



# UKWAZI GROUP

*Bringing relevant mining engineering  
consultancy services to a dynamic industry*

mining engineers

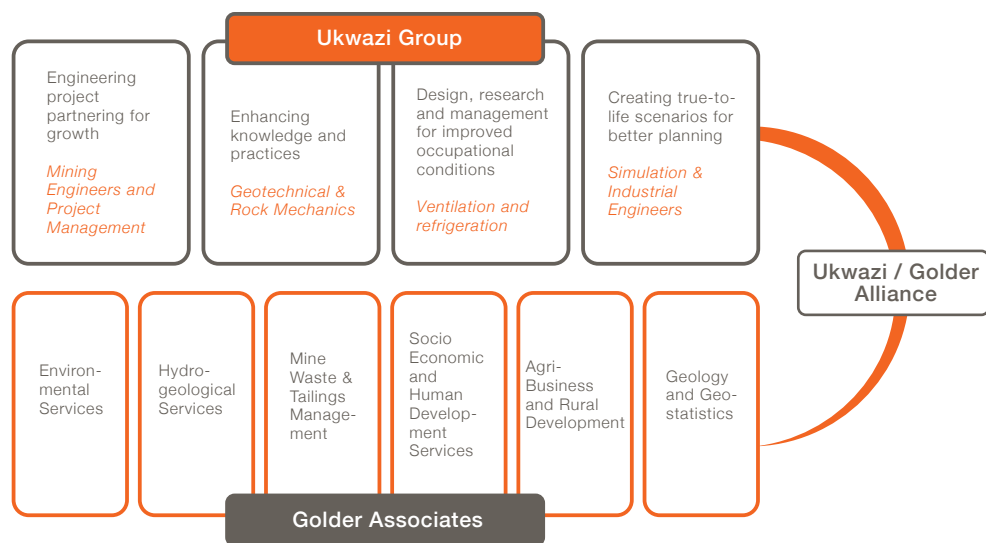


# Structured for Delivery

Ukwazi comprises a dynamic and versatile team of mining engineers and industry consultants with collective experience in all areas of open pit and underground mine operations and consulting, and a wide range of commodities.

The company is structured according to its four main areas of competence, namely Mining Engineering and Project Management; Geotechnical and Rock Mechanics; Ventilation and Refrigeration; and Simulation and Industrial Engineering

A collaborative agreement is in place with our partner, specialist global environmental and geotechnical engineering firm Golder Associates. This agreement ensures provision of a full suite of professional services for the mining industry, from project inception to closure. Where additional expertise is required to round out an offering, Ukwazi draws on its alliances with market leaders in specific disciplines.



## Our Competencies

Ukwazi consultants are selected to join our team based on their academic qualifications, expertise and extent of exposure to different facets of the mining industry. Their ability to work effectively with people and processes and share their knowledge, and their inherent passion for particular aspects

of their work make them a diverse and versatile group of professionals. This diversity exists in principle and emerges in practice as we present them to our clients in teams to deliver our comprehensive range of competencies.

### **As Ukwazi consultants, our mining engineers and specialists are equipped with the following:**

- Practical operational experience and relevant tertiary qualifications;
- Technical skills and experience for the successful completion of feasibility studies
- Strategic resource/reserve management experience;
- Project management and technical auditing experience;
- Practical geotechnical operational management experience;
- Experience in geotechnical evaluations and recommendations;
- Geotechnical mapping, Codes of Practice and risk analysis;
- Experience in ventilation and refrigeration design and performance monitoring; and
- Experience in industrial simulation techniques in the mining environment.

# Ukwazi Mining Engineering and Project Management Division

*Engineering project partnering for growth*

Mining companies under pressure to diversify and/or increase market share understand the risks involved in mining operations. These companies require independent, reputable and experienced service providers to qualify, manage and engineer mining related risks on their projects. Ukwazi Mining Engineering and Project Management division responds with relevant solutions, delivered by some of the leading minds in the market.

Consultants in this division have practical experience covering the length and breadth of the mining operation, from mine overseer to mine manager. Qualifications typically held include Mine Manager Certificates of Competency for Coal and Metalliferous mines, and relevant management qualifications.

Our collective experience covers both open pit and underground mining methods on small and large operations. Our capabilities in this regard can be summed up as follows:

## Open pit mining engineering

- Pit optimisation and sensitivity analysis;
- Detailed pushback and final pit design;
- Equipment selection & optimisation;
- Production planning and scheduling;
- Operating and capital cost estimation; and
- Implementation strategies.

## Underground mining engineering

- Evaluation of open pit/underground interface;
- Cut-off grade determination;
- Conceptual design and scoping studies;
- Shaft placement and access system design;
- Mining method assessment and scenario modelling;
- Detailed mine layout and design;
- Ore handling systems;
- Operating and capital cost estimation;
- Integration of all aspects related to mining; and
- Equipment selection.

We are well-versed in the various complexities of mining processes and operations and deliver specific services as they are required.

## These include:

- Investment proposals;
- Scoping studies and all levels of feasibility studies;
- Labour structures;
- Planning Outsourcing and Benchmarking;
- Reserve Estimation and Technical Audits;
- Outcome driven implementation of planning systems;
- Optimisation studies using linear programming solutions;
- Customisation of planning systems including scripting in JavaScript and TCL/SCL; and
- Trade-off studies and scenario planning.

A significant amount of the value Ukwazi brings to our clients lies in our knowledge of different mining software applications. Our team has both expertise and consulting experience in the following packages, selected on the basis of their pervasiveness in the global mining industry:

- Surpac;
- MineSched;
- Mine2-4D;
- Earthworks Production Scheduler;
- Datamine;
- Whittle;
- Pitstrat;
- XPAC;
- Talpac;
- Vulcan; and
- Microstation.

Our mining production experience and practical operational exposure includes the following:

- Tabular gold mining (Conventional);
- Massive gold mining (Drift and fill);
- Tabular PGM mining (Dip Mining, Breast Mining, Bord and Pillar mining and Semi-Mechanised mining);
- Coal Mining (Board and Pillar mining with CMs and conventional);
- Open stoping (Base Metals);
- High stoping width Manganese Mining (Bord and Pillar);
- Kimberlite (Block caving);
- Base Metals (Block caving);
- Open pit alluvial diamonds mining;
- Open pit Iron ore mining; and
- Open pit Coal Mining and Strip Mining.

This division has been called on to deliver solutions for leading mining companies on a wide range of projects in South Africa and other parts of Africa.





# globally-relevant

## Our Credentials

Our divisional profiles and the scope of client interactions within each illustrate the fact that Ukwazi is seen as a partner of choice in a variety of mining disciplines. This serves as an external affirmation that we offer value. There are, of course, other measurements of success and progress for a growing company.

We strive to perform well on all measures. This includes committing to developing an equitable workforce and providing opportunities wherever possible to historically disadvantaged people.

From a governance perspective, we practice what we preach to clients, implementing effective practices and maintaining a positive, productive and challenging working environment.

From a compliance perspective, we hold a total of 16 maintained licenses of Surpac, MineSched, Mine2-4D, EPS, Whittle, XPAC and TALPAC.

## Our Future

Because so many of our clients have an international presence, we enjoy a growing footprint into other parts of Africa. Mining competencies, though scarce, are mostly universal, as are challenges and opportunities. We see ourselves as a globally-relevant consultancy poised to add value in any country in the world.

## Our Resources

Our people reflect a high level of investment in intellectual capital. This is complemented by the software applications and industry-relevant methodologies we have mastered, making Ukwazi your logical choice as a mining engineering and mining industry consulting partner.

# We are Ukwazi

The Ukwazi Group of companies is a medium-sized consultancy based in Centurion, Gauteng. Since 2004 we have been delivering effective consulting services to a growing client base.

Ukwazi is managed and wholly owned by its consultants, who are respected for their comprehensive industry knowledge and impartiality in delivering exceptional service to a broad range of mining companies of varying size and level of business maturity.

Our strategy at Ukwazi is to be experienced, innovative and responsive in assisting our clients to maximise opportunities and overcome challenges in the mining realm. Because mining is such a dynamic industry, at any given time there are a number of business critical considerations, and it is often not an option for mining companies to assign existing resources to handle them. The challenge, however, lies in selecting a consultancy that can have an immediate as well as lasting impact on your business, leading to returns on investment and tangible shareholder value.

Ukwazi has become a respected, relevant and, we are proud to say, popular consultancy through appointing leading minds, mastering and deploying cutting edge technology and applying proven, world class methodologies and processes. This is supported by our personable and service-oriented approach to client interaction.

## mining engineers



experienced  
innovative and  
responsive

# knowledge

Ukwazi is a Zulu word which means 'to know', and this aptly describes the nature of our business. As a mining industry consultancy, what we know makes us the ideal partner for advice, judgment and decision-making recommendations on behalf of our clients in the mining realm.

## Some of our Largest Clients

Anglo Gold Ashanti • Anglo Platinum • BHP Billiton • De Beers • Eland Platinum  
Exxaro • Impala • Katanga Mining • Kumba Iron Ore Company • Lonmin • Metorex  
Petra Diamonds • Ridge Mining • Teal Exploration and Mining

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