Providing Specialist Advice to the
Mining, Minerals and Extractive Industries
SLR Consulting is a leading consultancy operating within the mining, minerals and extractive industries sector and advises companies and funding agencies throughout the world. We have extensive experience within the metaliferous mining sectors, coal and uranium, building aggregates, cement, building products and industrial minerals.

We provide a full range of technical and environmental services throughout the project life cycle from initial site assessment and exploration, geology, identification and acquisition through detailed design, engineering, environmental impact assessment, planning, permitting and compliance, to final restoration and afteruse, including alternative afteruse development and enhanced residual development value.

SLR’s mining expertise is founded on a wide range of skills including geologists, valuation experts, environmental scientists and engineers.

The mining and minerals sector offers unique challenges over the life cycle of a mine and many of our staff have provided decades of specialist services to the mining industry. We also provide a wide range of inter-related environmental and professional services that combine to offer an almost unique package from a single provider. SLR offers ongoing management, planning and permitting support throughout the life cycle of a mine and also offers specialised engineering services for the design, construction, operation, decommissioning and restoration of mine waste and water management facilities.

Careful planning of mine development maximises reserves and reduces extraction and restoration costs. SLRs geologists use advanced computer techniques, backed by many years of practical experience, to produce practical working schemes for mines and quarries.

Our engineers have also worldwide experience in the minerals and mining sector having advised both mine operators, funding companies and agencies.

Ongoing technical support covers a wide and diverse range of areas from design of large tailings dams, heap leach pads and excavated slopes to ecological surveys and post closure landscaping for nature conservation or recreational after use of sites. We recognise the importance of maximising site value and minimising post-closure liabilities. SLR has been responsible for successful promotion of residential, commercial and industrial property development as well as recreation schemes on old mineral sites.

Of growing importance is the management of energy and emissions to comply with climate change agreements and other emissions trading requirements. SLR advises mining and mineral sector clients on the development of renewable energy resources as this sector is a relatively intense energy user.

In addition to its technical expertise, SLR advises minerals and mining clients relating to negotiation advice and support for all manner of commercial agreements and transactions. Such advice includes mineral and property valuations, prospecting and mining licenses, mineral leases, insurance issues and cost estimates for decommissioning in accordance with relevant accounting standards. SLR has also provided technical, environmental and economic advice on mining and mineral related due diligence projects.
The services offered by SLR broadly fall into the technical disciplines listed to the left. Each technical discipline is supported across one or more offices and by teams of experts that work within and across the technical disciplines. SLR operates worldwide as one seamless integrated company, thus able to offer or support mining projects over a wide range of geographies, climates and mining commodities. SLR will source the best technical experts and use the extensive in-house capability to execute projects and integrate project teams, which often comprise both local and international specialists.
SLR provides a wide range of services internationally. Our purpose is to ensure that we provide the best possible service to our clients and ensure that we provide the best possible project team, taking cognisance of geographic and other constraints.

Services are provided at each phase of development or stage of life cycle of a mine or quarry such as exploration, feasibility, design, financing, construction, operation through to closure and after-use. SLR services may be required during any or multiple stages and are presented in terms of the stage of a mine life cycle during which they are most commonly sought by clients.

Mining projects are located in a diverse range of geographies, climates and environments. SLR has a network of offices covering many of the major mining centres including:

- **Australasia**: 11 offices including Sydney, Brisbane, Melbourne, Perth and Singapore.
- **United Kingdom and Ireland**: 24 offices many of which are within easy reach of central London.
- **Africa**: 6 offices including Johannesburg, Pretoria, and Windhoek.
- **United States, Canada and Alaska**: 23 offices including Vancouver, Toronto, Seattle, Calgary and Fairbanks.

For details of office locations see [www.slrconsulting.com](http://www.slrconsulting.com)
Exploration services

- Mineral targeting & project design
- Exploration programme management
- Geological mapping, 3D modelling
- Geochemical orientation & interpretation
- Petrographic analysis
- Geophysical services & modelling
- Geophysical interpretation (mag, EM, IP, gravity)
- Seismic Data Modelling
- Data Management/GIS (MapInfo/ArcInfo/Surpac).

Drilling services

- Core logging and storage
- Targeting and programme management
- QA & QC programmes.

Topographical survey

- Mine/quarry surveying
- Landscape survey.

Geological data analysis

- Resource & reserve Calculation and modeling (Datamine/Vulcan/Gemcom etc)
- Joint Ore Reserve Committee “JORC” Code compliant assessments.

Baseline environmental studies

- Acoustics
- Fauna and flora
- Climate profile
- Surface and groundwater water
- Environmental geochemistry
- Soils
- Erosion prediction and modelling
- Heritage
- Air quality
- Traffic
- Visual assessments and visual modeling
- Socio economic surveys.

Valuation and property advisory services

- Resource and reserve valuations by licensed valuers
- Sales brokerage
- Competent Persons Reports (CPR) h
- Licensed/registered valuers in a range of jurisdictions.

Strategic advisory

- Exit and acquisition due diligence
- Mergers, acquisitions and sales due diligence
- Financial modeling
- Investment strategies
- Sales brokerage & property negotiation
- Sale leaseback analysis and negotiation
- Joint venture analysis and negotiation.
Feasibility

Bankable feasibility studies
• Feasibility study co-ordination
• Specialist inputs including resource and reserve estimates, environment, water supply and dewatering, mine waste.

Mine/quarry planning and design
• Preliminary mine/quarry design
• Assessment of extractable reserves.

Mine water supply and dewatering
• Hydrological and hydrogeological studies
• Drilling supervision and logging
• Artificial groundwater recharge schemes.

Mine drainage quality and quantity prediction
• Source term characterization
• Runoff and seepage characterization
• Groundwater and contaminant transport modeling.

Mine waste and water management facility design
• Feasibility level design of facilities
• Water and salt balances
• Dam safety classification and registration
• Tailings rheology, beaching, pumping and thickening studies
• Design review and optimization
• Impact mitigation design
• Water and salt balances
• Seismic assessments
• Seepage models and stability assessments.

Heap leach pad and pregnant liquor collection and re-circulation systems
• Geometric design
• Materials handling and stacking
• Facility design
• Detoxification modeling and design.

Mining geotechnics
• Rock mechanics and stability assessments
• Subsidence prediction and assessment.

Stakeholder engagement
• Conflict management and risk communication
• Legal process management
• Stakeholder consultation.

Social and environmental impact assessments and management plans
• Co-ordination and management of specialist environmental and social studies
• Legal process management
• Authority and stakeholder liaison.

Conceptual mine closure plan and liability assessment
• Strategic advice concerning residual infrastructure development and post closure land use
• ICME closure process.

Permitting and licensing
• License applications including mining, water use, nuclear regulators and dam safety.

Valuations
• Financial reporting
• Funding, insurance taxation and business advice
• Sales, mergers and acquisitions.

Competent persons reports
• (CPR), due diligence and reviews
• Co-ordination of specialists input to the CPR
• Geology, resource and reserve evaluation
• Environmental, mine waste and water management aspects.
Mine waste and water management facilities
- Flow slide and dam break analyses
- Stage capacity and volumetric design
- Geotechnical, hydraulic and structural design
- Construction drawings and specifications
- Slurry thickening and pumping systems
- Tender letting and adjudication
- Construction monitoring and project management
- Commissioning.

Mine drainage treatment facilities
- Geochemical and hydrological characterization of mine drainage
- Mine drainage quality prediction and optimisation
- Process, civil & mechanical design of the water treatment facility.

Return water and slurry pumping
- Pipeline and pump sizing and optimisation
- Rheology
- Slurry thickening/dewatering studies.

River diversions
- Hydrological modeling and sizing
- Risk assessment
- Alignment design, bed and bank design
- Flow attenuation design.

Mine safety
- Underground and open pit mine safety plans.
Operational Services

Development and implementation of management systems
- Risk management
- Quality management
- Safety and health management
- Environmental management
- Assistance with the implementation and achievement of ISO.

Mine facility review and monitoring
- Environmental monitoring
- Dam safety monitoring.

Energy management
- Geothermal energy
- Energy from waste (solid and gas).

Carbon management
- Carbon footprint, life cycle analysis, carbon sequestration.

Non-mining waste management
- Integrated waste management plans (Industrial, domestic and hazardous waste)
- Waste facility designs
- Energy from waste projects and CDM registration.

On site environmental management
- 'Environmental manager' services provided by our environmental management specialists.

Audits and reviews
- Mine grade control
- Equator principles
- Carbon, energy and water use audits
- Permit condition compliance
- Safety audits
- Resource and reserve estimates
- Sustainability audits and reporting (Global reporting initiative)
- Blast control.

Optimization studies
- Water, energy, carbon emissions
- Emission reduction
- Sustainable development - policy and strategic advice.

Closure liability/provision assessment update
- As required in various jurisdictions and according to accounting standards.
Decommissioning, Mine Closure and Afteruse Stage

Mine closure plans
- Landscape planning and visualisation
- Stakeholder engagement
- Geomorphological evolution and landform development modeling
- Closure liability assessments.

Mine drainage
- Mine decant location, quality and quantity assessment
- Mine water treatment studies
- Impact reduction and mitigation studies.

Contaminated site cleanup
- Pollution plume migration modeling
- Risk assessments
- Investigation, remediation design and monitoring.

Monitoring and performance evaluation
- Landscape function analysis
- Water, soil, fauna and flora and air quality monitoring
- Performance audits
- Mine air quality.

Valuation and property advice - post decommissioning
- Strategic advice on quarry and mine after-use
- Identification of development opportunities
- Feasibility analysis
- Market analysis
- Site attributes
- Planning analysis
- Development concepts
- Business financial analysis.
SLR is a dynamic, responsive and fast growing consultancy with an unrivalled reputation for providing high quality tailored services. Internationally recognised reputation in the mining and minerals sector for the provision of geological, environmental, engineering and valuation services. Access to specialist in-house skills - geologists, mining engineers, environmental scientists, tailings and heap leach engineers and other relevant industry professionals. Personnel with respected reputations in the relevant marketplace. Nationwide and international coverage and experience, allowing seamless and consistent client service. Personnel with industry specific professional accreditation and qualifications.

Our clients include BHP Billiton, Barrick, AngloGold Ashanti, CRH Plc, Xstrata, Rio Tinto, Lonmin, Impala and Gold Fields. SLR also has junior and mid-tier mining, quarrying and mineral exploration companies among its clients.

We have successfully completed mining projects in a wide range of countries, climates and environments.