



# CLOSURE AND REHABILITATION

- REHABILITATION TRIALS AND CLOSURE INVESTIGATIONS
  - TROUBLE-SHOOTING
- PROGRESSIVE REHABILITATION PLANS
- CONCEPTUAL AND INTERIM CLOSURE PLANS
- FINAL CLOSURE PLANS

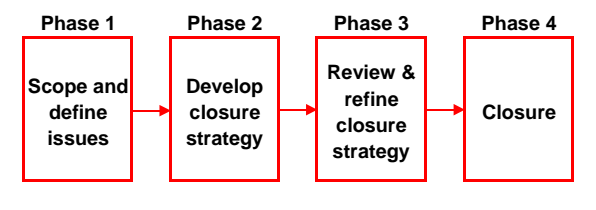
Earth Systems has expertise in the provision of closure and rehabilitation planning for resource development and other projects.

### KEY CLOSURE QUESTIONS

Closure planning requires consideration of the following key questions:

- Who has responsibility for closure and for the site following closure?
- What factors are expected to drive the closure planning process (e.g. regulatory requirements, corporate policy, community expectations)?
- What are the key environmental and socio-economic issues?
- What are the key closure constraints, risks and liabilities?
- What is the expected time frame for closure?
- What is the closure funding mechanism and are adequate funds being accrued?

Figure 1



### CLOSURE PLANNING

Closure planning and implementation typically occurs over several discrete phases (Figure 1) and includes the following elements (Figure 2):

- Scoping and issue definition.
- Closure studies and option evaluation.
- Liaison with government, community and other stakeholders.
- Determining closure criteria and end land uses.
- Developing, refining and costing a closure strategy.
- Progressive rehabilitation.
- Decommissioning and post-closure monitoring.

A closure strategy is a dynamic entity responsive to planning decisions, study findings, regulatory change, and stakeholder expectations.

### PROGRESSIVE REHABILITATION

A progressive rehabilitation program should be developed early in the life of a project. The program needs to be integrated into the closure strategy to streamline planning, target end land uses and maximise the use of available resources.

### SERVICES PROVIDED

Earth Systems provides the following services to assist with closure and rehabilitation planning:

- Assessing rehabilitation issues, options and constraints.
- Developing integrated rehabilitation and closure strategies.
- Designing and managing targeted research programs to define closure issues and refine closure options.
- Assessing risks and liability associated with rehabilitation and closure.
- Preparing rehabilitation plans, conceptual closure plans, interim closure plans and final closure plans to meet site, corporate, government, community or financier requirements.
- Designing closure and post-closure monitoring programs.

### TROUBLE-SHOOTING

Earth Systems has specialist expertise and technical capabilities to provide solutions for typical closure problems such as:

- The decommissioning of sites containing acid generating waste materials.
- The decommissioning of turbid, acidic or contaminated water bodies.
- The management of post-closure water quality issues.

### EXPERIENCE

Earth Systems' experience in closure and rehabilitation planning includes:

- Mining and petroleum projects in Australia, Papua New Guinea, Ghana and Tanzania.
- Arid, semi-arid and tropical climates.
- Familiarity with best practice closure guidelines (e.g. IFC/World Bank, ANZMEC & MCA).

Figure 2

