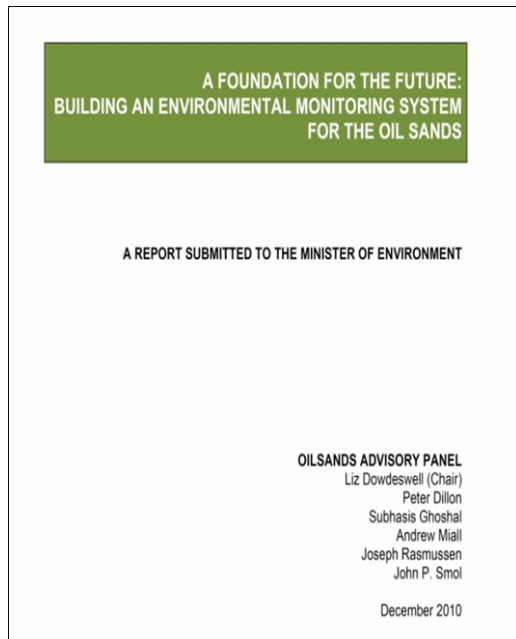


A Change in Direction for Oil Sands Monitoring in Alberta

Prasad Valupadas
Project Director
Environmental Monitoring
Alberta Environment and Sustainable Resource Development



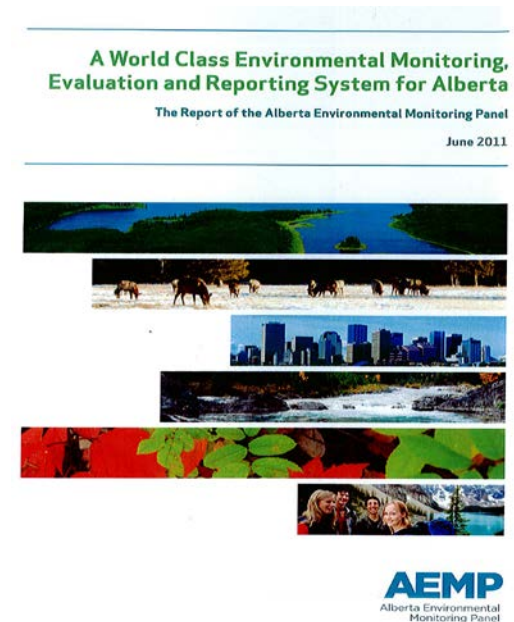
Monitoring in Alberta: The Past



**Oil Sands Advisory
Panel Report (2010)**



**Royal Society of Canada
Report (2010)**

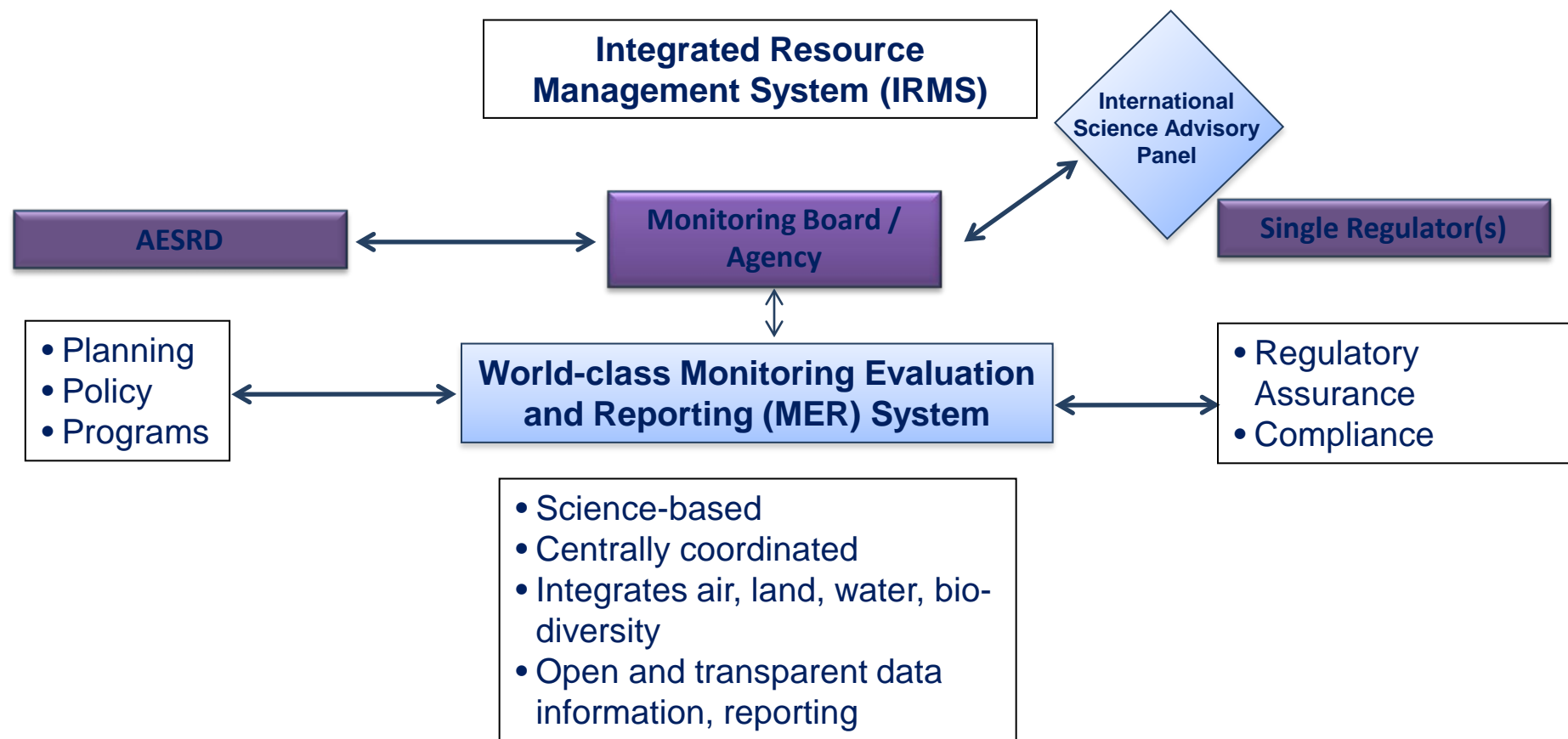


**Alberta Environmental
Monitoring Panel Report
(2011)**

Background: Old Monitoring System

- Monitoring is necessary to provide assurance resource is developed responsibly.
- Reviews indicated system of monitoring, evaluation and reporting was:
 - largely project-based;
 - built to meet different needs in a different time;
 - not well integrated, coordinated, standardized;
 - the subject of much scrutiny and criticism from public and scientific community.
- Rapid growth meant Alberta needed an environmental monitoring system capable of assessing cumulative impacts.

Monitoring in Alberta: A New Direction...



GoA committed to the new direction through an Integrated Resource Management System

Monitoring in Alberta: Present

- Vision for an enhanced monitoring system means some changes to the roles of government, industry, and monitoring organizations
- Current focus is the oil sands region with the Joint Oil Sands Monitoring (JOSM) Plan – a pilot for the development of monitoring systems across Alberta

Monitoring in Alberta : Present - JOSM

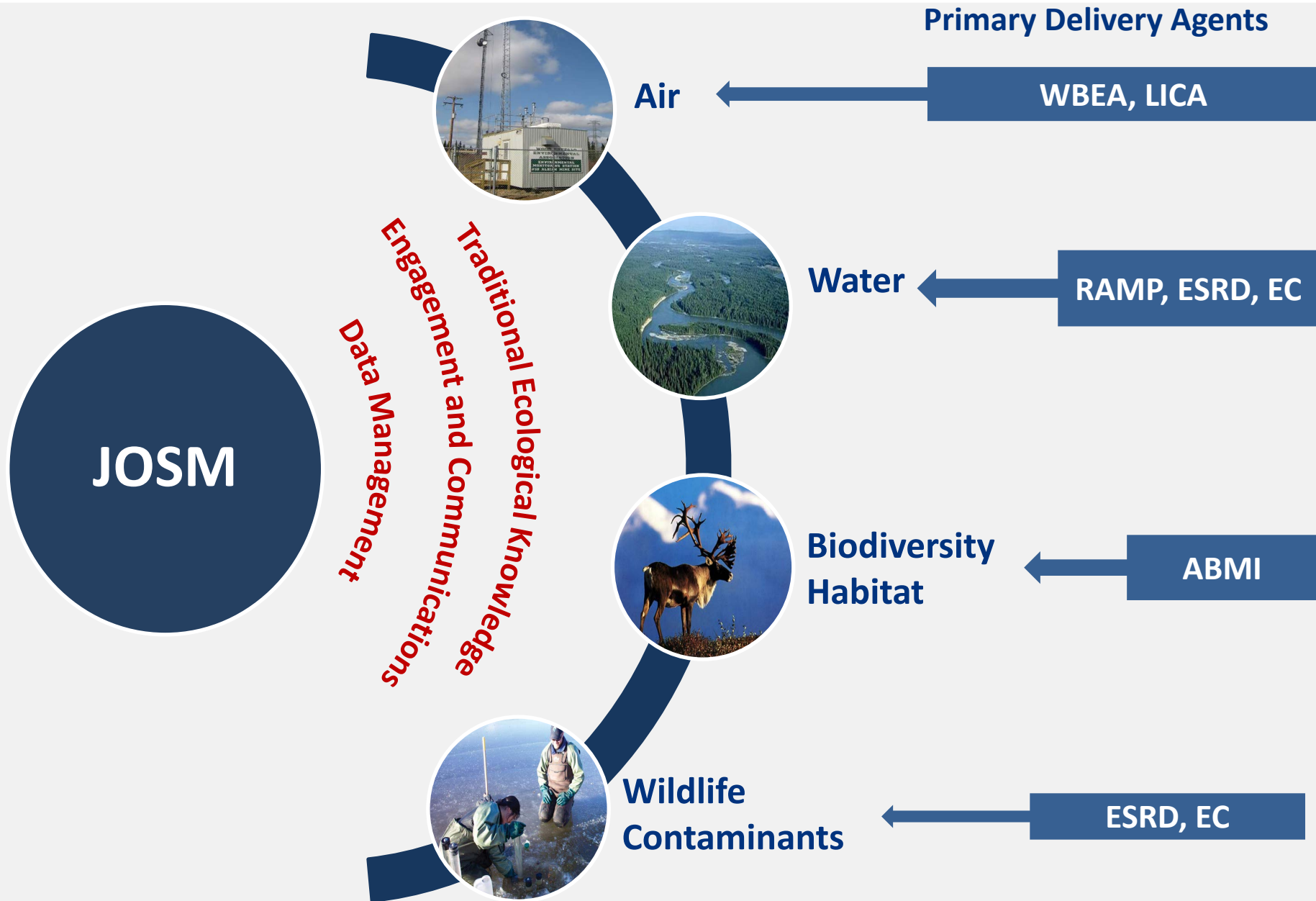
- JOSM Plan released February 2012
- Addresses issues of scientific validity and management of existing monitoring programs
- Aligns and enhances current monitoring in the areas of:
 - baseline effects monitoring, and assessing cumulative effects
- JOSM is industry funded @ \$50 million annually



JOSM: Objectives

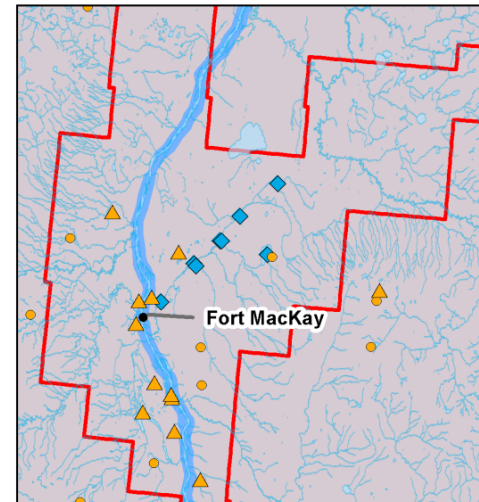
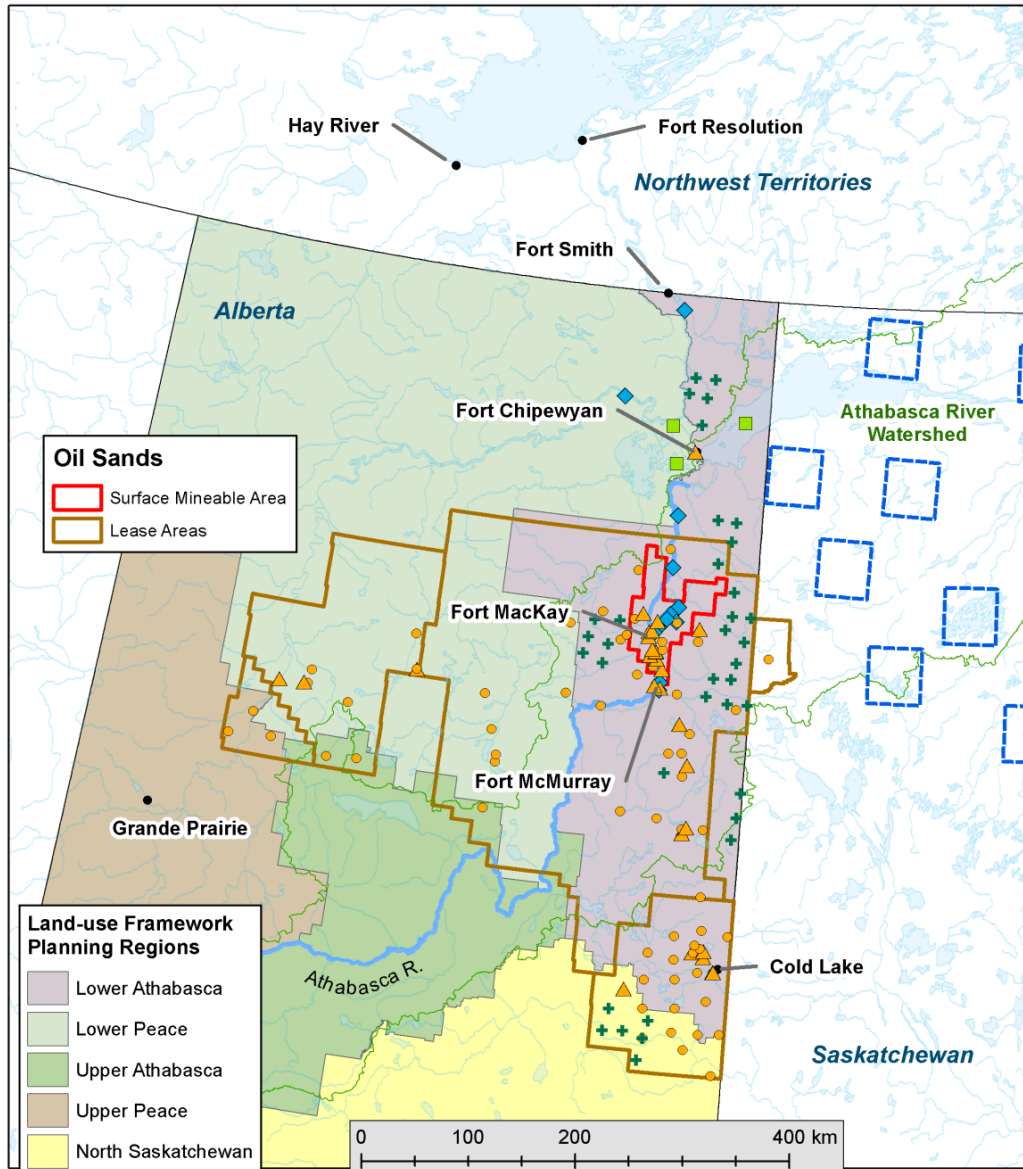
- Support sound decision-making by governments as well as stakeholders;
- Ensure transparency through accessible, comparable and quality-assured data;
- Enhance science-based monitoring for improved characterization of the state of the environment and collect the information necessary to understand cumulative effects;
- Improve analysis of existing monitoring data to develop a better understanding of historical baselines and changes, and;
- Reflect the trans-boundary nature of the issue and promote collaboration with the Governments of Saskatchewan and the Northwest Territories.

Joint Oil Sands Monitoring Plan

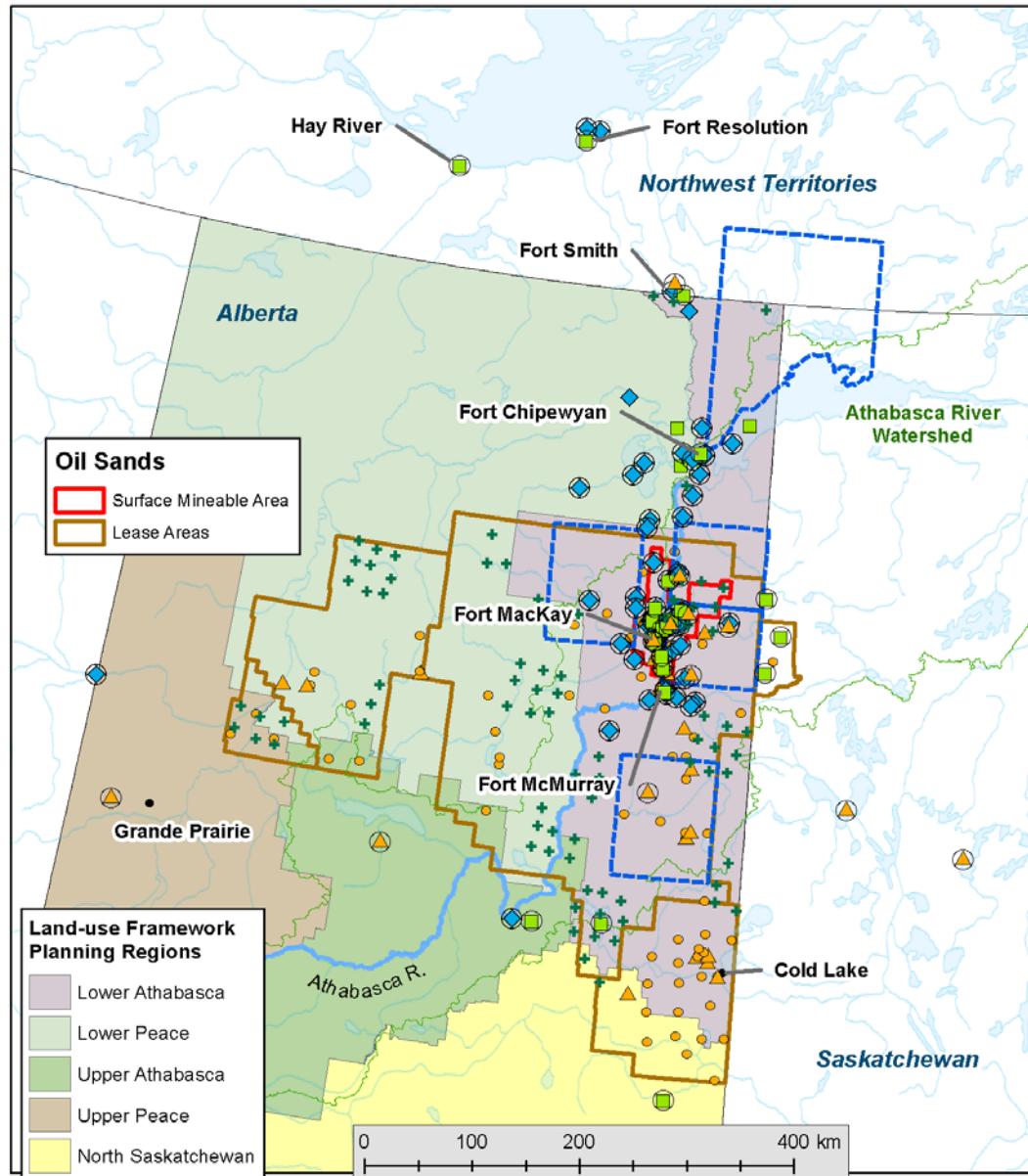


Existing Monitoring in 2011

2011



Proposed Monitoring - 2015



2015

Air Monitoring

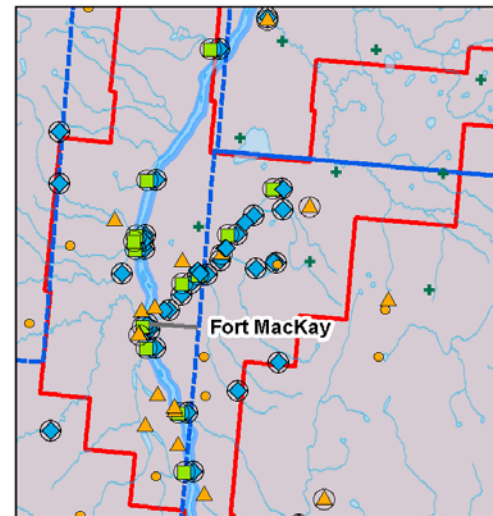
- Continuous
- Passive
- New air sites

Biodiversity Monitoring and Contaminants

- Wildlife Contaminants: Waterbird Eggs
- New Wildlife Contaminant Sites
- Biodiversity Sites (see below)

Water Monitoring

- Water Sites
- New Water Sites
- Areas of acid sensitive lake sampling



Not Shown

Air Monitoring :

- 1 new site in Man., 1 new site in Sask.

Biodiversity Monitoring :

- Balance of 414 sites (20x20 km grid) in the Oilsands Areas and Lower Athabasca Planning Region sampled on a 5 year cycle.
- Sites added for rare species, reference sites, and cause effects monitoring.

Monitoring in Alberta : Present - JOSM

FROM

- Independent 1-step organization-led planning
- Direct funding from industry to individual organization
- Organization-based standards and protocols
- Organization-based branding, communications and messaging

3 year transition

TO

- ✓ Integrated 2-step government-led planning
 - Integrated planning
 - Defining best entity to implement
- ✓ Funded by industry, dispersed through Government of Alberta
- ✓ Government standards and protocols
- ✓ Common JOSM branding, communications and messages

AEMERA: Background

- **Foundation:**
 - Bill 31 - *Protecting Alberta's Environment Act* undergirds establishing AEMERA.
 - Bill 21 - defines the scope of an environmental monitoring program and collects fees to fund the program.
- **Mandate:** AEMERA will collect, and provide open and transparent access to credible and relevant scientific data and information on Alberta's environment to inform policymakers, regulators, planners, researchers, communities, industries and the public.
- **Function:** AEMERA functions as one of the three pillars of the Integrated Resource Management System alongside the ESRD (policy), and the AER (regulatory system).
- **Operation:** AEMERA will operate as an arm's length agency, independent but accountable to the Alberta Minister of Environment and Sustainable Resource Development.
- **Governance:** AEMERA to be governed by board of directors accountable to the minister. The board of directors may also appoint a CEO.



AEMERA: Functions

AEMERA's primary business is to report regularly on the condition of the environment, both in specific locations and provincially, and in doing so will:

- Coordinate annual ambient environmental monitoring planning and the acquisition and management of ambient monitoring data
- Develop and set protocols for monitoring, evaluation and reporting in Alberta
 - standard methods and operating procedures
 - guidelines for data collection
 - analytical techniques
 - quality assurance processes
- Analyze and evaluate environmental data to
 - understand conditions
 - identify trends and risks
 - understand cause and effect relationships
- Manage environmental data and information
 - Collect and store both raw and validated (QA/QC) data
 - Provide open and timely access to environmental data and information



AEMERA: Focus

- Primary focus: Province-wide ambient baseline and effects monitoring for air, water, land and biodiversity.
- In addition:
 - **Air:**
 - Air sheds and long range transport
 - **Water:**
 - Flow forecasting (flood forecasting will remain in ESRD)
 - Hydrometric and water quantity
 - Groundwater
 - Water quality monitoring
 - **Land:**
 - Land disturbance (including geospatial)
 - Aerial deposition
 - Soil quality assessment
 - **Biodiversity:** All ABMI activities
 - Trend surveys, biodiversity targets, data deficit, emerging needs
 - Health assessments (e.g., riparian health, footprint, genetic integrity, and Aquatic health invertebrates)



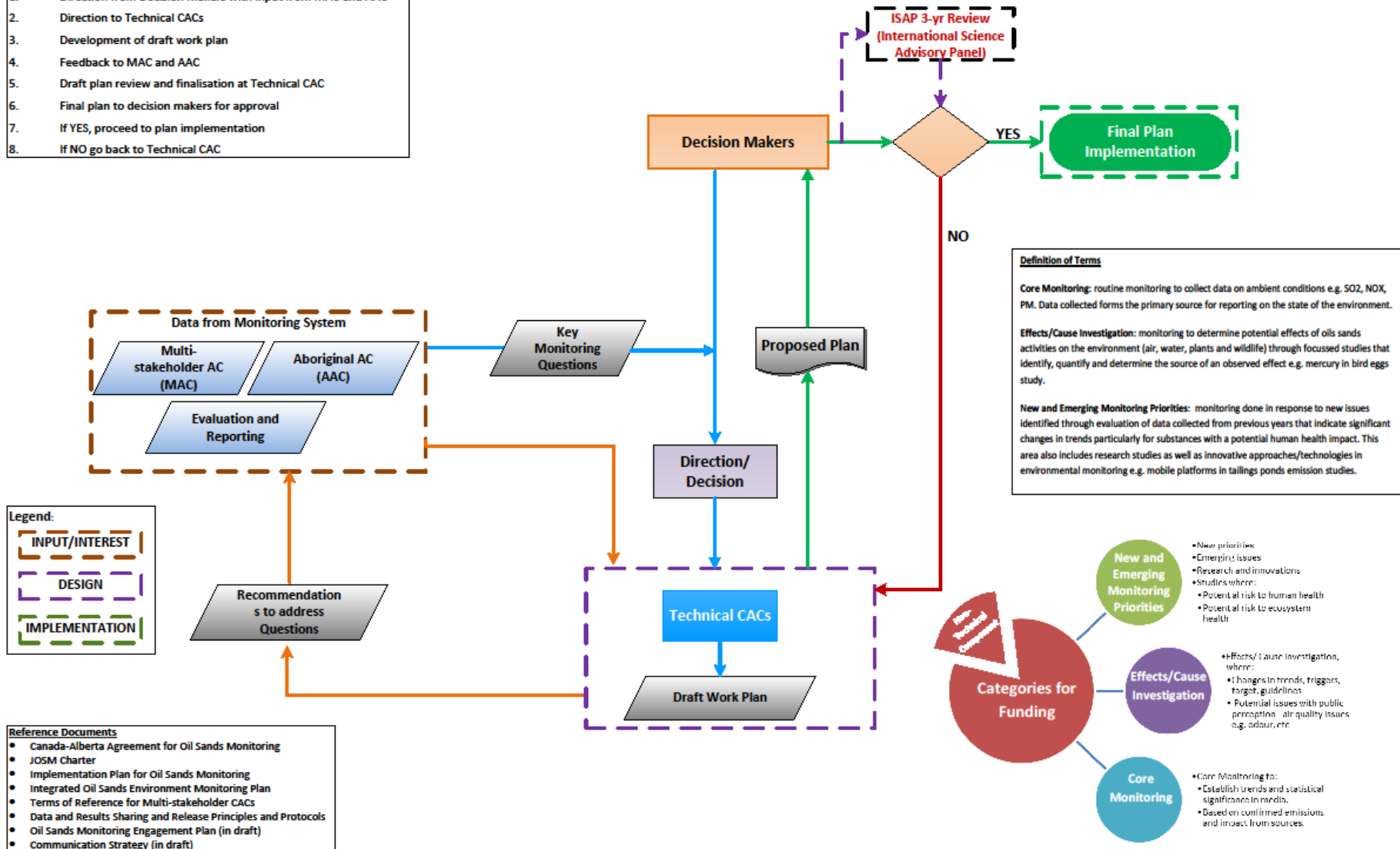
AEMERA: Monitoring Planning

March 2014

Planning Steps:

1. Direction from Decision Makers with input from MAC and AAC
2. Direction to Technical CACs
3. Development of draft work plan
4. Feedback to MAC and AAC
5. Draft plan review and finalisation at Technical CAC
6. Final plan to decision makers for approval
7. If YES, proceed to plan implementation
8. If NO go back to Technical CAC

Monitoring Planning Process Draft



AEMERA: Updates

- **Administration:** The Chair (Lorne Taylor) and the Vice-Chair (Gregory Taylor) were appointed by order in council on March 19, 2014.
- **Proclamation:** Protecting Alberta's Environment Act (formerly Bill 31) is scheduled for April 23, 2014.
- **Staffing :** interim structure to comprise of existing Core Team, the JOSM Project Team, the Monitoring Management Team and select ESRD staff (secondment agreements to be completed by April 23rd)
- **Sound Science:** a Science Advisory Panel of internationally recognized environmental scientists will be convened to review and assess AEMERA's programs for scientific rigour.
- **Focus:** primary active project is the JOSM program that will transition to AEMERA immediately following proclamation.



Questions

