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Lake Ontario Indicator of Responsible Stewardship:

Regional Accounts of the Basin

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Why are Regional Accounts Important?

The indicator quantifies dominant economic and resource stocks (capital) of the Lake Ontario basin. The principal purposes of these regional accounts are to (1) inform people and governments of how their regional capital is being used, and (2) stimulate reconsideration of today's stewardship. The importance of knowing the true bank account, including natural resources, of one's own community should not require lengthy rationales.

Where appropriate (for the Gross Regional Product), the indicator units are dollars (mean of \$ U.S. and \$ Canadian, 1990 value). Stocks not appropriately accounted in dollars (water, land use, etc.) are scaled as indicated below.

Description of the Indicator

Indicator 1: Gross Regional Product = conventional Gross Regional Product - "defensive expenditures"

As conventionally calculated, the gross regional product is

The recommended measure of gross regional product debits expenditures that are not truly productive. That is, costs that are "defensive," spent to protect us from our way of life, are not legitimate contributions to regional productivity. Such costs include, for example, pollution-control and environmental remediation expenditures.

These costs, not now known ^{for the Basin,} are readily calculable. These costs for the Basin must be consequential and growing. Total aggregate pollution control costs alone for the U.S. were estimated to be \$ 115 billion, or 2.1% of the GNP, in 1990¹. Even assuming that recent rates of increase continue, these costs would exceed 5% of the U.S. GNP well before most of today's workforce retires. Further, EPA's estimated pollution control costs do not capture all of the "defense expenditures" Another, partial, early and

(A) on p. 2

AG

The U.S. EPA ~~has~~ estimated that \$19 million will be required to remove (and dispose of?) PCB-contaminated ³sediments from Waukegan Harbor, Illinois. The Toronto Harbor Commission estimates that \$320 million will suffice to "clean up" contaminated industrial lands of the Harbor, and that the cleaned land can again be commercially developed, "thus paying for remediation." 3, p. 38

3. IJC 1991. Cleaning Up Our Great Lakes. A Report from the Water Quality Board to the IJC on Toxic Substances in the Great Lakes Basin Ecosystem. IJC, Windsor and Detroit. 46 pp.

(15)

~~$I = f$ (L. Ontario lake level (m),
annual total input (mi^3 & km^3),
annual ~~Basin~~ export from Basin via
engineering structures (mi^3 and km^3))~~

~~Quantitatively,~~

~~total~~, on one figure,

Indicator 2 portrays the temporal changes in:

- (1) mean annual ~~to~~ Lake level (m),
- (2) annual total input of water (mi^3 and km^3), and
- (3) annual water export from the Basin via engineering structures (mi^3 and km^3).

The implications of these indicators values require succinct interpretation. Warning endpoints of the indicators are (1) annual mean fluctuations in Lake level of $> \text{--- m}$, (2) annual decrease of $> 5\%$ ~~to~~ from 1980-89 mean input and (3) annual increase of $> 5\%$ from 1980-89 mean export from the Basin.

"very conservative" cost estimate for cleaning up just 10 Great Lakes areas of concern ranged from \$2.9 to 3.4 billion.² ← (A)

Indicator 2: Care of Water

Standard The indicator tracks where water in the Basin comes from and where it goes, naturally and through human ~~forcing~~ engineering. Conventional water budgeting conventions are used in units of mi^3 and km^3 . Features of the indicator of greatest interest are (1) Basin input rates, ~~and~~ (2) human-dominated rates of export from the Basin, and Lake level (m),
(3) mean annual

← (B)

Literature Cited

1. U.S. EPA. 1990. Environmental Investments: The Cost of a Clean Environment. A Summary. EPA-230-12-90-084. (NTIS: PB91-153783) U.S. EPA, PPM-21, Washington, DC.
2. Leger, C. 1989. Cleaning up Great Lakes Areas of Concern: How Much Will It Cost? Northeast-Midwest Inst., Washington, DC. 45 pp.

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