Materials Stewardship

Examples of from the Mining & Metals Industry

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- ICMM – Materials Stewardship
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Sustainability trends affecting material suppliers

- Development of **sustainability strategies by key downstream customers** and regulatory authorities;
- The availability of **tools and data** to support evaluation of materials e.g. utilization of life cycle assessment to evaluate environmental performance of materials by leading companies, governments and academics;
- Shift in focus from industrial facilities and processes to **product systems**
- **Competition amongst materials** to demonstrate their environmental “value” and competitive advantages (e.g., aluminium vs. steel, vs. plastics, vs. biopolymers in automotive applications);
- Integration of **systems perspective** into standards and guidelines (e.g., GHG Protocol, labelling and green building certification schemes);
- Proliferation of **GHG emission trading schemes and mandatory reporting requirements**.
- **Carbon footprint analysis** – regulatory and retail drivers
Material Stewardship – Origin

- WCED – UNCED - WSSD
- Global Mining Initiative
- MMSD
- ICMM SD principles
- Canberra MS workshop
- IMM/MSWG
- Consultation Sessions
- Maximizing Value
- ICMM MS Policy
- Roll-out/Application

Sustainable development

⇒ Sustainable production and consumption

⇒ Responsibility/collaboration across life cycle

⇒ Environment links to financial performance

⇒ Stewardship

⇒ Eco-efficiency

Materials stewardship
What is Materials Stewardship?

- **Materials stewardship** means responsibly providing materials and supervising material flows to create maximum societal value and minimum impact on humans and the environment.

- Encompasses both **process stewardship** and **product stewardship**

- 4 Key Themes »»

1. Take a **Systems Perspective**
   - Understanding material flows and life cycle benefits/risks

2. **Build** new and strengthen existing **relationships**
   - Interacting with other players in the value chain

3. **Optimize** the **production** and **application** of minerals & metals
   - Implementing Eco-efficiency

4. **Contribute to** a robust, accessible base of **information** to support decision making
   - Transparent sharing and reporting of data and information
Maximizing Value – MS Guidance

- Maximizing Value was created in 2006 to help ICMM and its members understand materials stewardship and its application. It supports a number of ICMM’s SD Principles in particular:

  # 8 “facilitate and encourage responsible product design, use, re-use and recycling and disposal of our products” and…
  # 5 “seek continual improvement in our health and safety performance”
  # 6 “continually seek ways to improve environmental performance”
Maximizing Value

Theme 1
Taking a Systems Perspective:
Understanding material flows and life cycle benefits and impacts

Theme 2
Building new and strengthening existing relationships:
Interacting with other players in the value chain

Theme 3
Optimizing the production and application of minerals and metals:
Implementing Eco-efficiency

Theme 4
Contributing to a robust, accessible base of information to support decision making:
Transparent sharing and reporting of data and information

Society’s need for minerals and metals
Emissions and wastes throughout the cycle
Process Stewardship
Exploration
Mine site development
Extraction mining
Milling, washing, grading, concentrating

Use and societal benefit
Product innovation and design
Semi-fabrication and fabrication

Disposal
Recycling
Re-manufacture
Re-use

Return to environment

Adapted from: the minerals cycle in Breaking New Ground the Mining Minerals and Sustainable Development Final Report,
Example of activities

Theme 1 – Systems View
• Map your key materials flows, applications and responsibilities.
• Look downstream to understand the social, environmental, health and safety issues and benefits for the key application for your material.
• Look upstream to learn about the firms supplying your operations with material, water, electricity, equipment, transportation and other inputs.

Theme 2 – Relationships
• Consult with co-workers regarding stewardship opportunities
• Invite colleagues from outside your organization to speak about their materials stewardship activities.
• Meet with a product design engineers, material specifiers or purchasing manager from one of your key product or application markets
Drivers and Business Value

Public commitments
ICMM - SD framework

Market Development
- sustainable materials

Cost Savings
- eco-efficiency

Competition and market access
- materials of choice

Reputation
- Maintaining license to operate

Regulatory Compliance
- stay in front of trends
Other Activity

- ICMM Materials stewardship policy
- Eco-efficiency action plan
- MS training/awareness building
- Communicate - link to IPP, Sustainable material management,
- Show action
IZA – Zinc for Life

International Zinc Association

Zinc for Life Program

- Zinc is Natural
- Zinc is Essential
- Zinc is Durable
- Zinc is Sustainable
- Zinc is Vital

Search

The Zinc for Life Project
Zinc & Sustainability
Zinc's Sustainable Attributes
Life Cycle Information
Download
FAQ
Contact

Zinc for Life

“Zinc for Life” is a program of the International Zinc Association, launched in 2006. Its main goal is to position zinc as a material of environmental choice for engineers, architects and other specifiers, by providing sound scientific information about the sustainability performance attributes of zinc products. The two complementary components of Zinc for Life are:

Outreach & Communication
This part of the program analyzes sector-specific requirements in zinc consuming industries and other key stakeholders, and establishes appropriate outreach and communication strategies to address these needs.

Methodology & Data Generation
This part of the program examines the life cycle assessment (LCA) methodology with respect to zinc interests, contributes to the methodology development, and provides scientifically sound cycle data on zinc and zinc products for a variety of uses.

This “Zinc for Life” website will be a vehicle to communicate the progress and outcomes of the program.

Exploring the role of zinc in a sustainable society

www.fivewinds.com
IZA – Zinc for Life

• Purpose
  – Position zinc as a material of choice through information about sustainability performance attributes

• Aims:
  – Balance between protection of current markets & expansion of existing / development of new markets

• 2 complementary parts:
  – Part A: Outreach & Communication
  – Part B: Life Cycle Assessment Methodology & Data generation
IZA – Zinc for Life

Part A: Outreach & Communication
- Stakeholder engagement
- Reporting website: [www.zincforlife.org](http://www.zincforlife.org)

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**A1. Liaison with other Metals & First Users**

**A2. Construction Industry Environmental Assessment Systems**

**A3. Auto Industry Databases & Assessment Systems**

**IZA Communication Strategy**

**A4. Outreach to LCA Practitioners**

**A5. Sustainability & Environmental Communications**

**A6. Zinc for Life Website**
A2: B&C Industry Env. Assessment Systems

**Goals**
- Monitor and contribute to Green Building schemes.
- Position Zn as material of choice with specifier

**Activities**
- Key messages: durability — recyclability — cost-effectiveness (eco-efficiency)
- Opportunities – Asian markets (tropical, marine, corrosive environments), support trend toward steel frame construction
- List of relevant programs ➔ prioritised: CEN, LEED (USA), BRE (UK)
  - Participation: CEN TC350 (EPDs) and TC351 (test methods)
  - Participation: USGBC, LEED Working Group B on «LCA-into-LEED»
  - Position zinc products: entries in BRE Green Guide
- Interviews: members, first-tier users
- Publications: Product case studies
Part B: Methodology & Data Generation

B1. Methodology – Recycling Allocation
B2. Methodology – Aquatic Toxicity
B3. Data – Primary Zinc
B4. Data – First uses
B5. Data – End uses
B6. Data – Product performance
B6: Data – Product Performance

• **Goals**
  – Use Environmental Product Declarations (EPD) for LCI/LCA communication in applications where
    • marketing efforts can be strengthened and/or
    • opportunities/need for action due to regulation/standardization
  – Develop consistent, informative *Zinc for Life* external communication

• **Activities**
  – Priorities & template for Fact-sheet/EPD
  – Consult Environment Committee
  – Prepare Fact-sheets on key issues:
    • Recycling
    • Aquatic Eco-toxicity
    • LCA Gutters
  – Prepare IZA EPD program
Conclusion

• **Materials Stewardship** – key to implementation concepts:
  – Shared responsibility
  – Stewardship
  – Eco-efficiency
  – System perspective

• **Success factors:**
  – Development of cooperative partnerships
  – Sharing of environmental performance & risk information
  – Developing a greater understanding of how minerals & metals can support sustainable production & consumption
Living Our Values

Five Winds follows a Sustainable Purchasing Policy and offsets the climate impact of all our business travel, office energy use and computer use.

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