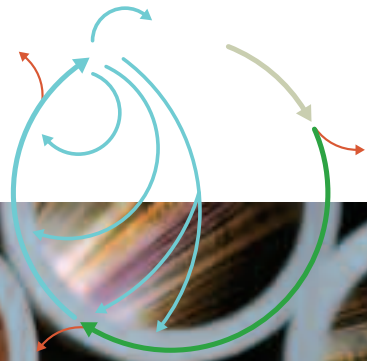


This leaflet has been produced as a supplement to the ICMM publication entitled “**Maximizing Value: Guidance on implementing materials stewardship in the minerals and metals value chain**”. It provides a summary of the detailed guidance document and is intended to familiarize the reader with the concept of materials stewardship and the associated business value that it can create.

Maximizing Value

Guidance on implementing materials stewardship in the minerals and metals value chain



Introduction

Demand for metals may have reached unprecedented levels of late but if the mining and metals sector is to contribute successfully to sustainable development we must adopt principles and practices which address the entire life cycle of the materials we produce. Progress must be founded on a sense of shared responsibility for the resources we utilize and the materials we create. It is this integrated approach which lies at the heart of materials stewardship.

Maximizing Value is a key element in ICMM's sustainable development agenda. It provides guidance to assist members in understanding and implementing effective materials stewardship strategies while creating additional business value through identifying new opportunities in an increasingly competitive global market place.

ICMM's Principles and Vision

The ICMM Sustainable Development Framework represents an ambitious, broad and complex challenge for the industry. A key component of this challenge is to work with other stakeholders in the value chain of minerals and metals to ensure the use of these materials is optimized; the environmental, health and safety risks are minimized; and, wherever possible the 'value' of the material is captured and re-circulated through the economy. *Maximizing Value* supports ICMM members in their commitment to a number of the Principles within the Sustainable Development Framework. It is particularly relevant to Principle 8, to "facilitate and encourage responsible product design, use, re-use recycling and disposal"; Principle 6, to "continually seek ways to improve our environmental performance," and Principle 5, to "seek continual improvement of our health and safety performance."

The guidance document outlines a range of activities that can be undertaken to ensure the minerals and metals industry works in conjunction with other actors in the value chain to achieve optimal and appropriate use of metals in society. This means responsibly providing materials and working to ensure that material flows create maximum societal value and minimum impact on humans and the environment.

In practice, materials stewardship is about:

- **Understanding** the social, environmental and economic impacts of your material as it moves through its life cycle from mining to use and through to the end of its life.
- **Developing relationships** with other actors along the life cycle who can promote beneficial and appropriate use of your material or who can minimize risks to human health and the environment.
- **Taking action** on appropriate stewardship activities for the part of the

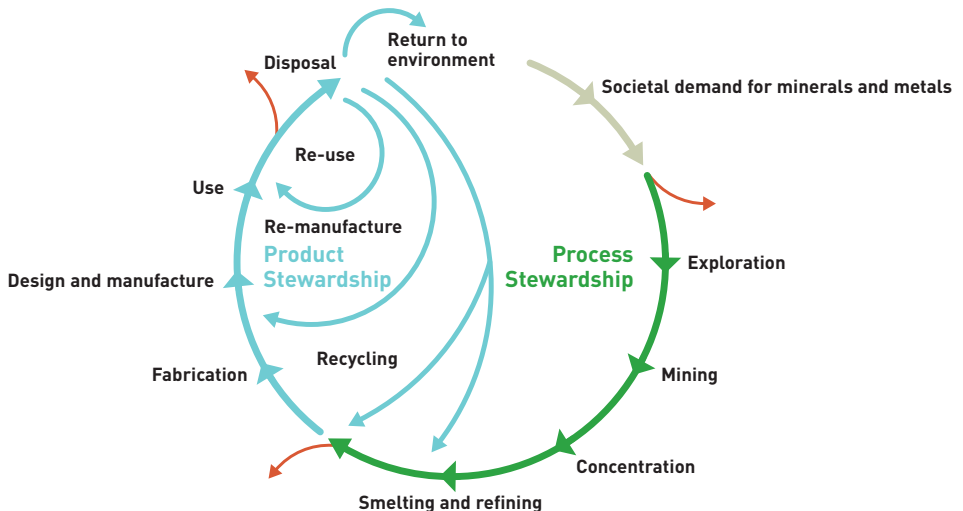
life cycle you directly control. And for the areas where you are not in direct control, but have influence, you work with and encourage other actors in the life cycle to play their part.

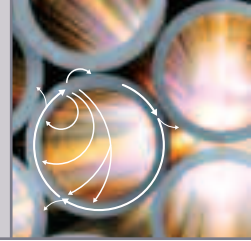
In reality, our capacity to act as stewards of the materials we produce changes between those parts of the materials life cycle over which we have direct control and those parts which we cannot manage directly. In those parts of the materials life cycle where we do not have direct control our stewardship may be exercised through partnerships, provision of information and other routes of influence and support. These two aspects of materials stewardship capacity can be referred to as *process stewardship* (direct control) and *product stewardship* (influence and support). At the business level, the capacity or requirement for process and product stewardship within a particular material cycle will differ between companies dependent on

the nature of their business. For example, a company that mines and refines bauxite, casts aluminium ingots, rolls cansheet and produces drink cans, will have a broader role in process stewardship than a company which only produces aluminium ingots. Beyond its particular scope of process stewardship, a company seeking to fully adopt a materials stewardship policy will be engaged in product stewardship with respect to the fabrication, use and ultimate recycling of aluminium cans.

While the nature and extent of a company's materials stewardship activity will depend on the extent of their business throughout the materials life cycle, there is general agreement that the concept of material stewardship is still evolving and will be shaped by different parties along the mining and metals supply chain. This flexible, life cycle approach goes to the heart of the guidance contained in *Maximizing Value*.

Figure 1: The scope of materials stewardship encompasses process and product stewardship





At the heart of *Maximizing Value* is practical guidance on implementing materials stewardship which is centered on four key themes. While not prescriptive, the themes and associated activities recommended in *Maximizing Value* provide a comprehensive set of actions that will help initiate or expand current materials stewardship programs in an organization. Improving the understanding, awareness and implementation of materials stewardship will help an organization improve its performance by managing risks and creating relationships that may lead to new business and market opportunities.

Theme 1 **Taking a Systems Perspective**

The systems approach is about integrating life cycle thinking into existing management systems and therefore into business decision making. It outlines steps for looking up and downstream along the supply chain – for example focusing on a particular application for the material in order to better understand potential impacts and sustainable benefits. The message for ICMM members is that it pays to participate in this type of initiative.

Theme 2 **Building new and strengthening existing relationships**

The second theme is about building relationships up and down the supply chain. This can encompass a range of stakeholders, from fellow employees to government officials, customers and consumers. The growing number of eco-conscious architects working in the construction industry is put forward as one example. This group will look at such issues as the recycled content of construction materials and their durability as part of selection criteria.

Theme 3 **Optimizing the production and application of minerals and metals**

The third theme of material optimization requires a company to understand the intrinsic value of a material alongside the potential environmental risks throughout its life cycle. The Guidance notes that there are incentives for, improving process and production efficiencies, extending product life, enhancing recycling, and/or improving design innovation regarding materials use at different stages of the value chain.

Theme 4 **Contributing to a robust, accessible base of information to support decision making**

The fourth theme covers life cycle information which can be shared to support collaborations to ensure that all concerned are better informed, better protected and ultimately more able to make their own contribution to the stewardship process. The more information that is made available, the more likely we are to achieve decision making that favours sustainability.

Added Business Value

The benefits of pursuing material stewardship are becoming increasingly clear and as pressure on the sector to perform increases, the business value of undertaking materials stewardship will also rise. *Maximizing Value* does not prescribe activities a company must undertake. Rather the themes and activities outlined can be seen as a 'menu' of possible actions to select from that will help protect and grow the market. For the minerals and metals industry, the business drivers for materials stewardship can include:

Competition and market access

Increasingly, individual sectors including electronics, automotive, heavy manufacturing and building and construction are evaluating the sustainability attributes of materials as part of the product selection process. In the future this evaluation is likely to take into consideration the source of materials and the stewardship policies being employed along the supply chain. The sustainable development agenda is not going to go away and a product that satisfies stakeholders, not to mention regulators in different parts of the world, can be more saleable.

Reputation

A company's reputation is highlighted as another important factor. In fact, in a global economy this can have a significant impact on a company's licence to operate, for example, when it is trying to open a new operation and obtain community, regulatory and financial support. Reputation can be enhanced by the ability of companies and industry sectors to demonstrate a positive approach to an issue like materials stewardship.

Regulatory Compliance

Regulations such as REACH (Registration, Evaluation and Authorisation of Chemicals) and those relating to such developments as producer responsibility, waste and recycling, are another driver for implementing materials stewardship. All these regulations are tending to take a broader view of the materials being evaluated. For example, the EU's REACH directive will incorporate information on downstream use into risk assessment and chemical prioritization – and its rules will have a global impact on the industry.

Cost Savings

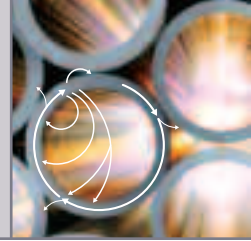
There are a growing number of examples to support the fact that materials stewardship can be an important facet of good governance for a company. It can, for example, help to make resources more productive, increase mine efficiency, contribute to risk management and improve eco-efficiency. The result in each case can be significant cost savings and direct impact on the bottom line.

Market development

Finally, there is little doubt that future markets will favour materials with superior sustainability performance. While countries like India and China continue to drive demand for minerals and metals, there is increasing global pressure to minimize the life cycle impacts of products. The harvesting, extraction, production, use and potential recovery of materials are all factors likely to influence stakeholders, including customers and end consumers.

Maximizing Value provides various examples of companies that are, as a result of effective material stewardship policies, enjoying the business benefits listed here.

Integrating Materials Stewardship



The penultimate section of *Maximizing Value* tackles the challenging issue of how to integrate material stewardship into decision making. As with any new initiative, positioning materials stewardship within an organization's strategy and business objectives is critical to successful implementation. Developing a strategy to move forward may become clearer once priority issues or achievable business opportunities are identified. Possible examples are process efficiency improvements or the impact of emerging material evaluation protocols. Key implementation success factors include involving senior management, identifying clearly the business case, developing inspiring case studies, and training key personnel who can influence materials stewardship performance. It is also important to develop the right decision support tools and monitor progress which, in turn, should be documented and communicated to internal and external audiences.

It is imperative that the minerals and metals industry take action today to demonstrate its understanding and commitment to materials stewardship. However it is equally important to understand and communicate that putting materials stewardship into practice will require the input and cooperation of a range of stakeholders across the value chains of mineral and metals – from the users, product designers and engineers to regulators, the recycling industry and non-governmental organizations. *Maximizing Value* will help stimulate ideas to promote such cooperation. Through the combined and individual efforts of many actors in the value chain of minerals and metals, materials stewardship will continue to grow as an important concept and set of actions for improving the sustainability performance of our materials and our industry.

The International Council on Mining and Metals (ICMM) is a CEO-led organization comprising many of the world's leading mining and metals companies as well as regional, national and commodity associations, all of which are committed to improving their sustainable development performance and to the responsible production of the mineral and metal resources society needs.

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