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## EXECUTIVE SUMMARY

### Introduction

An information management system (IMS) will be developed for the Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP) which addresses the need for Cumulative Impact Monitoring (CIM) information to be coordinated at the Mackenzie-Valley wide level, while respecting regional systems, governments, and institutions established under existing or pending land claim and self government agreements.

The objective of this study was to identify and evaluate options, and recommend a strategy for developing an NWT cumulative impact information management system (IMS) which meets the following requirements: 1) the system will include nodes (authoritative sources) and a single territorial hub to facilitate information flow between the nodes; 2) responsibility concerning access to and quality of information will rest with the nodes; 3) the information to be managed will include: monitoring activities and research projects, geospatial data/systems, and publications, studies, and reports; 4) the information to be managed will include both traditional and scientific knowledge; 5) the system should encourage standardization of data access and presentation; and 6) the system should facilitate sharing of information beyond the NWT.

The MVCIMP Working Group identified a survey as the first step in designing and evaluating options for an effective MVCIMP IMS. This paper reports on the results of that survey, uses the issues raised in the survey to inform the discussion of the options for an MVCIMP IMS, and identifies a preferred option.

### Methodology

The Statement of Work (SOW) for this study set out 6 tasks to accomplish the process of identifying and evaluating options, and recommending a strategy for an MVCIMP IMS (which the Project Team followed). These included:

- Identifying the potential nodes of a Cumulative Impact IMS;
- Developing an interview protocol for consulting representatives of the potential nodes;
- Interviewing representatives of the potential nodes;
- Reviewing Hub models suggested by the Working Group;
- Developing initial options for an MVCIMP IMS, and analyzing each option; and
- Identifying a preferred option.

### Survey Results

Sixty-six (66) surveys were sent out: 60 to potential nodes, and 6 to hub examples. The survey was sent to all major stakeholders within the Mackenzie Valley that had an interest in CIM:

- The Government of Canada (Department of Indian Affairs and Northern Development; Department of Fisheries and Oceans; Environment Canada; Natural Resources Canada);
- The Government of the NWT (Resources Wildlife and Economic Development; Health and Social Services – Contaminants Unit);

- Aboriginal governments (including Akaitcho Treaty 8; the Deh Cho First Nations; Dogrib Treaty 11; the Gwich'in; the Inuvialuit; the North Slave Metis; the Sahtu; and the South Slave Metis);
- Co-management boards (in the Gwich'in, Inuvialuit, and Sahtu land claims regions);
- Territorial environmental permitting and review boards (Mackenzie Valley Land & Water Board; Mackenzie Valley Environmental Impact Review Board);
- Non-governmental environmental agencies (Canadian Parks and Wilderness Society; Canadian Nature Federation; Canadian Arctic Resources Committee; Ecology North; Global Forest Watch; World Wildlife Fund)
- The mining industry (NWT Chamber of Mines; BHP; Diavik);
- The oil and gas industry (Canadian Association of Petroleum Producers; Trans-Canada Pipelines); and
- Other important stakeholders (Aurora Research Institute; West Kitikmeot Slave Study).

Thirty-six (36) completed surveys were received back, for a response rate of 55% (and a confidence level of +/- 10%, 19 times out of 20). The response rate is very high for a mail-out type survey, and is likely due to the coordinated efforts of the Project Team and the Working Group.

### Survey Analysis

The survey results highlight a number of issues which will guide the development of the options of an MVCIMP IMS, and include:

- the emergence of possible locations for the territorial Hub (in Yellowknife and/or Inuvik);
- the emergence of possible organizations which could host/house the territorial Hub, such as the Government of Canada (especially DIAND, DFO and Environment Canada) and the environmental boards (the MVEIRB, MVLWB and the co-management boards);
- a high level of technical capacity of the potential nodes;
- standardization of programs; and
- the predominance of biophysical CIM.

The survey results also highlight a number of issues which must be addressed before an MVCIMP IMS can successfully be developed, and include:

- the lack of metadata associated with CIM information;
- the low capacity of the potential nodes to share their CIM information;
- most of the CIM information at the nodes is not currently Internet ready;
- the need for additional resources at the node level; and
- systemic/structural issues (such as data sharing concerns).

### Limitations

There are two limitations to this study which must be noted, and which include 1) the scope/length of survey; and 2) the lack of industry participation.

## Review of Hub Approaches Suggested by the Working Group

The Arctic Borderlands Ecological Knowledge Co-operative site is a well laid-out, summary level source of ecological monitoring information, written for the general public. It's strengths are that it: 1) provides summaries and trends of ecological monitoring information; and 2) that it is written at a level that makes it accessible to a wide range of people (researchers; bureaucrats and the general public). It's weaknesses – in relation to this project (and it's applicability as a possible hub model) – are that: 1) it is not a Hub-Node system (i.e. there are no links back to the nodes who provided the CIM information); 2) it is not a meta-data system; and 3) the raw data that is contained on the site is not in a readily-usable format for other researchers (i.e. it has been translated into summary format and plotted onto graphs, but there are no links to a complete database or spreadsheet). Due to the three weaknesses outlined, the site would not serve as a possible hub model for an MVCIMP IMS.

The northern Ecological Assessment and Monitoring Network (EMAN-North) Information Centre site is a well laid-out, in-depth source of ecological monitoring information, written for researchers and the general public. It's strengths are that it: 1) is an excellent example of a Hub-Node model; 2) is a metadata based system; 3) has links back to the Nodes and the raw data; and 4) provides status and trends summaries of CIM information (i.e. translates technical, scientific information into plain language). The only weaknesses in relation to this project (and it's applicability as a possible hub model) – are that: 1) the metadata formats should be standardized; and 2) the raw data provided by the links should be in a more readily-usable format for other researchers (i.e. it has been translated into summary format and plotted onto graphs for certain days, but there are no links to the complete database or spreadsheet). The EMAN-North Information Centre could serve as a possible hub model for an MVCIMP IMS, as long as the two weaknesses outlined were addressed.

## Options

Three options for an MVCIMP IMS are outlined, including:

- a Centralized Hub (Option 1);
- a Regional Hub (Option 2); and
- a Split Hub (Option 3).

The Centralized Hub provides for all hub functions to be performed by one organization, such as one of the Government of Canada departments or the territorial environmental boards, located in Yellowknife. This model provides the lowest potential for capacity building, but requires the least amount of time and resources. It would take approximately \$300,000 - \$325,000 and 1.5 years to develop and implement.

The Regional Hub provides for all hub functions to be performed by one organization, such as one of the co-management boards, located in Inuvik. This model provides a high potential for capacity building, but also requires the most time and resources. It would take approximately \$500,000 - \$525,000 and 2.5 years to develop and implement.

The Split Hub provides for the hub functions to be split between two organizations, one in Yellowknife, and one in Inuvik. The IMS Manager would be an employee of one of the Government of Canada departments or territorial environmental boards, while the IMS Technician would be an employee of one of the co-management boards. This model provides moderate potential for capacity building, but requires more time and resources than Option 1. It would take approximately \$400,000 - \$450,000 and 2.0 years to develop and implement.

### **Preferred Option**

The preferred option – based on cost, time and technical capacity (i.e. infrastructure) – is Option 1 (Centralized Hub - Yellowknife).

However, a strong argument can be made for both Option 2 (Regional Hub – Inuvik) and Option 3 (Split Hub – Yellowknife/Inuvik) based on the goal of building community capacity.

### **Next Steps/Future Direction**

This study will help guide the next stage in the development of an MVCIMP IMS. Specifically, this involves turning: 1) the survey results; 2) the analysis of the survey results; the description of the Options; and 4) the analysis of the Options into a Project Implementation Plan – which contains concrete goals, objectives, and details on how to turn the preferred option into reality.