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STUDY OF TRENDS IN CANADIAN ENVIRONMENTAL AND WATER ISSUES CONCERNING ONTARIO AND THE GREAT LAKES REGION

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STUDY OF TRENDS IN CANADIAN ENVIRONMENTAL AND WATER ISSUES CONCERNING ONTARIO AND THE GREAT LAKES REGION

by

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Please note: The opinions, conclusions, and suggestions presented in this report are those of the consultant, L. J. D'Amore and Associates Ltd., and are not necessarily endorsed by Inland Waters Directorate, Environment Canada, or the Government of Canada.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

- Environmental perceptions vary, depending on education, location, age, occupation, income and "world view". Water quality, for instance, is perceived as worsening in the Great Lakes, but as excellent or adequate in parts of Saskatchewan, Quebec and the Maritimes. Northern Canadians and Quebecers seem to be less sensitive to water quality than Central and Western Canadians. The most sensitive tend to be frequent users of water resources - not necessarily those living on shorelines. Socio-economic factors tend to affect perception by limiting recreational and employment options for lower income persons, resulting in attitudes of resignation about polluted air and water, and dependence on economic options.

  Younger, affluent, and professional persons are more likely to perceive the environment as an abstraction - an ethic requiring some change in lifestyle or at least personal values to accommodate it. With the increase in health threats and the development of citizens' groups, however, a broad range of people are coming to view the environment in concrete and personal terms.

- Awareness of change is high, but knowledge of specific changes and phenomena is low. At the same time, a network of active citizens is increasing their technical and political grasp of the issues.

- General concern for the environment peaked in 1970 and declined shortly afterwards, but has recovered to the point where the most recent polls show it near the top of the non-economic agenda.

- As a <u>community</u> problem, the environment is arguably more salient today than it was in 1970. Respondents consistently rank the environment highly as a regional issue, while case studies show that local citizens are quick to mobilize once an environmental danger or government proposal is seen to threaten community health and lifestyles.

- Analysis of social support for environmental priorities - which repeatedly stresses that young, affluent, college-educated and professional persons are primary sympathizers - tends to overlook indications that these segments (the young excepted) support nuclear and conventional energy sources, which are potentially damaging to the environment. "Midscale" segments, including the youngest adults, skilled and semi-professional workers, high middle income earners and those with partial college educations, are more consistent in their support since these groups also tend to oppose "hard path" energy policies when the environment is at stake. The environmental constituency has diversified in terms of age and occupation.

- Environmental issues are also diversifying, and becoming interrelated with other issues, such as health, energy, the economy, and attitudes toward authority. As the focus on specific issues shifted away from eutrophication, municipal sewage, and air quality, towards acid rain, nuclear radiation, and ecotoxicity, health concerns were expressed by a much broader segment of the population than previously. Business and Government were identified as primary agents bearing responsibility for clean-up and protection from health hazards. Issues such as the Berger Inquiry into the Mackenzie Valley pipeline reinforced perceptions of collusion between Business and the Federal Government, as did the Ontario Government's attempts to promote toxic waste dumps in various locations without properly assessing environmental risks.

  Concerns about health, and social impacts of large scale energy and waste treatment projects continued through the recent recession. Rather than lessen demands for environmental protection, the recession has stimulated a tentative shift in values toward lower material expectations and greater self-sufficiency, which has softened the trade-offs between the environment, energy and economic issues.

- Many Canadians continue to place energy needs ahead of a clean environment, but most do not perceive the two priorities as being mutually exclusive. As awareness of acid rain mounts, and world energy supplies increase, a plurality of Canadians are now more concerned about the environment.

  This shift may not yet have occurred in the U.S., where most rate energy supply as more important than environmental protection. Eventually, Canadians and Americans may agree on this trade-off, however, as both prefer "soft path" energy sources, such as solar energy, to conventional energy, for future development.

- Despite the rising importance of unemployment worries, Canadians have not abandoned demands for protection from environmental disasters. This finding supplements traditional wisdom which treats the environment as a class issue - a possession for the rich, or an abstraction for the educated. It is noteworthy that Canadians are questioning corporate profits and continue to express a willingness to pay for pollution abatement. Interestingly, these trends are more pronounced in the U.S., where a clear majority believes that environmental safety and economic growth can coexist.

- Canadians remain willing to pay for cleaner air and water, although the commitment of less affluent persons has waned slightly. The preferred means is higher consumer prices, although most would agree to pay modest taxes. Users of water-based recreation facilities show a greater willingness to pay for pollution abatement measures than non-users, although this cannot necessarily be said of persons living close to a major pollution source. Interest group members are increasingly vocal in requesting funds for their administrative and research expenses.

- Evidence of willingness to act is contradictory. Surveys and perception studies reveal that few persons actively promote environmental causes, contact government agencies, or write letters to newspapers. On the other hand, a sizeable minority have modified their behaviour to conserve energy. Also, the growth and increasing sophistication of interest groups suggests that organized citizen action is an important factor to be reckoned with in environmental policy.

- Analysts note that dissatisfaction with government decision making, and loss of confidence in government actions are partly responsible for the growth of public participation. General expectations for government action are also mounting, as reflected by persistent demands for penalties, regulations, and controls, and more recent interest in controlling pollution at its source. Many Canadians are still satisfied with provincial resource management policies, and concerned that environmental policies not hinder resource development.

  These findings suggest that we are experiencing a traditional period in which some Canadians express contentment with existing policies, and others perceive government as closed, disorganized, and more interested in corporate profits than environmental purity.

- Still, awareness of specific government agencies, functions, and jurisdictions remains low. Respondents know little about environmental legislation, maintain little contact with government, and score poorly on knowledge tests of environmental problems. Alternatively, case studies show the public is quite capable of learning about technical issues and government procedures when faced with a specific threat.

- The most basic observation of this review is that new attitudes coexist with and contradict traditional perceptions. Perceptions seem to be less a function of traditional constraints and psychologies, and more geared to changing relationships between people and institutions. Canadians charge governments with great responsibility for resolving problems, and are increasingly critical of their performance. At the same time, corporations and individuals are also held accountable for their actions. People expect governments to be more effective, and reponsive, and yet they also feel that citizens must be self-reliant and socially active. Most persons anticipate brighter economic prospects, but rather than raise expectations, they are moderating demands for economic benefits.

  Analysts identify these shifts with an overall demand for systemic and attitudinal change in the way institutions operate and in the roles that people play. The implication is that current social and economic developments are not cyclical variations on traditional themes, but a fundamental reordering of cultural priorities.

- To appreciate these changes in the context of environmental perceptions, we must review not only trends, but our own assumptions about research and policy. Surveys are tools of consensus decision-making in that they register shifts in attitudinal precedents, and depict broad trends in late stages of development -- too late to reverse perceptions or guide action. General and historically generated questions may overlook topics of new relevance, while the assumption that relevance is related to the extent of support voiced for or against options, disregards the nature of new issues: that is, few persons recognize or advance issues at their onset. In the current state of distrust for centralized management, and declining relevance of consensus views, issues are increasingly debated at regional levels, and decided on the basis of local encounters. Environmental issues are a notable case in point, as they are essentially volatile, generative and community-related.

- To anticipate problems and issues, we must shift our focus from opinion overviews to process-oriented research that observes the interplay of actors and argument from which attitudes and policies emerge. This entails surveillance of environmental monitoring activities and scientific opinion, analysis of interest group and community cultures, and projection of scenarios based on responses to emerging problems. Consideration of responses cannot be complete, but some forethought to identify the relevant actors and their constraints could help to avoid crises and sensitize government to frustrations with environmental decision-making.

INTRODUCTION

The purpose of this report is to identify and review trends in Canadian environmental and water quality issues, with a focus on Ontario and the Great Lakes region.

In so doing, we have examined opinion regarding specific issues (such as the siting of waste facilities), general concerns about the environment, relevant public values and the importance of the environment relative to other issues. From these observations, we noted trade-offs between environmental, economic and energy-related concerns, and considered the image and role of government in environmental management.

Material used in the analysis includes public opinion surveys dealing with environmental and water related issues over the past fifteen years, environment trend reports, proceedings of meetings involving public interest groups, public perception studies, policy reviews, environmental case studies, and background papers.

Our investigation began after reviewing all available material from the Canadian Centre for Inland Waters, and obtaining relevant studies and articles through computerized searches of the QL, DIALOG, and WATDOC (Water Resources Document Reference Centre - Environment Canada) data bases. Meetings with officials from Statistics Canada, Environment Canada - Information Directorate, the Federal Minister's Office, and Environmental Directorate - Health and Welfare, yielded surveys and reports such as the Crop Reports, The Canadian Trend Report, The Decima Quarterly Report, and a number of government studies and documents.

Additional material came from a wide range of sources including provincial goverment officials, public interest groups, the International Joint Commission's Great Lakes Regional Office, and the Great Lakes Institute.

While we have gathered a wide range of information pertaining to our topic, several relevant surveys were discovered but not obtained. Our government contacts could not provide Canadian Trend Reports covering 1977, part of 1979, or 1980. We learned about a survey of environmental issues and attitudes in Alberta which apparently reveals some surprising findings regarding citizens' willingness to make economic sacrifices to protect the environment. Nonetheless, the information reviewed does provide an extensive overview of trends for the purposes of this study.

I REVIEW OF PUBLIC OPINION TRENDS

A. Surveys

1. Gallup
2. Crop
3. Decima
4. Canadian Trend Report
5. Roper/Cantril

1. Gallup Surveys

TOPIC AREA	:	Nuclear Power Generation
ISSUES ADDRESSED	:	Attitudes toward nuclear power generation, including future development, support and anxiety re. siting of power stations, importance to future needs, and international comparisons.
TIME	:	September 1976-October 1981
AREA	:	Canada, except December 1979 survey conducted in Australia, Austria, Brazil, Canada, Finland, Great Britain, Japan, Korea, Norway, Philippines, Spain, Switzerland, U.S., West Germany.
POPULATION SAMPLES	:	Each survey, 1,000 adults (18 years and over) except October 1981 poll (1,050 adults).
DEMOGRAPHICS	:	Canadian samples reported generally and selectively in terms of province, sex, education. International results general.
METHODOLOGY	:	- personal interviews of adults selected randomly per demographic quotas. - interviews conducted with variable response rating scales.

Summaries

The most striking revelations during this five-year period are the reversal of pro- and anti-nuclear sentiment in 1977, and the steady increase of anti-development opinion since. The only wrinkle in these trends occurred during the May 1979 poll, which registered a 63%-23% anti vs. pro-nuclear split. This contrast appears to have been accentuated by the proximity of the polling date to the Three-Mile Island event in March 1979 and the simultaneous release of the anti-nuclear movie, The China Syndrome. While a large plurality (41%) supported increased nuclear power generation in 1976, over half (54%) of respondents in the May 1980 poll agreed that "they should not develop any more..." or "...stop generation..." altogether.* The main departure from this trend is the strong support given to nuclear development by Ontario residents (39%), men (39% vs. 24% women), and those with university training (45% vs. 32% secondary education, 20% elementary).

The second question covered by these polls (regarding attitudes toward local construction (e.g. 5 miles) of nuclear power stations) mirrors above trends. By 1981, only 19% would agree to local siting without anxiety (down from 28% in 1976), with 49% opposed to it. The 'soft' categories of undecided, and agreeable but anxious respondants stood at 33% in 1981, representing a gradual narrowing of ambivalence as pro and con positions polarize.

Attitudes Toward Nuclear Power Generation - International (Including Siting of Facilities Locally) - December 5, 1979

Asking the same questions as the preceeding surveys, Gallup polled respondants in 14 developed or developing countries. Canadians were overwhelmingly anti-nuclear compared with other countries' citizens, ranking 12th in terms of support for nuclear development. The overall spread was quite wide, from 65% support in Korea to 12% in Norway. Canada's 25% level was also significantly lower than the U.S. figure of 40% - despite the relatively recent occurance of the Three-Mile Island accident, and the similar levels of hard-line opposition to the nuclear path in both countries (U.S.-17%; Can.-16%).

Response to the second question on local siting again mirrors the above, with Canada rating 13th in agreement to having a station sited locally (10%). This figure contrasts markedly with the response to the same question only 7 months previously (26%). The question was not asked in the U.S.

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* See Table 1.1

TABLE 1.1

Attitude Towards Nuclear Generation:	May 1980	May 1979	October 1978	October 1977	September 1976
They should increase nuclear generation	30%	23%	35%	37%	41%
They should not develop any more than at present	27	34	29	25	20
They should stop generation of nuclear power	27	29	15	18	14
Don't know	16	14	21	20	25

Source: The Canadian Institute of Public Opinion, July 2, 1980

Attitudes Re. Importance of Nuclear Power for Future Needs
May 1980
May 1979

Posed as a third question on the domestic survey re. power generation, only 13% of Canadians felt the nuclear path was extremely important to our future power needs in 1980, up slightly from 10% the previous year. However, 35% thought it "extremely" or "somewhat" important in 1980, compared with 39% in 1979.

Negative opinion also softened slightly from 48% feeling nuclear power was "not too" or "not at all" important in 1979 to 44% in 1980.

TOPIC : Concern for Pollution.

ISSUES : Level of concern, importance re. other national problems, perceptions of national effort compared with other countries, Great Lakes, acid rain.

TIME : December 1969-October 1982

AREA : National/Regional/Ontario

SAMPLES : 725-1060 Adults (18 years and over)

DEMOGRAPHICS:
- 'National Priority' surveys are representative national samples, except Dec. 1970, which includes linguistic affiliation (French/English).
- Great Lakes, level of concern - national and regionally identified
- Acid Rain - national and regional and by sex, education
- 'National Effort' - occupational grouping

METHODOLOGY : Bilingual questionnaires including open and closed questions were used to query nationally representative, adult samples. Surveys completed by Gallup staff during personal, home interviews.

Results are accurate within 4 points at a 95% confidence level.

Concern for Pollution (Relative to Other Issues)

- December 1969, September 1970, December 1970

In general, pollution and environmental concerns have not achieved high ratings relative to other problems on the national agenda.

In the first poll, pollution is grouped with 'other problems' (9% total). The economy (29%), Canadian Unity (18%) and unemployment (11%) topped the list of unprompted national problems. The September 1970 survey (which speculated on problems that Prime Minister Trudeau "must face"), rated inflation (30%) and unemployment (20%) as most critical, and lumped pollution with problems such as taxes, investment, housing, drugs, grain sales, and hippies. Only in December 1970 was pollution selected as a major national problem, topping unemployment as the problem government should devote "most of its attention" toward. Since then, the public has declined to mention pollution or environment in great enough numbers to rate on comparative surveys.

These results are puzzling when compared with the high public concern expressed re. specific environmental issues, and tracked in the national press. Part of this anomaly may be explained due to the different research instruments used (eg. most surveys used an open-question format whereas the dissenting poll asked persons to select 3 of 11 listed options). Perhaps environmental issues are perceived more as regional or local issues when left to respondents' discretion. Possibly Canadians are more definite in assessing trade-offs between environmental and economic issues in unstructured situations.

Perception of National Effort in Resolving Pollution - March 1973

A high percentage (44%) of Canadians feel that "Canadians as a whole are doing more...than other nations to prevent or control pollution..." although 37% were undecided, with response varying only slightly across occupations. While this perceived effort may explain why Canadians did not consider pollution a major national problem, over a third could not judge Canada's performance in combatting it.

Concern for Pollution - 1970, 1975, 1977, February 1980

Adding further confusion, a 10-year review of surveys regarding specific concern and awareness of air and water pollution shows a stable trend of extremely high concern, (averaging 94%), and awareness (92%). The third question, which asks whether pollution

"is a problem in your area" presents a steadily downward trend in local threat, form 61% feeling it was a local problem in 1970, to 50% in 1980. In all cases, the undecided figures were small and unvaried, suggesting considerable polarity of opinion regarding local threat, and near unanimity (or lack of thought) regarding general threat.

Acid Rain - October 15, 1980

Awareness: 66% of Canadians claim awareness. Awareness is greater in Ontario (80%) than any region by a 9% margin, and almost double Quebec awareness (45%). Ontarians were most able to generally define acid rain (65%), again eclipsing the national average (43%), and edging Prairie respondents (58%) and those from the Atlantic region (56%). Prairie natives were most accurate -- 17% linked the phenomenon to nitrogen dioxide (Ontario 13%; National 10%).

Males were substantially aware (72%-60% for women) and able to define acid rain, (16%-3%) as were those characterized by post-secondary education (26% correct vs. 7% secondary, 3% elementary).

These results suggest that appreciation of acid rain increases dramatically with perceptions of proximity, and through gender and educational preferences for technical questions.

Predictions of Success in Resolving Problem: After explaining that Canada and the U.S. had signed a memorandum of intent to curb acid rain and other air pollution problems, 49% of the above sample look for some success in the agreement during the next 5 years. This perception included 50% of those correctly defining and 45% incorrectly defining acid rain. Response was offset by 41% who lacked faith in the agreement, and 10% who were undecided.

Perceived Urgency: Canadians felt the problem was extremely urgent (79%). Urgency appears to be a factor of knowledge as 83% of those defining acid rain felt it was urgent vs. 63% of those who defined it incorrectly.

Great Lakes - October 13, 1982

Level of Success: Asked about the success of the 1972 Water Quality Agreement, only 3% of Canadians nationally, or in Ontario, highly regarded the results, although a further 24% nationally, and 34% in Ontario credited the Agreement with achieving some success. The Ontario figure notably surpasses the Atlantic, Quebec (21%) and Western (17%) figures. Ontario natives also

revealed much less doubt (13%) than other Canadians (30% National/ 39% Atlantic & Quebec/ 40% West). Disbelief was relatively stable across categories at a 44% average, supporting indications that opinion is more definite in Ontario than elsewhere.

Concern: Almost 98% of Ontario residents felt it is important to clear the Great Lakes of pollution - 75% of them felt it's critical! Only 49% of Quebec/Atlantic Canadians and 63% of Western natives considered the issue to be critical.

2. CROP SURVEYS

TOPIC : Environmental Issues (general)

ISSUES : Acid rain, Canadian Forest Industry, conservation and development of energy resources, community preferences, drinking water, general attitudes, leisure, native land use, pollution levels, potential energy and shortages, quality of life.

TIME : 1976-1983

AREA : National/Regional/Ontario

SAMPLE RANGE: 2019-200 (for segments)

DEMOGRAPHICS:
- Totals are representative, national samples
- Segments include sex, age, income, language, regions, key sub-regions, provinces, education, marital status, occupation, work affiliation, religion, federal political orientation, community size.

METHODOLOGY : English and French questionnaires including both open and closed questions were applied to a nationally representative sample of adults aged 18 years and over.

Sampling follows a modified probability technique where respondents are stratified by geographic region, community size, interview location, census tracts and households. Results are accurate within 4 points at a 95% confidence level.

SUMMARIES: By Theme

Quality of Life

'Quality of life' factors describe the personal environments Canadians perceive and prefer, and suggest the extent to which wider environmental issues touch daily lives. Framed in terms of location preference, leisure activities, satisfactions, aspirations, and general perceptions of life quality, these personal environments are stable and not highly differentiated, although the surveys were not designed to define lifestyle segments.

Most Canadians prefer low to medium density surroundings, aspire to stability, consider themselves happy, and spend almost as much time engaged in physical or passive leisure activities as they do working.

The two polls (1979, 1983) which probe home preference show that over three quarters seek suburban (27%), small town (22%/25%) and country (41%/30%) settings where they can enjoy open spaces, trees, fresh air (18%) or peace and quiet (12%)*

Residents of large cities are least satisfied with their habitats. In 1979, only 14% preferred downtown living, with high proportions of Torontonians (36%) and Montrealers (47%) seeking the suburbs (national average: 27%).

Leisure activities like walking, cycling, hunting and fishing (which bring people in contact with the environment) contributed to the 'physical activities' that Canadians "do most often" (1981: 34%) and "would like to do most" (43%). Participants tended to be male (46%) rather than female (24%), single (43%) rather than married (33%), young (18-29 years: 40%), skilled (40%), and earning $31,000 or more (40%). Passive activities such as reading and watching T.V. (which also inform about the environment) appeal to women (38%) more than men (32%), married (40%) rather than single (32%), older people (45-60 plus: 43%) rather than younger (18-29: 34%). Those with incomes below $11,000 (23%), Torontonians (22%), homemakers (21%) and rural residents (21%) are more inclined to say they would most like to "do nothing". In general, those segments are also heavy T.V. watchers, especially those with grade school education (29% vs. 17% high school, 9% college). Ontarians were slightly above average watchers (19% vs. 17%), and below average readers (19% vs. 21%).

Most Canadians appear to be contented with life quality in their province and country, and generally happy. In 1982, 75% report that they were very or somewhat satisfied with the quality of

* April 1983 "most important" reasons for choice.

life in their province (Ontario: 77%). Respondents with high levels of income and education were more inclined to be satisfied, although fewer Canadians expressed satisfaction relative to the November 1976 survey (89%). This trend was mirrored by provincial comparisons with Canada which revealed that only 56% believed life to be very or somewhat superior in 1981, as opposed to 71% in 1976. Similar opinions defined Canadians satisfaction relative to the U.S. - 56% feel life is better here, although 70% felt that way in 1976. In reporting relative satisfaction with life quality components, in November 1977, 63% believed recreational activities were superior to some degree in their province, although this level did not differ markedly from components such as housing, education, or municipal services. Respondents were happiest with medical care and information access, and dissatisfied with employment.

Not suprisingly, reports of general contentment reflect life quality indications. In 1981, 93% were happy or happy to some extent (50% and 43% respectively), although 19% confirmed that they had been very depressed during the previous four weeks. Contributing factors were relaxation (8%), time use (8%), and time length (8%), health (8%), close family ties (14%) and money (20%). Factors also include new eating habits (1%), different job (3%), moving (2%), and distant travel (5%).

Although data portrays Canadians as simple, satisfied, and somewhat actively inclined toward environmental awareness, focus group and open interviewing techniques keyed more closely to regions and interest groups may well reveal more distinctions. Certain anomalies, such as the depression rating, and the disclosure that 9% of respondents considered money least important, (despite also rating it highly as a positive factor) suggest that values shifts and lifestyle changes were indicated by the survey, but that further research is needed to describe these changes.

Pollution

A steady national consensus (62% average regards pollution levels as increasing between 1980 and 1983. A much smaller percentage see pollution increasing in their neighbourhood (31%), down appreciably from last year (38%), and about equal to 1980 (32%). Opinion regarding provincial pollution bridges these extremes, with 56% seeing pollution on the rise in 1983 (down 8% from 1981). These differences imply that respondents use different criteria for observations on each level - particularly in their locale where phenomena may be sensed directly. Reports of low levels here confirm neighbourhood perception studies which demonstrate that the most hazardous pollutants are often undetected. Perceptions in the November 1980 and 1981 polls reflect direct personal observations, showing air

pollution to be most seriously regarded (33%/35%), followed by water (23%/29%) and noise pollution (23%/17%). In most surveys, noise pollution is not rated so highly.

Perception differences between government domains may reflect the public knowledge of jurisdictions or expectations of political responsibility. Ontario natives were especially conscious of neighbourhood (40%) and provincial (63%) pollution increases.

Community size was the major factor in judging levels; as large city dwellers (1,000,000 and over) were more likely to note air pollution (1981: 40% vs. 16% water). Town dwellers (less than 5,000) regarded water pollution as most serious (31% vs. 21%).

Acid rain emerged in the surveys as the most serious Canadian environmental issue in 1982 according to 77%, up 8% over 1981 figures. These findings are supported by the 1981 survey which rates public "tracking" levels for acid rain: 58% said they follow acid rain closely or very closely, with emphasis from Ontario natives (47%) and Torontonians (59%). According to both surveys, the acid rain constituency consists of Ontarians, college educated and managerial/professionals. Anglophones were also twice as likely to follow the issue (46%) as were Francophones (24%).

Environmental Management (includes energy trade-offs)

Environmental management focuses on public values and the resultant trade offs between energy issues, supply and demand for resources, planning, and public policy. This theme includes questions pertaining to energy use and exploration, development of energy resources, environmental impacts, native land use, drinking water quality and supply, forest management and conservation measures. Trade-offs between environment, economic and other issues are reviewed separately.

Overall, Canadians demonstrate that they are fairly well-informed about the relationships among various issues, and willing to consider the effects of resource exploitation on the environment. Awareness was particularly well-focused with respect to nuclear power, perhaps reflecting increased media coverage during the late 70's, and revealing the issue's salience to health concerns. In a 1978 poll predating the Three-Mile Island accident, Canadians were equally divided on nuclear pollution hazzards. Almost a third (30%) said nuclear power caused more pollution than traditional energy sources, 25% said less, and 25% were unsure.

However, the question of health and safety clarifies the issue, with 42% contending that nuclear energy presents a clear hazzard,

and 41% disagreeing. Over half were concerned about leaks, 60% believed that stored nuclear waste was potentially disastrous, and 75% felt that nuclear reactors sold overseas were likely to be used for arms. The pronuclear sentiment ran highest in Ontario where 22% condoned the domestic use of nuclear power, and 36% supported the export of reactors. Support for exports was strongest from college educated persons (43%) and those earning $11,000 to $23,000 yearly (38%). Considerable support for the environmental trade-off was represented by 43% of respondents who chose environmentally "soft path" options such as water, tidal, and wind power, although an equal number supported "hard path" options such as nuclear, coal, and oil. Approval for solar power increased when a longer time frame was introduced, as 45% thought solar would be a prime energy source by the year 2000 (vs. 18% who favoured nuclear).
Without data covering the current recessionary period, it is difficult to speculate whether this balance of opinion would be maintained. Still, numerous surveys present evidence that Canadians prefer balance in a range of related issues, and a mixed management approach combining interventionist with more passive regulatory strategies.

In 1978, no one energy source was clearly favoured for the next ten years, although in 1979, 80% felt that the Canadian government should increase research and development of solar energy. Even Ontario residents (who are often the strongest supporters of nuclear options) agreed with this policy (86%). Increased exploration for offshore oil was favoured as an immediate policy by 79% nationally, and by 77% in Ontario. Respondents also advocated banning production of (51%) or placing a penalty tax (50%) on large cars.

Evidence of balanced perceptions can also be gleaned in surveys of urban and native land use issues, and the forest industry. The February, 1983 poll indicates that 87% favour paying more attention to developing parks and green spaces in large cities, despite a corresponding and mounting fear of crime. Over three quarters of a national 1981 sample supported hunting limits to protect certain animal species on native lands, although 45% (46% in 1983) also felt that native land claims were justified, and that the constitution was correct to recognize the distinct character of Canada's peoples (75%). In 1983, 41% agreed that poor management was the major problem facing the Canadian Forest Industry, yet 27% of Canadians also attributed major problems to outside forces such as market problems (7%), lack of timber (6%), tree diseases (5%), and forest fires (9%).

Other survey questions reveal that Canadians are capable of revising historical attitudes to bring previous notions in line with current circumstances. Canadians have traditionally taken water supplies for granted, but perhaps due to reports of acid rain and toxic waste seepage into sewers and water basins, a 1982 survey revealed that 28% had

considered tap water to be unsuitable for drinking. In addition, 6% of respondents experienced water shortages during the previous year, with further shortages considered by 30% of the whole sample to be somewhat (20%) or very (10%) likely in their area.

Support for environmental management is not entirely uniform, although managerial/professionals, the young (18-29), college educated reflect high involvement on various management issues. Many of these segments support environmental considerations, although managerial/professionals and college educated also support "hard" options* and exploitation of certain resources (oil, although not trees).

Older, less affluent, less educated, and rural persons tend to resist management somewhat, although resistance is often passive (1981: 49% of those earning under $11,000 contend that forests should not be exploited economically at all.). These distinctions do tend to break down, however, when regional interests are at stake. Ontario residents support Petrocan (80%) much more than Westerners (54%), for instance, and Atlantic residents are not as keen on developing solar energy (1981: 20% against) as the rest of the country (14%).

Canadians' personal behavior often reflects less commitment than their opinions. In April 1979 and in June 1981, respondents showed they were unwilling to expend much cost or effort to reduce energy consumption, reflecting a bias toward short term needs. Without significant distinctions between segments, national samples preferred minor modifications, such as turning off lights (85%/85%), keeping house temperatures lower (70%/74%), and using appliances less (39%/41%). Strategies involving "structural" change garnered less support, as comparatively few persons installed new doors or windows (24%/23%), or installed new thermostats (7%/6%).

A 1981 survey expressed personal behavior very well in noting that "measures affecting people personally continue to be least popular" (Crop 81-03-11).

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* A March, 1981 poll on energy conservation and development indicates that those 18-29 years of age (87%), those earning $31,000 or more (83%), Ontarians (84%), college educated (87%), singles (85%), professionals (89%) and NDPers (85%) favoured solar energy development over the national average (81%). The same survey showed that the highest earners (80%), college educated (88%) and professionals (88%) were most opposed to relaxing pollution standards. However, support for a "greatly increased program to develop nuclear energy" came primarily from those earning $31,000 and over (41%), Ontarians (40%), single respondents (41%) and professionals (40%) versus 34% of average Canadians.

TOPIC	:	Environmental vs. Public Issues.
ISSUES	:	Inflation, unemployment, energy shortage, labor, regional economic disparities, Canada-U.S. relations and trade, national unity, crime.
TIME	:	1977-1983
AREA	:	National/Regional/Ontario
SAMPLE RANGE	:	1998 (totals) - 282 (segments)
DEMOGRAPHICS	:	See Environmental Issues (general)
METHODOLOGY	:	See Environmental Issues

Environmental vs. Public Issues

Compared with other public issues, Canadians regard their environment with moderate concern. Also, opinion on specific environmental projects reveals that environmental issues tend to irritate Canada-U.S. relations - more so than international trade or transborder advertising.

In terms of relative general concern, environment often rates high responses on closed questionnaires in particular, but never exceeds unemployment and inflation, which earn top interest on both closed and open surveys (1977: closed-24%/18%; open-80%/78%). In the 1977 poll, the energy/natural resources category placed fourth as a closed question (70%), but last as an open one (1%). This phenomenon of split interest holds throughout survey years, with concern about pollution, energy, and natural resources varying by a few points, but dropping from view on spontaneous response surveys. The April 1978 'closed' poll again places the two main economic issues on top, while energy slips from 77% to 59%, but maintains its overall rank vis-à-vis national unity, bilingualism, crime, strikes, and government administration.

In more specific contexts, environmental issues are highly regarded. Consecutive surveys in April 1981, 1982 and 1983 asking respondents to decide on science and technology subsidies from taxes, reveal enduring concern for pollution and energy. The combined issues were accorded second ranking in 1981 (28%) and 1983 (15%), and first place in 1982 (31%). Moreover, priorities such as "improving science education" (1983: 5%), and "developing efficient mass transit" (1%) are issues with significant environmental impacts.

Polls conducted in December 1978 and June 1982 underline Canadians' certainty about pollution and the question of energy shortages - both in terms of who bears responsibility and which groups are working to resolve these problems. The fact that the Federal Government is blamed for energy shortages (1978: 25%; 1982: 48%), but credited most for its work on pollution (22%/23% vs. 13%/15% for next highest, conservation groups) does not appear to be a contradiction for Canadians. This trend is especially evident in perceptions of responsibility (1978: 18%/1982: 15% uncertain) and who is doing the most to overcome pollution (34%/27% uncertain). Canadians were only more convinced about "union responsibility" in causing strikes (17%/18% say not responsible).

In terms of Canada-U.S. relations, Canadians were quite apt to blame the U.S. for unfair resolution of acid rain (1981: 38% unfair vs. 18% fair), the Garrison water diversion project (20% vs. 12%), and the East Coast Fisheries Treaty (32% vs. 26%). We are also suspicious that the U.S. pays little or no attention to problems of major Canadian concern (1981: 57% vs. 31% fair amount). According to the surveys, the Garrison and acid rain issues are the most

volatile, with almost twice as many respondents citing U.S. unfairness vs. fair resolution of these problems. Both issues generated great uncertainty (65% and 41% respectively), and sparked negative regional opinion (in the West 26% re. Garrison/ Ontario 41% re. acid rain). By comparison, opinion split more evenly on the Alaskan Gas Pipeline (fair 31%/unfair 29%/ don't know 35%), notably within the well-educated and affluent environmental constituency who saw the deal as a fair one. Slightly more of those earning between $20,000 and $31,000 (33%) and over $31,000 (34%) believed the solution was fair as opposed to unfair (29% and 31%). Westerners (33%), college educated (37%), and managerial/professionals (39%) all tended to support the pipeline, although this support was balanced by near-equal dissent within these ranks, and low levels of uncertainty relative to other segments.

TOPIC	:	Economic Trade-Offs with Environment
ISSUES	:	Economic indicators, economic perceptions, personal economics/purchase intentions, inflation, monetary support for environment.
TIME	:	1976-1983
AREA	:	National/Regional/Ontario
SAMPLE RANGE:		1998 (totals)-222(segments)
DEMOGRAPHICS:		See Environment (Gen.)
METHODOLOGY	:	See Environment (Gen.)

With few surveys linking economic and environmental issues, and because those which do are not repeated, it is difficult to speculate on relationships between these topics. The prospect of deriving meaningful observations from available data is further dampened by the stability of opinion regarding inflation, purchase intentions, and personal financial expectations. The only erratic indicator is employment opportunities, although the lack of correspondance in opinion between this and other economic issues is puzzling.* Predictably, Canadians in all but the most priveleged segments (notably those earning over $31,000) presented cautious and pessimistic attitudes during 1982, but some of this opinion may be stimulated by the tone of the polls, which included many negative questions (e.g. "...are you...eating less often in restaurants..., "...would you say that you are...worried, very worried..." and so forth).

Personal financial opinions are potentially the most significant of variables relating to environmental issues since policy makers will have to consider personal willingness to increase allocations for costly environmental programs. The degree of public willingness to pay will probably vary with disposable income, understanding of issues, and tendencies to make discriminating lifestyle choices involving drinking water, recreation and personal habitats.

To this point, however, Crop survey data reveals little change in personal financial choices and expectations that might generally influence environmental spending, although personal data for subgroups suggests some opportunity. For instance, intentions to buy or to wait have remained constant since the question was first asked in November 1976, with pro-buy opinion hovering around 35% between September 1977 and February 1980, and between June 1980 and 1981. Upturns occurring between December 1976 and September 1977 as well as February and June 1980 were not extreme, although positive opinion briefly reached 50% during the last period.

* For instance, perceptions of imminent unemployment increases gyrate wildly from 45% to 85%, while peaks and troughs in other economic trends rarely stray more than a few points from baselines, except during one or two specific periods. The comparison between personal financial expectations and unemployment expectations is most difficult to fathom, since the former are most stable. An additional element in perceptions of unemployment rates is the seasonal nature of employment, reflected by regular yearly increases in expectation in the December surveys, and matched by decreases in February or April polls (Crop 82-1-A).

For six months between September 1981 and April 1982, public confidence in the buying climate (related specifically to personal finances) dipped below the traditional 30-35% baseline to 20%, but rebounded in September 1982 back to 30%, despite continued recession. National samples have steadily reported decreasing appropriateness for major purchase decisions since 1979 (June 1979: 24% say it's a bad time to buy; April 1981: 35%; September 1982: 57%).

When asked about expectations for personal finances, Canadians maintained similar opinions from February 1977 to June 1981, although more have perceived their situation as worsening since then, from a representative average of 17% beforehand to the September 1982 high of 30%. Meanwhile, 24% report that their finances have improved, consistent with baseline response back to 1977, while 42% reported no change -- the only drop from a 57% baseline in this stream of opinion since 1977.

From these patterns it appears that the priveleged segments are fairly resilient to major economic problems, although most respondents were rather optimistic about future prospects. Despite recent discontinuities in some main trends, only perceptions of worsening finances and negative purchasing confidence have been sustained for any length of time, and even these subtrends have been at least partially offset by positive specific and general subtrends in the same surveys.

While Canadians were willing, in 1981, to support extra taxes of $10 a year to reduce water (75%) and air (67%) pollution, only 13% had actually donated to an environmental or wildlife organization. When the ante is raised to $20, support dropped to 54% for "environmental problems", possibly reflecting the fact that almost a third of respondents reported worsening personal finances.

Again, the "environmental" segments stated support exceeding national averages. The young (1977: 70%; 1981: 79%), top earners (73%; 79%), professionals/managers (73%; 74%) and college educated (70%; 79%) were most willing to allocate $10 to air and water pollution problems, and much more willing to pay $20 for environmental problems. NDP supporters shared their concern, with 74% and 73% supporting the $10 tax, and 62% the $20 tax. Professionals/managers demonstrated the greatest willingness to increase the tax to $20 (74%) and Ontario natives hit the national averages almost squarely on each question, despite their close proximity to major water and air pollution sources and news stories. As might be expected, those over 60 years of age (willing: 41%; unwilling: 37%), earning under $11,000 (37% vs. 41%), having grade school educations (34% vs. 42%) and homemakers (45% vs. 37%) were least supportive of the $20 tax in 1981.

TOPIC	:	Public Expectations Toward Business and Government re. Environmental Issues.
ISSUES	:	Attitudes towards large corporations, confidence in leaders and institutions, federal/provincial jurisdictions, industry and the environment (including pollution), problems facing local governments, satisfaction with federal and provincial government(s), solving and causing problems.
TIME	:	1976-1983
AREA	:	National/Regional/Ontario
SAMPLE RANGES:		1998-1025 (totals); 1121-113 (segments)
DEMOGRAPHICS	:	see Environmental Issues
METHODOLOGY	:	see Environmental Issues

As suggested in the review of environment versus other issues, industry was usually identified as the source of pollution, while the federal government (and to a lesser extent, provincial governments) were seen to be doing the most to resolve the problem . Pollution was one area in which the federal government was given positive credit (1978: 22%; 1982: 23%) relative to large companies (10%; 9%), small business (1%; 1%), labor unions (0%; 1%) and conservation groups (13%; 15%), although provincial governments (19%; 23%) polled a similar level of support. Pollution also emerged as the major public embarassment for corporations, as 60% of the 1981 sample, and 63% in 1982, identified them as most responsible.

When analysis is broadened to include the question of energy shortages, the balance changes dramatically. On this point, Ottawa is heavily blamed -- particularly in the June 1982 poll (48% vs. 25% in 1978). Canadians did not dismiss corporate responsibility either: 28% said that companies were responsible in 1978, although this level subsequently dropped to 17%. Despite the well-publicized arguments between Alberta, Newfoundland, and Ottawa on energy pricing and resource rights, provincial governments were not held responsible* for creating energy shortages (only 6%/8% say yes).

It is interesting to note that many of the same segments blame the institutions of Canadian Government and Business. More college educated persons blame both parties (Feds: 53%; bus: 19%) for energy problems than do "average Canadians". Numerous groups blame one institution or the other, but also blame either Business or Government at or close to the national opinion average. Examples are 18-29 year olds (Feds: 48%; bus: 20%), 45-59 year olds (50%; 16%), $31,000 earners (54%; 17%), Ontario residents (46%; 22%), Manager/professionals (48%; 23%), P.C.'s (58%; 16%), and NDPers (48%; 23%). In pollution matters, opinion is almost universally directed against Business -- even by traditionally pro-business groups such as P.C.'s (64% vs. 65% for union members, and 67% for NDPers).

This arrangement has enhanced most provincial governments although it is impossible to quantify or qualify the benefits. Still, it bears mentioning that public dissatisfaction with the Federal Government is extremely high (February 1983: 66%); while provincial

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* Public opinion seemingly excludes municipal/regional government participation in pollution management. Only 1% of a balanced one-half sample stated that pollution was the most important problem facing the local government in September 1980. response tripled to 3% the following year, but still placed well back of unemployment (9%), planning (8%), public administration (8%), and taxes (7%). Many felt their government had no problems (9%). Insufficient CROP data exists to draw any insights about the role of local governments vis-à-vis senior governments or industry.

residents are relatively happy with their governments, especially in Ontario where approval for provincial government has risen from 50% to 59% between November 1982 and February 1983. Only B.C. (56%) and Quebec (69%) polled dissatisfaction rates comparable to the Federal Government's.

It would be unrealistic to suggest that environmental policy (even including energy issues) is mainly responsible for these figures. However, Canadians' attitudes on specific policy matters reinforce the overall trend. In February 1981, a majority (75%) agreed that there is not enough Federal government regulation to protect the environment from toxic wastes. This opinion was mostly shared by upper income, college educated respondents, and residents of Ontario and Quebec, despite the fact that control of toxic wastes is often a provincial responsibility. Acid rain is another major issue followed closely by Ontarians (38%) and Torontonians (59%), college educated (55%) and managerial/professional segments (62%). Sixty-nine percent of all respondents recognize acid rain as the number one environmental problem. Almost half (47%) of a December 1980 sample feel that the federal government is doing enough to protect rare species from extinction. Only 27% agree that Ottawa is doing enough to protect the environment.

Notwithstanding those tough attitudes, Canadians show a willingness to help Business and Government fulfill some expectations. For environmental management, which recalls the balance between economic and environmental objectives discussed earlier, Canadians recognize the need to develop energy resources but not at the cost of higher pollution levels (1981: 64%; 1982: 68%). The Canadian Government should explore for petroleum and natural gas (1980: 83%), but also pursue energy conservation (84%), and clean up water pollution (81%). Issues such as improving mass transit (58%), increasing the strength of our armed forces (54%), or electoral reform (42%) did not come close as national priorities. It is true that in more recent polls, concern for the Economy far exceeds environmental priorities-- particularly in open ended questions. Yet, a comparison of September 1980 and November 1981 surveys also reveals that, in times of less economic stress, at least 7% of Canadians can spontaneously affirm that energy, natural resource, and environmental issues are more important than other problems (Crop 82-1-H), despite the incursion of hot, topical issues such as Canadian Unity and the Constitution.

Business, for its part, must eventually recognize that pollution issues will not disappear, and may seriously damage relations with governments and local constituents, and possibly depress sensitive consumer markets. Note that despite current economic conditions, 92% of the February 1983 sample believe that "Canadian industries cause some (58%) or great (34%) damage to the environment" (Crop 83-2-L), and to remedy this problem, 79% are willing to pay slightly higher prices for products and services.

This sentiment holds for all segments, including Ontario (82%) and to a lesser extent, those earning less than $11,000 (71%) with grade school education (67%). Two previous surveys, in February 1981 (84%) and 1982 (82%), supported these findings. Surveys extending back to December 1976 repeatedly demonstrate public suspicion that Business deliberately manipulates commodities and resources in order to raise prices (December 1976: 69%;December 1978: 72%;February 1981: 71%;February 1982: 76%), and adds unnecessary costs to consumer goods through over packaging (89%;87%;83%;84%). Many also feel that large companies have grown too powerful for Canada's good, and that foreign-owned firms take more from our economy than they contribute.*

It appears that the recession has not moderated the view that Business bears social and environmental responsibilities which are not being met.

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* See Table 1.2

Table 1.2

Now, some opinions about large companies. Please tell me whether you agree strongly, agree somewhat, disagree somewhat, or disagree strongly with each of the following statements?

	Agree**			
	Feb. 82 %	Feb. 81 %	Dec. 78 %	Dec. 73 %
Foreign-owned corporations contribute more to the economy than they take out	34	32	34	36
Certain large companies have grown too big and powerful for the good of the country	79	77	75	78
Big corporations are largely responsible for rising prices	73	74	67	77
Business adds unnecessary costs to consumer goods through overpackaging	84	83	87	89
Companies should combat pollution, even if this results in higher prices	87	86	86	84
Advertising of a company's product helps the consumer to know what he is buying	66	56	61	58
Corporations should have the primary responsibility for creating jobs	70	70	69	72
Shortages of certain commodities such as gasoline are deliberately created by industries in order to raise prices	76	71	72	69
Big corporations are largely responsible for unemployment	49	47	37	46
Advertising does not necessarily increase the price of a company's product	30	29	28	33

* Asked of a balanced one-half sample: 1025 respondents.

** "Agree" includes "agree strongly" and "agree somewhat"

Source: Crop, Feb. 1982

3. THE DECIMA QUARTERLY REPORT

TOPIC : Current Outlook on Environment.

ISSUES : Importance of Environmental concerns relative to other issues; trade-offs between perceptions of environment, energy, economic, and social issues; image of Federal and Ontario governments in environmental management.

TIME : Focus on Spring 1983 Report, with reference to previous reports (March 1980-March 1983).

AREA : National/Regional/Ontario

SAMPLE : 1500 (total); 60-222 (segments)

DEMOGRAPHICS: The Canadian public segmented by region, ethnicity, age, sex, marital status, education, family size, family income, employment status, community size, and union status.

METHODOLOGY : English and French questionnaires including open and closed questions were used in telephone interviews of nationally representative, adult samples.

Samples were drawn according to geographic regions and census tracts using a four step probability technique. Smaller segments were oversampled to record adequate descriptions of issues. These responses were then weighted to accurately reflect the segments' proportionate relationship to populations.

Results are accurate to 3.3 points at a 95% confidence level.

Survey responses during the three years in which The Decima Report has been published reveal considerable dissatisfaction with personal circumstances, governments, business, and social institutions, and growing indications that national consensus is waning.

During this period, Canadians' preoccupation with economics has steadily increased from a point in March 1980 where 48% of the national sample believed economic issues to be most important, to a high of 78% between June and September 1982. Although this concern has moderated slightly (March 1983: 69%), its nature has changed dramatically as Canadians refocused attention from inflation to unemployment. By March of this year, 48% of respondents held this specific issue to be our most important problem.

Decima researchers theorize that the pervasiveness of concern, or fear of unemployment has sharpened internal conflicts in personal beliefs and values, and highlighted some interesting contradictions in respondents' future expectations.

Not surprisingly, environmental issues have registered as secondary matters of concern. Since the Decima surveys pay little attention to environmental policy, we have looked for indirect and intermittant clues in assessments of values, confidence, governments, industries, and institutions, and potentially related policy expectations. Occasional, direct references were noted in surveys of non-economic issues and assessments of provincial governments' management of resources.

Despite the heavy emphasis on our economy, general concern for environment has increased to the point where 24% of respondents in a 1983 survey of non-economic issues ranked it as an area deserving more attention. Only crime (25%) outranks it, while fewer Canadians consider energy (22%), national unity (17%) or the arms race (12%) of parallel importance. These responses mark a distinct break from past surveys in which national unity dominated the non-economic agenda and impressed 19% of Canadians as our most important national problem in December 1980. Meanwhile, concern for energy has dropped significantly, from a high of 10% in March 1980 to the present level of 1%, while the combined issues of government and taxes have steadily increased in overall saliency from 10% to 19%.

Recognizing the fundamental difference between direct comparisons with economic and non-economic issues, this recent upgrading of the environment as a priority suggests that economic preoccupations do not necessarily work against environmental awareness. Traditional wisdom asserts that people must satisfy basic needs before contending with social problems, and prospects for self-actualization. Partly due to the well-noted salience of environment to upscale segments, Crop analysts have characterized the issue as an abstraction appreciated by those who have resolved the basics and so seek transcendent satisfactions. Decima presents the view that

economic and non-economic issues are not always perceived as conflicting. For example, while Canadians support economic priorities, they also contend that economic power confers responsibility toward groups not directly contributing to corporate profits, and that profit should not be taken for granted.[1] The significant emphasis that Canadians place on the need for systemic change in all areas suggests that policy should reflect new relationships between social, political and economic priorities.[2] This view is bolstered by the high current ratings for unemployment, crime and environment among a broad public spectrum, including the young, the elderly, high, medium and low income families, professionals, manager/supervisors, labourers, residents of many regions, and all educational segments.[3]

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1. In September 1982 and March 1983 surveys, Canadians focused on stimulative policies such as stimulating industry (1982: 17%; 1983: 23%), encouraging foreign investment (3%;12%), and lowering interest rates (32%; 15%), but also stressed reduced government spending (19%; 17%) and job creation (24%; 31%). While all are economic policies, broadly speaking, the latter two have moral and social dimensions which emphasize government's responsibility toward people. Further references to social economic responsibility can be found in many respondents' belief that business should be primarily concerned with government and the community. June 1980 and March 1983 polls determined that these two categories received mean scores comparable to those received by employees, consumers and shareholders (see p. 158). A 1983 survey supported these findings by noting that the national sample "somewhat" (34%) or "strongly" (18%) disagrees that we should stop questioning corporate profits. Residents of B.C. (strongly: 31%) and those living in cities of between 50,000 and 99,999 population (strongly: 35%) were more inclined to question profits than other segments.

2. The March 1983 Report confirms that most respondents see a need for systemic changes in government operations (major changes: 69%; minor changes: 28%), union behavior (60%;33%), educational policies (46%; 42%), business practices (38%; 50%) and in the individual's social roles (38%; 49%).

3. Unemployment concerns are universal across Canada, although most intense in Quebec (where 54% of the sample cite it as the issue), Atlantic Canada (54%), Newfoundland (60%) and P.E.I. (55%) -- areas particularly lacking work opportunities. In addition, people under 30 years of age (54%), single Canadians (54%), those with secondary education (51%), the unemployed (52%), labourers (56%), those earning less than $30,000 (51%), union members (52%), union family members (50%) and women (50%) express higher than average concern. However, Quebec natives (25%), Ontarians (26%), the three youngest age segments (30%/24%/26%), single persons (30%), those who are unemployed (24%), manual (24%) and semi-skilled labourers (25%), union members (25%), and members of families earning between $10,000 and $19,999 (26%) also express disproportionate concern for the environmental priority.

Both the balanced view of priorities and the nature of individual priorities considered important signal a growing public sensitivity to personal habitat and well-being.

Sensitivity to personal problems can also mean unrealistic policy expectations, as evidenced by the perception that Ottawa can partially (62%) or totally (12%) solve major, national problems. While these expectations contradict surveys which consistently rate the government's performance as poor,[1] perhaps the public is commenting on the "solvability" of our problems (p. 45) and on Ottawa's responsibility for resolving them. If the public simultaneously holds high expectations and overrates Ottawa's powers, however, the government is not only placed in a 'do or die' situation, but doomed to fail in its efforts to communicate good performance. Confidence ratings tend to confirm this predicament, showing that public regard has positioned the Federal Government at a -30 rating: lower than every public or private institution except labour unions (-41) and the Quebec government (-47).[2]

On the other hand, provincial governments tend to benefit from close regional affiliations with constituencies and policy areas. A comparison of federal/provincial satisfaction levels since September 1980 reveals that the federal levels consistently lag by about 20%, suggesting that Canadians are inclined to rate Ottawa by harsher standards than its provincial counterparts.

The differences appear to be a direct consequence of regionalism, in both positive and negative senses. In negative terms, Ottawa must balance diverse regional interests, and cannot expect to be all things to all people. It's negative ratings are often a result of anti-centralist sentiments from provinces such as Alberta and B.C. -- particularly on specific issues (e.g. energy). In positive terms, people identify more closely with provincial and regional issues, and more immediate governments. Again, Albertans provide

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1. The Federal Government has never earned a positive net performance rating in the three year history of the Decima surveys. Ratings for handling inflation and controlling spending have been traditionally worse than job creation, tax management, or federal/provincial relations. Performance in handling the energy issue has been rated most positively -- it almost broke out of the minus category in December 1980 with a -4 rating. That date also coincided with Ottawa's highest confidence ratings (-6), with 45% of national respondents expressing some degree of satisfaction, and 51% expressing dissatisfaction.

2. Net performance ratings are calculated by subtracting the percentage "Poor Job" from the percentage "Good Job" for each area considered.

the most graphic example of this trend with 64% expressing satisfaction, and only 35% stating some degree of unhappiness, although these levels are much lower than the September 1980 level of 78%.[1]

Respondents' affinity for regional policy is most evident in environmental, rather than economic, areas -- that is, in provincial resource management records. In other words, performance ratings of this policy area are usually more closely associated with assessments of the governments' overall performance than areas such as handling inflation or creating jobs.[2] This was also true in the federal context with ratings for energy issues leading all other indicators as predictive of general performance.[3]

A tentative, although interesting, pattern may be inferred from the review to this point. In the federal arena, where government's role is characterized by abstract coordinating functions, publics tend to personalize issues.[4] In provincial arenas, where government's role may be appreciated in terms of regional advocacy, the issues are already more personally relevant, hence the focus shifts to the community where attention focuses on social services and communally identified resources.

These divergent foci help to clarify the nature of general public expectations toward the two levels of government. Federally, people seem to want a benevolent protector who solves the global problems and then conveys the benefits on a personally meaningful level. This view is supported by a recent poll that confirmed the Federal Government as an active agent in the realm of big problems (46% said it should solve these problems), but also revealed that persons expected protection (30%) or at least that the government should prevent problems from worsening (22%). In contrast, the social contract with provincial government stresses stewardship, and takes for granted that government understands the personal dimension. Provincial governments get into trouble when they are

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1. Other provincial ratings can be found from pp. 53-79.

2. Managing national resources is the only area in which the Ontario government has not been downgraded. It's current rating (+16) is about average, relative to other provinces.

3. See Table 1.3.

4. This observation seems to also hold in relation to abstract issues, such as inflation. While Canadians felt the issue to be our most serious economic problem, it was not perceived "as something they had to live with" (p. 110). Expectations during that time continued to assume that the inflation rate would drop (according to 75% in 1980 and 78% in 1981), perhaps reflecting their inability to relate with the issue. Meanwhile, attention was divided among unity, government, tax and energy issues.

seen to squander resources or ignore constituents' basic rights. Witness the Quebec government's assessments, which have declined dramatically since September 1981, to the point where it remains the most poorly perceived government in Canada. The most pronounced erosion of ratings concerns the government's educational policies, which have earned it a 33 point drop. The next most severe deterioration of ratings relates to Quebec's management of natural resources, where a recent 10 point drop marks a year-long pattern of decline.

It appears that these social contracts bias perceptions of environmental management in the province's favour, although not entirely. In the closely linked energy domain, the Federal Government positions have contributed significantly to whatever popularity it has had. Ontario and Quebec residents have supported Ottawa's attempts to redistribute energy wealth, while residents of Alberta and Saskatchewan and Newfoundland (where resources are at issue), have looked to their provincial representatives for protection. It is not inconceivable that Canadians look to their federal government for protection from pollution in cases where provincial or international jurisdictions overlap.

In addition to established roles and relations of senior governments, and the salience of economic and social issues, The Decima Report also provides data on business roles and changes in beliefs and values which are pertinent to our review.

Two trends which may modify some current perceptions of government, but which augment the perceived tolerance for diverse policies, are the lowering of material expectations and a new emphasis on self-reliance.

The first trend is most obviously connected to concern for environmental priorities, since a firm commitment to lessened expectations would undoubtedly soften personal trade-offs between economic, energy, and environmental issues. This emergent trend is not based on time series data (which is unavailable), but on the concurrence of four 1983 polls regarding future expectations for salary increases and material circumstances. The most startling disclosure was that while two-thirds of Canadians would expect a salary increase to compensate for a previous concession, 30% would not. Furthermore, 38% of those earning between $40,000 and $49,000 and 40% of Albertans would not expect an increase (Ontarians: 31%). When the time frame is extended, and the question generalized, 76% of respondents agree that "People are going to have to lower their expectations about how much money they will make" if we are to deal with Canada's problems. Also, 77% believe that we should learn to do with less and to stop borrowing, while an equal percentage feels that people

will have to "stop expecting so much from government" (p. 264).[1]

Lessened expectations reflect a new realism that explains Canadians' need to offset diminished economic prospects with personal initiative, although individualism could realize opposing motives. Certainly that is what a March 1983 survey concluded in examining attitudes of individual roles. On one hand, 87% of Canadians think that individuals should take a more active role in government, while, on the other hand, 84% also agree persons should "look out for themselves" and not rely on others. The contradiction may refer to a lessened faith in our social institutions. Both statements of individualism would then bear directly on social policy making, and signal new trends in individual political behavior. This idea gains credence with the disclosure that, in 1982, 44% of respondents did not feel that any political party stood for what they believed in.

Considering that public confidence in numerous industries has declined steadily since 1980, with the consequent opinion among most that corporations "don't care" about them,[2] these institutions are also vulnerable to new values. Corporations may struggle with their effects, specifically in terms of conflicting environmental and economic trade-offs, as current opinion (51%) holds that company profits should remain open to debate. The primacy of the

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1. Lower salary proposals tended to come from rural residents (80%) and those from B.C. (83%), Alberta (83%) and Newfoundland (87%), supervisory/managers (84%), upper mid-income earners ($30-39,000: 80%), and those with elementary educations (80%). Expectations for less government were highest in Alberta (81%), Ontario (78%) and Nova Scotia (93%), and among technical/professionals (78%), supervisory/managers (79%), widows (79%), and those earning more than $50,000 (83%). Anti-credit sentiment came most from residents of Alberta (81%), New Brunswick (83%) and P.E.I. (85%), persons 40-49 years of age (82%), 50-59 years of age (87%), and 60 or more years (87%), as well as respondents with three or more children (81%), the unemployed (80%) and those with elementary education (89%).

2. While not as poorly regarded as the Federal Government, oil companies, beer companies, multinationals, as well as the chemical, tobacco, insurance and advertising industries have consistently drawn negative ratings since 1980. Some, such as the advertising, tobacco, and oil industries have rarely achieved a rating over -20. These businesses continue to be poorly perceived, although the oil industry has improved its rating by a record 16 points since last December (to boost its standing to -15). Interestingly, the mining (+11) and forest industries (+22) have earned positive ratings, which both have improved over the last quarter (pp. 89, 95).

forest, mining, chemical and petroleum industries to resource management and pollution problems, and their reliance on strong consumer markets, would increase their exposure to citizens inclined toward active involvement in environmental politics and those whose self reliance discouraged major purchases.

In sum, it appears that constraints for all connected to environmental issues is likely to change. While the Federal Government is presently caught in a squeeze of rising public needs and expectations for employment opportunities, the rising saliency of environmental and personalized issues, the slackening of material expectations, and an emerging willingness to balance priorities may suggest a widening receptivity toward environmental options. On the other hand, trends toward self reliance, lessening consensus and confidence in government, business and political parties suggest that established roles are reforming, with some emphasis on decentralized decision-making.

TABLE 1.3

THE GOVERNMENT OF NEWFOUNDLAND'S PERFORMANCE: RELATIONSHIPS BETWEEN SPECIFIC AND GENERAL ASSESSMENTS*

	Tau c With General Performance											
	1981				1982				1983			
Specific Performance Area*	Mar.	June	Sep.	Dec.	Mar.	June	Sep.	Dec.	Mar.	June	Sep.	Dec.
Managing Natural Resources	0.25	0.32	0.05	0.11	0.29	0.52	0.37		0.29			
Creating More Jobs	0.15	0.23	0.24	0.09	0.16	0.23	0.17		0.21			
Providing a Sound Educational System	0.03	0.23	0.03	0.12	0.10	0.07	0.14		0.40			
Controlling Spending	0.31	0.36	0.11	0.21	0.00	0.25		0.15				
Delivering Health Services	0.02	0.26	0.20	0.07	0.08	0.28		0.33				
Handling Federal-provincial Relations	0.13	0.25	0.70	0.14	0.05	0.19		0.29				

Would you say *your provincial government* is doing a good job or a poor job in ...?

Generally speaking, how satisfied are you with the *performance* of *your provincial government*? Would you say you are very satisfied, somewhat satisfied, somewhat dissatisfied or very dissatisfied?

Source: The Decima Quarterly Report

4. THE CANADIAN TREND REPORT

TOPIC	:	The Environmental Agenda
ISSUES	:	Environment vs. other issues, trends in specific issues
TIME	:	1977-1982 Specific issues: 1978, 1979 (summer), 1981, 1982 (first half)
AREA	:	National/Regional/Ontario
SAMPLE	:	Daily and weekly Canadian newspapers
DEMOGRAPHICS:		Newspapers are national, regional, local in readership
METHODOLOGY	:	Staff monitor newspapers for news items, and note the aggregate news lineage devoted to national topics and issue categories within topics. Absolute volumes are noted for each topic, and converted to percentages in order to compare news coverage. Coverage of issue categories within topics is calculated to determine relative space accorded to each. Findings are assessed to determine emerging trends.

During the five years in which Canadian Trend Report has monitored news coverage, the environment has only once exceeded 5% of national news space in any given period (the first half of 1981 when it earned 6%). As the accompanying figure indicates, this topic has generally accounted for about four to five percent of the news agenda, comparing favourably with health, education, social conditions, consumer affairs, housing and development, communications, law and justice, and transportation. The only categories which consistently rate much higher levels of coverage are business and economics, government and politics, and employment and labour (see Figure 1.1).

Of the nine issue areas comprising environment, water pollution issues have been most covered during the periods for which we have data, comprising an average 19% of the environmental agenda. After the next closest areas, environmental health (17.3%) and waste control (14%), coverage tails off steadily to the least featured area, general issues (5.2%). (See Table 1.4.) Coverage of all environmental "water issues", however, is about 35% when fish and wildlife and water use are included. Additional coverage may be represented by items such as acid rain (classified as an air pollution issue) or by issues covered under waste control and environmental health. In any case, water issues have dominated the environmental agenda since 1978 by a wide margin.

In reviewing the development of environmental concerns, it is evident that issues have become interrelated and slanted toward health problems. Initial trend reports focused on water management stories, such as the site 6 dam on the Red River and the Oldman River irrigation project. Other major events were the Newfoundland seal hunt, sewage treatment costs, and follow-up stories concerning mercury poisoning of the English-Wabigoon River. Toward the middle of 1978, the health dimension began to dominate coverage of air and water pollution, and waste control (CTR V, p. 46) as fear was expressed about toxic and nuclear waste, Great Lakes water quality, and unsafe working conditions (noted under "Employment and Labour"). Canadian Trend Report analysts detected a new theme of anxiety about unknown health risks such as the B.C. government's use of 2,4-D in the Okanagan Valley. Reports of anxiety peaked in late 1978, after the Love Canal area was acknowledged as a disaster area. Overall lineage climbed back from four to five percent.

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* For instance, CTR treats the mercury-polluted English-Wabigoon river system as an environmental health issue because of its dramatic effects on native health. Land Use and Recreation issues often include discussion of water-based facilities, as was evident in news items citing opposition to private development of lakes Manitou and Louise.

FIGURE 1.1

Content Analysis: Category Volume Change 1977 to 1982

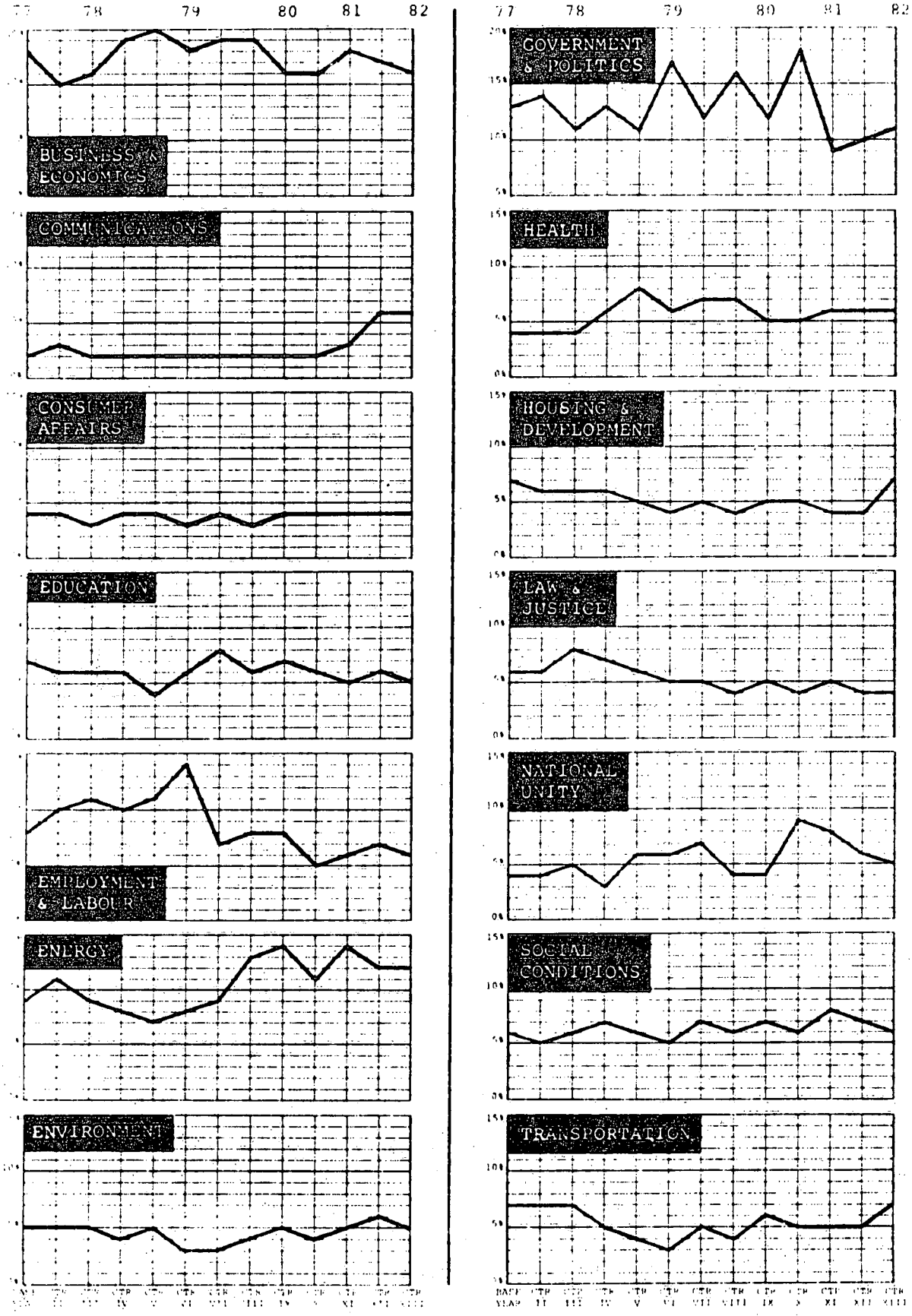


TABLE 1.4

Environmental Topics: Internal Comparisons and Share of National Agenda

	1977			1978			1979			1980		1981		1982	
Volume	1	2	3	4	5	6	7	8	9	10	11	12	13		average %
National Agenda (%)	5	5		4	5	3	3	4	5	6	5	4	5		--
Water Pollution				15	21	19	26			16	20	16			19.0
Water Use				12	6	11	4			8	6	12			8.4
Fish and Wildlife				10	5	4	7			4	6	9			7.4
Waste Control				7	6	11	12			25	20	17			14.0
Environmental Health				20	25	17	13			12	15	19			17.3
Air Pollution				4	7	11	9			15	19	14			11.3
Land Use and Recreation				14	11	10	9			9	6	7			9.4
Forest				13	13	11	13			6	5	12			10.2
General				5	6	6	7			5	3	4			5.2
	Base Year														

During the next four months, new stories dealt with the Love Canal, and the discovery that 2,4-D and 2,4,5-T were concentrated in B.C. lakes, and linked to higher miscarriage rates among women. The Reed Paper Company focused attention on industrial effluents, and extended the issue by unsuccessfully claiming that jobs would be lost if the company was forced to comply with pollution control standards. This period also featured major growth in acid rain lineage, from 4% to 9% of the air pollution issue category. Stories dealing with polluted drinking water, soon arose to unify these events, as all items suggested implications for water quality. By the end of April 1979, news about drinking water problems dominated water pollution coverage, then at a high of 26%.

By 1982, toxic waste and acid rain were durable, major issues. Focus combined recurrent threats with more incisive articles on long-term problems. Reports of new citizens groups, such as CRAW (Citizens Rebelling Against Waste), HOPE (Haldimand-Norfolk Organization for a Pure Environment) and ACT (Ajax Citizens Together) became more frequent as attention focused on citizen activism. A range of issues were invariably related to toxic waste disposal problems, and public health. New reports of dioxin in the Great Lakes prompted communities to submit water samples for testing. The Ontario government was embroiled in controversy over what appeared as an expedient decision to bypass the Environmental Assessment Act in selecting a Cayuga site for waste dumping (despite conflicting evidence about its safety).

Meanwhile, the acid rain issue had diversified to include Canada-U.S. diplomacy, and new health fears about the effects of dissolved sulphates on wildlife, human health, and water supply. Even domestic U.S. politics were touched by acid rain when Reagan's election raised concerns about his commitment to the problem. These fears were confirmed by the subsequent dismissal of three American members of the International Joint Commission, rumours of major budget cuts for the EPA's Great Lakes National Program, and proposals to relax air emission standards for coal generating plants -- a prime source of acid rain. To complicate matters, toxic waste seepage into the Niagara River had also permeated environmental lineage (50%) and boosted the topic to a 6% high on the national agenda.

Far from fading, as early analysts have sometimes predicted, environmental issues have become a permanent news feature, diversified among durable "base issues" such as sewage treatment and clean-up, cyclical wildlife issues, and hybrid issues which periodically recurred with new reports of health risks, resource supply problems, and legal-political conflicts. The nature of the environmental agenda is such that its implications touch many previously separate areas. The whole question of costs, both social and economic, is more clearly perceived as an unwelcomed transfer from polluting industries to taxpayers, communities, and future generations of resource users. In this context, CTR appears justified in forecasting increased political pressure on governments to resolve major environmental problems.

5. ROPER ORGANIZATION/CANTRIL RESEARCH, INC.*

TOPIC : Public Opinion on Environmental Issues

ISSUES : The environment compared to other issues, environment vs. economics and growth, energy vs. environment, siting of facilities, regulatory performance and access to government, the environmental movement, knowledge of issues and events.

TIME : 1965-1980

AREA : National/Regional (United States)

SAMPLES : 1,576 (total). Segment subsamples not reported. Samples of reviewed surveys not reported.

DEMOGRAPHICS: Representative national U.S. sample, adults aged 18 and over segmented by sex, race, age, education, union membership, income, city size, and region. Results not generally reported by segment.

METHODOLOGY : Respondents were selected randomly and interviewed in person between January 26 and April 5, 1980. Questionnaires included both open and closed questions and were composed to enable comparisons with earlier polls.

Results were compared with earlier surveys on the above issues. Since this survey was conducted during a period in which economic and international issues were particularly prominent, the authors regard it as "an especially strict test of support for environmental issues".

*Commissioned by Resources for the Future for the Council on Environmental Quality (RFF).

Environment Compared to Other Issues

Between 1965 and 1980, the American public have continued to rank pollution of air and water as one of the country's most important problems relative to other issues. Comparisons between 1965, 1970 and 1980 polls reveal that concern peaked at 53% in 1970, and declined to the 1980 level of 24%. Yet, pollution still ranked as America's 6th most important problem, to register the third greatest increase in saliency. (+7) of 10 issues during this 15 year period. (see Table 1.5).

TABLE 1.5

Ranking of National Problems

Q.1. First, I would like to ask you which *three* of these national problems you would like to see the government devote most of its attention to in the next year or two?

Problem	1965 April [1]	1970 April	1980 Jan.–Feb.[2]	Change 1965–1980
Reducing the amount of crime	41%	56%	61%	+ 20
Reducing unemployment	35	25	48	+ 13
Conquering "killer" diseases	37	29	41	+ 4
Improving public education	45	31	35	– 10
Helping people in poor areas	32	30	29	– 3
Reducing pollution of air and water	17	53	24	+ 7
Improving housing and run-down neighborhoods	21	27	20	– 1
Reducing racial discrimination	29	25	13	– 16
Improving highway safety	18	13	7	– 11
Beautifying America	3	5	5	+ 2
N =	c. 1,500	c. 1,500	840	

[1] Data for 1965 and 1970 are from Gallup surveys. The Gallup 1970 survey was taken immediately after the first Earth Day.

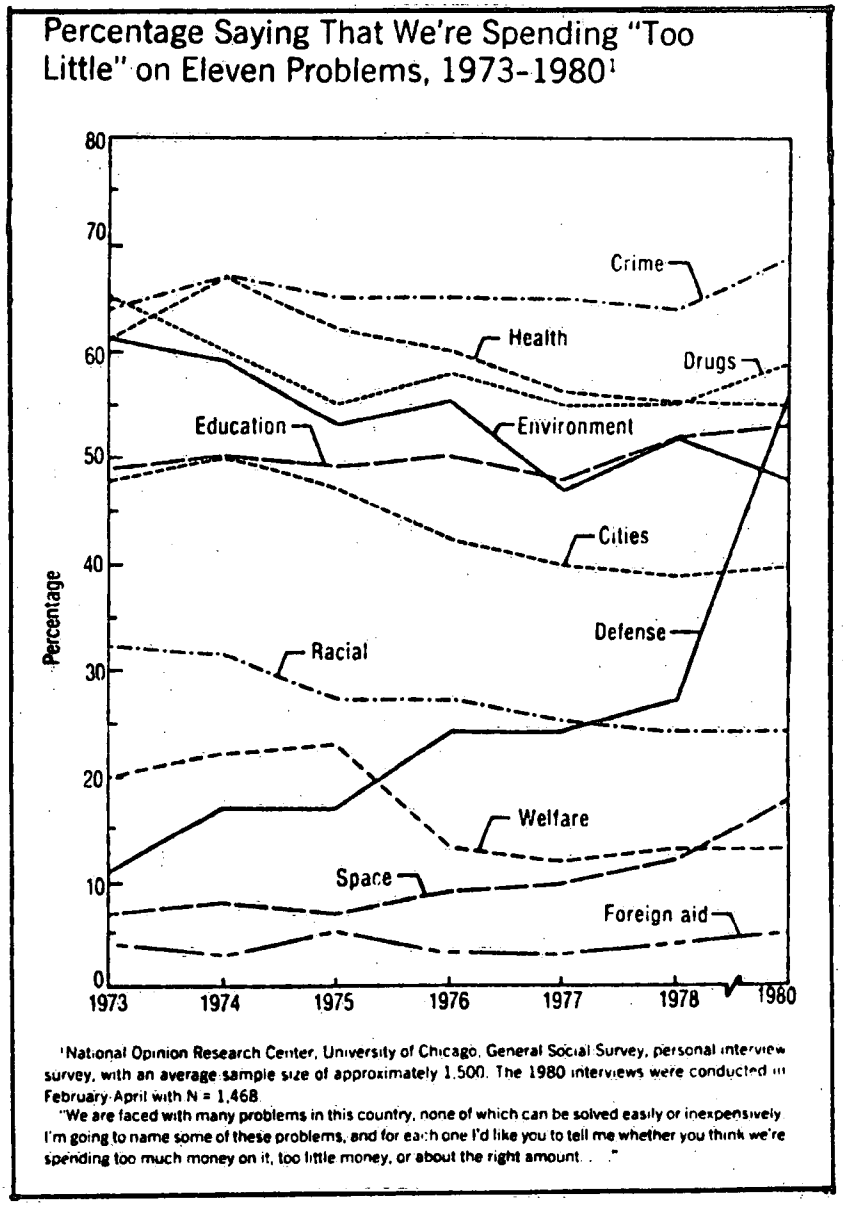
[2] RFF survey. The number of cases is smaller than the total (N = 1,576) because the question was asked of only a subsample.

In support of this trend, the National Opinion Research Center released results of a seven-year comparison of issues (between 1973 and 1980) which showed that environment had sustained public attention as the fifth ranked issue in terms of problems regarded as having "too little" spent on them. In 1980, 48% agreed with the statement -- down from the 1973 high of 60%, although only 15% stated we are spending "too much". (see Figure 1.2).

Environment vs Economics and Growth

A more accurate way to gauge commitment to environment was attained in the mid 1970's with the use of polls asking respondents to choose between economic and environmental options. Results have consistently shown that many types of Americans support environmental programs -- sometimes at the expense of economic growth. A Harris

FIGURE 1.2



Source: Public Opinion On Environmental Issues: Results of a National Public Opinion Survey (Washington, D.C. U.S. Government Printing Office, 1980)

poll conducted in 1975 and 1978 asked respondents to choose between higher prices and a cleaner environment or lower prices and more air and water pollution. In 1975, support for the clean environment/high prices option was three times the low prices policy (58% vs. 17%). In 1978, following California voters' acceptance of Proposition 13, the margin of support had not changed (62% vs. 18%). In October of 1979, Harris asked a national sample to choose between lower costs and the "toughest environmental standards possible". Almost half (45%) chose these standards with higher costs, 36% supported "somewhat lower" standards, and 12% said that "it depends".

Another question, asked in 1977 by Opinion Research Corporation, and repeated by RRF polls in 1978 and 1980, concerned continuing improvement "regardless of cost". Support for this statement dropped from 55% to 42% (still a plurality). Interestingly, the proportion of persons who backed the extreme cost control position also declined from 19% in 1977 to 13% in 1980.

Two recent polls examined opinion on government spending for pollution control programs. Respondents in the January 1979 Harris survey favoured major cutbacks in government spending (69%), but 57% of the same sample opposed major reduction if this entailed a reduced budget for environmental controls. The second poll, (conducted in 1980 by Gallup) found that 87% wanted to maintain or incerase allocations for water pollution control.

Findings concerning choices between economic growth and the environment are particularly revealing, since growth has long been an unquestioned priority for the American people. Nonetheless, a review of polls indicates that many or most respondents have chosen environmental quality over economic growth.

A Harris survey commissioned by the Soil Conservation Service in October 1979 presented a choice between "a country which believes that economic growth is more important than protecting the environment" and one in which "the environment is more important than growth". More than half (52%) selected the environmental scenario, compared to 24% who picked the growth option, and 21% who were neutral.

In 1978 and 1979, Harris polled people on the question of industrial growth in their communities under three different scenarios. With no environmental impacts, most persons agreed to new growth (59% to 36%). When growth made the air "a little dirtier", 49% supported growth and 43% opposed it. With the air "a lot dirtier", only 15% favoured new growth, and 80% opposed it.

The 1980 RFF survey followed an earlier ORC poll which not only examined the trade-off between growth and environment, but the scope for compromise between these priorities. The 1978 poll showed that 58% would accept a slower growth rate "in order to protect the

environment" versus 20% who would accept the reverse. While support for slower growth dropped in 1980 to 27%, those opting for "relaxed standards" remained constant at 20%. The percentage who believed that both growth and a clean environment were possible, doubled from 18% in 1978 to 39%.

Opinion has also been definite regarding trade-offs between growth and protection of wildlife. The Roper/Cantril RRF survey noted that 65% strongly favoured preservation of wetlands, compared with 10% who would accept development involving the draining of swamps and marshes.

Energy vs. The Environment

In general, the U.S. public favours assured energy supplies and development over environmental protection, although there have been exceptions.

An annual Roper poll asking respondents to choose between "adequate energy" and "protecting the environment" has demonstrated more support for the environment once, in 1976. During the other nine years, a slight plurality have backed adequate supplies. The 1979 poll is considered to be representative. In this case, 43% support energy versus 38% who favour environment.

Energy and environment trade-offs are most accute during periods of energy shortage. Five polls conducted between 1979 and 1980 illustrate this phenomena, as three of them were taken shortly after gasoline shortages in the spring of 1979. The most extreme poll revealed that 61% would slow down environmental clean-up in order for the U.S. to cope with energy supply problems. Another survey showed that 55% would support relaxed regulations if more energy could be produced (p. 410).

Another group of polls exemplifies American ambivalence toward this trade-off. A 1978 CBS-New York Times survey resulted in a stand-off, with 41% opting for greater energy production, and 43% choosing environmental protection. A Septemger, 1979 NBC News poll questioned whether building a pipeline or refinery was more important than protecting the environment. The pipeline was supported by a margin of 47% to 40%. When asked by the University of Michigan Election Study survey in early 1980, a plurality (34%) preferred relaxed standards. However, 29% would maintain standards, 15% would relax them with qualifications, and 22% were uncertain.

Many of these questions deal with explicit choices between energy shortages and environmental standards. It is noteworthy that environmental support remains consistently close to energy preferences during these crisis periods. When asked to plan ahead for energy requirements, Americans selected soft energy options such as solar power. The RFF survey determined that 61% of their sample believed

that Americans should concentrate most on environmentally benign solar energy to the year 2000, and least on environmentally damaging nuclear power (23%). Energy conservation and water power ranked second and fourth respectively (see Table 1.6). A follow-up question revealed that health reasons were a primary concern about nuclear energy, as 38% felt this option to be "dangerous" or "not so safe".

TABLE 1.6

Energy Sources Which Are Most and Least Preferred as National Priorities for the Year 2000 [1]

Q.40. Here is a list of several ways to get energy. (HAND RESPONDENT CARD) Looking ahead to the year 2000, and this nation's energy needs, which two or three of these sources of energy do you think we should concentrate on the most? (READ WHILE RESPONDENT LOOKS AT CARD:)

This list includes coal; nuclear energy; energy conservation steps such as more and better home insulation and cars that get good mileage; water power from dams or waterfalls; solar energy including energy from the sun and the wind; oil and natural gas; and synfuels which are a new kind of fuel made by industrial plants which convert oil shale into oil or coal to a liquid or gas. Which two or three do you think we should concentrate on the most?

Q.41. Now, looking at the card again, which one of these sources of energy would you like to see us spend the least effort to develop? (RECORD ABOVE)

Rank		40. Concentrate on most	41. Spend least effort	Most minus least
1	Solar energy	61%	6%	+ 55
2	Energy conservation	35	3	+ 32
3	Coal	36	9	+ 27
4	Water power	31	10	+ 21
5	Oil and natural gas	28	9	+ 19
6	Synfuels	26	9	+ 16
7	Nuclear energy	23	33	− 10
	None	—	6	
	No opinion	2	15	

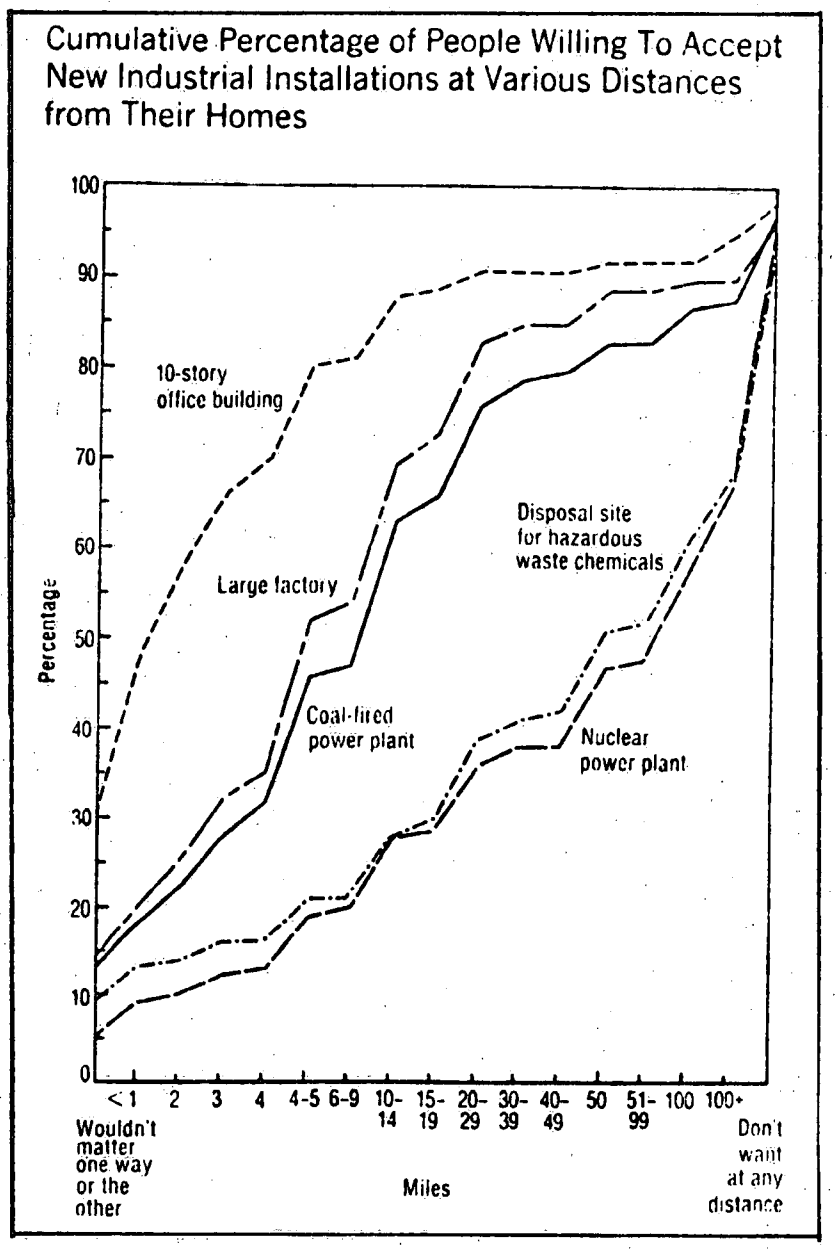
[1] 1980 RFF survey, N = 1,576.

Source: Public Opinion on Environmental Issues, IBID.

Siting of Facilities

Roper and Cantril believe that questions obliging respondents to state siting preferences for their neighbourhoods best reveal personal concerns about environmental safety. Unfortunately, few U.S. polls have probed this area of opinion. However, the RFF survey did ask respondents to state how close they would consider living to five major facilities including a 10-storey office building, a large factory, a coal fired power plant, a nuclear plant, and a hazardous waste disposal site. Results depicted in Figure 1.3 show that 40% would consider living within one mile of the office building, and approximately the same percentage would live within four to five miles of a large factory. However, only 5% were

FIGURE 1.3



Source: Public Opinion on Environmental Issues, IBID.

unconcerned about living beside a waste dump, and only 9% would live within a mile of one. Respondents were almost as wary of the nuclear power plant, as 10% would live beside one, and only 15% would live within four miles of such a facility.

Regulatory Performance and Access to Government

Roper and Cantril did not report any outside findings on these issues, but did include a section in their survey which was designed to probe public views on regulation of potentially dangerous chemicals, and government responsiveness. When asked to respond toward various proposals to regulate chemical additives, 47% advocated a ban on colouring chemicals, 33% would ban cancer-linked preservatives, 31% would ban hair dye additives and 16% would ban saccharin. Most would require warning labels on products containing potentially harmful chemicals, and only 3% to 12% would not regulate any of the four chemical groups (see Table 1.7).

Most (67%) respondents expressed belief that the government could adequately regulate chemicals and protect the environment, but fewer (44%) agreed that it listens to ordinary citizens.

TABLE 1.7

Views on Regulation of Cancer-Causing Chemicals

Q.37. I am going to describe four different kinds of chemicals which studies have shown to cause cancer in some people. I would like you to tell me which one of the approaches listed on this card you think the Federal Government should take for each chemical. The first approach is that the government should ban certain uses of the chemical. The second is that the government should require clear warning labels on all products using the chemical but let them continue to be sold. The third approach is that the government should not regulate the chemical at all.

Chemical	Ban	Warning label	Not regulate	No opinion
a. The first kind of chemical that has been shown to cause cancer is one commonly used to preserve food like bacon. Which one approach should the government take? (PROBE: That is, chemicals like nitrites)	33%	57%	5%	5%
b. The second is a chemical used as an ingredient in some hair dyes	31	60	3	6
c. The third is saccharin	16	66	12	7
d. The fourth is a chemical used to color food like hot dogs, soft drinks and ice cream. (PROBE: That is, Red Dye #2)	47	44	4	5

Source: Public Opinion on Environmental Issues, ISID.

The Environmental Movement

Support for the environmental movement has been strong since 1970, according to all polls. The RFF survey found that 62% were active or sympathetic to the movement on 1980 -- a level very close to that discovered by RFF in 1978. Another question confirmed that 62% considered themselves an active or sympathetic environmentalist. Only blacks (43%), residents of the East South Central states (45%) and the South Atlantic region (54%), persons 65 years of age and older (53%), and those having less than a high school education (48%) expressed markedly lower levels of sympathy than "average Americans". Departures from expected norms were post-graduates whose 63% identification level was 10% less than the norm for college graduates, and the unusually high percentages of Mountain state residents (7%), and persons with some college education (6%) who were unsympathetic to the movement.

When asked about direct actions they had taken in support of the environment in the past 2 years, 12% said they had written a letter or directly contacted a government official and 49% agreed they had collected newspapers or bottles for recycling.

Knowledge of Issues and Events

Given that many have stated definite opinions in these polls, and also that participants had scored high knowledge ratings on tests following Earth Day in 1970, RFF decided to test basic knowledge of the environment relative to other issues in 1980. Although many persons recognized the issues, knowledge of environmental issues was low. Only 3 of 9 questions were answered correctly by a majority of respondents. For instance, 74% correctly identified the incidents at Three Mile Island, but 22% knew what occurred at Love Canal. With the exception of issues relating to sources of air pollution and oil imports, uncertain responses were quite high. Over half of the respondents (58%) did not know about acid rain (see Table 1.8).

It should be noted that specific knowledge of most policy areas is usually low in the U.S. -- even issues like inflation are not only misunderstood, but hard for respondents to evaluate by publically reported standards. Witness results of a 1980 survey in which one out of three were able to state the current inflation rate. Over half (51%) were unable to guess.

Conclusion

Public concern for the environment has not matched the high levels attained during 1970, but has been maintained as an important focus. While the environment is no longer perceived as a crisis, strong support continues for regulatory programs, government funding,

and private spending to serve environmental interests. Knowledge of specific issues remains low, but consistent support for environmental options suggests that concerns have stabilized over the past decade, and show no signs of diminishing for the foreseeable future.

TABLE 1.8

Environmental and Energy Knowledge Questions

Paraphrase of question[1]	Correct	Partially correct	Incorrect	Don't know
1. What happened at Three Mile Island? (E) (Ans.: Nuclear power plant accident, close to meltdown, etc.)	74%	3%	4%	19%
*2. Do we produce enough oil or do we have to import oil? (E) (Ans.: Have to import)	63	NA	29	7
*3. Are nuclear power plants built near bodies of water because water is used as a power source, for waste deposit or for cooling? (E) (Ans.: Cooling)	52	NA	27	21
*4. Which is the major source of air pollution: factories, automobiles or incinerators? (Ans.: Automobiles)	45	NA	46	9
*5. Is cancer caused in rats by every, most or only some chemicals if fed in large enough doses? (G) (Ans.: Only some)	42	NA	45	12
6. What are synthetic fuels? (E) (Ans.: Gas or oil made from coal, oil shale or tar sands)	37	5	15	42
*7. Is it possible for a nuclear power plant to explode and cause a mushroom-shaped cloud like the one at Hiroshima? (E) (Ans.: No)	31	NA	52	16
8. What is acid rain? (G) (Ans.: Polluted rain that harms lakes, land and water; that is like vinegar, etc.)	26	6	9	58
9. What happened at Love Canal, near Niagara Falls? (G) (Ans.: Chemical or toxic waste dump, place where chemical wastes harmed people or made them move, etc.)	22	4	8	65

[1] With the exception of Question 1, each was asked of only one-half the sample.
G = Part of the three-item General Environmental Knowledge Scale.
E = Part of the five-item Energy Knowledge Scale.
NA = Not applicable.
* = Presented in a multiple-choice format.

Source: Public Opinion on Environmental Issues, IBID.

B. Studies of Public Perception

1. CROP/GOLDFARB REPORTS

TOPIC : Perceptions of Environment Canada and Environmental Problems.

ISSUES : Primacy of environmental issues, dimensions of awareness, recognition of Environment Canada, awareness of specific intra-agency divisions, federal environmental legislation, public expectations.

TIME : May 1976/July 1981/March 1982

AREA : National/Regional/Ontario

SAMPLES : Goldfarb:529 (total), 10-12 (per focus group)
Crop 1981: 1960 (total), 661-221 (segments)
1982: 1998 (total), 694-222 (segments)

DEMOGRAPHICS: Goldfarb: Nationally representative sample including sex, age, region, home ownership, location type (others unstated).

Crop: Representative, national samples including sex, age, income, language, regions, sub-regions, provinces, education, marital status, occupation, work affiliation (e.g. union member), religion, federal political orientation, community size.

METHODOLOGY : Goldfarb: National, non-probability sample, evenly divided into 50 groups across Canada. Questionnaires were completed by respondents prior to focus interviews, conducted to determine qualitative dimensions of quantitative findings.

Crop: National samples interviewed at home according to probability sampling technique (see Crop Surveys: Environmental Issues). Results validated, and accurate within 4 points at a 95% confidence level. Range of accuracy is slightly wider for segments.

The Goldfarb and Crop Reports were commissioned to chart the primacy of environmental issues, and to probe perceptions of Environment Canada, including its various functions and expected role in the public policy arena.

Regarding primacy of issues, the Crop studies found that the Environment was not regarded as highly as economic or political issues. The November 1981 "open question" survey revealed that 0% mentioned environment as the "most important problem", compared with 61% who identified the economy and 17% who cited the Constitution. Free response levels increased as context moved toward the local level, as 1% of respondents considered the problem most important provincially (vs. 53% for the economy) and 3% locally (vs. 25%, economy). At the local level, environment was the most important issue for the second highest portion of respondents.

This survey did not adequately probe dimensions of public response by asking about issues of secondary or tertiary concern. In political contexts, these levels of importance are considerable. Furthermore, without historical data, we have no way of determining the extent to which situational constraints, such as the recession and the constitutional talks, skewed response rates.

In terms of specific environmental probems, all three reports found distinct perceptual variations according to context or levels of observation. In all surveys of the neighbourhood context, air pollution was deemed most pressing, followed by water pollution, urban land use (1976) and noise pollution. Although dealing with different samples and questionnaires, the spreads separating these problems averaged about 10% with the exception of urban land use which crowded water pollution in the 1976 poll (12% vs. 15%), but dropped to levels of 1%-2% on later polls.

Provincially, water pollution took precedence in all three polls (1976: 34%; 1981: 27%; 1982: 27%) by wide margins. Acid rain appears in the 1981 and 1982 surveys (15%/15%) as the second ranked problem, knocking air pollution (25%/8%/8%) to third place. Spreads are comparable if acid rain is recognized as a hybrid air/water issue. In other words, no major changes in the primacy of these problems is noted.

Nationally, the problems vary each year in saliency. In 1976, air pollution (26%) edged water pollution (25%), and featured "depletion of resources" (13%) as a major, third issue. In 1981, water pollution (22%) topped acid rain (17%), and general pollution (13%). In 1982, acid rain (20%) and water pollution (18%) traded places.

In surveying 20 specific issues, Goldfarb noted mercury contamination, catalytic converters, and aerosol cans as the major issues (all 80 percentile on multiple response questionnaire), while Great Lakes water quality agreement polled 52%, and Detroit-Windsor transborder air pollution placed 17th with 22% recognition. Deter-

gents and phosphates were fading fast, with only 8% seeing them as a major pollutant. Toxic waste (referred to as chemical wastes) had entered the scene, but not gained major attention. Acid rain was notably absent, perhaps suggesting the volatility of the environmental agenda.

The 'nature' of environmental issues was summarized as abstract and class-oriented, despite its demonstrable impact on everyone. As evidenced in preceding surveys, environmental trade-offs are most favoured by the young, college educated, manager/professionals, skilled workers, top income earners, and to a lesser extent, by males, B.C. and Alberta residents, and members of the NDP or Progressive Conservative parties.

People revealed willingness to pay for pollution cleanup and environmental protection according to the above segments. The Goldfarb report lends support to Crop's findings, showing a tendency for younger (under 25: yes-61%; no-33%) and more affluent respondents ($20,000: 63%/34%) to pay for cleanup through higher prices.

Regarding general awareness and expectations for Environment Canada, many were able to confirm that it was a government agency (1976: 32%), although some were confused about which level of government it belonged to (9%). Only 60% were aware of the department in 1976.

By 1981, 77% of respondents had heard of Environment Canada, and by 1982, awareness rose to 82%. Awareness in Ontario coincided with these national figures. Awareness was slightly higher in Atlantic Canada (1982: 86%), among English-speaking Canadians (79%/87% vs. French 74%/73%), and the traditional environmental segments.

Perceptions of specific Environment Canada agencies emphasized the tendency for people to identify departments denoting a familiar resource. Both 1981 and 1982 polls recorded high public awareness of Parks Canada (83%/85%), which varied regionally, perhaps due to higher Parks Canada profile in some regions (e.g. Atlantic: 82%/92%) or greater use of the outdoors (B.C.: 91%/92% vs. Ontario: 82%/82%). The Canadian Forestry and Wildlife services were also well-recognized.

Departments with more generalized functions, and those with names similar to U.S. agencies were less recognized. The Inland Waters and Lands directorates were spotted by only 32%/28% and 25%/22%, respectively. Proximity to regional offices of these agencies did not heighten awareness (Ontario: IWD-34%/28%; LD-20%/17%). These perceptions, both general and specific, do not reveal any surprises, and mainly detect broad "awareness gaps" among certain regions (e.g. Quebec: 77% aware in 1982 vs. 82% average), and segments (e.g. grade school: 52%/62%; age 60+: 61%/67%). Despite a strong improvement in general awareness levels, knowledge of specific

functions remains sketchy. According to Goldfarb, the public is also dimly aware of environmental legislation, with only 5% reporting they knew of any legislation, although reported knowledge was somewhat higher in Ontario (7%) and the Maritimes (10%), and lower in Quebec (3%) and B.C. (2%). Awareness levels were also low on specific pieces of legislation, and functions such as environmental assessment (1%), and the Environmental Contaminants Act (8%), and comment derived from "aware" group participants reflected a naive knowledge of the issues, at best.* Such responses raise the question of confidence in pollsters' coverage of aware segments.

Lack of knowledge about issues, legislation, or departmental functions did not deter people from stating an opinion about what Environment Canada does or should do. The consensus was that the Federal Government should protect the environment through fairly stringent regulatory controls, although not in such a way as to discourage extraction of needed resources. Many Canadians already believe that Environment Canada is engaged in this role, as respondents to the most recent survey attest (60%). A surprisingly large proportion selected "protect lakes/water" (11%) in their response -- over twice as many as other categories such as "protect atmosphere" (3%) or "protect natural resources" (5%). Few (3%) believed Environment Canada should consider research as a high priority.

Expectations for solution cohered closely to the above perceptions, as 2% saw information/education as a viable solution, 3% advocated research investment and 24% leaned toward penalties and regulations. Probed further, respondents again backed these convictions by favouring punative measures. Ten percent would give the Federal Government more power, 14% would allocate regulatory responsibility to a regional authority, and 45% would penalize polluting industries (up from 38% in 1981). Support for research varied with subgroups, and came with the proviso that it be applied to prevent specific problems (22% both years).

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* Typical comments of those who said they had heard of the Contaminants Act included the following:

"Food"

"The food products that have been on the shelf for a long while that leave harmful substances in them."

"I think it concerns certain ingredients dangerous to ... humans and animals."

A review of demographic subtrends reveals some further surprises. Most notably, average Canadians (1981: 22%; 1982: 23%) and those with grade school educations (22%; 22%) supported research as much as affluent, urban, college educated, professional groups (average: 20%; 22%). Homemakers' support for research eclipsed all segments in both surveys (27%; 24%). Like most Canadians, the upscale segments consistently backed penalties for polluting industries, with 42% supporting this policy in 1981, and 45% in 1982.

Another surprise concerns the strong approval that Conservatives voiced for industrial penalties. In 1981, P.C.'s even surpassed NDPers (40% vs. 39%), and still exceeded the 1982 national average in proportions near (1981: 21%) or above (1982: 25%) national levels.

Regional responses differed significantly on support for regional problem centres: Quebeckers most favoured the proposal (1981: 24%/ 1982: 22%) while Ontarians most opposed it (12%/10%). Torontonians were especially against the idea (7%/7%), Westerners were skeptical (18%/13%), and Atlantic residents uncertain (24%/9%).

Perhaps most important, Canadians of all types do not consider even a $20 tax increase a viable strategy (3%/2%), despite an apparent willingness to make this sacrifice in earlier polls.

In questioning Canadians' knowledge of issues, awareness of Environment Canada, and preference for various policies, the surveys determined that although general awareness of issues and Environment Canada agencies was fairly high, technical awareness of the issues, and knowledge of some specific agency functions was low. Perhaps this absence of detailed knowledge about the environment and the related government activities, accounts for the wide public preference for penalties as a means of detering pollution.

2. THE MASS MEDIA AND PUBLIC CONCERNS FOR ENVIRONMENTAL PROBLEMS IN CANADA, 1960-1972:*

This paper presents a content analysis of environmental issues between 1960 and 1972. It's purpose is to provide an overview of news coverage as a means of discussing the media's role in collecting, editing, and conveying news about the environment, and noting effects on public attitudes and behavior.

Trends in media coverage were determined from content analyses of four major Canadian newspapers and magazines. The newspapers were: the Globe and Mail, Ottawa Citizen, Vancouver Sun and LaPresse. The magazines were: Maclean's, Chatelaine (French and English versions), and Saturday Night. Data was also obtained from television and radio programmes during the same period. Trends were then related to surveyed opinion.. Factors guiding decisions about scope, timing, and content of environmental coverage were gathered from interviews with news media personnel.

Results are pictured in Figures 1.4 and 1.5, depicting trends in newspaper coverage of eutrophication and sewage pollution issues, in addition to water pollution issues.

Figure 1.4 indicates that newspaper coverage was low and sporadic between 1960 and 1965, but increased steadily until 1968. Thereafter coverage grew exponentially, peaking in 1970 and declining dramatically in 1971. Figure 1.5 contrasts slightly with the general trend: while coverage of eutrophication roughly parallels overall developments, coverage of sewage pollution increased steadily, but far less dramatically to 1969, when it tails off to 1970.

The authors explain these differences by noting that growth of the eutrophication issue coincides with release of the Report to the International Joint Commission on pollution of the Lower Great Lakes. News coverage increased with the Canadian government's decision to enact controls on detergent phosphate levels, but declined following the "institutionalisation" of the issue which came with the Federal Nutrient Control Regulations in the Summer of 1970. In general, these trends coincide with content analyses of electronic media (Table 1.9).

From these trends, the authors make the following conclusions:

> Between 1960 and 1965, environmental issues were local and isolated. The period between 1965 and 1968 marks a shift in coverage to national and international perspectives.

*J. W. Parlour and S. Schatzow

Figure 1.4

Trend in Newspaper Coverage of Water Pollution Issues, 1960-71

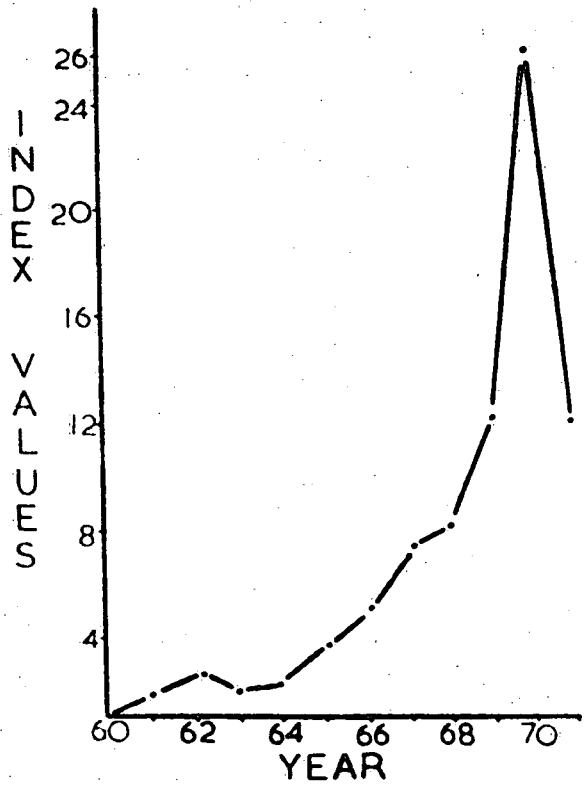

Figure 1.5

Trends in Newspaper Coverage: Selected Issues, 1960-1971

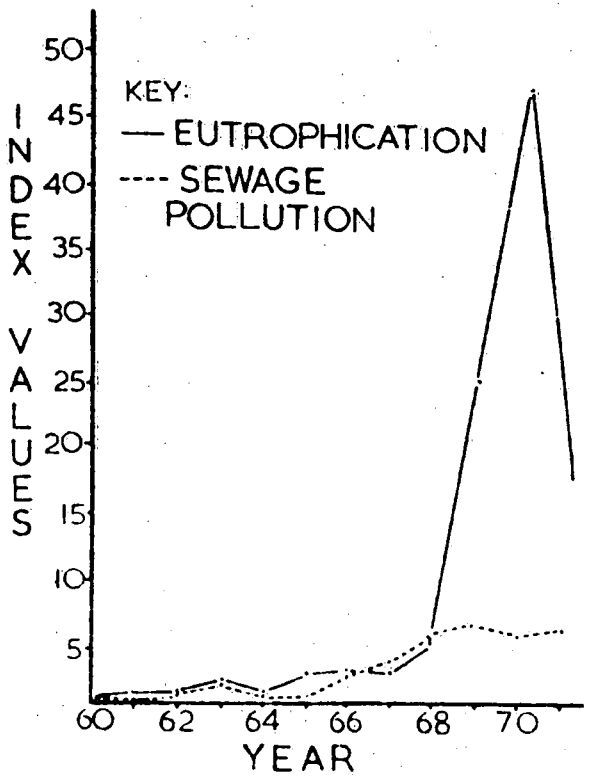

Table 1.9

Trends in Magazine, T.V., and radio Coverage of Environmental Issues, 1960-1972

	No. of magazine articles[a]	No. of T.V. programmes[b]	No. of radio programmes[c]
1960	3	N/A	N/A
1961	3	N/A	N/A
1962	1	1	N/A
1963	1	0	N/A
1964	0	0	N/A
1965	1	0	N/A
1966	5	5	1
1967	3	6	[illegible]
1968	2	1	1
1969	2	21	3
1970	19	47	5
1971	4	33	4
1972	9	11	1

[a]Macleans (French and English), Chatelaine (French and English), Saturday Night.
[b]CBC and CTV networks only. There were no data available for CTV before 1969.
[c]CBC network only.

Source: The Mass Media and Public Concern for Environmental Problems in Canada, 1960-72, International Journal of Environmental Studies, 1978, Vol. 13, pp. 9-17.

Content has focused on social and economic dimensions of the problems rather than scientific and technical aspects. The authors' contend that this bias has limited the public's knowledge of environmental issues.

Coverage was sensationalized; particularly with the phosphate issue.

On the basis of these observations, the authors' discuss the media's role in composing the news and its subsequent impact on environmental coverage. From these observations, they posit a model for public-mass media interactions.

In examining the media's role and impact, the authors first discuss the internal decision-making structure of mass media organizations as it pertains to news collection and release. The basic contentions are that top management play a secondary role to reporters and editors, who make largely subjective judgements in reacting to news leads, and providing stories. The lack of coherent direction to agenda setting and investigative functions is blamed on a lack of scientific and specialist staff to direct research. The idea, then, is that the media are at a disadvantage in assessing the saliency and accuracy of news items, and that this situation leads to distortions. Lack of in-house research, and reactive attitudes about news, leads media personnel to rely heavily on elite and special interest groups for interpretation.

Notwithstanding these shortcomings, the authors' assert that mass media exert considerable influence upon public awareness and opinion, although these effects are considered transient and superficial. Citing a 1973 survey showing that 72% of the Canadian public learns about environmental issues through television (50%) or newspapers (22%), and less than 1% are informed by friends, the authors conclude that mass media are primary agents in setting the news agenda. The authors also note that surveyed opinion corresponds positively with increased coverage. For example, it was not until 1970 that opinion polls revealed high levels of concern for pollution issues. By 1971, Gallup surveys had recorded a drop of concern from 70% to 50%. By 1972 only 6% viewed pollution as a national problem.

Based on these conclusions, the authors suggest that, while media act as catalysts in creating issues, their impact does not bring about changes in public behavior. The authors' also cite public apathy for direct decision-making, and clashes between working class, and the educated middle class persons who relate to environment as a "leisure issue". The implication is that working people have more immediate needs which bias them toward economic priorities.

While data from the content analyses is valuable for portraying news trends, the authors' interpretation of the data is based on dated literature.

The study is based on the assumption that communication is best viewed as an independent variable which shapes attitudes according to perceptual constraints inherent in a "mass" audience. This view was developed by mass communication scholars of the 1950's who studied media effects, although few discovered that mass communication had a sweeping influence on behavior. Influence was seen in terms of "minimal effects", (Cooper and Jahoda, Fearing). People were perceived as "obstinate" (Bauer), "disorganized" (Blumler), and as "chronic know-nothings" (Hyman and Sheatsley). The media's role was primarily that of a "gatekeeper" or a social adhesive (Lazarsfeld) which maintained the status quo. Social change was not initiated by mass media, although sanctioned elites might interpret information for others and, in this way, ideas were diffused throughout society (Katz).

This approach may have been appropriate to a period of broad social and political consensus, dominated by a few mass media, but is no longer considered useful in explaining the non-conformist, and activist, behavior which increasingly defines our current culture (Wright, Chaffee, McLeod, O'Keefe). Although certain features of the earlier period persist, these often conflict with new practices. Persons actively use media (including specialist magazines, newsletters, cable television, and personal computers as well as mass media) to express specialized interests, and behave, at times, as a mass.

The authors' model of media-public interactions suffers from the omission of the more recent view, as it excludes these new relationships between publics and media. In doing so, it posits a society which no longer explains current behavior. For example, the model assumes that "intellectual elites" initiate issues, by communicating with the media and interest groups. An atomized public is the recipient of the resulting messages. In practice, local communities representing a cross section of society are often instrumental in clarifying issues. Moreover, the public responds in ways which do not immediately feed back to mass media as the authors propose. Local groups interact directly with environmental, special interest, and other citizens groups, and with opposition parties, companies, industry associations, and government agencies and representatives. The mass media is not a central agent in this process. Despite their omissions, the authors recognize that the media continues to play an important role in legitimizing environmental issues and by stimulating political action.

Their conclusions that environmental issues will continue to wane cannot be supported. Subsequent analyses and surveys have contradicted their position by showing that environmental issues have again increased in importance as measured by lineage and public opinion.

3. PUBLIC PERCEPTIONS OF WATER QUALITY AND THEIR EFFECTS ON WATER-BASED RECREATION: *

The study seeks to determine awareness about water quality problems at seven recreational sites in Nova Scotia, Quebec, and Saskatchewan. Further objectives were to learn if public awareness and water-based recreation are affected by water quality, and to assess willingness to pay for improvements.

Three hypothesis were set out to test awareness in terms of education, income and age. The author proposed that awareness would be linked positively with college educations, high incomes and older ages. The second hypothesis suggests that highly aware persons would be motivated to resolve the problem, by avoiding or complaining about it. Finally, awareness may be shared by willingness to pay for better water quality.

Recreation sites were selected to represent three distinct, popular water-based environments. Questionnaires containing closed and open questions were administered in 1,072 on-site interviews from July 1 to September 7, 1971. Water quality was sampled to coincide with the surveys in order to correlate quality with user responses. A control group of interviewers and water quality scientists was formed to gauge the accuracy of respondents' perceptions.

Water quality met most of the official criteria in the Saskatchewan sites, except for Buffalo Pound Lake which had excessive weed growth and pollution readings. Water ratings at Peel Head Bay in Quebec revealed unacceptable levels of fecal coliform, mercury, and severe weed growth. Conditions met acceptable criteria for recreation at 3 of 5 Nova Scotia beaches, although the two remaining beaches at Pictou Harbour periodically featured high coliform and colour levels.

The Saskatchewan sample featured a disproportionate number of highly educated, high income, managerial and professional persons. Over 76% rated their areas "very good" or "excellent", and only 0.2% considered them to be "poor". Seventy percent used the sites for aesthetic reasons, 46% cited facilities, and 38% mentioned access. Only 11% came due to water quality. Fewer chose organized activities (10%) or commercial amenities (8%).

The survey showed that water problems, although comparatively slight, did deter recreational uses such as swimming (9.4 day average per season down to 6 days), fishing (down from 4.3 to 3.7), and water skiing (1.8 to 1.3). Given these conditions, 71.5% desired general improvements in water quality, 37% wanted algae removed and 27% wanted weeds removed. These responses roughly cohered to perceptions of specific problems. The average user was willing to pay $5.18 per week to improve these conditions, representing 22% of average weekly recreation costs.

* J. G. M. Parkes

Quebec users possessed incomes comparable to the previous sample, but lower education levels. Forty-three percent had not completed high school, while only 11% held professional or semi-professional positions. Ninety-eight percent were urban, most of them visiting on their annual vacation. Only 32% were day users.

Most (69%) rated the area highly, and 13.3% rated it as poor -- a significantly higher percentage than in Saskatchewan. Still, 80% considered the area attractive, with 16% selecting it because of water quality. Reductions of resource use were proportionately less than for the previous survey (e.g. swimming down from 20.5 to 13.7) with most activities unaffected. Only 45% desired water improvements, and only 37.6% were willing to pay $0.83 per week -- less than 2% of weekly recreational expenses. Since respondents rated water conditions as accurately as the control group, lack of perception cannot account for this low level of willingness to act.

The Nova Scotia samples are also marked by high incomes, very high education levels (42% had some university training), high job status (32%) and high urban residency (89%).

Over 78% rated recreation areas highly, with 4.1% perceiving them poorly. As in Quebec, a high proportion (75%) relate to the areas' aesthetic benefits, but an uncharacteristically high percentage cited quality as an attraction (33%). Also unlike previous surveys, few respondents agreed with the control group's water evaluations. Almost no reduction in recreational use was reported, but 65% were willing to allocate $4.36 per week to solve water pollution problems (17.6% of weekly recreation expenses). The author suggests that socio-economic and cultural disposition toward environment may account for such willingness to act despite the lack of apparent pollution problems.

In sum, cultural elements seemed to affect water quality perceptions and willingness to act in all three recreational regions, although education, occupation, and age were still the main influencing factors. In light of the anomalies discovered, and in the absence of accompanying correlation coeffecients, it is difficult to determine the author's rationale for this conclusion.

Only in Nova Scotia was there a significant correlation between perception accuracy and willingness to pay. The author offers no explanation for this result.

4. OPINIONS ON RECREATION AND POLLUTION IN LAKE ONTARIO:*

The purpose of this study is to determine the extent to which people using Lake Ontario consider it to be polluted, and what pollution means to them.

Questionnaires were sent to 519 persons who had responded to a previous program involving the release and recovery of drift objects in 1969 and 1970, in which persons finding "drift sticks" were requested to respond with identifying information. The 420 who responded were residents of the entire lake area, although sections of the north shore were less completely covered. There were no significant differences in either percentage returns, or content between Canadian and U.S. residents.

Twenty-two percent of the sample lived on the lakeshore year-round, 32% visited the shore all year, while most used the lake during summer (98%), spring (48%) and fall (46%). Three percent used the shoreline during the winter. Activities included swimming (79%), boating (74%), peace and quiet(69%), hiking along the shore (65%), sun bathing (62%), looking at scenery (61%), beachcombing (58%), fishing (54%), picknicking (50%), waterskiing (32%), partying (29%), camping (27%), diving (22%), boat racing (7%), ice fishing (6%) and hunting (5%).

Most respondents (91%) felt "slightly" (42%) or "seriously" (49%) affected by pollution, while only 9% did not. Analysis of typical comments defining "pollution" revealed that 47% of respondents applied the term "algae", 33% "seaweed", and 13% "moss". Many noted an increase in these substances on the shore and in the water.

The second major pollutant cited by 33% was "dead fish".

"Offensive smells" were the next phenomena mentioned by 28%. Most (79%) of these persons connected smells to fish, algae, or both.

"Mercury" was the fourth pollutant cited, affecting both recreational and occupational activities of the 19% who replied. Most of those whose livelihood was affected were fishermen concerned about selling their catch.

A further 62 respondents (15%) listed "dirty water", including the descriptors "muddiness", "cloudiness", or "scummy...plant life" as a few examples.

Garbage and litter constitute the sixth category (14%), including such items as bags, tires, soft drink and beer cans, and nails, to name a few. Most of this debris was found on the shoreline.

*W. B. Simpson and G. K. Kamitakahara

Several quantitative comparisons were noted by the authors. A "tentative conclusion" is that a direct relationship exists between time spent using the lakeshore and the degree to which they are affected by pollution. This finding complements the relationship discovered between distance from the shore and pollution perceived, with those living further away perceiving it less seriously than those situated more closely to the lake.

No significant relationship was determined between number of recreational activities and frequency of complaints about pollution. Only two pollutants, bad odour and oil, were statistically linked to any region. More Canadians reported odour, and more reports of oil spillage were noted in Toronto and Hamilton regions than from all other combined regions.

Except where noted, there were no significant differences between Canadian and U.S. responses.

5. BEACH POLLUTION IN THE TORONTO REGION:

Two questionnaire surveys were conducted on 12 beaches in southern Ontario and in Metropolitan Toronto in 1966-1967 to determine how the public appreciates pollution relative to scientific and administrative criteria, and how water quality affects spatial demand for water-based recreation.

A total of 440 respondents were interviewed at the southern Ontario sites and 220 were surveyed with a modified questionnaire in Toronto households during the following winter of 1966-1967.

Ninety percent of the beach sites featured high proportions of manual and semi-skilled workers (at least 30% per site), particularly beaches characterized by "poor water quality" and "overcrowding". Most respondents were local residents, although beaches located furthest from Toronto featured a larger proportion of users with managerial, professional or technical occupations. Toronto respondents were more familiar with lakes north of the city. The sites offered a wide range of water quality.

The surveys contained questions concerning criteria for identifying pollution, pollution sources, responsibility for action, site evaluations, recreational activities, personal experience, attitudes regarding future pollution and toward the environment. These findings, and the noted correlations, are as follows:

> Appearance was the main criteria for identifying pollution (beach users: 56%; cottagers: 47%), followed by odour (15%; 11%), scientific tests (3.3%; 15%), taste (.8%; 1%), and posted signs (0.8%). Many were unaware (25%; 17%) or could not tell (0%; 7.5%).
>
> Most respondents (50%) blamed industry as the main source of pollution; a large proportion cited domestic sewage (31%), and 12% identified boats and shipping. Two percent did not know.
>
> Most persons (52%) considered remedial actions taken to be inadequate, 23% saw the actions as sufficient, and 9%, effective.
>
> Consensus on responsibility was split between the provincial (24%) and local governments (31%). More people were in doubt (12%) than inclined to hold the federal government responsible (11%), although 7% could not distinguish between governments. Eight percent thought that the public should solve the problem, 2% said land owners should, and 3% believed that industry should act.
>
> The most poorly perceived site in terms of water quality was the western beach of Toronto where 90% considered

the water "somewhat" or "very" dirty. In keeping with this view, public perceptions cohered closely to OWRC ratings of provincial water sources which favour Georgian Bay and the small lakes over Lake Ontario and Lake Erie. A bias was noted from respondents who frequented certain beaches and tended to overrate water quality relative to OWRC standards. A related finding was the tendency for respondents to cite distant beaches as having the worst pollution.

A positive relationship linked respondents' water quality evaluations and future expectations. Those who rated water negatively also expressed the most pessimism about future quality (see Table 1.10).

A significant relationship existed between swimming habits and opinions of water quality in the beach survey, with those not swimming expressing more criticism than swimmers (see Table 1.11).

Comparisons between public site evaluations, number of beach visits, site familiarity, and time distance between site and residence were made to measure the relationship between evaluations and degree of personal experience. The major finding was that respondents were more critical of familiar beaches, although willing to adapt as a matter of convenience. The weak relationship between water quality and time distance in the beach survey was partly offset by Toronto data showing that perceptions varied positively with distance (from Toronto). Respondents at small lake beaches corroborated these findings, lending support to the author's conclusion that water quality significantly determines user space preference (see Table 1.12).

For the final analysis, respondents were asked to match personal views with one of three man/nature relations ranging from nature dominant to man dominant. Responses were compared to water quality evaluations, yielding a significant relationship between these two variables. (e.g., those rating water the cleanest believed that nature should have priority, while those rating water quality as "somewhat dirty" believe man should dominate).

Similar comparisons were made with future pollution expectations and opinions about action against pollution. Correlations were low in both comparisons, although those believing in dominance of man were more critical of actions taken to solve pollution (see Tables 1.13, 1.14, 1.15).

The author concluded that wide variations in user behavior were related to perceptual differences which were possibly dependent

Table 1.10

Beach survey: Evaluation of water quality and attitude toward future pollution (Percentage)

	Don't know	Neutral	Optimistic	Pessimistic	Total
Don't know	5.5	2.3	1.5	2.0	2.5
Very clean	53.3	40.6	50.0	27.4	41.4
Clean	2.2	6.3	6.7	2.9	4.4
Somewhat dirty	36.6	36.5	35.8	54.0	42.4
Very dirty	2.2	14.3	6.0	13.4	9.3
TOTAL	18.0	17.2	30.7	34.1	N=437

$x^2 = 35.185$ $p = .001$

Table 1.11

Beach survey: Opinion of water quality in relation to swimming habits of the respondents (Percentage)

	Don't swim	Swim	Swim occasionally	Total
Don't know	4.9	2.0	1.8	2.5
Very clean	17.6	49.4	33.0	41.3
Clean	1.1	5.5	5.9	4.6
Somewhat dirty	48.9	39.6	50.0	42.9
Very dirty	27.4	3.5	9.3	8.7
TOTAL	18.3	70.0	11.7	N = 436

$x^2 = 65.186$ $p = .001$

Table 1.12

Beach survey: The relationship between user-evaluation of water quality and the number of visits to a particular beach (Percentage)

	First visit	First visit in 1966	2-5	6-10	11-15	16+	Total
Don't know	6.6	1.8	3.6	1.7			2.6
Very clean	63.3	52.8	35.5	31.9	30.0	36.2	41.8
Clean	–	3.2	3.8	3.4	5.7	12.1	4.4
Somewhat dirty	30.0	34.6	47.7	53.9	50.0	48.3	42.7
Very dirty	–	7.6	9.4	8.9	14.3	3.4	8.5
TOTAL	3.0	34.0	37.3	12.7	7.0	5.9	N=426

$x^2 = 21.06$ $p = .40$

Source: Perceptions and Attitudes in Resources Management, Edited by W. Sewell and I. Burton, Policy Research and Coordination Branch, Department of Energy, Mines and Resources, Ottawa, Canada.

Table 1.13

Beach survey: Opinion of water quality and attitude toward man and nature (Percentage)

	Don't know	Nature dominant	Man and nature	Man dominant	Total
Don't know	2.2	5.1	2.7	2.6	2.9
Very clean	45.2	42.7	38.5	26.7	36.5
Clean	0.9	5.1	3.4	7.0	4.3
Somewhat dirty	47.4	33.7	44.3	57.8	45.6
Very dirty	4.3	13.4	11.0	11.6	10.3
TOTAL	23.0	15.7	29.1	29.9	N=374

$x^2 = 19.97 \quad p = .20$

2% of respondents undecided between Man and nature and Man dominant.

Table 1.14

Beach survey: Expectation of future pollution and attitude toward man and nature (Percentage)

	Don't known	Nature dominant	Man and nature	Man dominant	Total
Don't know	23.5	23.3	16.8	13.2	17.9
Neutral	16.1	12.1	17.7	18.7	16.9
Optimistic	25.3	39.1	34.2	30.3	31.5
Pessimistic	35.0	25.5	31.2	37.8	33.6
TOTAL	21.7	17.1	29.8	29.4	N=431

$x^2 = 15.27 \quad p = .20$

Table 1.15

Beach survey: Opinion of action taken against pollution and attitude toward man and nature (Percentage)

	Don't know	Nature dominant	Man and nature	Man dominant	Total
Don't know	16.8	13.9	17.1	16.1	15.7
Effective	7.4	15.2	8.5	6.9	9.0
Adequate	29.5	27.8	24.7	15.1	22.9
Inadequate	46.3	43.0	49.3	61.9	52.4
TOTAL	21.9	16.5	29.4	30.5	N=438

$x^2 = 22.806 \quad p = .04$

Source: Perceptions and Attitudes in Resources Management, IBID.

on socio-economic factors. Thus, variance in personal experiences was a relevant factor in water quality evaluations. Recreational activity, kind and degree of pollution, and user attitudes toward environment are significant, but less important than experience.

6. PUBLIC ATTITUDES TOWARD POLLUTION IN THE BIG OTTER CREEK DRAINAGE BASIN, ONTARIO: *

A sample of 350 residents of the Big Otter Creek basin in southwestern Ontario were questioned during August and September 1971 to determine their awareness, knowledge, and concern for pollution, compared with issues such as unemployment, welfare, educational costs, medical services and recreational facilities. Further questions were asked to gauge perceptions of water pollution sources, willingness to pay for environmental quality, and feelings about government responsibility and public participation in environmental policy making.

Thirty-seven percent of respondents were from urban centres (with populations over 1000) and 63% were from rural areas.

Respondents ranked pollution third in terms of eight community problems, behind medical facilities and parks and recreation, but in front of unemployment (see Table 1.16). Results approximated Gallup polls taken during the same period which showed that pollution of air and water was the most pressing problem in December 1970 and the fourth ranked problem in November 1972. Personal concern was expressed by 82.2% of the sample in a follow-up question.

Responses did not differ greatly in terms of community size, but students, professionals, office workers, and persons with post-secondary education, and members of families with incomes over $7,000 indicated stronger concern than less educated persons, homemakers, unemployed persons, and members of low-income families (see Table 1.18).

Sixty-six percent of respondents were most concerned about water pollution. Rural residents were least concerned, while students (81.4%), professionals (74.4%), upper income (80.3%) and middle education groups (69.8%) were most concerned, as well as those living closest to Lake Erie. Assessments of pollution sources focused upon farm manure and fertilizers (64.9%) and public sewage (17.4%) as the major sources, and industry (6%) as a minor source.

Many of the above groups were also the most willing to commit tax dollars to clearing Big Otter Creek of pollution. With the exception of rural respondents (30% willing to pay $11-50 vs. 25.7% average), those with secondary and post-secondary education, professionals, and high income groups were most willing to pay taxes. Those with elementary education, the unemployed, retired, and engaged in agriculture were least willing to pay (see Table 1.17).

Almost half of the respondents (47%) did not believe that government decisions about social problems were influenced by ordinary people while 21% believed they were influenced and 32% were

*O. P. Dwivedi

TABLE 1.16

TABLE 1. The relative importance ascribed to community problems (N = 323, in per cent).

Order of presentation	Subject of concern	Most important problem		Somewhat important problem		Least important problem	
		%	Rank	%	Rank	%	Rank
9	Medical facilities	19.5	1	9.9	8	9.6	7
7	Parks and recreation	17.0	2	10.5	7	10.2	6
6	Pollution	15.8	3	13.6	2	8.4	8
5	Unemployment	14.6	4	11.8	5	11.1	5
4	Housing	12.7	5	12.7	4	12.1	4
3	Educational costs	7.7	6	11.8	6	16.7	1
2	Welfare	7.1	7	13.3	3	16.4	2
1	Police protection	5.6	8	10.4	1	15.5	3

Source: O. P. Dwivedi, 1971

TABLE 1.17

TABLE 6. Residence, education, occupation and income as an influence on willingness to be taxed annually for ten years to support pollution control (in per cent).

Amount willing to pay		Residence			Education			Occupation						Income			
		Below 500	500-2999	Over 3000	Up to Grade 8	Secondary School	Post Secondary	Student	Self employed	House-wife	Office worker	Profes-sionals	Other	Below 5000	5000-6999	7000-9999	10000
None	46.1	45.4	31.3	63.3	79.2	39.2	41.7	51.4	41.7	45.5	36.8	25.7	69.5	70.4	54.1	42.9	32.4
0-$10	7.5	6.9	11.1	5.6	9.4	8.2	2.1	11.4	2.8	13.0	9.2	8.6	0.0	1.9	11.5	11.0	6.3
$11-50	25.7	36.0	29.3	15.6	5.7	31.3	22.9	25.6	22.2	28.6	30.3	22.9	15.6	13.0	23.0	31.9	27.9
Over $50	20.4	17.7	29.3	15.6	5.7	21.2	33.3	11.6	33.3	13.0	23.7	42.9	11.9	14.8	11.5	14.3	33.3
	N=319	N=130	N=99	N=90	N=53	N=217	N=48	N=35	N=36	N=77	N=76	N=35	N=59	N=54	N=61	N=91	N=111
Statistical Significance		x^2 = 22.16, p = 0.0015			x^2 = 38.06, p = 0.0001			x^2 = 42.69, p = 0.0004						x^2 = 36.49, p = 0.0001			

Source: O. P. Dwivedi, 1971

TABLE 1.18

The influence of residence, education, occupation and income on concern about pollution in the watershed (in per cent).

	Residence			Education			Occupation						Income			
	Below 500	500-2999	Over 3000	Up to Grade 8	Secondary School	Post Secondary	Student	Self employed	House-wife	Office worker	Profes-sional	Other	Under $5000	5000-6999	7000-9999	Over 10000
Highly concerned (35.4)	27.8	36.1	43.6	14.5	36.2	52.5	60.5	40.5	18.2	41.2	42.5	22.6	29.8	22.7	29.2	50.0
Somewhat concerned (47.4)	51.4	53.3	35.6	41.8	51.1	37.3	32.6	40.5	61.0	43.5	55.0	46.8	33.3	51.5	55.2	46.1
Undecided (7.7)	9.7	2.9	9.9	23.6	5.1	3.4	0.0	4.8	11.7	5.9	0.0	17.7	21.1	13.6	5.2	0.8
A little concerned (5.7)	6.3	4.8	5.9	12.7	4.3	5.1	7.0	11.9	3.9	4.7	2.5	6.5	14.0	9.1	3.1	1.6
Not at all concerned (3.7)	4.9	1.0	5.0	7.3	3.4	1.7	0.0	2.4	5.2	4.7	0.0	6.5	1.8	3.0	7.3	1.6
(N=350)	N=144	N=105	N=101	N=55	N=235	N=59	N=43	N=42	N=77	N=85	N=40	N=62	N=57	N=66	N=96	N=128
Statistical significance	$x^2 = 16.60$, $p = 0.0343$			$x^2 = 43.65$, $p = 0.0001$			$x^2 = 51.26$, $p = 0.0003$						$x^2 = 60.34$, $p = 0.0001$			

Source: O. P. Dwivedi, 1971

undecided. Persons with higher education, self-employed, and middle-income groups tended to feel they could influence decisions. Of those who did not, 16% agreed that approaching their MP or MLA may yield results, 17% cited using the media, 15% suggested joining an interest group, 31% advocated changing the government, and 20% suggested "other approaches".

The final question revealed that 53% of respondents held the federal government responsible for pollution, compared with 9% citing the provincial (Ontario) government, 14% citing local government and local efforts, and 24% citing "combinations" of governments and actions.

The author draws four basic inferences from the study:

1) Rural residents are concerned about pollution, especially as it portends industrial development, loss of lifestyle and environmental problems.

2) Non-farmer rural residents are very sensitive to agricultural pollution.

3) A major attitude split distinguishes upscale and downscale groups, with educated, affluent professionals tending to be more sensitive to pollution, and more willing to participate politically and economically in its resolution.

4) The public is not well-informed about environmental quality and feels alienated from the decision-making process.

7. WATER QUALITY RELATIONSHIPS IN THE GREAT LAKES:*

Analysis of a Survey Questionnaire

In 1971, a survey questionnaire was submitted to officials in federal, provincial, state, regional, city, county, township, and other governments to determine the range of resource problems and issues perceived by government units with jurisdiction along the Great Lakes shoreline.

A non-random sample of 650 units was selected. Officials from 300 units responded.

The survey concluded that inadequate industrial and municipal waste treatment facilities were perceived to be the most important issues related to the distribution of water resources in the Great Lakes, followed by high water levels due to beach and slope erosion (see Table 1.19). The main issues relating to use of water resources were the decreasing amount of land available for public use, inadequate access, and low quality development. The survey also identified the key issues related to planning, including inadequate emphasis on water quality, piecemeal and immediate problem orientations, and the lack of inter-agency cooperation.

Water quality was also discovered to be adversely affected by land use having high population density (greater than 500 per square mile), and where industrial use predominated.

Perceived solutions by government units (in order of importance) were as follows:

a) Additional funds for waste water treatment,

b) Increased coordination,

c) Enforcement of existing regulations,

d) Increased leadership,

e) New regulations -- curb pollution at source,

f) Redistribution of responsibility,

g) Creation of new agencies.

Perceptions of solutions appear to relate with government functions: For example, townships cite enforcement of regulations as their most favoured solution, while cities mention the need for additional funds, reflecting their responsibility for building waste treatment facilities.

* J. W. Buckley and A. P. Mathews

TABLE 1.19

Issues Related to the Destruction of Resources

Issues	Adjusted relative frequency (%)		
	Unimportant	Somewhat Important	Important
1. *Water pollution due to inadequate municipal sewage facilities	24	19.9	56.1
2. *Beach and slope erosion	30.7	20.4	48.9
3. *Water pollution due to inadequate industrial sewage facilities	34.2	20.6	45.3
4. **Alteration of shoreline by filling or dredging	52.8	19.4	27.8
5. **Pollution of both land and water due to disposal of solid waste materials	44.0	28.6	27.4
6. **The threat of thermal pollution	69.4	13.8	16.8
7. **Water pollution due to agricultural runoff	52.0	32.0	16.0
8. **Sedimentation due to poor land use practices	60.0	24.7	15.3

*More important
**Less important

8. PUBLIC PERCEPTIONS OF WATER QUALITY IN THE GREAT LAKES:

The study set out to determine perceptions toward water quality and its management in the Georgian Bay through Lake Ontario portion of the Great Lakes. A sample of 3066 southern Ontario residents, including 461 shore property owners, were randomly selected and interviewed by telephone during February and March 1978. Respondents were classified as owners, users, and non-users, to distinguish levels of participation in water-based recreational activities, and familiarity with the Great Lakes. Survey findings were recorded by age, sex, education, occupation, shoreline area and type of residence.

Basic findings were as follows:

Overall, 53.2% were dissatisfied with water quality, although 31.4% were content. Users were considerably less satisfied (27.6% satisfied vs. 61.6% not satisfied) than non-users (29%/49%). Owners were ambivalent (43.6%/44.6%), but considered water pollution as their third-ranked major problem. However, only 13% of owners had complained about water quality.

Most respondents determined water quality by appearance, although only 26% used this distinction. Direct indications such as dead fish (13%), garbage and debris (11%) and visible surface scum (10%), were taken as evidence of poor quality over hidden or indirect phenomena such as weeds on the lake bottom (2%), high water levels (1%), or lack of bird life (2%).

Mass media was deemed to be an important source of information on water quality by 65.2%, including similar proportions of users (63.6%) and non-users (68.4%). Over half (51%) of the shore owners also used mass media as a major source of information. Personal observation ranked second (20.2%), behind printed media (47.6%). Owners (36%) and users (25.2%) were more inclined than non-users and the general public to rely on direct observations. Fewer than 1% (.9%) used government agencies as a source.

Not surprisingly, 54.4% felt that government was not doing enough to improve water quality. Most respondents claimed awareness of Environment Canada (80%) and the Ontario Ministry of the Environment (80%), and 41% knew of the International Joint Commission. However, most of these aware respondents could not give an opinion about those agencies' efforts to improve water quality (EC:57.7%/MOE:59.2%/IJC:44.4%). Over half (55.5) of all respondents were not aware of government measures to improve water quality, although 40.6% claimed that they were. Over 72.2%

corroborated these results in confirming that they had made no inquiries of agencies during the previous 5-year period.

Although contact with and knowledge of government was minimal, respondents noted a marked change in Great Lakes quality after 1972 (the year that the Canada/U.S. Great Lakes Water Quality Agreement was signed). Opinion of water quality improved after that point, with 13.4% perceiving quality improvements between 1975-78, compared with 10.3% between 1972-74, and 5.9% prior to 1972. Only 9.2% felt quality had declined during 1975-78, compared with 16.8% and 44.4% in the preceding periods.

Despite higher regard for the Lakes water quality, related recreational use decreased - apparently for economic and personal reasons. Up to 50% fewer owners and users used the lakes for swimming, bathing, or fishing during the previous 5-year period. The trend was most evident in Lake Ontario, where the greatest proportion of owners (41%) and users (38%) decreased their activities.

In terms of the future, users and non-users expressed similar degrees of optimism and pessimism about prospects for water quality improvement. Results for the general public accurately represent their view, showing that 35.4% believe the water will improve, 40% who do not, 12.6% who feel it will be the same, and 12% who do not know. In contrast, owners express similar scepticism (30% will improve/36% will be worse), but more doubt (19.9% do not know).

In addition to these results, the survey probed respondents' views on water quality management. These views were as follows:

The factor most advocated for water quality improvement was to eliminate or reduce industrial pollution (29.9%). Although both users and owners agreed, the margin of opinion between them (owners: 28.2%/users: 34%) is notable, since the owners clearly have the greatest vested interest in this solution. Pollution controls were of next importance (17.5% plus 3.5% for control pollution by boats). Stricter enforcement of laws and regulations followed (10%), except for owners, who felt that improved sewage waste treatment was needed (13%). Comparatively few (3.2%) were concerned about lack of U.S. contributions to pollution problems.

Over half (52%) contended that environmental controls would help the economy. Only 17.8% felt these would adversely affect the economy, and 19.1% did not know.

As noted, general awareness of government measures to manage water quality was low. Of those who were aware, most (20.9%) cited pollution controls, septic system regulations (16.6%), the presence of the International Joint Commission (15.1%), and all other government agencies (10.8%) as government management efforts. After these observations, awareness dropped dramatically, as 3.6% indicated low phosphate detergents, and 0.8% mentioned other measures. Over a third (35.9%) were not aware of specific measures.

Although 40.6% were aware of government actions taken to improve water quality, 58.6% were willing to pay additional taxes to support these actions. The most willing were users (67.4%), professionals (70%), semi-professionals (75%), skilled workers (65%), those with secondary educations (68%), college educations (67%), or part college educations (71%), and the respondents between 18 and 34 years of age (68%-70%). Those least willing to pay were older respondents (age 60-64: 34%) and those with partial grade school educations (43%).

In reviewing these findings, it appears that satisfaction with and awareness of water quality is moderate, while specific knowledge of government actions and agencies is low.

The hypothesis that shoreline owners would be more sensitive than others to water quality and related issues is true only in terms of non-users. Owners were highly aware of specific water problems, but less aware of changes in water quality than were users (owners: 76.5%/users: 79.5%). Over half (54%) could not identify factors affecting water quality. Less than half of them knew of water quality checks (49%), while 28.5% were not aware, and 22.5% did not know. These figures relate with comparisons between owners and other segments, which show that users (45.7%) were more aware of government measures than were owners (41.9%). Shore owners also expressed higher levels of satisfaction with water quality than users and non-users, low sensitivity to citizens groups (78.1% not aware), and little inclination to complain (86.6% have not).

Education, age, and educational factors may have influenced these results, as owners outranked non-users in terms of having a high proportion of persons with a minimum high school education (owners: 37%/users: 36%/non-users: 26%), but had fewer respondents who belonged to environmentally sensitive occupations, such as professionals, semi-professionals, and skilled workers, than did users. (owners: 16%/users: 23%/non-users: 15%). Age comparisons were notable in that user group percentages of respondents aged 18 to 34 years of age almost tripled owner percentages (59% vs. 20%). Non-users had almost double the proportion of young persons (39%).

Finally, despite sporadic awareness, respondents showed an inclination toward increased management of water quality. Most were willing to pay additional taxes, although approximately one third of this group were not aware of government measures. Many persons did not see a conflict between economics and environmental controls, and more persons advocated controls, stricter regulations, and stricter enforcement than other policies (32.7%). Notwithstanding a lack of contact between the public and government, 8.5% of owners and users, and 7.3% of all respondents express some desire for increased contact through public education.

9. WILLINGNESS TO PAY FOR POLLUTION ABATEMENT:*

A Case Study

Personal interviews were conducted with main income earners of 306 households in Hamilton (a city with major industrial pollution problems) and 100 households in Guelph (a city which has little industrial air or water pollution problems). Urban areas were divided into subareas where households were randomly selected, proportional to area populations. The survey was designed to determine:

a) willingness to pay for pollution abatement,

b) specified degrees of abatement, and

c) the relationship between willingness to pay and income, age, education and location factors.

Most respondents were willing to pay for abatement in both cities, although a slightly larger percentage in Guelph (78%) was agreeable than in Hamilton (74%). Average sums that respondents were willing to allocate increased with income, from a low of $21 among Hamilton residents earning under $4,000 to a high of $60 for those residents earning $10,000 and over (see Table 1.20).

TABLE 1.20

Average Willingness to Pay per Household

Household Income $	Guelph		Hamilton	
	P. $	S. $	P. $	S. $
0-3999	35	37	21	23
4000-6999	31	30	37	35
7000-9999	41	29	34	32
10,000 and over	57	37	60	60

P. - Primary Improvement
S. - Secondary Improvement

* D. A. L. Auld

There was no significant relationship in response to income, age, sex, education and location. Relationships between demographic factors and willingness to pay are noted as follows:

> A significant inverse relationship existed between age and the amount individuals were willing to pay for primary improvements.
>
> A significant relationship existed for education levels of Hamilton residents with better educated persons willing to pay more for both levels of improvement.
>
> As noted earlier, and in the table, allocations increased with income. This relationship was deemed significant in both cities, except for secondary improvements in Guelph.
>
> Relationships between proximity to pollution source and willingness to pay were <u>not</u> significant, for air or water pollution.

The study concludes that situational variables were not as important as initially suspected, perhaps due to the range of individual values and experiences shaping selection of "data" to perceive.

10. PERCEPTIONS OF POLLUTION AND WILLINGNESS TO ACT:*

Residents of Flin Flon, and The Pas in northern Manitoba were surveyed to determine their awareness of local air and water pollution, and their willingness to act in resolving these problems.

The communities were selected as distinct, isolated environments with highly notable evidence of air (Flin Flon) and water pollution (The Pas). Populations of these centres were comparable, although each differed in terms of economic base. Most Flin Flon residents derived their livelihood directly or indirectly from the local copper and zinc refinery which also was the main pollution source, while citizens of The Pas were engaged in diverse activities not directly related to pollution sources.

Area probability samples yielded totals of 150 households in Flin Flon and 100 households in The Pas. An adult member of each household was interviewed. Respondents closely represented the Canadian population, except with respect to income (higher) and education (lower).

Analysis was performed in two parts: First to determine basic differences in response between the communities, and second to correlate the two dependent variables ("perception of pollution" and "willingness to act") with ten sociological variables to describe social milieu.

Results showed only minor divergences between communities, suggesting that structural differences were not highly significant. In Flin Flon, 73% considered pollution a problem, as did 65% of respondents from The Pas. Remaining respondents (almost one-half of the total) did not perceive a problem. Most reporting a problem were concerned for health reasons (84%), and only 14% considered other reasons. Still, only 23% of those polled in Flin Flon considered the problem to be "very" serious, although 39% of those in The Pas did, despite less visible evidence of pollution.

Respondents in both centres agreed on the need to resolve pollution (Flin Flon: 97%-yes; The Pas: 98%-yes), but few were willing to act in this regard (Flin Flon: 83% prepared to do "nothing"; The Pas: 89%). Between 11% and 13% agreed to "take personal action", but only 2% would agree to increase taxes or join an anti-pollution group, in Flin Flon. None were willing to take these actions in The Pas, and no one from either centre would reduce income.

Responsibility was extended to "Individual Company(ies)" (Flin Flon: 59%; The Pas: 22%), the provincial and federal governments (5%; 7%), or the community (0%; 33%) or to combined efforts (36%; 69%). In this question, the differing economies may have influenced response, explaining Flin Flon natives' identification of a single source,

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reflecting its status as a company town. The Pas' more diversified base seems to have led its respondents to attach diversified responsibility for pollution.

The authors believe these results corroborate findings of research conducted in diverse milieu and in terms of other issues, but yielding a similar "non-relationship" between attitudes and action.

Factor analysis of the dependent variables was inconclusive in that no clear pattern of interrelationships is revealed (see Table 1.21).

Marital status and media exposure were the best indicators of "perception of pollution", suggesting that single respondents, and heavy users of mass media were the most likely to perceive pollution. Little rationale could be given for the first relationship, since age was not a relevant factor, but it appears that exposure to information about pollution contributed towards further perception. Media exposure is moderately correlated with "willingness to act" in Flin Flon, but not in The Pas, while the reverse is true of income.

TABLE 1.21

Relationship Between Perception of Pollution, Willingness to Act, and Selected Social Characteristics of Respondents.

	Perception of Pollution[a]		Willingness to Act[b]	
	Flin Flon	The Pas	Flin Flon	The Pas
1. Age	.18	.07	.08	.31
2. Marital Status	.52	.69	.05	.13
3. Years Lived in Community	.11	.11	.02	.01
4. Ownership of Property in Community	.09	.20	.02	.00
5. Exposure to Mass Media	.20	.28	.28	.01
6. Religion (Protestant-Catholic)	.12	.40	.03	.00
7. Education	.13	.17	.08	.06
8. Income	.11	.09	.08	.17
9. Occupation	.13	.06	.07	.34
10. Expected Residential Mobility	-.24	-.08	.03	.08

[a]As measured by question #1, Table 1. The measure of association used is Somers dyx (ordinal data)

[b]As measured by question #3, Table 2. The measure of association used is Tau b (nominal data). Both measures of association lend themselves to a proportional reduction in error (PRE) interpretation.

C. CONCERNS OF PUBLIC INTEREST GROUPS REGARDING ENVIRONMENTAL AND WATER QUALITY ISSUES:

Over the past 15 years, public interest groups have become increasingly well-organized and visible with regard to environmental issues. Following the ethics of conservation groups, and noting the success of industry associations in lobbying government, several hundred environmental, citizens, native, and technical groups have arisen with the crystallisation of environmental demands in Canada. In the environmental arena, interest groups have embraced the full range of policy perspectives.

Industry groups, characterized by Woodward as "promoters", have generally been committed to exploitation of the environment as a means of pursuing economic growth. As such, their view is the modern expression of the staples model which centers on the problem of extracting resource staples to yield the highest immediate profit. Dwivedi notes:

> For this, technology was developed to reach previously inaccessible resources. Furthermore, because Canada is not endowed with an abundance of human resources, it became essential to minimize the labour and capital cost, that the intensity of natural resources extraction be increased ... (pp. 11, 12)

To a great extent, this pursuit continues, marked by similar constraints of high research, exploration, and development costs -- particularly in the oil and gas, and mining industries. Not surprisingly, industry associations have tended to view environmental concerns as another constraint to be dealt with in securing development proposals or maintaining production without incurring added costs.

Reflecting these constraints, "promoters" qualify their support for water quality and environmental programs in terms of "practicable" means, and "secondary standards". Industry groups also reaffirm their commitment to existing legislation, and continued consultation with government as a means of maintaining current conditions and government relations.

In lobbying, these groups have tended to press for relaxed standards and economic incentives to promote investment and development. Statements made at public hearings may table a wide range of recommendations including improvements in impact assessments, land use planning, and handling of toxic wastes, or offer only general statements, but these approaches are suspected as public relations tactics aimed at gaining acceptance for their position.

Although representing major business interests, industry groups have well-established links with provincial and federal governments, and are supported by broad segments of the public who have a "tacit stake" in sustained economic growth (Woodrow).

Technical groups, including professional associations, consultants, and academics with direct or indirect interest in the environment are a relatively recent phenomenon. Many were formed with the expansion of environmental studies into diverse disciplines during the 1960's and 1970's, although some, like the Association of Consulting Engineers of Canada (1925), preceed these periods. Others are not primarily concerned with the environment, but with a particular issue, such as environmental health (i.e. Ontario Medical Association).

As noted by policy analysts and environmentalists, technical groups are prone to view problems within the strictures imposed by their professional bias, and are accused of seeking technical or administrative solutions without regard for social impacts. Nonetheless, individual technologists are widely used to examine specific aspects of environmental problems for government, business, and other group interests.

Typical concerns of such groups are administrative co-ordination (ACE re. IJC), critiques of policy mechanisms (Community Planning Association of Canada re. environmental review process), monitoring and identification of pollutants, and the exchange of technical knowledge (Pollution Control Association of Ontario).

Loosely grouped under the heading of "environmentalists" are conservation, citizens, native rights, and environmental advocacy groups. While these groups share many concerns and may join forces in common cause, they are distinguished by ideological differences and situational constraints.

Conservationists are the oldest members of the coalition, in some cases dating back to the early 1900's. While some are concerned with pollution and promotion of alternate energy, for example, their main goal is to preserve natural resources, wildlife, land forms, and habitats. Even within these terms of reference there exists a wide range of orientations. The Newfoundland Natural History Society evolved from bird watching activities to develop educational programs on spruce budworm spraying, and the seal hunt. The Alberta Fish and Game Association is actively promoting compensation for private landowners involved in conservation of their property. The Ontario Federation of Naturalists is concerned with problems in the enforcement of the Great Lakes Water Quality agreement, such as lack of adherence to pollution standards, difficulty in prosecuting offenders, and inadequate surveillance of industrial polluters.

More moderate in their criticism of government action than advocacy groups, conservationists may be restrained by cross-pressures, as individual members may also belong to corporate and governmental management or other elite groups.

Environmental advocates, such as Pollution Probe and the Ontario Public Interest Research Groups play a high-profile role in promoting and sustaining interest in environmental problems. Typically concerned with public education, access to information and public participation in environmental policy, advocates have proved the most astute in recognizing issues and exploiting media opportunities of the various interest groups. Such groups were instrumental in bringing about the Berger Inquiry into the Mackenzie Valley pipeline, and the Thompson Inquiry into the Kitimat project in British Columbia. In Ontario, issues concerning drinking water quality and dumping of chemical wastes into the Niagara River have been largely sustained through publicity generated by Pollution Probe and the Canadian Environmental Law Association.

Environmental advocates criticize the formality of assessment processes, note loopholes in legislation, and document the interplay between governments and citizens. Concerned with their own organisational needs for funding and legitimacy, some groups have lately begun to attain both. Whether this recent development will moderate their investigative inclinations remains to be seen, but at this point advocates still perceive their role as a "counter weight" to groups with vested interests in commercial development of energy and industry.

Often considered as environmental advocates, citizen or community groups are actually a hybrid species -- part advocates and part conservationists. Initially formed in response to specific threats to the community, these groups sometimes develop a broader orientation (Gladwin). As a phenomenon, however, they represent both a dilemma and an opportunity for policy-makers by virtue of the speed at which they mobilize and the high degree of their involvement. While little is known about their demographic composition and durability, their actions tend to contradict conventional assumptions that publics are apathetic and ill-informed. Accused of the"not in my back yard" syndrome in Ontario, citizens groups have played a useful role in alerting government to flawed proposals for waste sites in Glanbrook, Binbrook, and Duffin Creek

II RELATIONSHIPS BETWEEN PUBLIC CONCERNS AND GOVERNMENT

II RELATIONSHIPS BETWEEN PUBLIC CONCERNS AND GOVERNMENT

Since the environment has captured public imagination in the late 1960's, relationships between the public and governments responsible for environmental protection in Canada have been marked by ambivalence.

On one hand, many government officials have publically demonstrated concern for environmental problems and have earned positive news coverage and respect from environmental groups. In the Great Lakes basin, the International Joint Commission has developed a reputation among scholars and environmentalists for forward-looking analysis and dispassionate examination of problem "references". Federal Government interest in water pollution predates public concern by at least fifty years (Munton), and was instrumental in presenting the "phosphate issue" to the public's attention in the fall of 1969 with publication of the IJC report on eutrophication in the Great Lakes. As Parlour and Schatzow's analysis of news coverage shows, the topic became a major issue shortly thereafter.

On the other hand, news media have reported conflicts between both the federal and Ontario governments and various publics. These events have mostly focused on the Ontario government (which has jurisdiction over the funding and management of waste treatment facilities and conservation of natural resources), but have also implicated the federal government -- particularly in its handling over multijurisdictional issues such as seepage of toxic wastes into the Great Lakes. Because such events are dramatic in the sense that conflicts profile contrasting roles and intensify observations over a short time, the mass media have generally considered these events to be more newsworthy than examples of cooperation among actors. Unfortunately, reportage of these events has tended to shape public perceptions of "government" as a reactive agent, unresponsive to public concerns and more inclined to protect corporate profits over public interests. Surveys carried out for Environment Canada show that people do not easily distinguish between government functions and responsibilities. Polls reveal that while provincial and federal governments are credited with doing the most to resolve pollution, neither governments are seen to be doing enough.

The "public", in a broad sense, is not the only arbiter of government action, but increasingly differentiated with respect to its own beliefs and actions. Where policy decisions were once made between bureaucrats, politicians and business interests, these "cosy little triangles" are being replaced in many cases by "sloppy, large hexagons" (Jones). The new dimension is largely due to the growth of several hundred organized interest groups who are concerned with environmental policy in some respect (Woodrow). Many of these groups are grass-roots citizens' organizations who do not wait for surveys and elections to make their views known, but intervene directly in environmental decision-making. This phenomenon is itself partly a result of government's inability to serve a growing range of competing

interests. As a result, government's image and effectiveness has been widely influenced by the conflicts which occasionally arise whenever different constituencies converge over an issue. Not surprisingly, these developments have elicited a range of government responses and have sometimes brought government differences and client dealings under public scrutiny (Robinson), further confusing government roles and images.

These varied perspectives and confused roles have alternately been noted as a source of both aggravation and enlightenment for those involved in policy-making, and a critical element influencing the outcome of decisions. For these reasons, a closer look at the parties' respective roles in defining and resolving issues is necessary.

Patterns of Conflict and Co-operation

Observers of public issues have noted "a fairly systematic 'issue-attention cycle' whereby new issues are constantly being raised and gradually institutionalized though not necessarily resolved." (Woodrow, p. 24). The dynamics of this cycle fit into various stages, including : (1) a "pre-problem" phase, (2) a crisis, (3) a period of mobilization and response, and (4) a resolution of the issue cycle.

In terms of how an issue will develop, the pre-problem stage is most critical, since at this point our issue has not yet formed, and sides have not been drawn up (although positions may be clear). Woodrow characterizes this stage as the early definition of an undesirable social problem by specialists and interested individuals. Since emerging problems are difficult to spot, the new phenomenon may go unnoticed until a major crisis or event triggers public attention to set the cycle in motion. However, when governments do note and respond to early problems, the record shows that prospects for cooperation and control of related issues are improved.

This is especially evident with environmental issues, although there are few examples. One instance is the IJC's handling of the phosphate issue, a problem which the IJC identified. Another less dramatic but more complicated example is the signing of the Canada-U.S. Great Lakes Water Quality Agreement in 1972. Both issues are noteworthy in that they were initiated through persistent monitoring and surveillance of water quality, and presented with an appreciation for the social and economic impact posed by the emerging problems. As a result, the Federal Government was perceived as the prime mover on these issues; an image they were able to reinforce through follow-up action. Legislation and the signing and renewal of an international treaty were perceived as purposeful action rather than a reaction interpreted as "lurching from one crisis to another" (CTR VII, p. 81).

The outcome of these issues has also been largely positive in terms of public recognition of the Federal Government's role. Largely through wide public support, the government was able to restrict phosphate levels in Canadian detergents, and use the issue to move the U.S. toward signing the 1972 agreement. The process was assisted by public hearings on the report and by the IJC's release of a special Interim Report on proposals for the agreement in April 1970, while public concern was still keen. When the agreement was eventually signed, the IJC continued its policy of monitoring and identification of problems, public liason, and participation, with the effect of developing and sustaining high levels of credibility with industry and environmental organizations.

More often than the above cases may suggest, governments have not been particularly sensitive to emerging issues. Unlike the phosphate issue, which the IJC deliberately triggered, most issues occur by accident and miscalculation, or through the leakage of inside information. All such triggering events place authorities in a compromising situation, since they reveal breakdowns in public conceptions of order and serve as a "high-powered microscope" by revealing information which is normally removed from public view (Molotch and Lester, p. 5-9).

Miscalculations are potentially most damaging to government credibility as government action basically creates the issue. The Ontario government's November 1980 decision to locate a major industrial waste disposal facility in South Cayuga is a prime miscalculation which could have been avoided had the government regarded the advice of the consultant it hired to recommend potential sites. Instead, the government met angry opposition from local residents who suspected the decision of being politically rather than environmentally motivated (Jackson, p. 70). Aggravating the issue, and adding credibility to local concerns, were disclosures that the proposed site was on a floodplain, and situated above gas wells close to the Grand River.

Miscalculations can also involve government processes which have been successfully applied to earlier problems. A noted example was the appointment of Marshall Crowe as chairman of the National Energy Board in October 1973. Crowe had been active in pipeline policy in two senior federal government positions prior to his appointment, and as president of government-controlled Canada Development Corporation,where he had been directly involved with pipeline applications. Crowe's presence on the NEB panel hearing pipeline applications was successfully challenged by three public interest groups on the grounds of "reasonable apprehension of bias". Because of the Supreme Court's decision, the hearing process was delayed for over five months, enabling native groups, environmentalists, and the NDP to exploit shifting policy and pressure the minority Liberal government to appoint Justice Thomas Berger in March 1974 to hold a public inquiry into the socio-economic and environmental impacts of the proposed Mackenzie Valley pipeline. Although relegated to a minor

role in the applications process, Justice Berger's open format and skillful handling of the hearings focused attention on the pipeline's potential impact on local people, and raised questions about the nature of the review process. Resulting publicity was "arguably... the single most important factor in determining the final decision." (Robinson, p. 185).

Apart from the polarization of views making dramatic press copy, these two examples focused attention explicitly on government's role. Submitted to these tests, the governments were characterized as secretive, closed, paternalistic and expedient in their public dealings. In both cases, they were forced to retreat.

The third stage of the cycle, involving the mobilization and response of political forces, ensues naturally from and according to the nature of the triggering event. In the last two cases, initial government resistance attracted directly affected groups, as well as those seeking to expose government decision-making practices. In the South Cayuga example, local citizens initially constituted the opposing forces. In both cases, the governments involved attempted to regain control of events, but were instead overtaken by them. The main reason is that the conflicts had profiled government actors in compromising poses, with wider implications duly noted by the press.

The broader mobilization of forces occurs precisely because the event has wide significance. In the South Cayuga case, citizens wondered whether the next dump would be sited in their community. Environmental groups were concerned about government policy for handling hazardous wastes, and opposition parties saw political advantage in exploiting the government's miscalculation. Individual columnists had an interesting story to investigate, and the media in general recognized an opportunity to 'sell more papers'.

During this stage, the nature of news reporting shifts from the focused exposure of "hard news" which marks the triggering stage, to a broader discussion of socially relevant implications. Gladwin refers to this telescoping of issues as a "domino effect", which can touch off new issues and create coalitions among diverse interests. Bormann describes the mobilizing of public opinion as a "group fantasy" that "chains-out" through the media into a "public drama" replete with heros, villains, plots and morals (pp. 143-159). Bormann's concept of this process suggests that, once cast in a role, the event constrains and at least partially dictates the range of responses available to major protagonists. Consider the role of the Hooker Chemical Company once the Love Canal area had been declared a federal emergency in 1978. Faced with guilt, company officials had only two options: pay the huge clean-up costs involved or minimize the incident as a lamentable but unavoidable miscalculation. Not surprisingly the company's defensive response intensified investigative efforts which implicated the state agencies responsible for testing in the region. Citizens' anger and fear

became powerful catalysts in typifying government and industry as villains (Levine). Canadian Trend Report credited the impact of these developments in pushing environmental health to the forefront of the agenda.

Once a crisis sets into this stage, there appears to be little that governments can do to reverse the process. However, there are cases where forthright and appropriate responses have contained the issue and minimized the damage to government credibility. This is particularly true where environmental accidents are quickly appraised and dealt with, as was the case with the Federal Government's honest assessments of potential health risks of arsenic poisoning in the Northwest Territories. More difficult to handle are issues revealing complex problems affecting numerous people at great cost.

Even major disasters can be exhausted as news items, however. At this point, when the event, its effects, and dramas have been played out and described, media coverage and public attention shift to new issues. Resolution of the issue-attention cycle does not necessarily mean that the problem has been solved. Indeed, complex problems can be revived when new impacts are discovered, as pollution of the Niagara River attests. Environmental issues of this sort are especially prone to revival as new discoveries are made about more dangerous pollutants, their impact on public health, and the costs of solving the problem.

As Hall and Chant observed in their 1979 report to the Canadian Environmental Advisory Council:

> The essence of an ecosystem is one of constant transformation. One species becomes food for the next in the food chain,... Nothing is static in a living organism or in the ecosystem as a whole. One major concern is the way in which foreign chemicals invade the biotransformations of the ecosystem, in fact becoming part of them. They move through the ecosystem in strange and unpredictable ways. (p. 3)

The potential for new "accidents" and "miscalculations" is considerable, and the prospects for public concern and activism increased when effects of toxic pollutants (as just one example) become known. These difficulties are compounded by the fact that there is no systematic means of monitoring the effects of chemicals in the environment (Hall and Chant). Opinion surveys and trend reports are useful in understanding patterns of behavior, but not particularly revealing of new environmental issues. Given the difficulty of monitoring both the social and natural environments, government obligations and the durability and volatility of public environmental concerns, it seems an appropriate time to re-evaluate government roles and devise new means of sharing responsibility.

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9229