

Human and Animal Health Team Final Report to the CASA Board

**Prepared by the
Human and Animal Health Team
for the
Clean Air Strategic Alliance
Board of Directors**

Final Report

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Acknowledgements

The Human and Animal Health Team gratefully acknowledge the financial contribution of Alberta Environment in support of the team's work. A number of stakeholders also supported the team by hosting meetings and contributing valuable staff resources behind the scenes.

All members of the team were very committed to completing their task and the volunteer time and energy is very much appreciated.

About CASA

The Clean Air Strategic Alliance (CASA) is a non-profit association composed of stakeholders from three sectors – government, industry and non-government organizations such as health and environmental groups. All CASA groups and teams, including the board of directors, make decisions and recommendations by consensus. These recommendations are likely to be more innovative and longer lasting than those reached through traditional negotiation processes. CASA's vision is that the air will be odourless, tasteless, look clear and have no measurable short- or long-term adverse effects on people, animals or the environment.

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Executive Summary and Recommendations

The Human and Animal Health Team (HAHT) was directed by the CASA Board to accomplish two broad tasks: implement the Human Health Project Team and Animal Health Project Team recommendations. The HAHT has met with mixed results resulting in the following consensus and non-consensus recommendations.

Consensus Recommendation

1. **Disband the Human and Animal Health Team**

The Human and Animal Health Team recommends that the CASA Board of Directors disband the team.

Non Consensus Recommendations

The Human and Animal Health Team struggled with moving forward on the implementation of two components of the Comprehensive Human Health Monitoring System (CHHMS). It has the following two non-consensus recommendations:

1. **Implement the Environmental Health Hotline**

Alberta Health and Wellness, working with Alberta Energy and Utilities Board, Alberta Environment and the Regional Health Authorities implement the Environmental Health Hotline of the Comprehensive Human Health Monitoring System.

2. **Establish a Multi-Stakeholder Advisory Committee**

Alberta Health and Wellness, working with other regulators, non-governmental organizations and industry, establish a multi-stakeholder advisory committee to the Comprehensive Human Health Monitoring System. This committee will:

- advise on strategic planning and/or direction of the Comprehensive Human Health Monitoring System (CHHMS).
- influence on the priority setting process of the CHHMS.
- ensure effective communication between stakeholders and Albertans with regard to the CHHMS, and
- audit/evaluate the frameworks activities and outcomes.

Ultimate decision making authority and accountability would sit with Alberta Health and Wellness and other relevant regulators.

Background

As part of the Animal Health Project Team's final report and recommendation, the CASA Board approved the formation of a Human and Animal Health Team (HAHT) at their March 2003 board meeting. The HAHT terms of reference were approved by the CASA Board at their March 2004 meeting.

The Human and Animal Health Team was formed as a response to the need for implementation of outstanding recommendations from the Human Health Project Team (HHPT) and Animal Health Project Team (AHPT). As part of their 1998 report to the CASA Board, the Human Health Project Team recommended and agreed to support the proposed framework and recommend to the appropriate provincial departments and their partners that the Comprehensive Human Health Monitoring Framework be considered for funding and implementation, and to endorse the creation of a Multi-Stakeholder Operations Steering Committee to oversee and review the operation of the proposed framework on a quarterly basis.

The AHPT presented their final report and recommendations to the CASA Board at their March 2003 meeting. The AHPT recommendations were accepted by the board and included a recommendation for the establishment of the Human and Animal Health Team to gauge the status of and help with the implementation of the 1999 Human Health recommendations and 2003 Animal Health recommendations.

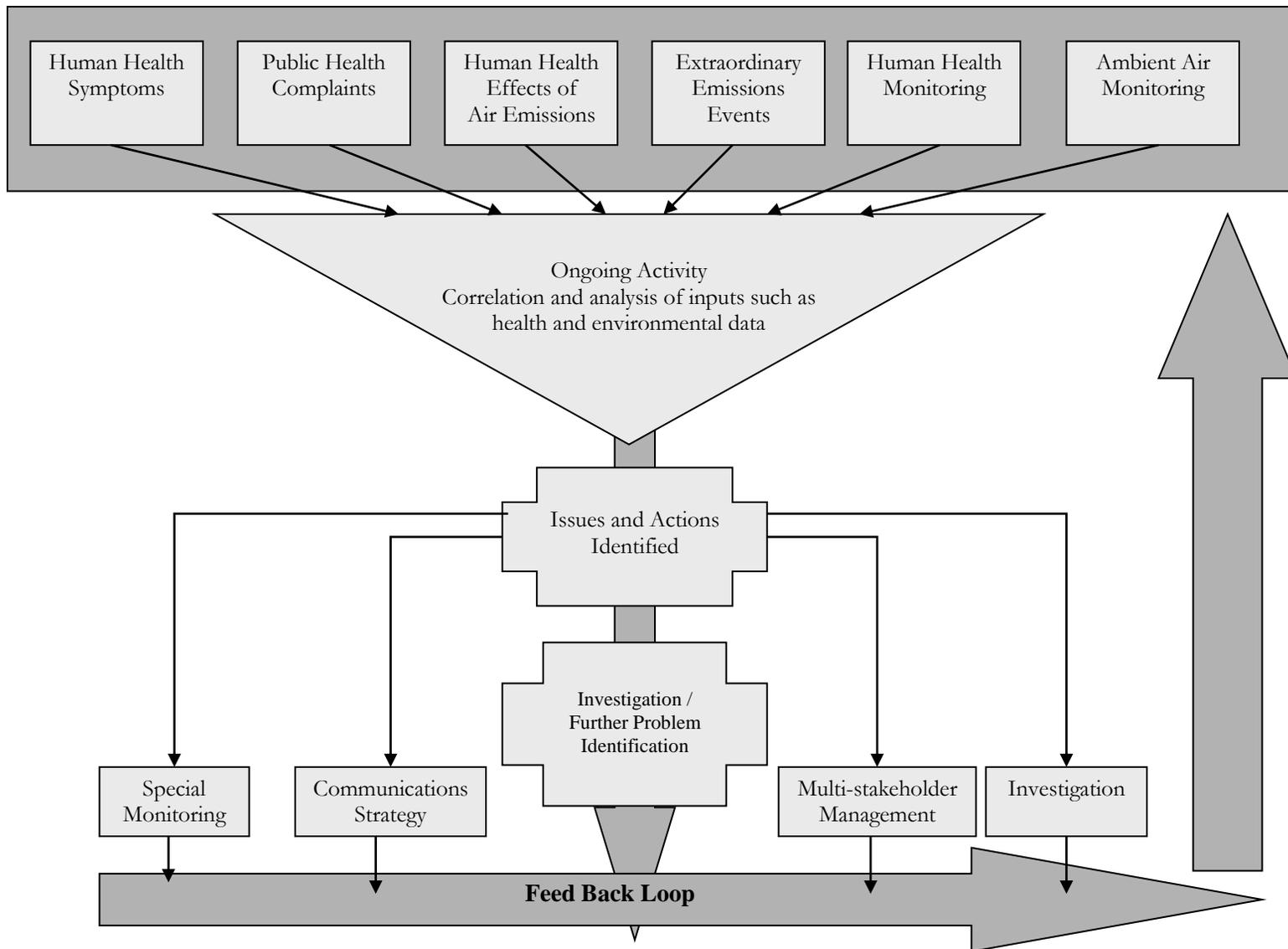


Figure 1: Comprehensive Human Health Monitoring System

Comprehensive Human Health Monitoring System

Background: Human Health Project Team Recommendations

At the November 25, 1998 CASA Board meeting, the CASA Board of Directors approved the recommendations from the Human Health Project Team. Taken as a whole, those recommendations constituted a Comprehensive Human Health Monitoring System (CHHMS) that could be used to gather information on the health of people for the purpose of detecting issues, trends and associations between air quality and health related variables. The process consists of an on-going systematic collection, analysis and interpretation of selected data on health outcomes, air quality parameters and population exposure. It was noted, though, that the CHHMS cannot answer all questions about health effects and air quality.

The goals of the proposed system are:

- To ensure the availability of timely, high quality data while respecting issues of privacy and confidentiality.
- To ensure that information about human health relative to air quality is made available to the public and to decision-makers.
- To evaluate, gathered data, and where appropriate, to encourage studies, research and/or pilot projects on human health, and to correlate results with ambient air quality data and other relevant data.

The objective of the CHHMS is to facilitate the development of a province-wide system, including methods and techniques, for measuring and assessing human health effects in relation to air quality.

The Monitoring System

The CHHMS would, at its broadest level, be comprised of three integrated components described below. Figure 1 depicts the ideal capability of the system to integrate, on an ongoing basis, ambient air quality and human health effects data. The system may also respond to community driven health concerns via the appropriate partnerships with public health agencies such as Alberta Health and Wellness, regional health authorities and/or Health Canada and regulatory agencies such as the Alberta Energy and Utilities Board, and/or Alberta Environment and may be a partner in investigating concerns of a local, regional or zonal nature through the use of specialized studies and specialized data collection. Airshed zones have been identified as a potential partner in this work. The system has the following components:

1) Ambient Air Monitoring – Ambient Air Quality and Human Health

Central to the proposed human health system is the collection of ambient air monitoring data, correlated with data on health effects (symptoms) at the population level. This component serves as a first level of assessment of human exposure to air contaminants on a provincial basis. This component serves to:

- a) Provide better linkages between the existing ambient air quality and health effects data.

- b) Provide a province-wide framework (technical and organizational) for carrying out detailed exposure and health effects monitoring and, if necessary, special studies.
- c) Contribute to the assessment of long-term trends of air pollution and associated population health status.

2) Public Health Complaints

The vision of the Human Health Project team was to provide a mechanism for investigation that would be initiated in response to health concerns received from a region or community. The need for an investigation would be determined by the Regional Health Authority, Alberta Environment, Alberta Health and Wellness or the Alberta Energy and Utilities Board.

These concerns may be identified by members of the public, airshed zones, or may emerge from activities occurring in other components of the human health monitoring system. This component will:

- a) Facilitate identification of emerging areas of concerns.
- b) Facilitate the validation of community concerns.

3) Special Monitoring

This component is triggered as a result of concerns that cannot be resolved through either of the above components (1 or 2), and involves the use of periodic exposure and health effects surveys for different pollutants. For example, these studies could attempt to assess human exposure in specific regions or the exposure of selected population groups (e.g. children, highly sensitive or highly exposed people) to specific pollutants. Two generally accepted methods for this type of monitoring are:

- a) Collection of individual exposure data through the use of personal exposure monitors.
- b) Collection of special ambient data.

At this level, data on personal exposure is compared with specific ambient data to provide further evidence of linkages between ambient air quality and a possible health effect.

This component could:

- Provide detailed exposure and health effects data for air contaminants considered to be of priority by the communities participating in the study.
- Promote the research and development of personal exposure assessment methodologies.
- Provide better support and data for epidemiological studies on health effects of air pollution.
- Provide the rationale, if necessary, for health or regulatory decisions.

Special monitoring is not limited to the use of periodic exposure and health effects surveys. It could include enhanced ambient monitoring, use of mobile monitoring equipment and other monitoring.

Conclusion

The proposed monitoring system provides a comprehensive model for stakeholder involvement, ongoing monitoring, continual assessment and response to public concerns, with each component having steps of increasing technical complexity, and each step relying on problem identification before initiation.

Comprehensive Human Health Monitoring System: Review and Assessment of Relevance and Degree of Implementation

The following headings correspond to the input level found in Figure 1:

1. Human Health Symptoms

Environmental Health Hot Line

Overview

Working in conjunction with the other components of the Comprehensive Human Health Monitoring System (CHHMS), the Environmental Health Hot Line would serve the purpose of allowing members of the public to report or ask advice on environmental health concerns. There are several benefits to establishing an Environmental Health Hot Line including:

- Allows members of the public to access current, integrated information concerning environmental health. Health information can be linked to specific exposure events allowing members of the public who may be feeling the effects of exposure current and accurate information.
- The Environmental Health Hot Line could alert regulators to an acute exposure event that they are unaware of.
- The data gathered by this phone line could be geographically and temporally linked allowing some insight to exposure issues that may be occurring.

Relevance

The capacity to assess human health symptoms related to possible environmental exposure is extremely relevant to the on-going well being of Albertans.

Implementation Status

The Environmental Health Hot Line has not been implemented.

2. Public Health Complaints

The Public Health Complaints component of the CHHMS is initiated when a number of health concerns received from a region or community warrant a comprehensive investigation. A regional health authority, Alberta Environment, the Energy and Utilities Board or Alberta Health and Wellness could determine the need for an investigation. Concerns regarding public health may be identified by members of the public, airshed zones or may emerge from activities occurring in other components of the CHHMS. This component will serve the function of:

- a. Facilitating the identification of emerging areas of concern.
- b. Facilitating the validation of community concerns.
- c. Establishing a process to address public health concerns.

Links between Human Health Symptoms and Public Health Complaints

The Environmental Health Hot Line will support the collection of human health data that is integrated with environmental data to support the detection of long term public health trends. Specifically, the collection of human health symptoms coupled with the geographic location of

those symptoms and other parameters such as ambient air quality and extraordinary emissions events will, over time, indicate chronic health concerns in Alberta. These data collection tools coupled with Community Exposure and Health Effects programs represent a large step forward in understanding short- and long-term environmental health trends.

Relevance

The capacity to receive and assess public health complaints serves a number of purposes:

- To provide Albertans access to medical services for consultation regarding symptoms that they might be experiencing as the result of an environmental exposure.
- To provide on-going long term data to AHW and other authorities on public health complaints that may be the result of an environmental exposure. This data would enhance our knowledge of the symptoms people experience during air quality events and the possible linkages between environmental exposure and health outcome.

Implementation Status

The implementation status of the Public Health Complaints component of the CHHMS is linked to the Environmental Health Hot Line, and Human Health Effects of Air Emissions components. The Public Health Complaints component has not been implemented.

3. Human Health Effects of Air Emissions

As part of their operations Alberta Health and Wellness, in partnership with Alberta Environment, collects and assesses the effects of air emissions on human health.

Relevance

Understanding the human health effects associated with air emissions is vital to the ongoing understanding and maintenance of the health of Albertans.

Implementation Status

This component of the CHHMS is implemented and no new activity is required.

4. Extraordinary Emissions Events

Extraordinary emissions events are discrete occurrences where an industrial incident causes a high level of pollutants to be released over a short period of time. Currently, Alberta has a coordinated system to respond to such an event. This system has succeeded to date based on the cooperation and voluntary participation of Alberta Environment, Alberta Energy, the Alberta Energy and Utilities Board, all of the regional health authorities, industry, Health Canada and other potentially impacted or affected local governments.

Relevance

The documentation and tracking of extraordinary emissions events is vital to better understand the connection between extraordinary emissions and human health outcomes as a result of exposure.

Implementation Status

This element of the CHHMS is fully implemented and functioning. Existing information and notification protocols may need to be reviewed and enhanced if necessary.

5. Human Health Monitoring

Human health monitoring is a part of the current activities of Alberta Health and Wellness. On a project basis, Alberta Health and Wellness has implemented, in partnership with several communities, a number of Community Exposure and Health Effects studies. In addition, Alberta Health and Wellness works with Alberta Environment in setting ambient air quality objectives and conducts studies on the health effects associated with specific substances.

Relevance

Understanding the geographic and temporal distribution of human health symptoms and exposures as they relate to extraordinary emissions events, ambient air quality monitoring data and public health complaints is important.

Implementation Status

This component of the CHHMS has been implemented.

6. Ambient Air Quality Monitoring

Currently Alberta Environment, airshed zones and Environment Canada operate a number of ambient air quality monitoring stations throughout Alberta. These stations, organized at local, regional and provincial levels, support the collection and analysis of the current ambient air quality in the province. The CASA Ambient Air Quality Monitoring Strategic Planning Team is reviewing the 1995 Ambient Air Quality Monitoring Strategic Plan with a view towards updating and producing a 2007 plan for the Monitoring of Ambient Air Quality. This strategic plan will recognize the significant changes that have occurred in Alberta since 1995 and support the goals associated with human exposure monitoring.

Relevance

The ongoing collection of quality ambient air quality data is vital for the assessment of human exposure to environmental contaminants.

Implementation Status

The Ambient Air Quality Monitoring component of the CHHMS has been implemented and is currently being updated.

7. Ongoing Activity

Ongoing activity is represented by the central 'hopper' in the CHHMS schematic diagram.

The intent of the *ongoing activity* component of the CHHMS is to illustrate that there are many inputs into the decisions that are made. Decisions can result in or take a number of forms such as the need for special monitoring or investigation. Those agencies involved include Alberta Health and Wellness, Alberta Energy and Utilities Board, Alberta Environment and the regional health

authorities. Although communication does occur between these agencies, there is not a formal ongoing process to discuss human health outcomes as a function of air quality.

Relevance

The cooperation of all authorities involved in the collection, distribution and understanding of the data collected is important to the success of the monitoring system.

Implementation Status

The *ongoing activity* function of the CHHMS has not been implemented, although functionally there is informal agency cooperation.

8. Issues/Actions Identification

Alberta Health and Wellness to establish a formal multi-stakeholder process to review human health issues identified through the *ongoing activity* above as described in the CHHMS. Alberta Health and Wellness currently has a scientific committee that identifies issues and actions that are relevant and current to the issues of environmental health.

Relevance

The identification of issues that relate to the health of Albertans is vital to the ongoing protection of human health from the effects of exposure to environmental contaminants in the air.

Implementation Status

Although issues are identified and actions are taken (many in consultation with stakeholders), the *issues and actions identified* component of the CHHMS has not been implemented. Alberta Health and Wellness is to establish a formal multi-stakeholder process to review human health issues identified through this component.

9. Investigation

The intent of the investigation component is for Alberta Health and Wellness, with assistance from Alberta Energy and Utilities Board, Alberta Environment and the regional health authorities to undertake investigations identified under the *issues and actions identified* component. These investigations will be supported by the work of a scientific advisory committee with data obtained through the CHHMS process or through ambient air quality data provided by airshed zones or Alberta Environment.

Relevance

Investigation into the causes of human exposure and the consequences of that exposure is vital to protecting the long-term health of Albertans.

Implementation Status

A formal process of investigation has not been implemented.

10. Further Problem Identification

Alberta Health and Wellness, supported by a scientific advisory committee, will identify population health problems or emerging issues that arise as a result of the CHHMS.

Relevance

The identification of emerging issues and population health problems is vital to protecting the ongoing health of Albertans.

Implementation Status

This option has been implemented by Alberta Health and Wellness.

11. Special Monitoring

Alberta Health and Wellness, working in partnership with airshed zones, regional health authorities and other regulators, implement special monitoring with the goal of understanding and addressing issues identified by the CHHMS.

Relevance

In order to better identify the conditions associated with a human health effect, special monitoring is necessary.

Implementation Status:

Alberta Health and Wellness, working with stakeholders, currently implements Community Exposure and Health Effects Assessment Programs. These programs attempt to describe the population and personal distribution of exposure to airborne chemicals and particulates within specific regions of Alberta. Using a personal exposure model, the relative contribution of various exposure sources and pathways to airborne chemicals is estimated and associations between exposure to airborne chemicals and human health effects are described¹.

12. Communications Strategy

The communications strategy has three broad goals:

Goal	Priorities
Goal 1: Influencing Albertans	Education and outreach on the use of the Environmental Health Hotline
Goal 2: Building External Awareness	Generate support for the CHHMS from the public, policy makers, industry and NGO's.
Goal 3: Facilitate communication between stakeholders	Develop a systematic communications planning and tracking protocol for stakeholders

Relevance

A province wide communications strategy is vital to successfully implement the Environmental Health Hotline.

¹ For more information, please visit the Alberta Health and Wellness publications website at: <http://www.health.gov.ab.ca/resources/publications.html>

Implementation Status

CASA, Alberta Health and Wellness and all involved stakeholders develop a communications strategy to inform stakeholders and the public of the existence and availability of the CHHMS and the Environmental Health Hotline. This item has not yet been implemented.

13. Multi-Stakeholder Advisory Committee

A multi-stakeholder advisory committee, chaired by Alberta Health and Wellness, would serve the function of providing:

- Advise on strategic planning and/or direction of the CHHMS.
- Influence on the priority setting process of the CHHMS.
- Effective communication between stakeholders and Albertans with regard to the CHHMS.
- An audit/evaluation function regarding the frameworks activities and outcomes.

Ultimate decision making authority and accountability would sit with Alberta Health and Wellness and other relevant regulators.

Relevance

There are a range of views regarding the establishment of a multi-stakeholder advisory committee.

Implementation Status

This option has not been implemented.

14. Feedback - Evaluation

The CHHMS is an environmental health management system. Every such system has a feedback loop built into it such that the success of the system can be tested and evaluated. Where each individual component may undergo its own evaluation, the system as a whole must be regularly assessed and evaluated to ensure that it is functioning as expected.

Relevance

Ongoing assessment, evaluation and improvement is important to the continued success of the CHHMS.

Implementation Status

This option has not been implemented. An evaluation process should be built into the CHHMS and coordinated by Alberta Health and Wellness.

Recommendations

Consensus Recommendation

1. Disband the Human and Animal Health Team

The Human and Animal Health Team recommends that the CASA Board of Directors disband the team.

Non-Consensus Recommendations

The Human and Animal Health Team have struggled with moving forward in the implementation of two components of the CHHMS. As such, the following two non-consensus recommendations are brought forward:

1. Implement the Environmental Health Hotline

Alberta Health and Wellness, working with Alberta Energy and Utilities Board, Alberta Environment and the regional health authorities implement the Environmental Health Hotline of the Comprehensive Human Health Monitoring System.

Overview of outstanding issues

The non-government organizations (NGO's) of the Human and Animal Health Team feel that the Environmental Health Hot Line would serve the purpose of allowing members of the public to report or ask advice on environmental health concerns. As such, the NGO's feel that there are several benefits to establishing an Environmental Health Hot Line, including:

- Allow members of the public to access current, integrated information concerning environmental health. Health information can be linked to specific exposure events, allowing members of the public who may be feeling the effects of exposure access to current and accurate information.
- The Environmental Health Hot Line could alert regulators to an acute exposure event that they are unaware of.
- The data gathered by this phone line could be geographically and temporally linked allowing some insight to any low level chronic exposure issues that may be occurring over long periods of time.
- Regional health authorities are currently using Health Link for the first of these functions. Health Link currently reports unusual events to regional health authorities and, in addition, compiles air quality data quarterly and reports this data to the regional health authorities. As such, it seems likely that with some expansion of the Health Link capacity it could perform the function of the Environmental Health Hotline. The Council of Medical Officers of Health supports this position and has conveyed that to the Human and Animal Health Team and Alberta Health and Wellness.

Not all stakeholders on the team are in a position to support the implementation of the Environmental Health Hotline. Some government members have concerns regarding the details of the implementation of the Environmental Health Hotline including:

- Their ability to share health information of any sort between regulators who are not authorized to collect such information. Because the effectiveness of the Environmental Health Hotline hinges on sharing of information between regulators who cannot collect health information, including the Energy and Utilities Board and Alberta Environment, some government members feel that the benefit/utility of the Environmental Health Hotline would be lost.

2. Establish a Multi-Stakeholder Advisory Committee

Alberta Health and Wellness, working with other regulators, non-governmental organizations and industry, establish a multi-stakeholder advisory committee to the CHHMS. This committee will:

- Advise on strategic planning and/or direction of the CHHMS.
- Influence on the priority setting process of the CHHMS.
- Effective communication between stakeholders and Albertans with regard to the CHHMS.
- An audit/evaluation function regarding the frameworks activities and outcomes.

Ultimate decision making authority and accountability would sit with Alberta Health and Wellness and other relevant regulators.

Overview of outstanding issues

The non-governmental organizations feel that this is a key component to the CHHMS in that a multi-stakeholder advisory committee would play a vital role by providing advice, direction and credibility to Alberta Health and Wellness.

Discussion regarding the utility of this recommendation did not result in consensus.

There are two essential elements that some government members had concerns with:

- Alberta Health and Wellness currently works through multi-stakeholder advisory committees when it conducts its Community Exposure and Health Effects Assessment Program studies that have, as part of their operations, a multi-stakeholder committee. It was felt that creating an additional multi-stakeholder committee would add another layer of redundancy and bureaucracy.
- In addition, the need for, and the value of, a multi-stakeholder committee to provide advice and direction on health issues to Alberta Health and Wellness was questioned.

Animal Health

The Animal Health Project Team (AHPT) presented their final report and recommendations to the CASA Board at their March 2003 meeting. The AHPT recommendations were accepted by the Board and included the following tasks to be implemented by the Human and Animal Health Team:

- Organize a workshop(s) to disseminate information about the Herd and Environmental Record System to the farming community.
- Receive information about current and future research in the areas of human and animal health.
- Provide input into current and future research.

Herd and Environmental Record System

The Herd and Environmental Record System (HERS) framework is intended to provide Alberta livestock producers with a means of managing the potential risks associated with environmental (air, water, soil, feed) contamination, its impact on animal health and the economic performance of the herd or flock. The focus of this framework is to encourage and guide producers in documenting all relevant factors and variables in situations where livestock are potentially affected by abnormal environmental conditions.

The suggested documentation procedures are not intended to replace producers' existing record keeping systems. The purpose of the HERS Framework is to supplement existing record keeping systems and ensure sufficient documentation to properly assess environmental contamination or poor herd performance. The framework encourages both proactive procedures for recording baseline information on livestock performance and procedures for documenting acute incidences of environmental contamination.

Workshops

In an attempt to raise the profile and use of the HERS Framework, the Human and Animal Health Team was interested in delivering the HERS documents directly to producers in various agricultural centres. The goal of the workshops was to provide exposure of the HERS Framework to those producers interested in documenting the long term environmental conditions that their livestock are exposed to. CanEd International Inc. was hired by the HAHT to implement workshops in the following communities:

- Tees Community Hall, Tees, Alberta.
- Crossfield and District Community Centre, Crossfield, Alberta.
- Westward Motor Inn, Drayton Valley, Alberta.
- Pincher Creek Community Hall, Pincher Creek, Alberta.

Results

Although considerable resources were invested by CanEd International Inc. in promoting the HERS workshops, attendance was very poor. Twelve people attended the Tees workshop and five people attended the Pincher Creek workshop. No one showed up for either the Drayton Valley or Crossfield workshops. Those individuals who did attend the

Tees and Pincher Creek workshops previously had environmental issues that impacted their livestock operations. CanEd International Inc. provided a final report and recommendations to the HAHT. This report can be found in Appendix B.

Other Tasks and Activities

Receive information about current and future research in the areas of human and animal health.

The HAHT was able to arrange for presentations from researchers in the areas of human and animal health. The team heard presentations from:

- Dr. David Swann, “Climate Change and Health”.
- Western Interprovincial Scientific Studies Association.
- Dr. Robert Coppock, “Study on Toxicology of Sulphur Dioxide in Cattle”.

Provide input into current and future research.

The HAHT provided input and feedback into the Western Interprovincial Scientific Studies Association at a meeting held at the Alberta Energy and Utilities Board.

Appendix A: Members of the Human and Animal Health Team

Jim Benum	Alberta Energy and Utilities Board
Simon Cobban	Intensive Livestock Working Group
Matthew Dance	CASA
Kim Eastlick	Alberta Energy and Utilities Board
Bryan Haggarty	Health Canada, Alberta/Northwest Territories Region
Judy Huntley	Bert Riggall Environmental Foundation
Ila Johnston	PAMZ Parkland
Joe Kendall	Alberta Agriculture and Food
Martha Kostuch	Bert Riggall Environmental Foundation & Prairie Acid Rain Coalition
Laura McLeod	David Thompson Health Region
Greg Ritz	Rocky Mountain House Community Health Centre
Gary Sargent	Canadian Association of Petroleum Producers
Bob Savage	Alberta Environment
Al Schulz	Canadian Chemical Producer's Association
John Squarek	Canadian Association of Petroleum Producers
Merry Turtiak	Alberta Health and Wellness
Angela Varley	Petro Canada
Raymond Wong	Alberta Environment
Brenda Woo	Health Canada
Ruth Yanor	Mewassin Community Action Council