Training Modules in this Series

- **Technical modules**
  - Tailings Containment
  - Cyanide Management
  - Water Management
  - Managing Sulphidic Mine Waste and Acid Drainage
- **Management modules**
  - Environmental Management Systems
  - Environmental Monitoring and Performance
  - Mine Planning for Environment Protection
  - Environmental Risk Management

Aims of this Module

- To promote understanding of the concept of best practice
- To introduce important environmental ideas
  - Sustainable development
  - Biodiversity
  - Precautionary principle
- To introduce the training kit

What is Best Practice?

- “Best practice” is the best way of doing things.
- BPEM in mining protects the environment and reduces the impacts of mining by following the principles of sustainable development.
- “Best practice” is identified by bench-marking the performance of companies in an industry.

Why strive for best practice?

Best Practice Environmental Management in Mining Booklet Series

- Series of booklets produced by the Australian Government and the Australian mining industry
- Target audience: managers with environmental responsibilities
  - Practical techniques
  - Guidance for managing environmental impacts
- Provide practical advice on understanding and responding to environmental problems

BPEM in Mining Booklets

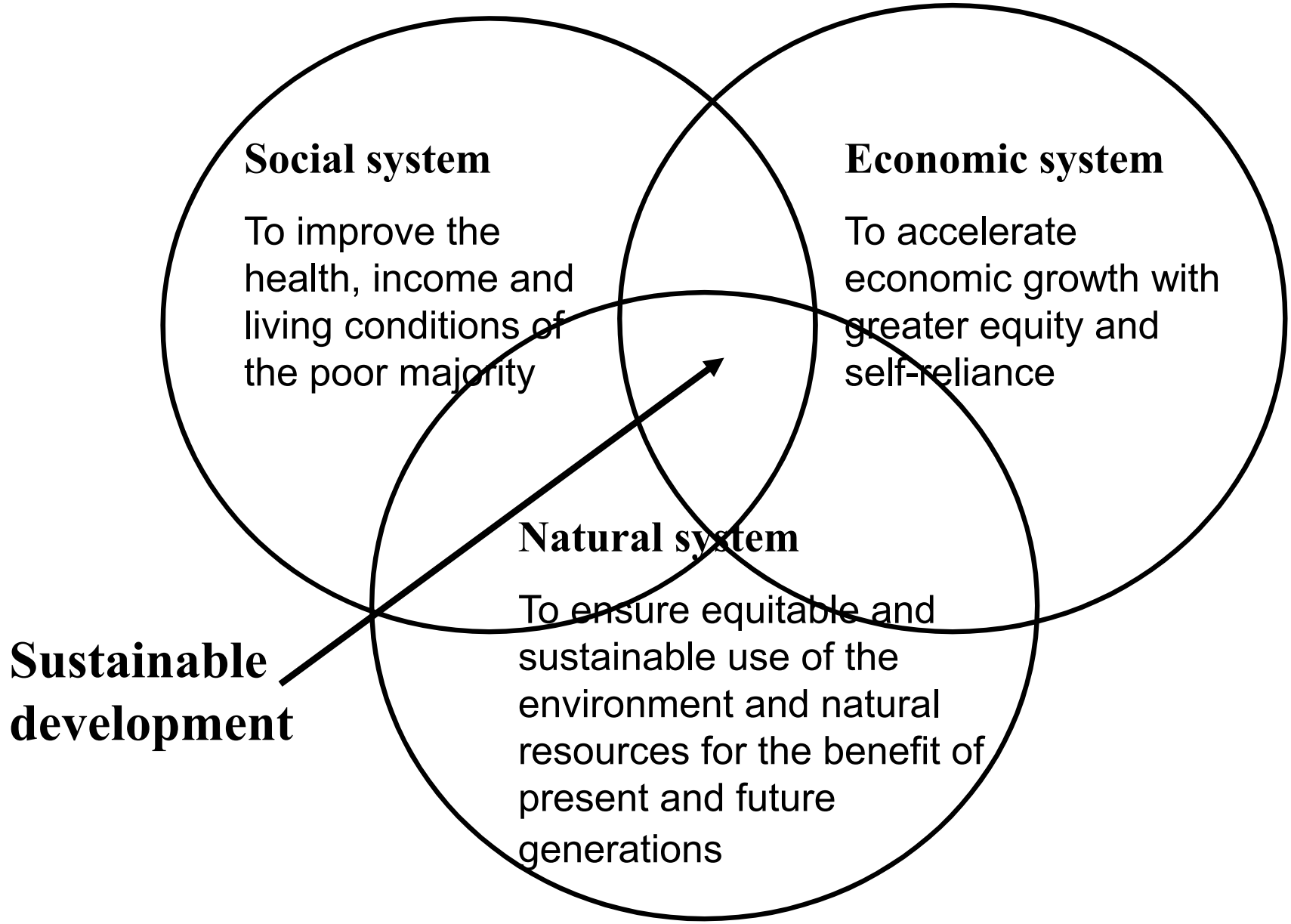
Over 20 booklets covering:

- Management topics
  - Environmental management systems
  - Mine planning
  - Community consultation
  - Environmental auditing
  - Cleaner production
- Technical topics
  - Tailings containment
  - Rehabilitation and revegetation
  - Hazardous materials
  - Noise, vibration and air blast
  - Dust control

What is Sustainable Development?

- Sustainable development was first defined in Brundtland Report:
  - "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."
- Another description says that:
  - The goal of ecologically sustainable development is to achieve development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

What is Sustainable Development?



Objectives of Sustainable Development

- Improve the well-being and welfare of individuals and the community by following a path of economic development that protects the welfare of future generations;
- Ensure equity within this generation and between generations;
- Protect biological diversity;
- Maintain essential ecological processes and life support systems.

Precautionary Approach

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

Principle 15, Rio Declaration

Concepts that Underpin the Precautionary Approach

- Valuing environmental assets
- Involving the community in decision-making
- Developing environmentally sound international competitiveness and an economy that can enhance environment protection
- When setting policies, actions, activities consider short-term and long-term:
  - Economic goals
  - Environmental goals
  - Social goals
  - Equity goals
- Recognising the global dimension of impacts on the environment

How can the Precautionary Approach be Applied to Mining? (1)

- Adopting environmental codes of practice
- Consulting with key stakeholders
- Objective and comprehensive environmental impact and risk assessment studies
- Implementing environmental management systems

How can the Precautionary Approach be Applied to Mining? (2)

- Participating in industry networks for environmental review, education and knowledge-sharing
- Setting targets for environmental protection to the highest level technically achievable
- Constantly reviewing technical developments which could be applied to further reduce impacts or the risk of impacts

What is Biological Diversity (Biodiversity)?

- The different species (types of living things) in an area (species diversity)
  - This includes plants, animals and micro-organisms
- The differences that exist within a species (genetic diversity)
- The different habitats and ecosystems in an area (ecosystem diversity)

Why is Biodiversity Important?

- Healthy ecosystems and ecosystem services
- Providing food, clothing, other raw materials
- Controlling pest plants, animals and diseases
- Resource for natural compounds
- Beauty, tranquillity, ethical values

Impacts of Mining on the Environment

- Wind and water erosion
- Contamination of surface water or ground water
- Changes to flow rate of surface or ground water
- Damage to soils
- Air pollution
- Noise or vibration
- Tailings
- Acid mine drainage
- Loss of flora and fauna
- Damage to heritage sites.

What is Required for BPEM in Mining?

- Leadership by senior management
- Recognise environment as an opportunity not a threat
- Excellence in business and the environment are twin goals
- People work together to achieve these goals
- Clear understanding of environmental impacts and responsibilities
- Recognition of environmental initiatives by employees
- Continual improvement of systems and performance including awareness and training
- Acknowledge and address the concerns of both shareholder and stakeholder groups

Training Modules in this Series

- These modules have been developed to assist organisations to promote and deliver successful environmental training programs
- Training is an important tool in achieving best practice environmental management