

# CURA

# reporter

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## THE ALL-UNIVERSITY COUNCIL ON ENVIRONMENTAL QUALITY

In 1971, the All-University Council on Environmental Quality was formed in response to a need for coordination of the growing number of environmental courses and activities emerging at the University of Minnesota. A chairman, Dean E. Abrahamson, and twelve faculty members from various units at the University were appointed to the Council. A year later the membership was expanded to eighteen members, with representation from most of the major academic units at the University and from each of the coordinate campuses of the University.

The Council is administratively associated with the Center for Urban and Regional Affairs (CURA) and basic financial support is provided by CURA. The Council also receives grants and contracts for other activities.

The Council's general objectives were: to serve as a source of information for faculty and students on courses and research proposals; to facilitate educational opportunities in environmental sciences; to develop public service programs; and to assist with programs, courses, and research relating to environmental quality by providing administration, fiscal support, and arrangements for course credit and evaluation.

During its first five years, the Council has promoted these objectives through a wide range of activities. Financial support has been given to numerous environmental research projects and environmental courses at the University. Information on environmental courses, programs, and topics has been provided to faculty, students, state agencies, and the general public through a bulletin of courses and programs published biennially. A daily radio program has been produced on environmental issues. In-house research projects and publications have been completed on various environmental issues.

The Council's diverse activities have contributed to the growing awareness of environmental issues and controversies. It is the only all-University group, drawing from virtually every academic unit, to deal with environmental issues. The

Council also seeks to reach persons outside the University through its role as a clearinghouse for environmental activities, legislation, and instruction.

The University of Minnesota's Mission and Policy Statement of 1975 referred to environmental programs and in particular to the role of the Council:

*Environmental Concerns (All-University Council on Environmental Quality should continue its present work): to extend the present inventory of course offerings and to determine methods by which the various collegiate efforts in environmental studies might be further coordinated.*

*The Council will work towards implementing the Statement's recommendations.*

### NEW DIRECTIONS

At the Council's spring quarter 1976 meeting, the members discussed the possibility of changing the Council's focus and operation. The members also met with representatives of state agen-

cies and state environmental groups to determine how the Council could increase its impact and how it could best serve the University as well as the public. The result of those meetings was a change in the Council's structure and operation.

An executive committee, consisting of the chairman and two members, was set up to make policy and procedural recommendations to the full Council. Financial support will no longer be offered by the Council for environmental research, programs, or courses. Requests for such funding will be referred to CURA or to other University funding programs. The Council's in-house activities—the radio program, the bulletin of courses and programs, occasional research projects and publications—will be continued as in the past.

A research seminar has been organized to discuss environmental issues facing Minnesota in the next ten to twenty years. The seminar began in November 1976 and will meet monthly until June 1977. Participants include Council members, other faculty, and representatives from business and government in Minnesota. It is hoped that the seminar will result in a summary report detailing issues that will have a significant influence on environmental quality in Minnesota during the next decades.

## Small Grants Support Environmental Programs and Research

During the past two years the Council has supported numerous research projects and programs related to the environment. (See *CURA Reporter* December 1974 for previous Council grants and activities.) Following is a brief description of those projects and programs. *For further information contact individual faculty listed with each project.*

### Research:

*Study of Heron and Egret Rookeries of Pig's Eye Lake as a Measure of Environmental Quality*

Dwain Warner, Professor and Curator, Bell Museum of Natural History, Minneapolis Campus.

This is a continuing study concen-

trating on measurements and observations of the heron and egret rookeries and the effects of humans on their behavior. Observations were made on the breeding behavior of the herons and egrets and a detailed study was made of the vegetation structure and the positions of the rookeries and nest sites in relation to the river, barge channels, mooring sites, and river traffic patterns. The study showed that the birds are nesting in the interior of the island, taking advantage of the peripheral tree vegetation as a visual barrier and sound barrier from river activities.

*Study of Trace Metals and Water Quality*  
David Gerhart, Assistant Professor, Biology, Duluth Campus.

The project studied periphyton growth at Castle Danger on the north-shore of Lake Superior. Observations were made of the responses of Lake Superior algae to inputs of phosphorus and micronutrients under nearly natural conditions of light and temperature. This is an ongoing study concerning the problem of how phosphorus and trace elements interact to determine algal community structure in Lake Superior.

#### *Study of Effects of Timber Cutting on Lake Water Quality in Northern Minnesota*

H. E. Wright, Regents Professor and Director, Limnological Research Center, Minneapolis Campus

In this study a stratigraphic analysis was made of lake sediment cores to correlate the occurrence of pollen, diatoms, and other fossils with historical records of timber cutting, especially clear cutting. The project intended to study directly the comparative effects of fire and logging on the forests of northern Minnesota and will have practical significance in the Boundary Waters Canoe Area due to its implications for forest management.

#### *Environmental Noise Monitoring Procedures for the Implementation of Minnesota Noise Control Regulations*

Robert Lambert, Professor, Department of Electrical Engineering, Minneapolis Campus.

The development of noise measurement instrumentation was the primary emphasis of this study. A preliminary plan for a continuous source monitoring system was developed and a mobile van was designed for noise measurement and monitoring.

#### *Residential Energy Conservation Study*

Richard Goldstein, Professor, Department of Mechanical Engineering, Minneapolis Campus.

This is an ongoing project presently being supported by the Council. Research is concentrating on energy consumption in single family residences and information is being obtained on the energy consumption patterns in a large number of residences in the Twin Cities area. Air infiltration will be studied in detail and the possibility of measuring air infiltration in a number of buildings will be examined.

#### *Effects of Ozone on Plant Ultrastructure*

William Cunningham, Associate Professor, Department of Genetics and Cell Biology, St. Paul Campus.

This pilot project studied the alterations in plant membrane structure induced by ozone. The project sought to determine which of the cellular mem-

branes is altered by oxidant exposure, to describe the changes observed, and to establish the sequence of events. It is hoped that the techniques developed on the project may be used as screening methods for selecting ozone resistant plant varieties or to distinguish low level chronic damage to crop plants.

#### *Corporate Environmental Case Studies*

Robert Holloway, Professor, School of Business Administration, Minneapolis Campus.

The project attempted to gather material for "environmental cases" dealing with a variety of pollution problems, resource questions, growth questions, and related issues. Students compiled information on specific issues and corporate response to them, with emphasis on the managerial decision-making process.

#### *Revegetation and Nutrient Cycling Studies of Taconite Tailings*

J. McColl and H. E. Wright, Regents Professor and Director, Limnological Research Center, Minneapolis Campus.

The project objectives were to: study the effects of various plantings, tailing enrichment regimes, and site factors on plant communities grown in taconite tailings; obtain data to construct a nutrient budget for a taconite tailing ecosystem; and test the effect of tailing amendments on *Lotus corniculatus*, a species planted and grown successfully on taconite tailings, and *Festuca ovina*, a species that typically colonizes waste places. Experiments showed that seed germination for these species growing in tailings, is primarily affected by moisture stress. Early seedling productivity is a function of the amount of phosphorus and nitrogen available, nutrients which are deficient in the tailings.

#### **Programs:**

##### *National Food Day*

Alan Hooper, Professor, Genetics and Cell Biology, St. Paul Campus.

National Food Day, organized by the Center for Science in the Public Interest, Washington D.C., was held throughout the country on April 17, 1975. Activities centered around the severity of the world food shortage, rising food prices in the United States, and the declining quality of the American diet and its effects on public health. General support was given by the Council to assist in the University's Food Day Teach-in.

##### *Lake Superior Conference*

Minnesota Pollution Control Agency

In March of 1976 the Minnesota Pollution Control Agency held a conference in Duluth dealing with transportation of

hazardous materials on Lake Superior. The Council so-sponsored and assisted the PCA in structuring the program and selecting the speakers.

#### **A Library:**

##### *The Renewable Energy-Environment (TREE) Collection*

Perry Blackshear, Professor, Department of Mechanical Engineering, Minneapolis Campus.



The TREE Collection, sponsored by the Center for Studies of the Physical Environment, is a collection of papers, reports, documents, and books covering the various

aspects of both the bio-energy and solar energy fields and their relationship to the environment. The collection is housed in room 114 of the Space Science Center on the Minneapolis East Bank campus, 100 Union St. S.E. General support to assist in maintaining the collection was given by the Council.

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## **IN-HOUSE ACTIVITIES**

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### **Plutonium Report**

A grant was made to the Council by the New Hope Foundation to prepare a public report for the National Council of Churches on the problems and questions about nuclear power, in particular plutonium and the breeder reactor, and on the broad social and ethical implications of nuclear power. Dean Abrahamson prepared a background report, *The Plutonium Economy: A Statement of Concern*, which discussed the nuclear fuel cycle and the hazards associated with it as well as the social implications of the proposed plutonium economy. An appendix to the report was also prepared which contained a number of articles dealing with the difficulties posed by plutonium. The report and appendix were submitted to the National Council of Churches in October 1975.

### **Land Use Report**

Steven Emmings, Council research assistant, prepared a report on land use control, *Public Control of Privately Owned Land: Approaching Land Use From the Legal Perspective*. Included in the report is an article by Alan Freeman, professor in the law school, on the historical development of public restrictions on the use of private land. The appendices discuss some recent expansions of Minnesota's power to control private land use. A short glossary of land use terms and a list of suggested read-

ings are included. The report was distributed throughout the state to individuals and groups interested in land use control. It is the first of a proposed series of Council reports for the general public on environmental issues. Other possible topics include sewage disposal and transmission lines.

### Bulletin of Courses and Programs

A bulletin of environmental courses and programs was one of the Council's first projects and has been continued, a bulletin being published every two years. The bulletin lists courses, programs, facilities, libraries, and other activities relating to the environment. In 1974 the decision was made to also include courses and programs in urban studies and planning. *Courses and Programs in the Environment, Urban Problems, and Planning* was published in December 1974. The current edition, 1976-78, was released in December 1976 and can be obtained from the Bulletin Office, Admissions and Records, Minneapolis Campus, or Coffey Hall, St. Paul Campus.

### Common Ground

*"I believe more environmental information has been introduced to the general, otherwise non-involved, public through this program than through any other means in the State of Minnesota."*  
Marion Watson, Program Director, KUOM, and Chairperson, Minnesota Pollution Control Agency.

The Council's radio program *Common Ground* was begun in the fall of

1973. Produced through the University radio station, KUOM, the five minute daily program is offered free of charge to any radio station in Minnesota. Since the program began, approximately half of the state's radio stations (fifty) have continued to receive *Common Ground*. Station coverage as well as listener response attests to the program's continued popularity and effectiveness.

*Common Ground* attempts to present to the general public the facts and arguments involved with current environmental issues and controversies, particularly those facing Minnesota. Over the course of three years a multitude of environmental topics have been covered. During the Fall of 1976, for example, *Common Ground* presented programs on: the transmission line controversy in west central Minnesota (a three week series); Minnesota's energy future; alternative energy sources, including solar and wind energy; the increase in lead poisoning from our environment; and environmental and consumer legislation in Minnesota for 1977



In August 1976, *Common Ground* and Mary Trigg, interviewer and producer of the series, received an award in the news media category from the United States Environmental Protection Agency for "significant contributions in the field of environmental quality."

## THE TASK AHEAD

*Dean Abrahamson Reflects . . .*

For decades there has been a minimal concern with those aspects of pollution having obvious public health significance. And it has now been well over ten years since the onset of general recognition that there are other environmental problems as well. The response to the obviously deteriorating environmental quality has included the formation of many citizen organizations, passage of pollution control legislation at all levels of government, imposition of regulations, and of course, the establishment of what is now a major pollution control industry with a large contribution to the Gross National Product.

But other things have been happening as well. The deterioration of air and water quality, and the insults in the working place due to exposures to toxic materials are no longer seen as "the" environmental problems. Rather, they are being recognized as symptoms of our means of production.

It was the oil embargo, the increases

in prices of energy, and the various other components of the "energy crisis" which brought at least beginning recognition that the activities of the industrialized economies are depleting the world's store of certain natural resources. Decreasing air and water quality are part of the same resource issue; clean air, clean water, and quiet places are being depleted just as are the rich deposits of minerals and the reserves of oil and natural gas. Profits are being taken from externalities through lax controls over toxic substances, lax conditions in the working place, pollution of air and water, and abuse of the land. All of our resources, human and physical alike, are being exploited so as to maintain the growth of the industrialized economies.

We are told that maintaining economic growth is necessary to sustain the present levels of our standard of living, and that there is no way to have the necessary economic growth without a continuation of the very high throughputs of

raw materials. The stock of goods is not valued. What is valued is the flow of goods derived from diminishing stocks of natural resources. We are also told that it is not economically viable to much reduce occupational hazards or to clean up the environment. In short, we are asked to believe that it is necessary that profits continue to be derived from this system of shifting the costs of environmental and personal abuse to the public at large.

These things are bluntly acknowledged. Consider the following description of environmentalism set forth in 1974 in response to the Ford Foundation's Energy Policy Project, a project which set great importance on the environmental impact of various energy alternatives:

The correct issue is the optimal degree and type of pollution, the optimal mix of environmental effects, the optimal degree of personal abuse via work or loss of leisure... The correct problem is that the optimal degree of pollution is not ascertainable, because we do not yet know how to determine the values of relative amounts of pollution—and persuade the public to heed those values.

We are told that economic realities dictate that some "optimal" balance be struck between degree of control and waste releases. This balance is a changing one, dependent on the current values associated with infringement on the productivity of the enterprise in question.

So where are we left? Although there is now a more general recognition that there might be at least a temporary problem with resources, and that our environmental problems are continuing to be troublesome, there has been little enthusiasm for seriously exploring the defects in the industrial economies which are responsible for these problems. Exploring these more fundamental issues must now be the task of the community of "environmentalists."

The raising of these issues is much more difficult than were the activities associated with calling to attention the symptoms—for example, deterioration of air quality, environmental effects of pesticides, health effects from working with toxins. If, however, the environmental movement is to have any lasting claims for success, the issues of growth, of productivity without exploitation, and of equity must be put on the agenda.

## NEW CURA PUBLICATIONS

*Alternative Energy Sources*, published in late December 1976, abstracts the proceedings of the first annual update on Alternative Energy Sources Conference, held in Bloomington, Minnesota, April 27 and 28, 1976. Coordinated through the Minnesota Energy Agency and sponsored by over forty local organizations, the conference included presentations on solar and wind energy, peat resources as an energy source, animal wastes and agricultural residues as renewable energy sources, energy from Minnesota's forests, solid waste as an energy resource, conservation of energy, using waste heat, side effects of new energy sources, nuclear energy and energy from space, and some general comments on Minnesota's energy future. Copies are available from Dr. James Carter, Director, Research Division, Minnesota Energy Agency, 160 E. Kellogg Blvd., St. Paul, MN 55101 (296-8494).

Environment and Planning Bulletin: *Courses and Programs in the Environment, Urban Problems, and Planning, 1976-78* (see Council Publications listed in this issue of the CURA Reporter).

### Publication Numbering

Beginning this year, a publication number will be given to each CURA publication. We hope that the new numbering system will make it easier for you to request our publications, will simplify citations or references to them, and will aid librarians in locating them. The publication number will include our acronym, the year, and a simple chronological number. Thus, we will begin this January with Publication No. CURA 77-1.

## CURA ADDS EDITOR

In November 1976, Judith H. Weir joined the CURA staff as editor and coordinator of publications. Employed at the University of Minnesota since 1973, Weir was previously assistant editor for the Department of Family Practice and Community Health in the Medical School. She also taught the health sciences interdisciplinary course on written communication skills. Weir is currently visiting each of the offices related to CURA, collecting suggestions for publication policies, and feeling out the problems and potentials for CURA publications.

### COUNCIL MEMBERS

Dean Abrahamson (Chairman), School of Public Affairs  
Thomas Anding (ex officio), Center for Urban and Regional Affairs  
Perry Blackshear, Center for Studies of the Physical Environment  
Philip Buckley, Agricultural Division, Crookston Campus  
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James van Alstine, Geology Department, Morris Campus  
John Waelti, Agriculture and Applied Economics  
Matt Walton, Minnesota Geological Survey  
Donald White, Department of Horticultural Science and Landscape Architecture

## COUNCIL PUBLICATIONS

*All-University Council on Environmental Quality: First "Annual" Report for the years 1971-72, 1972-73, 1973-74*, October 1974.\*

The All-University Council on Environmental Quality, *CURA Reporter*, Vol. IV, No. 3, December 1974.\*

Minnesota Energy Project:

Abrahamson, Dean, *Minnesota: A Primer on Energy Policy*, December 1974.\*

Emmings, Steven, *Minnesota: Historical Data on Fuels and Electricity*, December 1974. (out of print)

Daly, Herman, *Energy Demand Forecasting*, December 1974. (out of print)

Rankin, Samuel, *Minnesota: Energy Used by Selected Public Services*, December 1974. (out of print)

Gostovich, John, *Minnesota: Energy Requirements for Crop Production*, December 1974. (out of print)

*The Plutonium Economy: A Background Report*, Dean Abrahamson, September 1975. (out of print)

*Public Control of Privately-Owned Land: Approaching Land Use from the Legal Perspective*, a report by the All-University Council on Environmental Quality, December 1975.\*\*

University of Minnesota Bulletin: *Courses and Programs in the Environment, Urban Problems, and Planning, 1976-1978*\*\*\*

\* Available from the All-University Council on Environmental Quality, 967 Social Science Building, 267 19th Ave. S., University of Minnesota, Minneapolis, MN 55455.

\*\* Available from the Center for Urban and Regional Affairs, 311 Walter Library, 117 Pleasant St. S.E., University of Minnesota, Minneapolis, MN 55455.

\*\*\* Available from the Bulletin Room, Morrill Hall, 100 Church St. S.E., University of Minnesota, Minneapolis, MN 55455.



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