



Freedom To Create. Spirit To Achieve.

Cumulative Effects Management System and SSRP Draft Surface Water Quality Management Framework

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Alberta Environment**

**Agri-Environmental Partnership of Alberta Workshop
November 9, 2010**

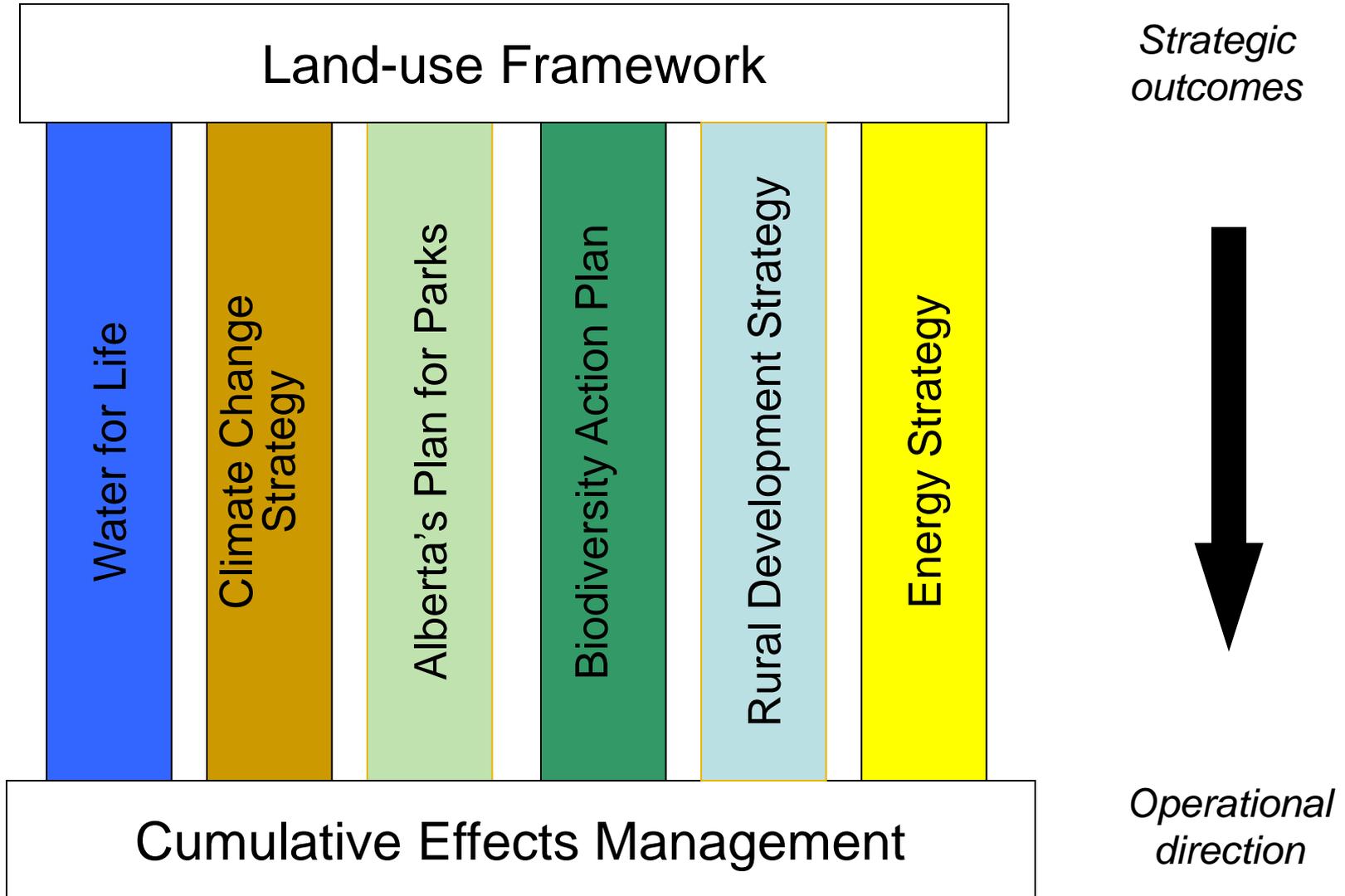
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of Alberta** 

Presentation Overview

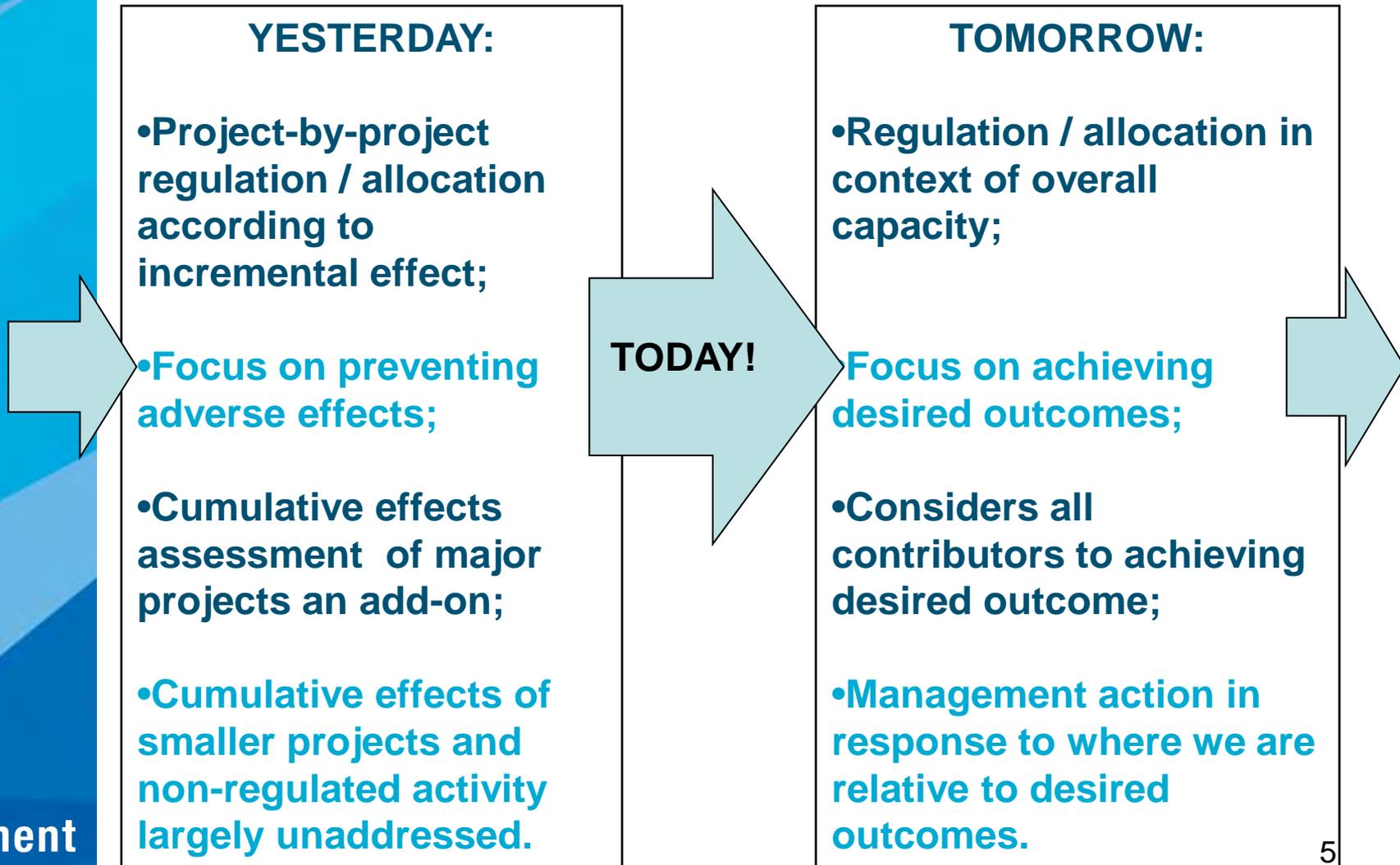
- **CEMS Context and Update**
- **Land-use Framework**
 - **Regional Planning**
 - **Management Frameworks**
- **SSRP Draft Surface Water Quality Management Framework**

Cumulative Effects Management System

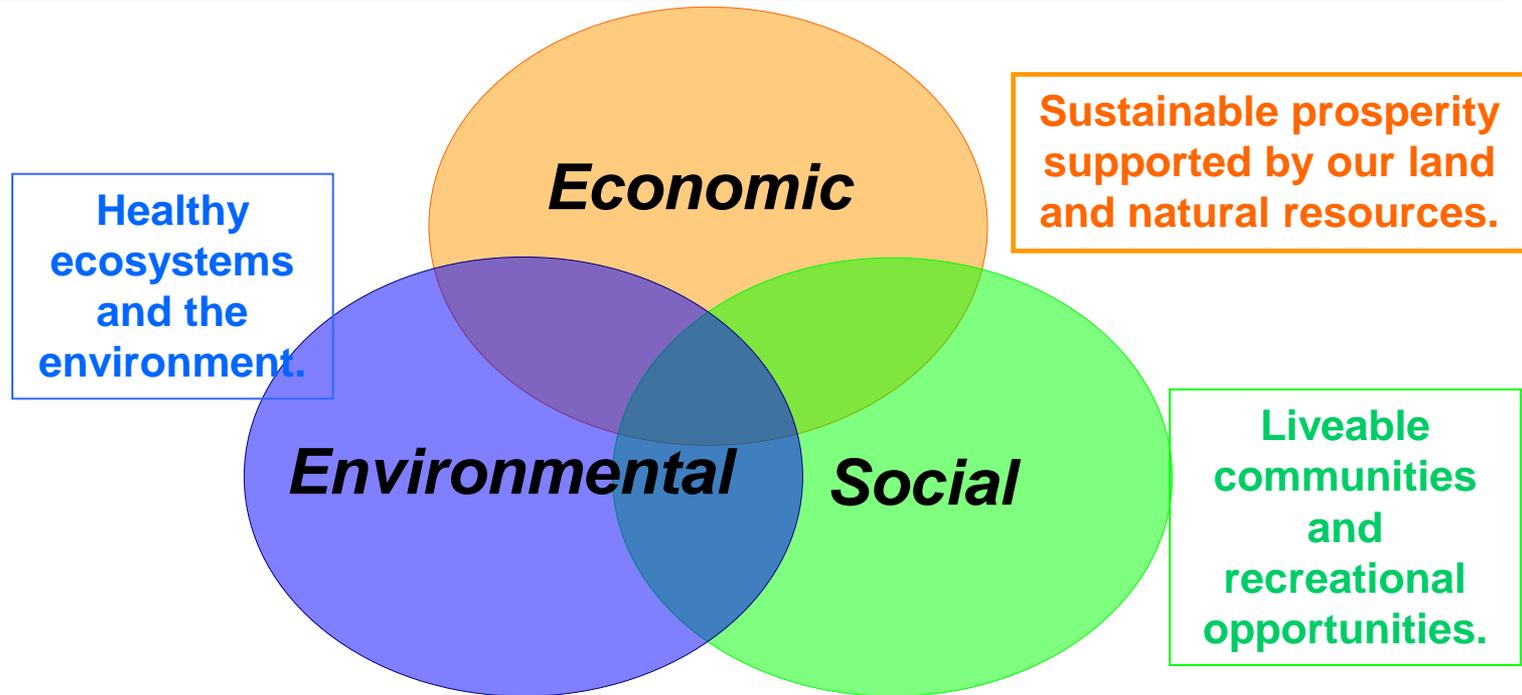
Linkages and Alignment



Shifting to a Cumulative Effects Management System Approach

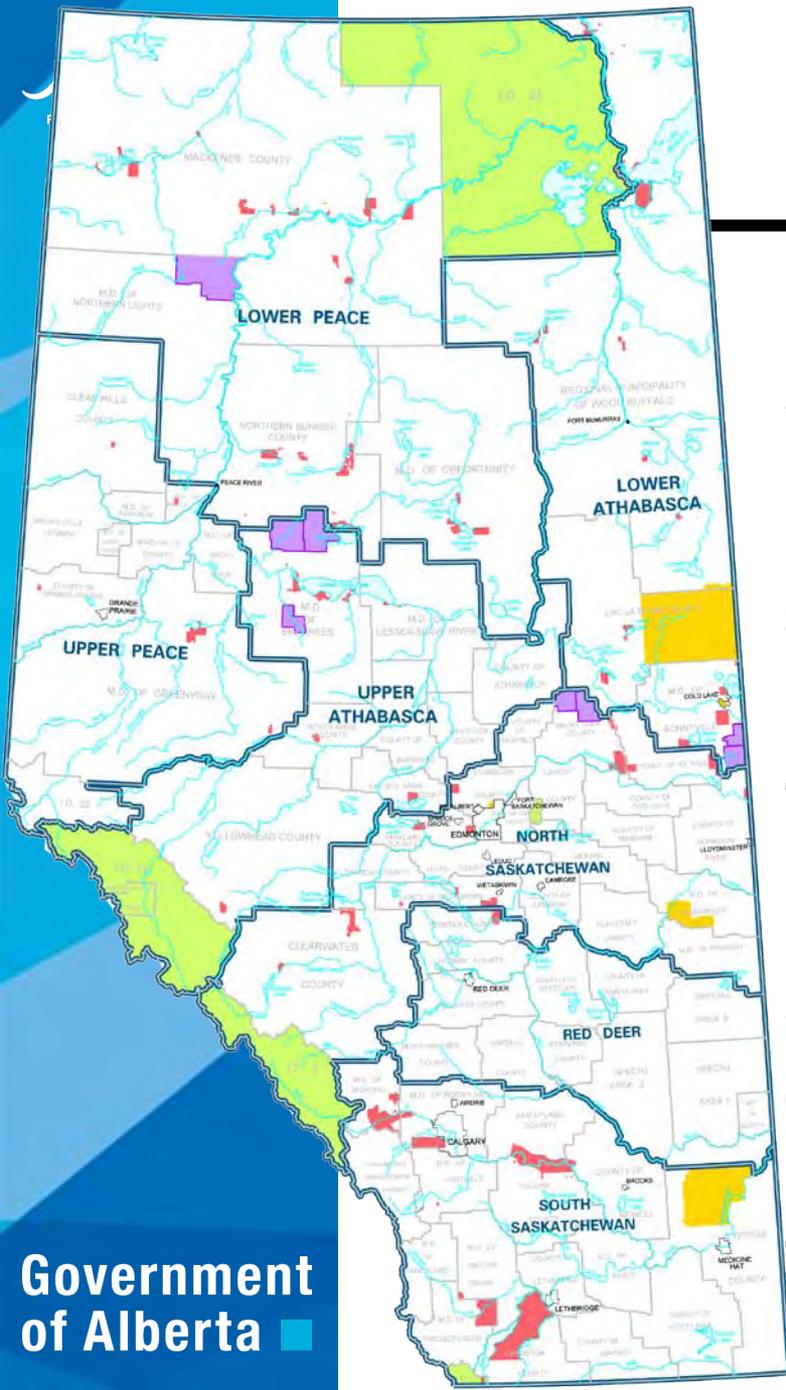


Land-Use Framework



- Balances social, economic, environmental considerations
- Provides provincial leadership for sustainable development
- Heightens integration and coordination of provincial policy
- Encourages stewardship and conservation
- Offers increased certainty

LUF Strategies

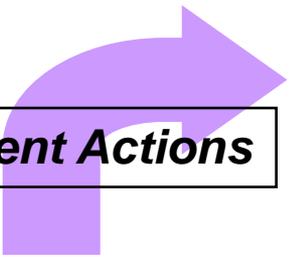


1. **Seven new land-use regions**
2. **Land-use Secretariat and Regional Advisory councils for each region**
3. **Cumulative effects management at the regional level**
4. **Strategy for conservation and stewardship on private and public lands**
5. **Efficient use of land**
6. **An information, monitoring and knowledge system**
7. **Inclusion of Aboriginal peoples in land-use planning**

A new cumulative effects management system

- outcomes/results-based
- risk-based, focusing greater resources and efforts on higher-risk environmental impacts
- considers health, economics and social values
- implemented /delivered using a place-based approach and a broader set of tools
- collaborative, involving many parties and sectors
- adaptive, with mechanisms built in to allow flexibility and assure achievement of outcomes

Cumulative Effects Management System



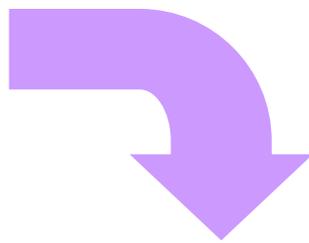
Management Actions

STRATEGIC DIRECTION

- Legislation
- GoA and Ministry Business Plans
- Provincial Level Strategic Policies

EVALUATE & REPORT PERFORMANCE

- Environmental Indicators and their implications
- Effectiveness of Strategies and their delivery

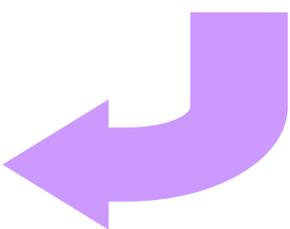
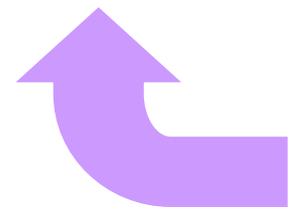


DEVELOP & REFINE OUTCOMES & STRATEGIES

- Regional Strategic Assessment
- Place-Based Planning
- Indicator Selection
- Operational Policy/ Strategy
- Management Frameworks

DELIVERY

- Tools: EIAs, Authorizations, Compliance Assurance, Non-Regulatory
- Monitoring, Data Management
- Emergency Services



CEMS Fundamentals: Outcomes Based; Place Based; Performance Management Based; Collaborative; Comprehensive Implementation.

Alberta Environment's Focus

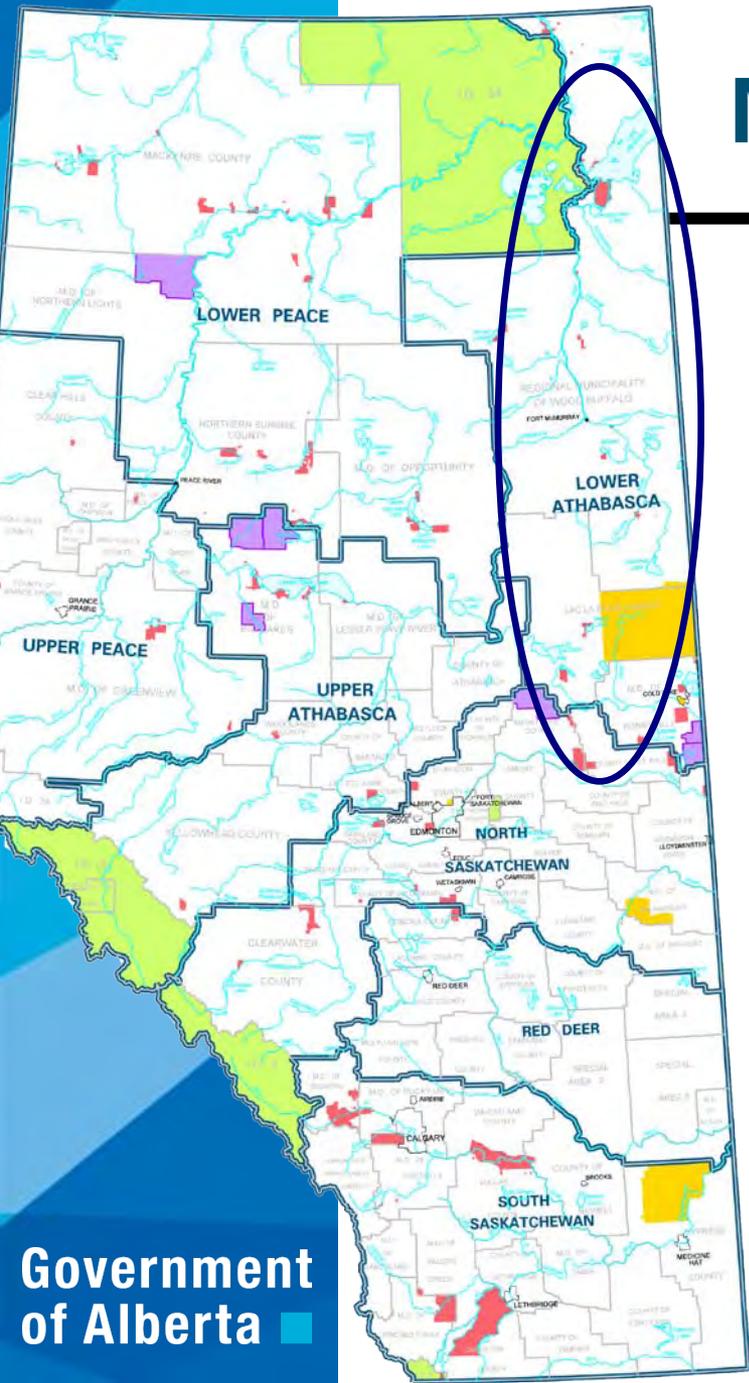
- **Regional Plans**
- **Knowledge and Performance Management Program**
- **Delivery Program**
 - **Regulatory & Non-Regulatory**
- **Enabling Tools**
 - **Management Frameworks**

Land Use Framework: Regional Plans and Management Frameworks

Lower Athabasca Regional Plan

- Regional Advisory Council established – December 2008
- Public Consultation re awareness of regional planning (Phase 1) – May to June 2009
- Profile of the Region & Terms of Reference – July 2009 
 - Bitumen extraction scenarios
 - Boreal forest conservation
 - Air, surface water and groundwater management:
 - Recreation and tourism opportunities
- Regional Advisory Council Recommendations - March 2010
- Public Consultation on RAC Vision Document consultation (Phase 2) – August to October 2010
- Drafting of regional plan
- Public Consultation on Draft Plan (Phase 3)
- Final Plan

Management Frameworks



Lower Athabasca Regional Plan:

- air quality management framework, NO₂ and SO₂
- water quality management framework for Lower Athabasca River
- groundwater management frameworks for Athabasca, South Athabasca and Cold Lake areas
- Water Management Framework: IFN Water Management System for the Lower Athabasca River
- Cold Lake-Beaver River Water Management Plan

South Saskatchewan Regional Plan

- Regional Advisory Council established – May 2009
- Profile of the Region & Terms of Reference – November 2009



Two key drivers of change:

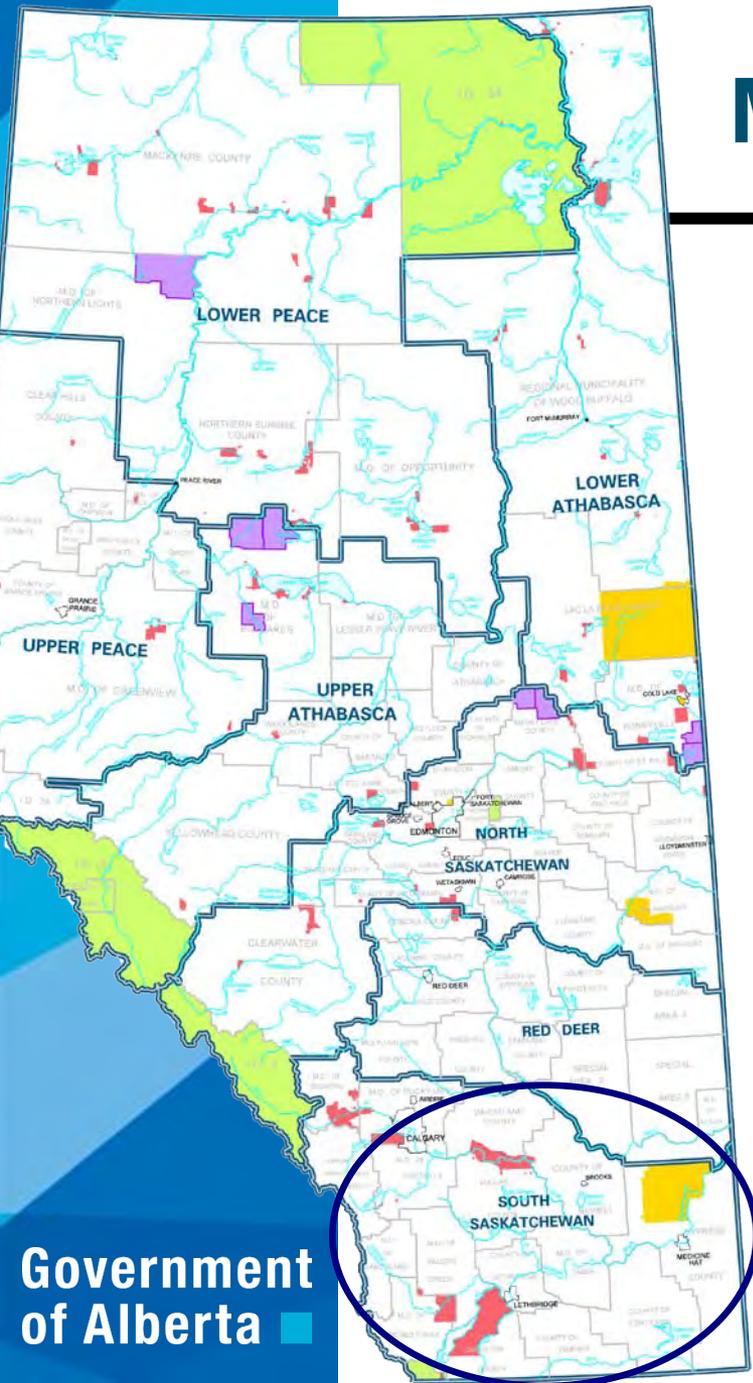
- water supply and demand
- population growth

Key economic sectors:

- Agriculture, Energy, Forestry, Tourism and Recreation

- Public Consultation re awareness of regional planning (Phase 1) – November and December 2009
- Regional Advisory Council completion of recommendations
- Public Consultation on RAC Vision Document (Phase 2)
- Drafting of regional plan
- Public Consultation on Draft Plan (Phase 3)
- Final Plan

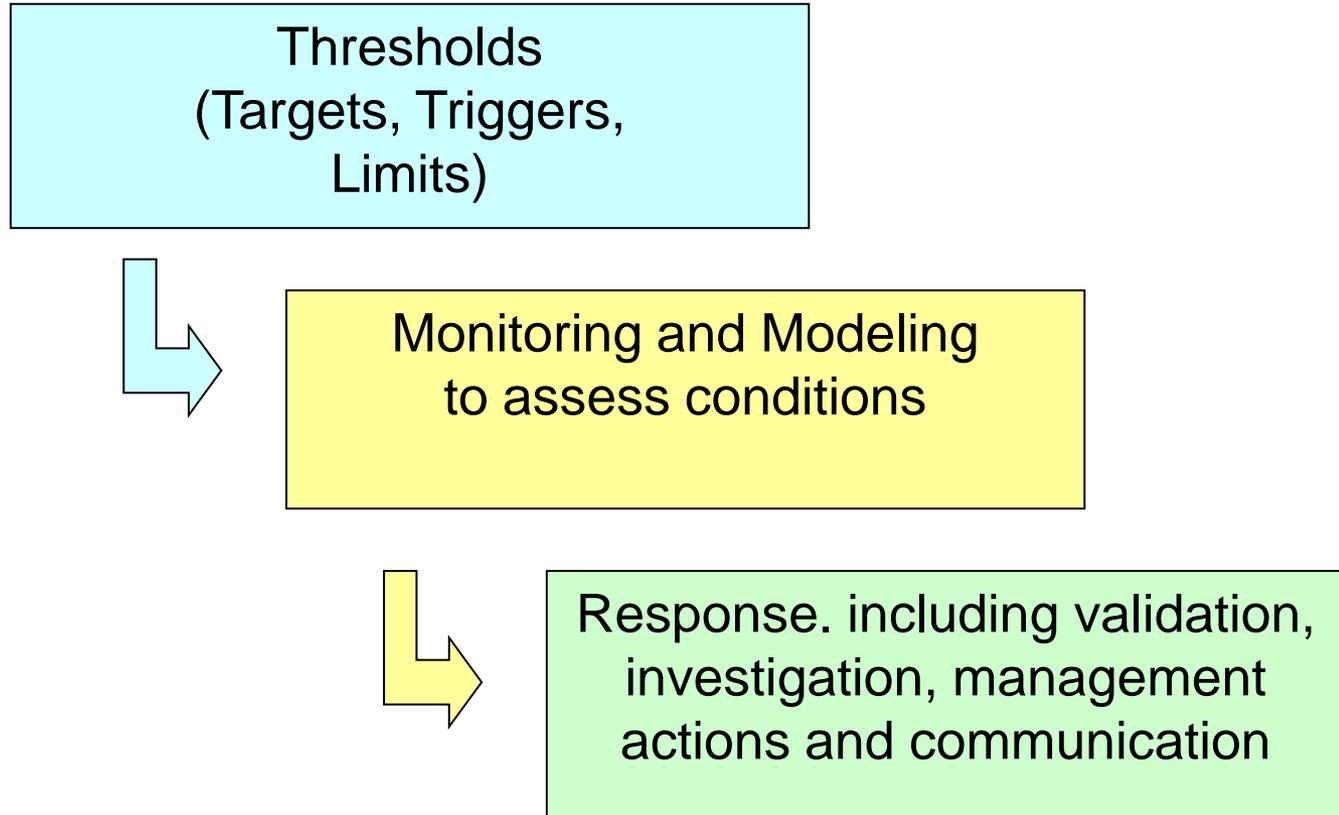
Management Frameworks



South Saskatchewan Regional Plan:

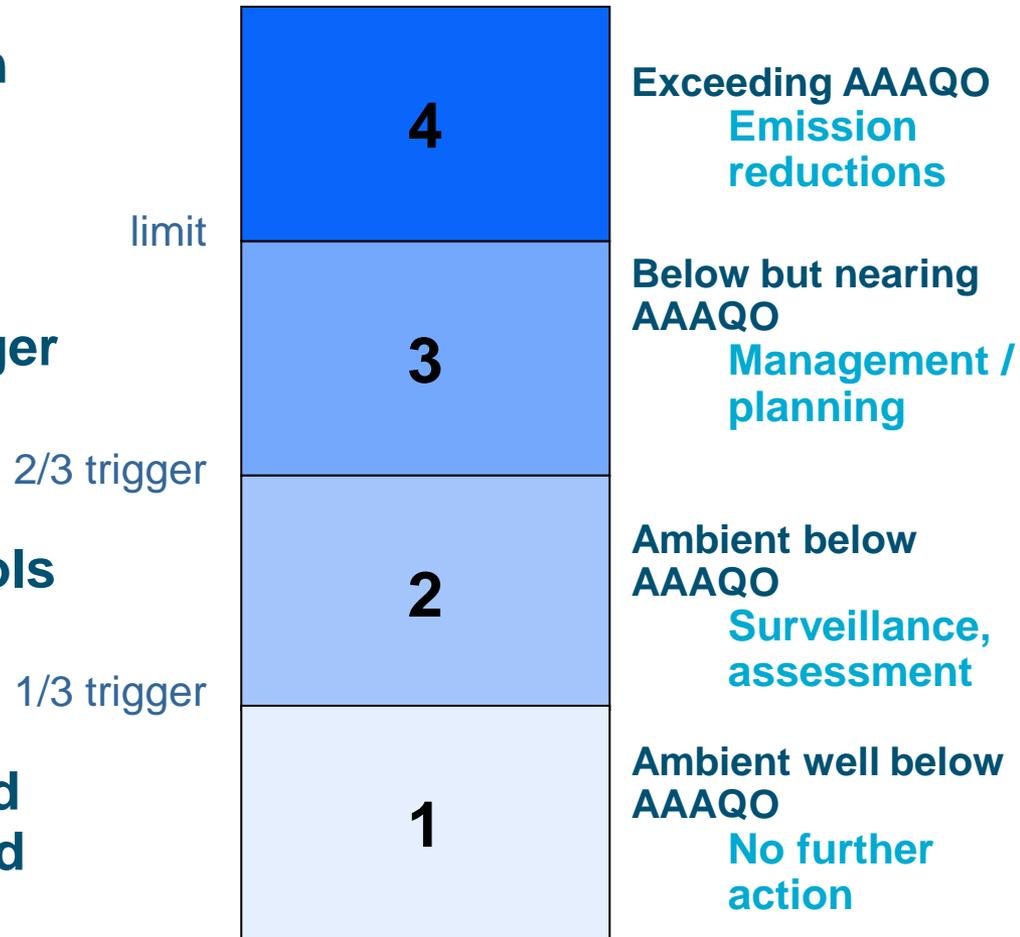
- surface water quality management framework for mainstems of Bow, Milk, Old Man and South Saskatchewan Rivers
- groundwater management framework (note timeframe)
- transboundary agreements
- Bow, Oldman and South Saskatchewan River Basins Allocation Orders
- Water Conservation Objectives: Bow, Oldman, South Saskatchewan and Red Deer Sub-basins
- Water Management Plans for the South Saskatchewan Basin and Upper Highwood and Upper Little Bow Rivers
- particulate matter and ozone management¹⁵ plan for the Calgary area

Management Framework Components



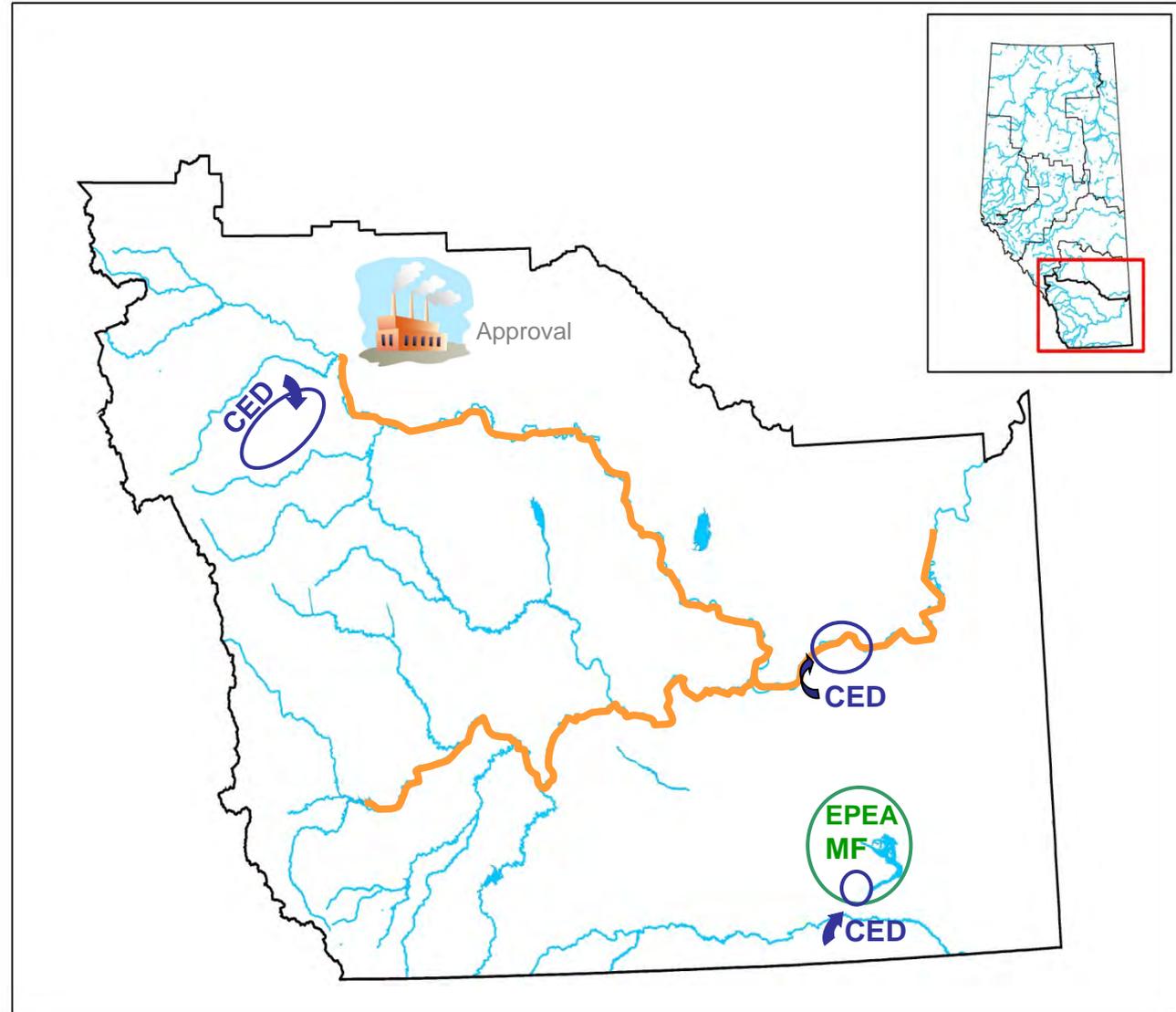
Management Frameworks

- Collaborative approach to establish desired outcomes and objectives
- Progressive action based on conditions found in the environment; trigger points
- Identified integrated management actions at trigger points
- Full range of information, incentive, and regulatory tools for implementation
- Intensity of management actions increases to respond to the state of conditions and levels of risk



Cumulative Effects “Tools” (Conceptual)

- A Management Framework (MF) may form part of a regional plan.
- EPEA MF may be done by AENV outside of, but aligned with, a regional plan
- Proposed Cumulative Effects Directives (CED) may be done outside of a regional plan, but may be a useful tool to achieve collective action within an EPEA MF or to achieve AENV’s obligations under a regional plan.



SSRP

Draft Surface Water Quality Management Framework

Starting Points

- **SSRP Terms of Reference – pg 24**
 - “Alberta Environment ... developing a comprehensive water quality management framework for all of the mainstem rivers in the region.”
 - mainstem rivers = Bow, Milk, Oldman and South Sask.
 - To be developed with input of regional stakeholders including WPAC’s.
 - To include current state of knowledge of water quality in the mainstem rivers and identify appropriate triggers and thresholds.

Proposed Management Framework

- **Management Framework to describe:**
 - **Outcomes and Objectives**
 - **Performance Management System**
 - **Limits and trigger levels**
 - **Monitoring, Evaluation and Reporting**
 - **Description of Management Strategies and Actions**

Draft Management Framework for SSRP Rivers

Surface Water Quality Management Framework considered for development of South Saskatchewan Regional Plan

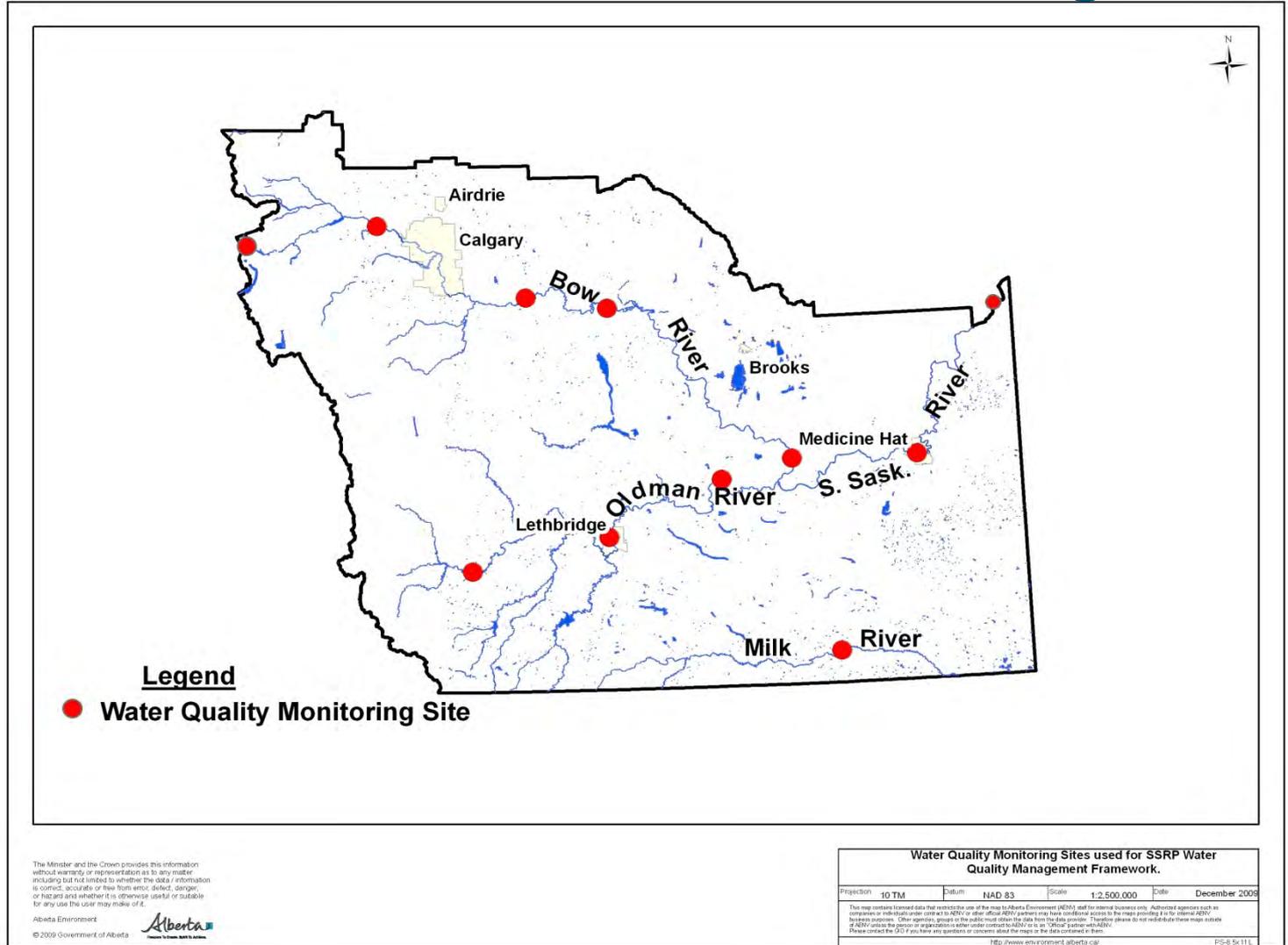
Outcomes:

- Surface water quality in water bodies in the SSRP is maintained to support healthy aquatic ecosystems and meet the needs of human water users.
- Consistent with *Master Agreement on Apportionment*

Objectives:

- Keep ‘Clean areas clean’
- Maintain or improve reaches where water quality not supporting outcomes now.

SSRP WQMF Rivers and Monitoring Sites



Existing Conditions

- **Chronic point sources are from municipal treated waste water effluent.**
- **River water quality poorer in wet years**
 - **Non-point source runoff (includes urban storm water)**
 - **Principally nutrients, bacteria and sediment loading**
- **Development on alluvial aquifers**
- **Poor condition riparian areas**
 - **Loss of function and ecosystem services (filtering, erosion control)**
- **Decreasing river flows could exacerbate water quality problems**

Water Quality Variables in Draft

Variables Included:

Dissolved oxygen;

Nutrients:TP, DP, nitrate-nitrite, TN, TKN, ammonia;

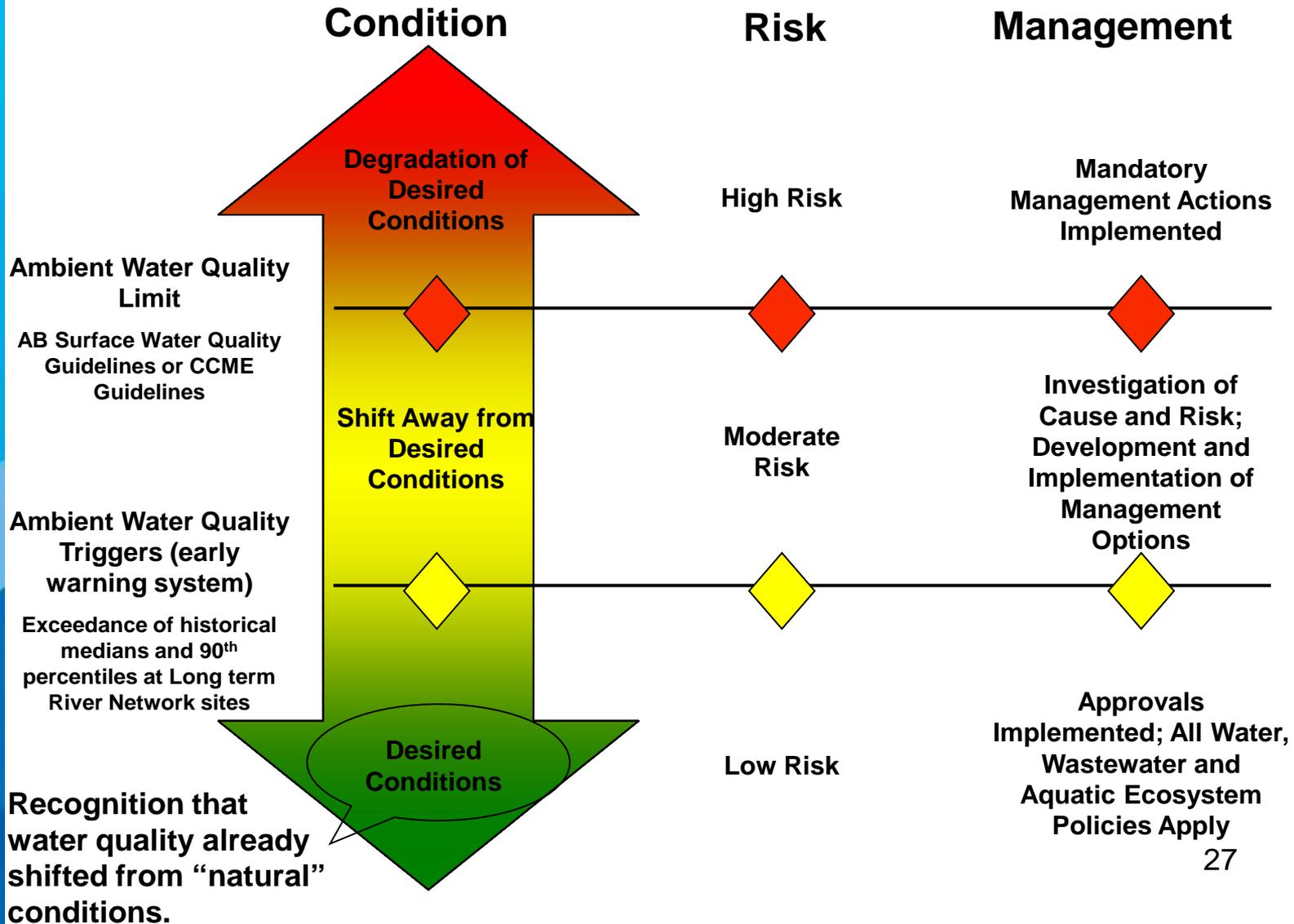
Ions (chloride, calcium, fluoride, sulphate);

TDS, conductivity, TSS, turbidity;

pH, sodium adsorption ratio, total organic carbon;

bacteria (total and fecal coliforms, *E.Coli*);

Draft Management Framework for Water Quality (Conceptual)



Application of Management Framework (Conceptual)

Potential Management Actions/Strategies

- **Green zone/Yellow trigger**
 - Modelling and additional monitoring to quantify risk
 - Development of management options
 - Prioritize future facility upgrades
 - Improvements directed at NPS
- **Red Limit**
 - Loading reduction plans and annual loading limits
 - Other mandatory actions for regulated community
 - Increased effort directed at non-regulated problem areas

Where We Are At/Next Steps

Completed:

- Prepared a draft framework document
- Tested with SSRP RAC
- Tested with southern WPAC's

Future:

- Engage more stakeholders on draft(early 2011)
- Revise draft framework
- LUS consultation on draft Regional Plan

Alberta

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Questions/Comments

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of Alberta