Private-Public Partnership for Water and Watershed Management

World Economic Forum Water Initiative

Alcan: committed to the sustainable management of water

International Freshwater Forum
Jürg Gerber
VP Environment Alcan Europe
Structure

- Alcan and World Economic Forum
- Alcan’s presence, principles and sustainability commitment
- Dimensions of water and energy at Alcan
- Best practice and case studies
- Key lessons learned
- Aluminium life cycle - basis for sustainability
WEF Water Initiative: Alcan contribution

Alcan’s CEO Travis Engen as chair of the World Economic Forum’s Water Initiative is a firm believer in the vital role public-private partnerships have to play in the maintenance of our watersheds, and in the need to establish and promote best practices in water and watershed management.

The three key objectives of the World Economic Forum Water Initiative:

- Create private-public partnerships to improve watershed management and use of water in business production cycle

- Help structure and balance costs and benefits associated with paying for environmental services

- Establish and promote best practices in watershed management and environmental services payment

Alcan is willing to share lessons learnt and resulting best practices, to describe our efforts to address our water related issues and our contributions to improve water quality and freshwater ecosystems.
Alcan’s Presence

Alcan:
- global leader in aluminium, packaging and recycling
- 2002 revenues: US $ 12.5 billion
- 54,000 employees
- active in 42 countries

- Bauxite, Alumina and Specialty Chemicals
- Primary Metal
- Rolled Products Europe
- Rolled Products Americas and Asia
- Engineered Products
- Packaging
- Corporate/Other Offices
Our Guiding Principle

- Guiding principle: Maximizing Value (2001)
- Broadened our concept of value: environmental, social and economic
- Maximizing Value and sustainability intrinsically linked
- Intensified and accelerated focus on sustainability over last decade

While water is not our core business, without it, we would have no business
Our Sustainability Commitment

“Sustainability is one of the most pressing and complex issues facing contemporary businesses and societies around the world. At Alcan, we realize sustainability is a continuing journey, requiring unwavering commitment, effort and focus. And just as we demand excellence in meeting our production objectives, we will accept nothing less in our journey towards corporate sustainability.”

Travis Engen
President and Chief Executive Officer
Alcan Inc.

Alcan’s Sustainability model:
As we make progress, emphasis shifts from protecting value, as characterized in the type of activities and initiatives represented in the lower part of the triangle, to activities and initiatives that increasingly create value, as represented by a progression from the bottom to the top of the framework, culminating in a sustainable value-based company.

An important element of this concept is Alcan’s Environment, Health and Safety Policy
Our Evolving Sustainability Framework
Aluminium life cycle - basis for sustainability

BAUXITE EXTRACTION

ALUMINA REFINING

PRIMARY SMELTING

INGOT CASTING

FABRICATION (Sheet, extrusions, castings)

REMMETING

SORTING

SHREDDING

VEHICLE SERVICE

VEHICLE ASSEMBLY

PARTS MANUFACTURE
Dimensions of Water at Alcan

- **Input:**
  - Generate hydropower for smelters
  - Various industrial processes (cooling systems, metal treatment,…)
  - Marine transportation

- **Output:**
  - Water level, flow, allocation, reservoir and shoreline issues
  - Potential industrial releases to surface and groundwater environments
Environment, Health and Safety
EHS FIRST Overview

- Global EHS Management System with key requirements, roles and responsibilities
- Incorporates best practices, ISO 14001 and OHSAS 18001
- Critical component of our commitment to corporate sustainability
- Helps safeguard our license to operate and grow
- Provides one of cornerstones of value-based company
- Reinforces stakeholder relations
- Delivers tools for prevention, which is highest value alternative
- Enables continual EHS improvement and value maximization

Two specific *EHS FIRST* programs serve to highlight our growing emphasis on the sustainable management of water:

**Resource Management Program and**

**Environmental Release Management Program**

These programs require every Alcan site to maintain an inventory of all resources and all process inputs and outputs, including potential environmental releases. Under these programs, all sites must set objectives and targets for minimizing resource use and for preventing or reducing process releases.
Alcan Total Process Water Use 2002

Total Process Water Use:
156.3 Mio m³
(excl water for power generation processes)

Alcan minimizes fresh water use by using sea water as a source (mainly cooling water) whenever appropriate.
Alcan Total Energy Sources 2001/02

2002 Total Alcan Energy Sources
295.1 Mio GJ (82.04 Billion kWh)

- Two-thirds of Alcan’s electricity is sourced from hydro power
- 62% of Alcan’s primary smelting capacity is powered by its own electricity sources

Chart includes all energy sources (fuel and electricity) and efficiency losses at electricity generation sites.

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Example: Alcan Aluminium Smelters

2002 Electricity Consumption for Primary Metal production

114.9 Mio GJ (31.93 Billion kWh)

- Alcan operates 16 aluminium smelters in 7 countries with a total capacity of 2.4 Mt per year
- Half of the production is used in own fabricating facilities
- Products: sheet ingot, extrusion billet, wire bar, rod, foundry and remelt ingot

77% of Hydropower for Primary Metal production is owned by Alcan
Embracing Best Practices

• Development and adoption of best practices allows us to:
  
  • Improve our watershed management
  
  • Increase industrial process efficiency
  
  • Reduce and, in some cases, eliminate water consumption
  
  • Reduce wastewater and improve wastewater treatment
  
  • Correct previous mistakes through remedial initiatives
Evolution of our Watershed Management Practices

- Legalistic, contract-based approach ⇒ Manage-by-relationship approach

- Virtually non-existent dialogue ⇒ Multi-stakeholder dialogue and engagement

- Little knowledge of impact ⇒ Life-cycle analysis:
  - Conduct thorough industrial input/output/impact audits
  - Set objective and targets
  - Implement environmental programs to address issues

- Limited R&D ⇒ Innovations in R&D
Case Study:
Nechako Watershed (British Columbia, Canada)…

> Nechako Watershed: Vast river and lake system draining 14,000 square kilometres of north central B.C.

> Kitimat-Kemano Project (began late 1940s): Hydroelectric infrastructure, reservoir, generating facility, aluminum smelter = US$3.7 billion (today’s dollars)

> Although long-term water rights secure and intact, limited dialogue with stakeholders (First Nation groups, communities, environmental groups) resulted in social and legal challenges
Case Study:
Nechako Watershed (British Columbia, Canada)…


- Credible, open and transparent multi-stakeholder forum for constructive debate and consultation

- Ability to discuss tough issues

- Reach consensus

- Develop and implement mutually acceptable and beneficial solutions for improving watershed management

- Stronger stakeholder relationships and goodwill
Case Study: Brazil Water Crisis

- Serious water shortage due to extensive drought conditions in many areas

- Some environmental lobby groups targeted aluminum companies operating in Brazil

- Shift from “distant, cold, paternal relations” ⇒ Mutual respect, openness and honesty

- Broad dialogue and stakeholder engagement
  - ↑ understanding of and response to stakeholder concerns resulted in ↓ conflict on many issues

- Education on aluminum recycling helped foster goodwill, secure our license to operate, and safeguard access to hydropower
Case Study: Gove (Australia)...

- Alcan Gove Harbour facilities in Australia
- Alcan operates bauxite mine and alumina refinery on Gove Peninsula in Australia’s Northern Territory
- Currently import over 500,000 tonnes of heavy fuel oil and 25,000 tonnes of light fuels annually for use at mine and refinery
Case Study: Gove (Australia)

- Subscribing member of the Australian Marine Oil Spill Centre (AMOSC)
- AMOSC members train and share equipment for emergency preparedness and oil spill response measures
- 24 Gove employees trained in oil spill response
- Rigorous monitoring of seawater channel
- Implementation of groundwater protection initiatives
Case Study: Singen Basin (Germany)…

> Initially little understanding of interaction between industrial activities and natural habitat
> Now working closely with multiple stakeholders to address various groundwater impacts
Case Study: Singen Basin (Germany)

> Singen Basin Groundwater Protection Zone

> Alcan has numerous preventive and remedial measures to:
  – Reduce freshwater use
  – Prevent groundwater pollution
  – Remedy groundwater pollution
Case Study: Innovative Water Treatment Solution

Photo shows water treatment system in Bangladesh

> In Bangladesh alone, it is estimated that up to 75 million people are at risk of high arsenic levels in drinking water that exceed current World Health Organization guidelines.

> We recently developed innovative activated alumina product that is fast becoming a preferred solution for removing naturally occurring arsenic and fluoride from drinking water.

> Developed simple, low-cost and robust system in cooperation with partners from Bangladesh and India.

> Partnered with several NGOs to test the system’s effectiveness and user-friendliness. Several thousand units are now in use by relief organizations such as UNICEF, the Red Cross, Rotary, World Vision, CARE and the Bangladesh Rural Advancement Committee.

> Thanks to this innovative technology, we are now in a position to help provide safe drinking water to scores of people world while generating business opportunities around the world.

> Also enables us to contribute to United Nations Millennium Development Goals (MDGs) of halving the proportion of people without access to safe drinking water and without sanitation by 2015.
Key Lessons Learned

> No one owns water; it is a shared asset we all need to help manage

> Integrated approach to water resource management that leaves room for all stakeholders at table

> Multi-stakeholder engagement and consensus on freshwater issues

> Systematic management approach to ensure continual improvement

> Support R&D and innovation

> Inclusive and wide-ranging partnerships to develop solutions
Aluminium life cycle - basis for sustainability