



**LANDS  
DIRECTORATE**

**DIRECTION GENERALE  
DES TERRES**

**SURVEY OF USER REQUIREMENT FOR LAND USE DATA:  
CANADA LAND USE MONITORING PROGRAM**

**WORKING PAPER No. 15**

Atlantic Regional Library  
Environment Canada

**JUL - 2 1993**

Bibliothèque de la région  
de l'Atlantique  
Environnement Canada

Dartmouth Env. Can. Lib./Bib.



**39 058 244**

Environment  
Canada

Environnement  
Canada

**Canada**



HD  
107  
W6713  
no. 15  
c. 2

SURVEY OF USER  
REQUIREMENTS FOR LAND USE DATA:  
CANADA LAND USE MONITORING PROGRAM

David M. Gierman  
February 1981

Lands Directorate  
Environment Canada

Working Paper No. 15

Disponible en français sous le titre:

Enquête sur les besoins des usagers en matière  
de données sur l'utilisation des terres: Programme  
de surveillance de l'utilisation des terres au Canada



### ABSTRACT

This paper summarizes the results of a survey on the user requirements for land use data. Seventy-three federal and provincial agencies were interviewed. The paper describes the activities and responsibilities of these agencies, and the land use data used and generated at the time of the survey. It also discusses the land use change needs of the agencies. Finally, recommendations for the development of a Canada Land Use Monitoring Program are provided based on the results of the survey.

### RÉSUMÉ

Ce document résume les résultats d'une enquête sur les besoins des usagers en matière de données sur l'utilisation des terres. Soixante-treize agences fédérales et provinciales ont été approchées et interviewées. Ce document décrit les activités et les responsabilités de ces agences, les systèmes de données utilisées et ceux émanant de ces agences au moment de l'enquête. Ce rapport traite aussi des besoins futurs de ces agences en matière de données sur les changements d'utilisation des terres. Suite aux résultats de cette enquête, certaines recommandations ont été formulées pour le développement d'un Programme de la surveillance de l'utilisation des terres au Canada.

#### ACKNOWLEDGEMENTS

The author would like to acknowledge the work of E.W. Manning and J.D. McCuaig in designing the original questionnaire used in the survey. Thanks are due to P.C. Rump and H. Villeneuve for their efforts in preparing this report in a format appropriate for publication.

The author would also like to recognize the invaluable assistance and patience of the representatives of the many federal and provincial agencies interviewed. Without that assistance this survey could not have been possible.

TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	i
RÉSUMÉ	i
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	iv
 1. INTRODUCTION	 1
2. AGENCIES SURVEYED	1
2.1 Type of Agency	1
2.2 What the Agencies Surveyed Do	1
2.3 The Users of Land Data	2
3. LAND USE DATA USED AT TIME OF SURVEY	2
3.1 Types of Land Data Used by the Agencies	2
3.2 The Uses Made of Land Data	3
3.3 Land or Land Use Information Generated by the Agencies Themselves	4
3.4 Outside Sources of Land Data Used	4
4. LAND OR LAND USE INFORMATION NEEDS	4
4.1 Type of Land or Land Use Information Needed	4
4.2 Scale of the Land Use Data Needed	5
4.3 Frequency of Land Use Data Needed	5
4.4 Output Format Needs	6
4.5 Land or Land Use Variables Desirable to Monitor	6
5. DISCUSSION	7
6. RECOMMENDATIONS	7
APPENDIX I: Land Use Data User Questionnaire	9
APPENDIX II: Preliminary Analysis of User Requirements Survey	14
APPENDIX III: Provincial Agencies Surveyed and Representatives Interviewed	17
APPENDIX IV: Federal Agencies Surveyed and Representatives Interviewed	20
WORKING PAPER SERIES	22

LIST OF TABLES

	<u>Page</u>
1 Agency Area of Concern	1
2 Agency Responsibilities	2
3 Type of Land Use Data by Land Use Domain	2
4 Characteristics of Land Data Used by Provincial and Federal Agencies	3
5 Land Use Data Used by Federal and Provincial Agencies	3
6 Use of Land Use Data	3
7 Land Data Sources Used Most Frequently by Federal and Provincial Agencies	4
8 Scale of Land Use Data Required	5
9 Frequency of Land Use Data	5
10 Output Format Needs	6
11 The Demand for Monitoring Various Variables by Federal and Provincial Agencies	6



## 1. INTRODUCTION

This paper summarizes the results of a survey on the user requirements for land use data. It is based on the results of a questionnaire (see Appendix 1) regarding the present needs (1978-79) of users. This survey was undertaken to identify those parameters which could be useful in the development of a Canada Land Use Monitoring Program. The survey was also undertaken to determine potential users of land use change information. The users were divided into two major user group -- Federal agencies and Provincial agencies. This report will analyse the results of the questionnaire by these two groups as well as by individual questions of the questionnaire.

The questionnaire survey was completed in the 1978-79 fiscal year. More than 120 agencies were first surveyed by phone to identify those organizations and their representative(s) for further in-depth questioning. This resulted in identifying 73 agencies for in-depth interviewing - 31 of these agencies were federal and 42 agencies were provincial. Each of the representatives of these agencies were interviewed personally by the author. Appendices III & IV contain lists of the agencies and their representative interviewed at the provincial and federal levels respectively.

## 2. AGENCIES SURVEYED

### 2.1 Type of Agency

The agencies surveyed were all those who used or potentially needed information on land or land use. In some cases the agency represented a whole department. In others, it may only have represented one part of a department.

From the name and type of organization, it was possible to determine what was the prime area of concern or orientation of the agency interviewed (see Table 1). Some agencies had more than one concern or orientation. Each of the provinces had one or more agencies involved with the top four areas of concern in Table 1. For example almost all provinces had agencies concerned with agriculture. In contrast, no provincial agency was solely concerned with native peoples.

Table 1  
AGENCY AREA OF CONCERN

Area of Concern or Orientation	Federal No.	Provincial No.	All No.
Urban	7	15	22
Agriculture	2	17	19
Forestry	2	13	15
Recreation	2	10	12
Mining	1	5	6
Energy	2	5	7
Transportation	5	7	12
Wildlife	9	3	12
Water	2	6	8
Crown Lands	2	1	3
Native People	3	0	3

### 2.2 What the Agencies Surveyed Do

Table 2 shows the responsibilities of the various agencies interviewed. An agency could respond to more than one of the responsibility categories. There appears to be very little difference in percentages between federal and provincial agencies who manage land, use land, or have programs affecting land. The biggest contrast is in the much greater percentage of provincial agencies relative to federal agencies which make regulations and policies affecting land use. This reflects the greater direct control over land use that the provinces have.

Table 2  
AGENCY RESPONSIBILITIES

What They do	Federal %	Provincial %	All %
Manage Land	48	41	43
Make Regulations Affecting Land Use	39	80	63
Make Policy Affecting Land	68	80	75
Use Land in Their Activities	45	41	43
Have Programs Whose Objectives Includes Affecting Land Use	88	86	87

### 2.3 The Users of Land Data

The prime users of the land data in both federal and provincial agencies are researchers, policy advisors, and program managers. Because the provincial agencies have more direct control over land use than the federal government agencies, planners and administrators/enforcers of legislation are more important users of land data in the provinces than they are federally.

## 3. LAND USE DATA USED AT TIME OF SURVEY

### 3.1 Types of Land Data Used by the Agencies

The agencies were asked to indicate the major domains within which they presently use land information.

The land surface of Canada was divided into three land use domains - Urban, Rural, and Hinterland/Remote Areas. Urban land covered mainly the built-up or built-on parts of Canada. Rural covered that part

of Canada which is settled but not in urban uses. The Hinterland/Remote Areas were those parts of Canada primarily in natural cover and with low population levels. For each domain, the type of data agencies used was indicated. The types of data used were: land use, land cover, ownership, value, distribution, ecology, land capability, and production.

The most important data used in the major land use domains are ranked in Table 3.

Table 3  
TYPE OF LAND USE DATA BY LAND USE DOMAIN

Rank	Urban	Rural	Hinterland/ Remote Areas
1	Land Use	Land Use	Land Use
2	Distribution	Land Cover	Land Cover
3	Land Cover	Ownership	Land Capability
4	Ecology	Ecology	Production
5	Ownership	Value	Ownership

As one can see 'land use' was the most important data in all major land use domains. 'Land cover' was ranked second in two of the domains. For the Urban land use domain, 'distribution' was more important than 'cover'.

Table 4 links the major land use domain categories to the land use data types for federal and provincial agency present use. The table appears to indicate that both federal and provincial agencies were concerned with the land use and land cover data. Federal agencies appeared to stress 'Urban' data as being more important while provincial agencies were more concerned with 'Rural' data. 'Hinterland' data was more important to federal agencies than to

provincial agencies.

Table 4  
CHARACTERISTICS OF LAND DATA USED BY  
PROVINCIAL AND FEDERAL AGENCIES

Rank	Federal	Provincial
1	Urban-land use	Rural-land use
2	Rural-land use	Rural-land cover
3	Urban-land cover	Urban-land use
4	Urban-distribution	Rural-ownership
5	Rural-land cover	Rural-ecology
6	Hinterland-land use	Urban-distribution
7	Hinterland-land cover	Urban-land cover
8	Rural-ownership	Rural-productivity
9	Rural-land values	Hinterland-land use
10	Urban-ecology	Hinterland-land use

Information on present use of data related to eight land use categories and an 'environment' category was also collected. Respondents were requested to indicate the type of land use data presently used for each category (see Question 3, Appendix I). Table 5 shows the most important type of land use data used by federal and provincial agencies for each category of land use. It appears that both federal and provincial agencies used almost exactly the same information for each land use category. Overall, the information used related to land use and where land use is located.

### 3.2 The Uses Made of Land Data

Almost all of the agencies interviewed used land data for basic background information. Of the other 13 uses of the data listed in Question 4, the most important have been ranked in Table 6 for both federal and provincial agencies.

Table 5  
LAND USE DATA USED BY FEDERAL AND PROVINCIAL  
AGENCIES

Land Use Category	Federal	Provincial
Residential	distribution	distribution
Industry, Commercial, Institutional	distribution	distribution
Agriculture	land use	land use
Forestry	land use	land cover
Recreation	land use	land use
Mining/Extraction	land use	land use
Energy	corridors	corridors
Transportation	location	location
Environment	water quality	soil

Land data was important to both federal and provincial agencies for policy development and implementation, and for location studies. It appears that interpreting land use trends and correlating the data with socio-economic data

Table 6  
USE OF LAND USE DATA

Data Use	Federal Rank	Provincial Rank
Policy Development or Implementation	1	1
Location Studies	2	1
Land Use Planning	5	3
Impact Assessments	6	4
Interpreting Trends in Land Use	2	5
Regional Level Research	6	6
National/Provincial Overview Studies	8	6
Correlation with other Social or Economic Studies	2	8

was more important federally than it was provincially. Land use planning use of the data was slightly more important to provincial agencies than to federal ones.

### 3.3 Land or Land Use Information Generated by the Agencies Themselves

The 31 federal agencies interviewed undertook to acquire or generate land information in 47 surveys. This information usually was gathered nationally. However specific information within a survey could deal with a very small land area or topic. Of the 47 surveys only six could be considered as land use surveys. No agency at the time was gathering all land uses on a national basis.

The 42 provincial agencies interviewed were or had undertaken 100 activities to acquire or generate land or land use information. Only 15 of these 100 activities could be considered to be mapping land use. Of these 15, at least 50 per cent were concerned with municipal (internal urban) land use mapping. None of the provincial agencies were gathering all land uses on a total provincial basis.

### 3.4 Outside Sources of Land Data Used

In response to the question 'What Land Data Sources Do You Now Use', 38 data sources were recorded for federal agencies and 36 recorded for provincial agencies.

Of these data sources the five most used are listed in Table 7, which also shows the percentage of federal and provincial agencies interviewed using them. Very few federal or provincial agencies mentioned land use surveys as data sources. Those mentioned include:

- a) Pollution from Land Use Activities in the

Great Lakes Basin Report (General Land Use Inventory), b) Rural to Urban Land Conversion Report, c) Northern Land Use Information Map Series. All of these have been produced by the Lands Directorate.

Table 7  
LAND DATA SOURCES USED MOST FREQUENTLY BY  
FEDERAL AND PROVINCIAL AGENCIES

Data Source	Federal %	Provincial %
CLI	61	79
Census	42	57
Remote Sensing/ Air Photos	32	45
Municipal & Regional Plans	29	24
Soil Surveys	23	38

For the CLI as a data source, it is interesting to note that the majority of users were referring to the capability maps only. Many agencies were unaware of the CLI land use data, probably reflecting the fact that it has not been published and widely distributed in map form.

## 4) LAND OR LAND USE INFORMATION NEEDS

This part of the report is concerned with the type of land use information, scale, frequency, and output format needs of potential users of monitored land use information as indicated by the agencies surveyed. The land or land use variable the agencies considered most desirable to monitor is also discussed.

### 4.1 Type of Land or Land Use Information Needed

There was a wide variety of responses from the federal and provincial agencies interviewed as to their present and future needs for information on land use which had not been or was not then being satisfied. Fifty-two per cent of the federal and 76 per cent of the provincial agencies interviewed expressed a need for information on land use such as up-dated, monitored land use changes, trends in land use, location of land use change, intensity of the use of land, a useful land use classification system, etc. Some wanted all land uses but most were interested in a specific land use such as extractive or idle land. Land ownership and capability land data were next to land use information as the most desired land information required both federally and provincially. Most other types of land information were substantially less important in terms of the number of agencies reporting needs. Such needs were usually expressions for specific data related to the mandate of a particular agency. For example, forestry agencies only required information related to forest land use.

#### 4.2 Scale of the Land Use Data Needed

Question 9 of the questionnaire asked if land use change data was available, at what level of detail or scale would this be most desirable or useful. Table 8 indicates what percentage of the agencies interviewed desired land use information at each of three levels of detail.

There appears to be very little difference in the percentage of agencies desiring one scale level versus another scale level, either federally or provincially. However, by slight margins, the 1:250,000 scale was preferred at the federal level, while the 1:50,000 scale was preferred by provincial agencies.

Provincial agencies (66%) wanted to have their data at the less detailed level such as the 1:250,000 scale, based on data gathered at a more accurate or detailed level and then generalized to 1:250,000 scale. Approximately a third of all federal agencies had the same desire.

Table 8  
SCALE OF LAND USE DATA REQUIRED

Levels	Federal %	Provincial %
Property by Property (<1:50,000)	58	71
Census Subdivision Township ( 1:50,000)	58	73
Regional/Provincial ( 1:250,000)	65	69

#### 4.3 Frequency of Land Use Data Needed

The following table indicates how frequent the data was required in terms of the percentage of agencies wanting data at a certain frequency.

Table 9  
FREQUENCY OF LAND USE DATA

How Often	Federal %	Provincial %
Annually	55	50
Every 2 years	19	17
Every 5 years	42	71
Other	19	14

The two most desirable periods were annually and every 5 years. Those agencies wanting annual information were usually concerned with urban uses or with problems which require

short response periods by the agency and therefore more timely and shorter intervals between data collections. Generally most agencies dealing with non-urban matters or long range phenomena suggested the five year interval.

#### 4.4 Output Format Needs

Table 10 lists the desirability of the various output formats for land use data. Most agencies are familiar with maps

Table 10  
OUTPUT FORMAT NEEDS

Format	Federal %	Provincial %
Mapped Data	71	95
Computer Data	61	64
Trend Indexes	39	40
Raw Data	26	51
Other or Did Not Know	10	1

and therefore this form of data was most desirable. Many agencies also indicated computer format even though many were not familiar with this type of output on a consistent basis. Maps represented raw data to many respondents, but others requested straight tabular data like that produced by Statistics Canada.

#### 4.5 Land or Land Use Variables Desirable to Monitor

The last question (12) determined the land and land use variables agencies felt should be monitored at regular time intervals. The list of variables was quite long. Table 11 shows

the percentage of agencies which desired certain variables.

Table 11  
THE DEMAND FOR MONITORING VARIOUS VARIABLES  
BY FEDERAL AND PROVINCIAL AGENCIES

Variable	Federal %	Provincial %
Land Use	47	50
Land Cover	10	38
Ownership	6	33
Capability	6	28

Both federally and provincially, approximately 50 per cent of the agencies desired monitoring of the land use variable. The reasons for lower monitoring demands for cover, ownership, and capability especially at the federal level is not obvious from the data. Ownership data is probably more important to the provinces because they have some control over land use.

Some of the more particular land use variables that were suggested for a monitoring program included:

- a) Land clearing patterns - agriculture/forest boundary,
- b) Relate land use change to land quality,
- c) Trends in land use,
- d) Urban expansion,
- e) Impact on selected terrain of types of use,
- f) Conversion to hobby farm use,
- g) Rural-urban fringe,
- h) Agriculture land use,
- i) Crop changes,

- j) Recreation use of hinterland areas,
- k) Idle land,
- l) Changing pattern in rotation,
- m) How much land is worked in fall in comparison to spring,
- n) Loss of prime recreation land,
- o) Change in forest use,
- p) Change in land use in designated flood zones,
- q) Monitor land use in land use conflict areas where case studies were undertaken to test recommendations and original assumptions of these studies,
- r) Change in land use on a parcel by parcel basis,
- s) Relationships between railway lands and other uses,
- t) Relative growth of use of land by the various transportation modes,
- u) Expansion and contraction of mining and associated land uses,
- v) Changes in land use in the north.

## 5) DISCUSSION

The survey only covered those federal and provincial agencies who themselves felt they use or affect land or land use. Many other agencies have an indirect effect on the use of the land (taxation, health and welfare, trade and commerce, etc.), but do not recognize the connection or effect. Whether monitored land use information could be useful to these agencies and their programs is difficult to determine.

The obvious difference between federal and provincial agencies is the more direct effect that provincial agency activities have on land use due to the distribution of powers between the federal and provincial governments. This also appears to be reflected in the greater

percentage of provincial agencies requiring detailed land use information compared to the percentage of federal agencies, even though this is also nearly 50 per cent.

Overall, the survey results seem to show great similarities between provincial and federal agencies both in with respect to existing use and generation of land data, and in terms of the perceived needs for land information. Also, there appears to be a need to monitor land use change, recognizing that no agency at the time of the survey was making a strong, co-ordinated effort to obtain such data.

## 6) RECOMMENDATIONS

The following are recommendations for the development of a Canada Land Use Monitoring Program (CLUMP) derived from the responses to the survey. It should be noted that the results of this survey have been used in the early planning and development of CLUMP. Many of the recommendations mentioned below have in some manner or form already been incorporated in the Canada Land Use Monitoring Program.

a) A CLUMP program should be designed to be useful to a broad group of agencies with a multitude of specific areas of concern such as urban, agriculture, forestry, wildlife, etc. Therefore, a CLUMP program must cover all uses of land and not concentrate on one particular area.

b) A CLUMP program should be designed to include separate classifications for land use, land cover, and ownership to be useful to the broad range of users.

c) Location of where a specific land use change is taking place should also be included. This implies the importance of maps or a display method together with a gathering

method which allows showing of location.

d) Urban fringe and rural area of a CLUMP program should have priority over the more remote or hinterland areas.

e) All land data should be sufficiently accurate to allow for the following uses:

- i) policy development,
- ii) location studies,
- iii) land use planning,
- iv) impact assessment,
- v) correlation with social or economic data.

f) All output data from a CLUMP program should try to reach as many of the potential

users as possible.

g) A CLUMP program should try to obtain the most detailed information as is feasible if it is to reach the broadest range of federal and provincial users.

h) Though annual data is desired by most agencies, this is not feasible. The second most desirable interval of five years for land use change data should be the goal for a CLUMP program.

i) All CLUMP data should be input into a computer, to permit data manipulation, rapid, retrieval, and correlation with other data sets.



APPENDIX I  
LAND USE DATA USER QUESTIONNAIRE

Organization \_\_\_\_\_

Person Responding \_\_\_\_\_

I Identification of Current Users and Uses of Land Information

1. Does your organization: (please check (✓) appropriate square)

- ☐ a) manage land?
- ☐ b) make regulations affecting land use?
- ☐ c) make policy affecting land?
- ☐ d) use land in its activities?
- ☐ e) have programs whose objectives include affecting land use?
- ☐ f) none of above.

Details if required: \_\_\_\_\_

\_\_\_\_\_

2. Does your organization presently make use of information of any aspect of land or land use? (please check (✓) appropriate square)

- ☐ yes  
proceed to Q.3
- ☐ no - Jump to Q.8

3. Do you presently use information related to any of the following? Please check appropriate squares and underline which types of data you use.

- ☐ a) Urban. (land use, land cover, ownership, value, distribution, ecology, other (specify))  
\_\_\_\_\_
- ☐ b) Rural. (land use, land cover, ownership, value, production, ecology, other (specify))  
\_\_\_\_\_
- ☐ c) Hinterland/Remote Areas. (land use, land cover, ownership, value, land capability, production, other (specify))  
\_\_\_\_\_
- ☐ d) Residential. (ownership, value, servicing, supply, type, distribution, quality, other (specify))  
\_\_\_\_\_
- ☐ e) Industrial, Commercial, Institutional. (ownership, land value, production, servicing, distribution, quality, other (specify))  
\_\_\_\_\_

- |   |   |
|---|---|
| <input type="checkbox"/> f) Agriculture       | (land use, land cover, ownership, land value, soil capability, soil productivity, production, improvements, other (specify))                |
| <input type="checkbox"/> g) Forestry          | (land use, land cover, ownership, soil capability, productivity, production, regeneration, fire, disease, other (specify))                  |
| <input type="checkbox"/> h) Recreation        | (land use, land cover, ownership, land value, land capability, aesthetics, other (specify))   |
| <input type="checkbox"/> i) Mining/Extraction | (land use, land cover, ownership, land value, production, reclamation, distribution, other (specify))                                       |
| <input type="checkbox"/> j) Energy            | (land use, land cover, production facility, distribution, corridors, ecology, other (specify))  |
| <input type="checkbox"/> k) Transport         | (land use, location, facility, distribution, corridors, ecology, other (specify))   |
| <input type="checkbox"/> l) Environment       | (air quality, water quality, soil, aesthetics, biophysical, ecology, other (specify))   |
| <input type="checkbox"/> m) Regional studies  | examples-impact studies, area screening studies. Please specify types of regional studies used. Specify the way in which land data is used: |
| <input type="checkbox"/> Other                | Specify other types of land related data that you use   |

4. What do you use land data for? (check as many as apply)

- ☐ a) basic background information
- ☐ b) correlation with other social or economic data
- ☐ c) location studies (siting of facility, activities)
- ☐ d) impact assessments
- ☐ e) regional level research (socio-economic, resource development, etc.)
- ☐ f) national overview studies
- ☐ g) monitoring socio-economic changes or impacts
- ☐ h) monitoring biological or physical variables
- ☐ i) interpreting trends in land-use (changes in demand, supply or use)

- ☐ j) interpreting trends in land cover
- ☐ k) enforcing regulations
- ☐ l) land development projects (residential, industrial parks, new towns, etc.)
- ☐ m) policy development or implementation
- ☐ n) land use planning
- ☐ o) evaluation of program or project effectiveness
- ☐ p) other (please specify) \_\_\_\_\_

Further details to explain above uses

\_\_\_\_\_

\_\_\_\_\_

(please use back if required)

5. Who are the users of land data within your organization? (check as many as apply)

- ☐ a) policy makers
- ☐ b) researchers
- ☐ c) planners
- ☐ d) program managers
- ☐ e) engineers
- ☐ f) statisticians
- ☐ g) information officers
- ☐ h) administrators or enforcers of legislation
- ☐ i) other - specify \_\_\_\_\_

Further details of specific users: (explain)

\_\_\_\_\_

\_\_\_\_\_

6. What activities do you now undertake to acquire or generate land or land use information? (original surveys, census analysis, Delphi methods)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7. What land data sources do you now use? (e.g. C.L.I., soils surveys, census)

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## II Potential Uses

8. Do you have any present or anticipated need for information on land or land use which is not or cannot now be satisfied? (please check appropriate square)

☐ yes  
please give details:

☐ no - proceed to next question

9. If land use data was available at regular intervals would you have any use for it: (please check appropriate squares)

a) If data were on a property by property scale?

☐ yes  
please specify use:

☐ no - proceed to part b.

b) If data were available at the level of census subdivision or township.

☐ yes  
please specify use:

☐ no - proceed to part c.

c) If data were available nationwide on a regional or Provincial basis?

☐ yes  
please specify use:

☐ no - proceed to part d.

d) If data on land cover only were available (e.g forest, cleared, etc.)

☐ yes  
please specify use:

☐ no - proceed to next question

10. To be of use to you, what frequency of data collection would be ideal? Adequate? (please check appropriate squares)

a) Annually

(check one square)

(check all approp. squares)

☐
☐

b) Every 2 years

☐
☐

c) Every 5 years

☐
☐

d) Other (specify) \_\_\_\_\_

☐
☐

11. What output format would best suit your needs?

(trend indices, raw data, map data, computer format etc.)

12. Are there any particular variables with respect to land or land-use you feel would be desirable to monitor?

---

---

---

## APPENDIX II

6 February 1979

PRELIMINARY ANALYSIS OF  
USER REQUIREMENTS SURVEY

A) Number of Agencies Surveyed: Federal - 31  
Provincial - 42

B) Prime Areas of Concern or Orientation of Surveyed Agencies (No. of Agencies)

	Urban	Ag.	For.	Rec.	Mining	Energy	Trans.	Wildl.	Water.	Crown	Env.	Native
Federal	7	2	2	2	1	2	5	9	2	2	3	3
Provincial	15	17	13	10	5	5	7	3	6	1	14	0

C) What Agencies Do

	Manage Land %	Make Regulations %	Make Policy %	Use Land %	Prog. Affect. Land %
Federal	48	39	68	45	88
Provincial	41	80	80	41	86

D) Agencies Presently Use Information On:

(I) Major Land Use Categories - Urban/Rural/Hinterland

FIRST 10FEDERAL

- 1) Urban - Land Use
- 2) Rural - Land Use
- 3) Urban - Land Cover
- 4) Urban - Distribution
- 5) Rural - Land Cover
- 6) Hinterland - Land Use
- 7) Hinterland - Ownerships
- 8) Rural - Ownerships
- 9) Urban - Ecology
- 10) Rural - Land Values

PROVINCIAL

- 1) Rural - Land Use
- 2) Rural - Land Cover
- 3) Urban - Land Use
- 4) Rural - Ownership
- 5) Rural - Ecology
- 6) Urban - Distribution
- 7) Urban - Land Cover
- 8) Rural - Productivity
- 9) Hinterland - Land Capability
- 10) Hinterland - Land Use

(II) Land Use Categories - Most Used Land Information for Each Category

Land Use Category	<u>Federal</u>	<u>Provincial</u>
Residential	Distribution	Distribution
Industry, Commercial, Institutional	Distribution	Distribution
Agriculture	Land Use	Land Use
Forestry	Land Use	Land Cover
Recreation	Land Use	Land Use
Mining/Extraction	Land Use	Land Use
Energy	Corridors	Corridors
Transportation	Location	Location
Environment	Water Quality	Soil

## E) What Land Data is Used for (Ranked)

FederalProvincial

- |  |   |   |
|--|---|---|
| a) Basic Background Information                      | 1 | 1 |
| b) Policy Development or Implementation              | 2 | 2 |
| c) Correlation with other Social-Economic Data       | 3 | 8 |
| d) Location Studies (siting of facility, activities) | 3 | 2 |
| e) Interpreting Trends in Land Use                   | 3 | 6 |
| f) Land Use Planning                                 | 6 | 4 |
| g) Impact Assessment                                 | 7 | 5 |
| h) Regional Level Research                           | 7 | 7 |

## F) Users of Land Data in Agencies (Ranked)

- |  |   |   |
|--|---|---|
| a) Researchers                             | 1 | 3 |
| b) Policy Advisors                         | 2 | 1 |
| c) Program Managers                        | 2 | 3 |
| d) Planners                                | 4 | 1 |
| e) Statisticians                           | 5 | 7 |
| f) Engineers                               | 6 | 6 |
| g) Administrators/Enforcers of Legislation | 7 | 5 |
| h) Information Officers                    | 8 | 8 |

## G) Sources of Land Data Used (% of Agencies Surveyed)

- |                            |    |    |
|----------------------------|----|----|
| CLI                        | 61 | 79 |
| Census                     | 41 | 57 |
| Remote Sensing/Air Photos  | 32 | 45 |
| Municipal & Regional Plans | 29 | 24 |
| Soil Surveys               | 23 | 38 |

## H) Level of Land Use Detail Desired (% of Agencies Surveyed)

## 1. Levels

- |  |    |    |
|--|----|----|
| a) Property by Property (1:50,000 scale)   | 58 | 71 |
| b) Census Subdivision/Townships (1:50,000) | 58 | 73 |
| c) Regional/Provincial (1:250,000)         | 65 | 69 |

## 2. Level Based on More Detailed Data (if Indicated)

- |                                  |    |    |
|----------------------------------|----|----|
| Level (b) 1:50,000 (% of Level)  | 33 | 65 |
| Level (c) 1:250,000 (% of Level) | 26 | 66 |

## 3. Combinations of Levels (%)

- |              |    |    |
|--------------|----|----|
| Levels a & b | 3  | 7  |
| Levels b & c | 23 | 17 |
| Levels a & c | 29 | 2  |
| All Levels   | 26 | 42 |

## I) Frequency of Data Needs (% of Agencies Surveyed)

- |          |    |    |
|----------|----|----|
| Annually | 55 | 50 |
| 2 Years  | 19 | 17 |
| 5 Years  | 42 | 71 |
| Other    | 19 | 14 |

## J) Output Format Desired (% of Agencies Surveyed)

	<u>Federal</u>	<u>Provincial</u>
a) Map Data		
b) Computer Format	71	95
c) Trend Indexes	61	64
d) Raw Data	39	40
e) Other or Did not know	26	52
	10	1

## K) Most Desired Land Information to Monitor (% of Agencies Surveyed)

a) Land Use	47	50
b) Land Cover	10	38
c) Ownership	6	33
d) Capability	6	26



## APPENDIX III

## PROVINCIAL AGENCIES SURVEYED AND REPRESENTATIVES INTERVIEWED

Alberta

- 1) Peter K. Eligh, Manager, Current Planning Section Resources Planning Branch, Department of Energy and Natural Resources.
- 2) Bob Stone, Resource Coordinator, Alberta Environment
- 3) Rae Runge, Manager, Regional Planning Section, Planning Branch, Planning Services Division, Municipal Affairs Department.
- 4) Jeffrey C. Pearson, Manager, Municipal Planning Section, Planning Branch Planning Services Division, Municipal Affairs Department.

British Columbia

- 1) Peter George, Senior Associate Planner and Colleen Meade, Program Analyst, Greater Vancouver Regional District.
- 2) D.K. O'Gorman, Director, Environment and Land Use Committee Secretariat.
- 3) Jim Plotnikoff, Senior Planner, British Columbia Land Commission.
- 4) Gary G. Harkness, Executive Director, Municipal Affairs and Housing Department.
- 5) Norm Sprout, Assistant Director, Resource Analysis Branch, Department of the Environment.
- 6) Daniel E. Schroeter, Research Associate and Ted Horbulcyk, Research Assistant, B.C. Select Standing Committee on Agriculture.

Saskatchewan

- 1) Phil Polishuk, Executive Director, Farm Resources Development Divisions and George Pearson, Director, Marketing and Economics, Department of Agriculture.
- 2) Paul Harper, Executive Director of Urban Planning and Gary Leitch, Director, Municipal Lands Branch, Department of Municipal Affairs.
- 3) Hugo S. Maliepaard, Director and Paul Rump, Resource Management Consultant, Policy Planning and Research Branch, Department of Environment.

New Brunswick

- 1) W. Randall Trenholm, Coordinator, Agriculture Land Use Planning Section;  
David Neilson, Regional Resource Planner and  
David MacMinn, Acting Director, Planning and Development Section,  
Department of Agriculture and Rural Development.
- 2) T.E. Sifton, Director of Lands, Department of Natural Resources.
- 3) R. Simmonds, Director, System Planning Division, and Willis Roberts, Executive Director, Land Registration and Information Services, The Council of Maritimes Premiers.
- 4) Gordon Hood, Planner, Community Planning Branch, Dept. of Municipal Affairs.

Prince Edward Island

- 1) Hal Mills, Director, Planning Unit, Tourism, Parks and Conservation.

- 2) Floyd Wilson, Land Information Division, Land Use Service Centre.
- 3) R.W. Young, P.E.I. officer, Maritime Resource Management Service.
- 4) Stan Moore, General Manager, Land Development Corporation.
- 5) Auini Raad, Director, Technical Services Branch, Department of Agriculture and Forestry.

#### Nova Scotia

- 1) Michael Simmons, Land Resources Management Service.
- 2) Greg Haverstock, Coordinator, Community Planning Division, Department of Municipal Affairs.

#### Newfoundland

- 1) Ken Beanlands, Director, Lands Branch, Department of Forestry and Agriculture.
- 2) Dennis Sanson, Land Use Planner and Brian MacLean, Land Use Planner, Agriculture Branch, Department of Forestry and Agriculture.
- 3) Jerry Rothe, Parks Division, Parks and Tourism.
- 4) Donald B. Hurd, Director, Urban and Rural Planning, Provincial Planning Office, Department of Municipal Affairs and Housing.

#### Manitoba

- 1) J.R. Dale, Partridge, Chief, Soils Section, Soils and Crop Branch, Dept. of Agriculture.
- 2) Bob Brown, Resource Coordinator, Municipal Planning Branch and John Howden, Senior Policy Analyst, Provincial Planning Branch Department of Municipal Affairs.
- 3) Crawford Jenkins, Assistant Section Head, Water Planning Section, Planning Branch, Department of Mining Resources and Environmental Management.
- 4) R. Thompson, Chief, Land Use Planning Section, Department of Renewable Resources and Transportation Services.

#### Ontario

- 1) Vern Spencer, Director and Susan Singh, Food Land Development Branch, Production and Rural Development Division, Ministry of Agriculture and Food.
- 2) Ian V. Oliver, Manager, and David Nitkin, Supervisor, Land Use Analysis Group, Urban and Regional Transportation Planning Office, Planning and Development Division, Ministry of Transportation and Communications.
- 3) Martin H. Sinclair, Manager, Special Studies Section, Local Planning Policy Branch, Ministry of Housing.
- 4) Charles Bigenwald, Senior Policy Advisor, South West and Central Ontario, and Ian Fraser, Policy Advisor, Economic Analysis Branch, Ministry of Treasury, Economics and Intergovernmental Affairs.
- 5) Mel Plewes, Supervisor, and David Guscott, Environmental Planner, Land Use Co-ordination and Special Studies Branch, Ministry of the Environment.
- 6) Bunli Yang, Advisor for Transportation and Urban Development, Ministry of Energy.
- 7) Leigh Harneson, Supervisor Planner, Environmental Data and Laura Ives, Senior Planner, Research and Development, Route Site Selection, Ontario Hydro.

- 8) Robert Code, Director, Surveys and Mapping Branch, Division of Lands, Ministry of Natural Resources.
- 9) Ray Riley, Director and Mark Cressman, Supervisor, Land Uses Liaison, Land Use Coordination Branch, Ministry of Natural Resources.

Québec

- 1) Richard Thériault, Service de la recherche, Direction générale de l'urbanisme
- 2) Ghislain Théberge, Service de protection de l'environnement.
- 3) Jean-Guy Tessier, Protection du territoire agricole.
- 4) Jean-Claude Mercier, COGEF, Ministre de terres et forêts.
- 5) Gilles Pouliot, Office de planification et de développement du Québec (OPDQ).

## APPENDIX IV

## FEDERAL AGENCIES SURVEYED AND REPRESENTATIVES INTERVIEWED

Indian Affairs and Northern Development

- 1) Georgina Wymon, Coordinator of Specific Claims and Mark La Freniere, Assistant Special Claims and Comprehensive Claims Representative, Office of Native Claims.
- 2) Nancy Mitchell, Acting Director, Operational Planning and Program Support, Indian and Eskimo Affairs Program.
- 3) G.A. Poupore, Director, Lands Branch, Indian and Eskimo Affairs Program
- 4) Tony Faraday, Chief, Reality Policy Division, Parks Canada Program.
- 5) Bill Cheffins, Planning Coordinator, Agreements for Recreation and Conservation, Parks Canada Program.
- 6) David Gee, Chief, Land Management Division, Northern Affairs Program.

Energy Mines and Resources

- 1) Tom Ledwell, Technical Advisor, Energy Policy Coordination, Energy Policy Sector, Renewable Energy Resources Branch.
- 2) Sally Hamilton, Mineral Economist, Regional Planning Section, and Henry L. Martin, Acting Head, Resource Evaluation Section, Resources and Development Division, Mineral Development Sector and Mineral Policy Sector.
- 3) G. Falconer, Chief, National Geographic Mapping Division, Geographic Service Directorate.

Statistics Canada

- 1) A. Friend, Advisor, Office of Senior Advisor on Intergration.

National Energy Board

- 1) C. von Einsiedel, Assistant Director, Right-of-way; D.G. Watson, Oil Pipelines Group; and B. Hughson, Environment Group, Engineering Branch.

Transport Canada

- 1) Peter Hoisak, Chief, Capacity Development, Railway Transportation Directorate, Surface Transportation.
- 2) Can Le, Acting Director, Planning Airport Construction.

Urban Affairs

- 1) Vern J. Wieler, Director and Gerald Duc, Assistant Director, Urban Natural Environment Directorate.
- 2) Ian Dawson, Director, Metropolitan Development and Transportation Directorate.

Central Mortgage and Housing Corporation

- 1) Peter Spurr, Chief, Research and Development and Doug Stewart, Land Analyst, Coordinator of Land and Infrastructure Mapping Program.
- 2) C.D. Crenna, Director, Policy Development Division, Program Policy and Research Sector.

Emergency Planning Canada

- 1) Alex Angers, Acting Director, Plans and Analysis.

Agriculture Canada

- 1) R.L. Halstead, Research Coordinator, Research Branch, for the Departmental Committee on Land Use.
- 2) W. Baier, Agrometeorology Section, Land Resource Research Institute, Research Branch.

Heritage Canada

- 1) Mark Denhez, Director of Research.

Public Works

- 1) Mike McCavera, Director, Land Use Planning Branch.
- 2) J.A. Fullerton, Chief Highway Engineer, Transportation Directorate.
- 3) Peter Korwin, Chief, Urban Planning and Design, Environment Design.
- 4) Mike W. Paul, Director, Marine Directorate.

Environment

- 1) Vic Stewart, Policy Development and Analysis Branch, Canadian Forestry Service, Environmental Management Service.
- 2) Dr. N. Novakowski, Coordinator Wildlife Research, Canadian Wildlife Service, Environmental Management Service.
- 3) Harry Rosenberg, Chief, Social Economic Division, Inland Waters Directorate, Environmental Management Service.
- 4) Walt Sharp, Director, Water Pollution Programs Directorate, Environmental Protection Service.
- 5) Dr. Leo Sayn-Wittgenstein, Director, Forest Management Service, Environmental Management Service.
- 6) Hugh Boyd, Director, Migratory Birds, Wildlife Research, Canadian Wildlife Service, Environmental Management Service.

WORKING PAPER SERIES

- No. 1 The Ecology and Reclamation of Lands Disturbed by Mining: A Selected Bibliography. I.B. Marshall, 1980. En 73-4/1. ISBN 0-662-50724-X.
- No. 2 Analysis of the United States Experience in Modifying Land Use to Conserve Energy. W.R. Derrick Sewell and Harold D. Foster, 1980. En 73-4/2E. ISBN 0-662-10867-1.
- No. 3 The Influence of Exurbanite Settlement on Rural Areas: A Review of the Canadian Literature. James D. McRae, 1980. En 73-4/3E. ISBN 0-662-11085-4.
- No. 4 The Land Impact of Federal Programs in the Cowichan Valley Regional District, British Columbia. Lorna R. Barr, 1980. En 73-4/4E. ISBN 0-662-11086-2.
- No. 5 The Impact on Agricultural Land Use of Federal Policies and Programs in Kings County, Nova Scotia. S.G. Ryle and P. Gervason, 1980. En 73-4/5E. ISBN 0-662-11087-0.
- No. 6 Energy Conservation Through Land-Use Planning: A Synthesis of Discussions at a Symposium Held in Montreal 26-28 March 1980. W.R. Derrick Sewell and Harold D. Foster, 1980. En 73-4/6E. ISBN 0-662-11088-9.
- No. 7 Assessment Procedures in Canada and Their Use in Agricultural Land Preservation. James D. McCuaig and Heather J. Vincent, 1980. En 73-4/7E. ISBN 0-662-11089-7.
- No. 8 The Effects on Land Use of Federal Programs in the Windermere Valley. J.D. McCuaig and E.W. Manning, 1980. En 73-4/8E. ISBN 0-662-11117-6.
- No. 9 Issues in Canadian Land Use. E.W. Manning, 1980. En 73-4/9. ISBN 0-662-51142-5.
- No. 10 The Development of an Ecological Sensitivity Rating for Acid Precipitation Impact Assessment. D.W. Cowell, A.E. Lucas, and C.D.A. Rubec, 1981. En 73-4/10E. ISBN 0-662-11451-5.
- No. 11 The Land Use of Small Craft Harbours: A Preliminary Investigation. E.W. Manning, J.D. McCuaig, V.P. Neimanis, and E.M. Peterson, 1981. En 73-4/11E. ISBN 0-662-11453-1.
- No. 12 Land and the Automobile: A Selected Bibliography. Wendy Simpson-Lewis et al, 1981. En 73-4/12. ISBN 0-662-51259-6.
- No. 13 The Agricultural Use of Marginal Lands: A Review and Bibliography. K.G. Beattie, W.K. Bond, and E.W. Manning, 1981. En 73-4/13E. ISBN 0-662-11454-x.
- No. 14 Land Use Classification Systems: An Overview. Robert C. Scace, 1981. En 73-4/14E. ISBN 0-662-11434-5.

Environment Canada - Environnement Canada

SURVEY OF USER REQUIREMENTS FOR LAND USE DATA  
: CANADA LAND USE MONITORING PROGRAM  
GIERMAN, DAVID M

HD 107 W6713 NO. 15

70137936

NSDE