

**Sustainable Minerals
Roundtable—An introduction
and summary of progress**

Co-Chairs

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What is Sustainable Development?

Sustainable Development is:

- a concept of needs;
- an idea of limitations;
- a future oriented paradigm; and
- a process of change.

Brundtland definition of Sustainable Development:

*development that meets the needs of the present
without compromising the ability of future
generations to meet their own needs.*

**There are many other
definitions of Sustainable
Development.**

Most of the definitions address
three dimensions of
sustainability:

- **economic prosperity,**
- **environmental health, and**
- **social equity.**

There are many definitions of Sustainable Development because there is disagreement about how to balance the three dimensions.

**Is Sustainable Development
applicable to mineral
resources?**

YES!

**The principles of Sustainable
Development can be applied to
energy and mineral resources.**

**Mineral resources are
extracted because their sale
generates wealth and their use
provides a stream of benefits.**

Mineral resources provide the material basis for a developed society.

However, mineral extraction, processing, use, and disposal can entail environmental and social costs.

Sustainable Development offers a framework within which we can describe our complex, and sometimes conflicting, social, economic, and environmental goals.

The capital-based approach to sustainability acknowledges the existence of complex relations and the need for trade offs.

Types of capital:

- **Natural Capital:** Traditional natural resources, including minerals and natural assets that are not traded in markets.
- **Built Physical Capital:** Physical, produced assets that are assigned monetary value and traded in markets.
- **Human Capital:** The health, well-being, and productive potential of individuals.
- **Social Capital:** The status, functioning, and resilience of social institutions.

A capital-based definition of Sustainable Development:

development that maintains the net amount of natural, built, human, and social capital, and transforms capital so as to yield constant or increasing opportunities for satisfying human needs and wants generation after generation.

**How do we track progress
toward social, economic, and
environmental sustainability?**

**How do we measure human
well-being?**

Through the use of Criteria and Indicators:

- Criteria describe what it means to be sustainable. They serve as the basis for assessment. Achievement is judged through indicators.
- Indicators are variables that describe some aspect of a phenomenon or system.

**The purpose of the Sustainable
Minerals Roundtable is to
develop a set of national scale
sustainability criteria and
indicators for Mineral
Resources.**

Sustainable Minerals Roundtable: History

In June of 1999, the USDA Forest Service invited stakeholders from Federal agencies, Tribes, industry, nongovernmental organizations, and academia to a meeting in Washington, D.C.

Sustainable Minerals Roundtable: History

The purpose of this meeting was to:

- provide background information on sustainability;
- discuss how to extend the Montreal Process Criteria and Indicators to energy and mineral resources; and
- assess interest in forming a Roundtable to share information on energy and minerals sustainability.

Based on feedback from participants at this meeting, the Sustainable Minerals Roundtable was formed and the U.S. Geological Survey joined as a co-sponsor. It is now convened by Dr. Dirk van Zyl of U. Nevada, Reno.

Sustainable Minerals Roundtable: History

Activities to date have included introductions to and reviews of:

- sustainability concepts;
- life cycle and material flow concepts;
- indicator theory;
- scale issues in indicators;
- value basis of sustainability;
- international work on Sustainable Development mineral indicators; and
- mineral industry activity on Sustainable Development.

Sustainable Minerals Roundtable: Vision

We envision a future in which the capacities of mineral/material and energy systems meet the demands of current and later generations, while maintaining or enhancing the environmental, social, and economic systems in the United States and the world.

Sustainable Minerals Roundtable: Mission

The Mission of the Roundtable is to support the Nation's commitment to Sustainable Development. The Roundtable will develop indicators of sustainability, based on social, economic, and environmental factors, to provide a means for assessing the status and trends of minerals/materials and energy systems.

Guiding Principles

- Adopt the Brundtland definition of Sustainable Development.
- Develop indicators that will be applicable nationwide.
- Operate within a framework of criteria.
- Acknowledge and use as appropriate, other existing indicator initiatives.

Guiding Principles - cont.

- Encourage open communication among all participants.
- Use neutral wording.
- Avoid selecting or not selecting measures with the intent of predetermining the results.

**Sustainable Minerals
Roundtable Criteria
(called Domains by the Roundtable)**

I. Maintenance of capacities to produce commodities (Productive Capacity).

II. Conservation and maintenance of air, soil, and water quantity and quality (Environmental Impacts).

III. Maintenance and enhancement of long-term social, economic, and cultural benefits to meet the needs of societies (Socio-Economic).

IV. Legal, institutional, and economic framework to support Sustainable Development (Legal & Institutional).

The list of indicators, background materials, and notes from prior meetings of the Sustainable Minerals Roundtable are posted on the Roundtable website:

www.unr.edu/mines/smr

Current and Future Activities:

- prioritizing the indicator set;
- clarifying the meaning of each indicator;
- populating indicators with data;
- external review of the indicators; and
- communication and outreach.

Coordination with the Rangeland, Forest, and Water Roundtables

- Chairs of all Roundtables meet every 3 to 4 months to share information.
- Common issues are being identified.
- Differences and consistencies are being identified.
- Standardized definitions are being developed where appropriate.

Status

- Draft set of indicators has been completed.
- Federal agencies and other participants are compiling available data.
- Report on process, criteria, and indicators in process.
- Review of indicators to begin.