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Reclamation Monitoring and Management: Metrics, Key Performance Indicators, and Dashboards for Projects Across their Life Spans

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Land reclamation and ecological restoration are forms of 'assisted succession'. Understanding successional concepts within a given ecosystem is helpful to gauge how a project is performing since reclamation was initiated. Vegetation characteristics will change over the life span of a given project and hence it follows that monitoring strategies should change with the successional pathway of the project. In this talk we will identify metrics (those things which can be measured) and key performance indicators (KPIs - metrics which are critically indicative of project success or failure) within reclamation projects and give examples of how these can change over time. As KPIs change over time, the intensity, methods, and tools for monitoring these metrics should also change throughout a project's life span. We will demonstrate techniques to keep statistical validity of monitoring programs across time, while also optimizing data collection at different stages of reclamation in order to best inform decision making. Examples of when and how certain tools, methods, and personnel can be incorporated into a long-term monitoring program will be shown. Next, concepts regarding dashboards (data communication tools) will be discussed and examples will be presented. We will demonstrate how these project management concepts perform within a database management framework along with examples of utilizing other data sources (e.g., climate information) to assist with decision making. Finally, specific examples of how these efforts can be used to satisfy multiple regulatory requirements and multiple stakeholders will be shown. Attendees will leave equipped with monitoring concepts and reporting strategies to make informed decisions within a project management framework, across reclamation sites.

Keywords: environmental monitoring, dashboards, decision management