

associated risks in relation to the production of minerals and metals (exploration, extraction, processing, smelting, and refining, including waste management, decommissioning, and site rehabilitation). Product life-cycle management applies to specific elements, substances, or products and their associated risks based on assessments of all stages in the cycle of manufacturing, use, reuse, recycling, and disposal of that particular element, substance, or product.

Risk Assessment and Risk Management

The application of risk assessment and risk management approaches is inherent in the life-cycle management of minerals and metals. Risk assessment estimates the degree and likelihood of adverse effects resulting from exposure to a substance from a process or product, while risk management is the process of deciding what to do about an assessed risk, taking into account the results of the assessment as well as economic, social, and legal factors.

Safe Use Principle

The safe use principle, an extension of life-cycle management incorporating risk assessment and risk management principles, builds on recognition of the two points pertinent to minerals and metals in the *Toxic Substances Management Policy*:

- naturally occurring substances, such as minerals and metals, cannot be virtually eliminated from the environment; and
- there are instances where certain products containing minerals and metals, or their uses, because of the associated risks, may be candidates for bans, phaseouts, or virtual elimination of releases from specific anthropogenic sources.

The safe use principle recognizes that:

- minerals, metals, and their products can be produced, used, reused, recycled, and returned to the environment in a manner consistent with sustainable development;