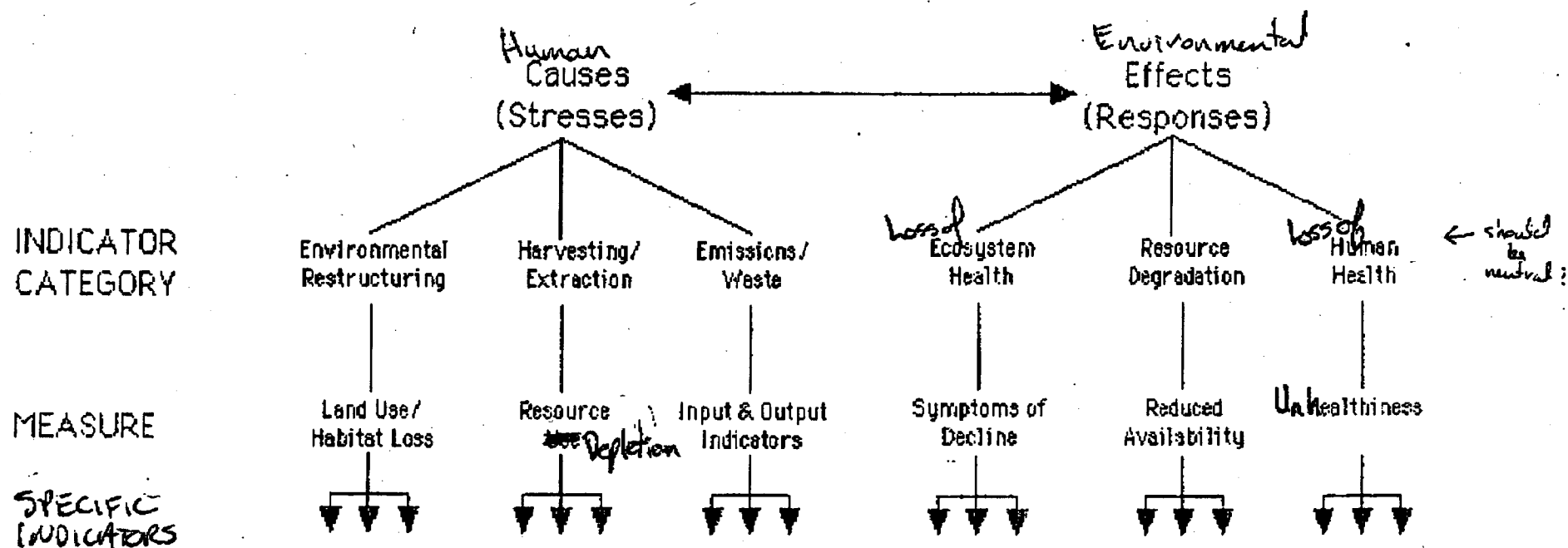
**March 14, 1991**

The attached diagrams are intended to outline a general approach to environmental indicators. Several features are important:

- The general focus of this approach is not upon the underlying ecological theory, but on the practical problems we all know already exist. The framework would of course be refined as knowledge improves.
- The approach uses a stress-response framework. It isolates three general stressor categories: harvesting/extraction, environmental restructuring and waste generation; and three impact or response categories: ecosystem maintenance, sustainable resource use and biotic diversity. These generally conform to the IUCN World Conservation Strategy categories.
- We believe that it is important to develop indicators both of the state of the environment (A), and of our responses to that state (B). The same stress-response model can be applied to human responses, giving a useful typology of types of response: avoiding causes and responding to effects.
- Each indicator category is envisioned as the top of a pyramid of more disaggregated and detailed indicators, but we have not yet attempted to determine what these might be. The framework is intended to provide a means for developing a hierarchy of indicators.
- The highest level indicators are not envisioned as comprehensive summary indicators, but as sample indicators for the category in question (e.g. an example of resource depletion, or of waste levels). If used with care, these high level indicators could be used to provide a general snap-shot of the state of the environment or human responses to environmental decline.
- It is possible to imagine a bi-annual environmental indicators report, with detailed description of the hierarchical set of indicators, and considerable media coverage when the indicators report comes out. The high-level indicators, however, could be reported more regularly in a newspaper masthead display format, somewhat like the pollution indices carried by many papers.

# INDICATORS FOR A SUSTAINABLE SOCIETY

## A. State of the Environment

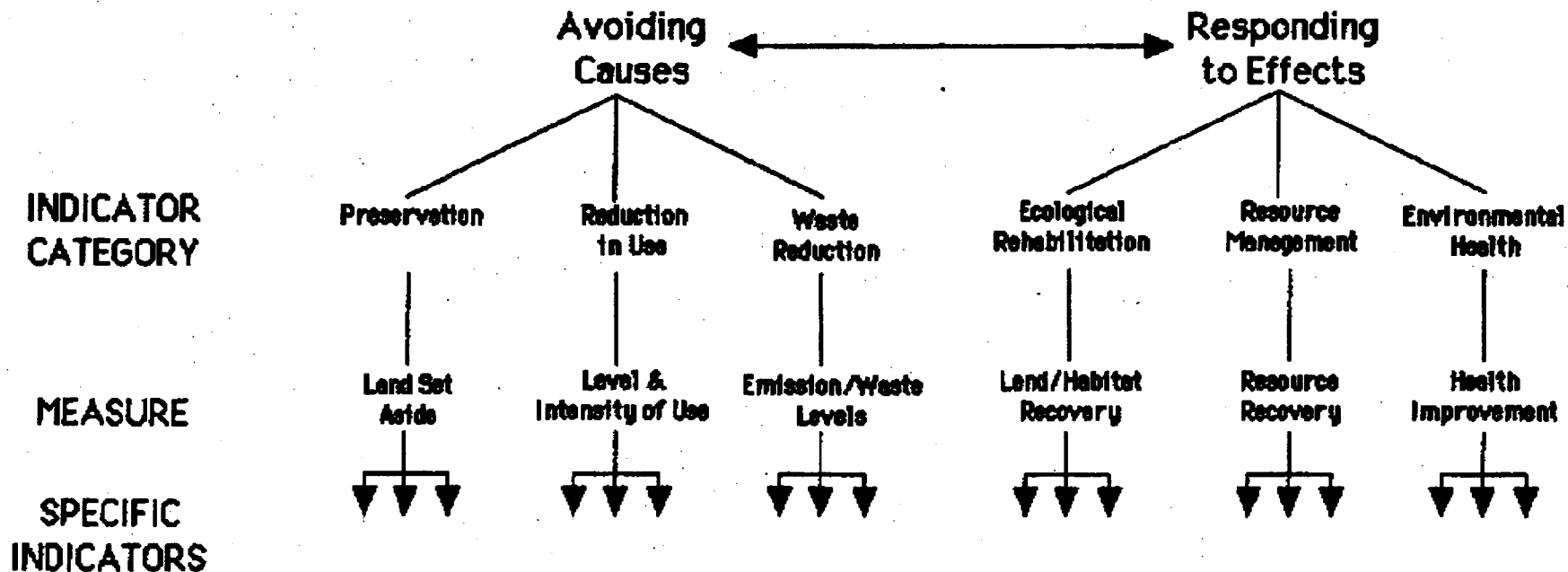


### Notes:

1. Within each of the Indicator Categories, a hierarchy of indicators, ranging from general to specific, should be developed.
2. Specific indicators might usefully be categorized as either *rate* (flow, intensity) *or* *magnitude* (stock, activity) indicators.  
*in terms of both and*

# INDICATORS FOR A SUSTAINABLE SOCIETY

## B. Human Responses to Environmental Decline



### Notes:

1. Within each of the Indicator Categories, a hierarchy of indicators, ranging from general to specific, should be developed.
2. Specific indicators might usefully be categorized in terms of both rate (flow, intensity) and magnitude (stock, activity) indicators.