

Possible Article for Newsletter "DELTA"

GAIA's Cancer:

The Human Dimensions of Global Change

Rod Dobell

Human interactions with the natural systems of planet Earth form an important part of the processes of global change. Scientists studying what appear to be unprecedented changes in the composition and dynamics of the oceans, the atmosphere, and terrestrial ecosystems have identified "anthropogenic impacts" as important forcing functions in their models.

Moreover, it is clear to any observer that changes in climate, in vegetation, forest cover, marine life, groundwater or other environmental features can have dramatic, even catastrophic, impacts on social and economic circumstances, institutions, and prospects.

The responses of individuals, organizations or governments to such impacts are complex, and difficult to study. But obviously behaviour will be affected and activities altered, with the consequence that future levels and patterns of discharges from human sources will be different, and their influence on physical or bio-geochemical processes again altered in turn.

Thus, in this continuing interplay and evolution, three broad elements in the human dimensions of global change can be distinguished: the loading of anthropogenic influences on the ecosystems (the impact of human activity on global processes); the impact of global change on the human condition; and the human response to those impacts.

Understanding the first two is primarily a matter of measurement and mapping, of unprecedented scale and sophistication. Understanding the link between the two -- the explanation of the human response to the natural world, and thus of the reasons for the extraordinary human impacts upon it -- calls for exploration deep into the social sciences and humanities, to the underlying foundations of our beliefs and perceptions, values, and attitudes toward risk and time, as well as to cultural and social institutions and the decision processes embedded in them.

Within the Canadian Global Change Program, the work of the new "Human Dimensions of Global Change" committee is directed toward these issues. With the support of the Social Sciences and Humanities Research Council, initial working groups have been established to examine: Risk Perceptions and Assessment, Values and Culture; Environmental Security; Energy; Critical Zones and Vulnerable Populations; and Institutions and Decision Processes. Draft outlines of initial work programs for these groups are to be discussed at the 1st Annual Assembly of the Canadian Global Change Program in Toronto in mid-April, and later, with luck, at workshops around the meetings of the Royal Society of Canada in Victoria in early June.

(The organisational structure now in place for this work, and its intended relationship to on-going international activities related to the same topic, is sketched in the attached little diagram.)

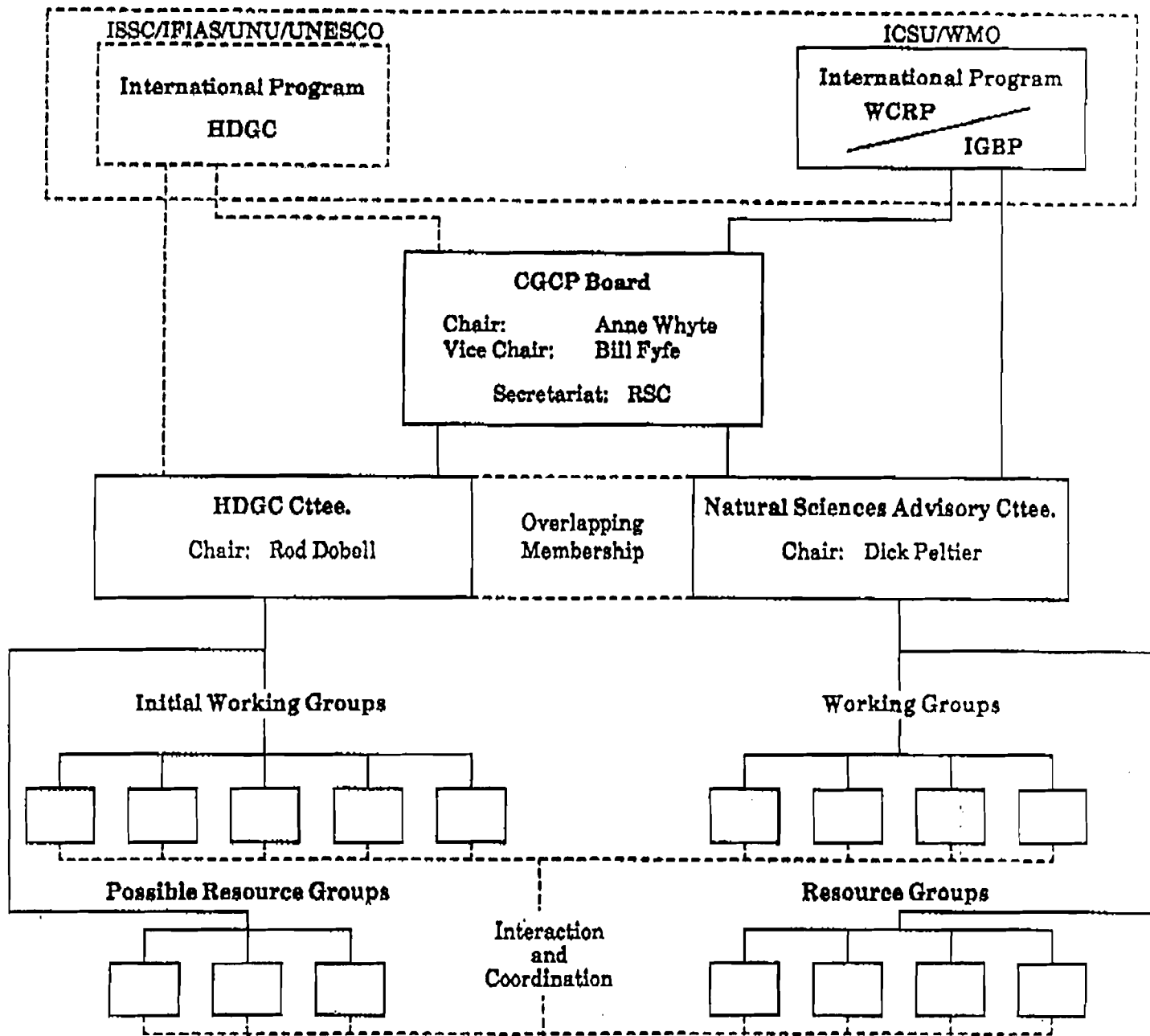
Many serious scholars argue that the sensational starting point for this discussion --

dramatized as the diagnosis of GAIA's cancer -- is simply misguided as an observation, or as a premise. They note, for example, that measured by trends in supply price -- the only reliable aggregate indication of scarcity -- world resources have never been more plentiful.

Others note the weakness of any signals of persistent global trends relative to the noise of cyclical fluctuations, and the weakness of present models in predicting either. Many have emphasized the absence of concrete evidence underlying contemporary fears about environmental risks (associated with toxic chemicals, for example) relative to those we assume readily in every aspect of modern life.

The goal of the HDGC work is, through discussion and elaboration of the conflicting scientific evidence, to bring greater resolution and greater (though never complete) certainty to our interpretation of such issues, and thus greater coherence to public policy in the whole "environmental" field. Whether the intense current concern with environmental matters will prove to be the cultural "hula hoop" of the 90s, or the death-bed conversion of a species that has already condemned itself and its fellow inhabitants of planet Earth, or the beginnings of a sustainable co-existence is an issue worth sorting out and understanding. The goal of the HDGC component of the Canadian Global Change Program is to mobilize on-going academic work in seeking that understanding and using it to strengthen individual and collective decisions in the formation of public policy in Canada, and internationally.

Organizational Structure for Canadian Global Change Program (Excerpt)



HDGC Working Groups:

1. Risk Assessment, Public Perceptions, Values and Culture
2. Environmental Security
3. Energy
4. Critical Zones
5. Institutions and Sustainable Development

Possible Resource Groups

1. Data Capture and Data Base Management
2. Global Modelling
3. Methods of Policy Analysis

IGBP/WCRP Working Groups

1. Arctic-Atmospheric Interactions
2. Global Models and Processes
3. Marine-Atmospheric Interactions
4. Terrestrial-Atmospheric Interactions

Resource Groups

1. Data and Information Systems
2. Proxy Environment Data
2. Regional research Centres
4. Remote Sensing

| | | | |
|------|---|--------|---|
| CGCP | Canadian Global Change Program | IFIAS | International Federation of Institutes of Advanced Studies |
| HDGC | Human Dimensions of Global Change | UNU | United Nations University |
| WCRP | World Climate Research Program | UNESCO | United Nations Education, Scientific, and Cultural Organization |
| IGBP | International Geosphere-Biosphere Program | ICSU | International Council of Scientific Unions |
| ISSC | International Social Sciences Council | WMO | World Meteorological Organization |