

Design and Implementation of Rehabilitation Monitoring

The primary step in successful rehabilitation monitoring is to establish indicators of rehabilitation progress and success that are appropriate and sufficient for the specific site of interest. If not properly targeted, even the highest-quality monitoring programme can be a waste of money and effort.

Importance of Design (asking the right questions)

In general terms, all minesite rehabilitation has similar aims of safety, sustainability, and acceptable impacts on surrounding areas. However, because each mine is unique, the paths to those general goals can vary enormously. For that reason, many sites have developed indicators of rehabilitation progress and success that are tailored to their specific issues and goals.

In Landloch's experience, development of a soundly-based monitoring strategy is crucial, as it typically underpins:

- Continual improvement in rehabilitation practices;
- Timely application of remedial works;
- Clear demonstration of rehabilitation success; and
- Early return of bonds or lease relinquishment.

Where possible, linkage between rehabilitation design and monitoring can be highly effective. For example, monitoring can assess whether rehabilitated landforms are producing runoff and erosion consistent with expectations, and on-going application of erosion models enables large variations in rainfall to be taken into account when interpreting results. Information on ecosystem development can allow seeding and fertiliser mixes to be adjusted, and constructed profiles to be more closely tailored to vegetation requirements. Equally, well-targeted indicators of rehabilitation success can be a driver of institutional change and improvement at a site.

Developing appropriate indicators of rehabilitation success should consider (for that specific site):

- What are the steps in successful rehabilitation?
- Which particular issues are crucial to rehabilitation success?
- How those issues can be assessed in a quantitative and unequivocal manner?



This approach can ensure long-term consistency in both monitoring methods and assessment, irrespective of changes in staff.

Monitoring methods

A wide range of methods are available for monitoring development of rehabilitated areas, and selection of methods depends on the precise issues to be addressed.

For example, if off-site movement of suspended sediment is a major concern, then it may be necessary to install instrumented plots and accurately sample the runoff that occurs. This approach can yield excellent data and is not unduly demanding of site resources.

Alternatively, if achievement of “stable slopes” is the priority, then observations may focus on the presence and activity of gullies and rills, and Landloch has developed objective and defensible methods for considering those issues.

For soil and ecosystem development, the range of measurements that could be considered is large, and appropriate measurements will vary enormously with climate, ecosystem, and site priorities. This makes it essential to select measurements appropriate to a specific site.

Staff skills and experience

Landloch staff have extensive experience with rehabilitation monitoring systems applied to the full range of arid to tropical conditions across Australia, Africa and PNG. Landloch’s staff can apply Landscape Function Analysis (LFA) and a range of erosion monitoring methodologies to minesites and other disturbed lands including agriculture, construction sites and rangelands. We have extensive experience with material characterisation and the potential impacts of changes in material properties through time.



To develop a programme of rehabilitation monitoring tailored to your site and its regulatory requirements, contact:

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