

SRK Consulting

Project names include: Yaramoko / Youga / Bissa / Taparko

Project locations include: Burkina Faso, West Africa

Commodities / resources include: Au

Company summary

SRK Consulting is an independent, international consulting practice that provides focused advice and solutions to clients, mainly in the mining and metals sector. For mining projects, SRK offers services from exploration to mine closure including feasibility studies, due diligence reviews, and production optimisation. Established in 1974, SRK now employs more than 1,500 professionals internationally in over 50 offices on six continents.

Key projects highlighting SRK's experience in Burkina Faso

Yaramoko Gold Project

SRK was the lead author of the feasibility study completed for Roxgold Inc. in April 2014, for the Yaramoko gold project. The project is located within the mineral-rich Houndé greenstone belt, 200km southwest of Ouagadougou. The study evaluated the economic viability of an underground gold mine targeting high-grade gold mineralisation defined in 55 Zone. Most of the high-grade gold mineralisation occurs in dilatational quartz veins developed within a steeply dipping reverse shear zone.

The study disclosed by Roxgold in April 2014 envisions a 750t/d underground mine with production of 99,500oz/y of gold over seven-and-a-half years. The mine will be accessed by a dual ramp system from a single portal and will employ long hole open stoping with cemented rock backfill. Key features of the underground mine include:

- High-grade gold veins averaging 4m in true thickness with regular geometry and excellent grade continuity;
- Accelerated development to the upper vein area hosting some of the highest gold grades;
- Full up-hole retreat recovery of sill pillars below high-strength cemented rock backfill;
- Contractor-operated mine start-up with mid-life transition to owner mining.

The ore will be delivered to an onsite conventional gravity/cyanidation plant. Pending receipt of all necessary permits, Roxgold plans to break ground on the project before the end of 2014.

The feasibility study benefited from SRK Canada's extensive narrow vein mining experience and SRK UK's hydrogeology, geochemistry, and environmental expertise in West Africa. As part of the study, SRK also conducted a series of field programs during 2013 to study the geology of the 55 Zone; characterise rock geotechnical, geochemical, and hydrogeology conditions; and provide technical training to the Roxgold site team.



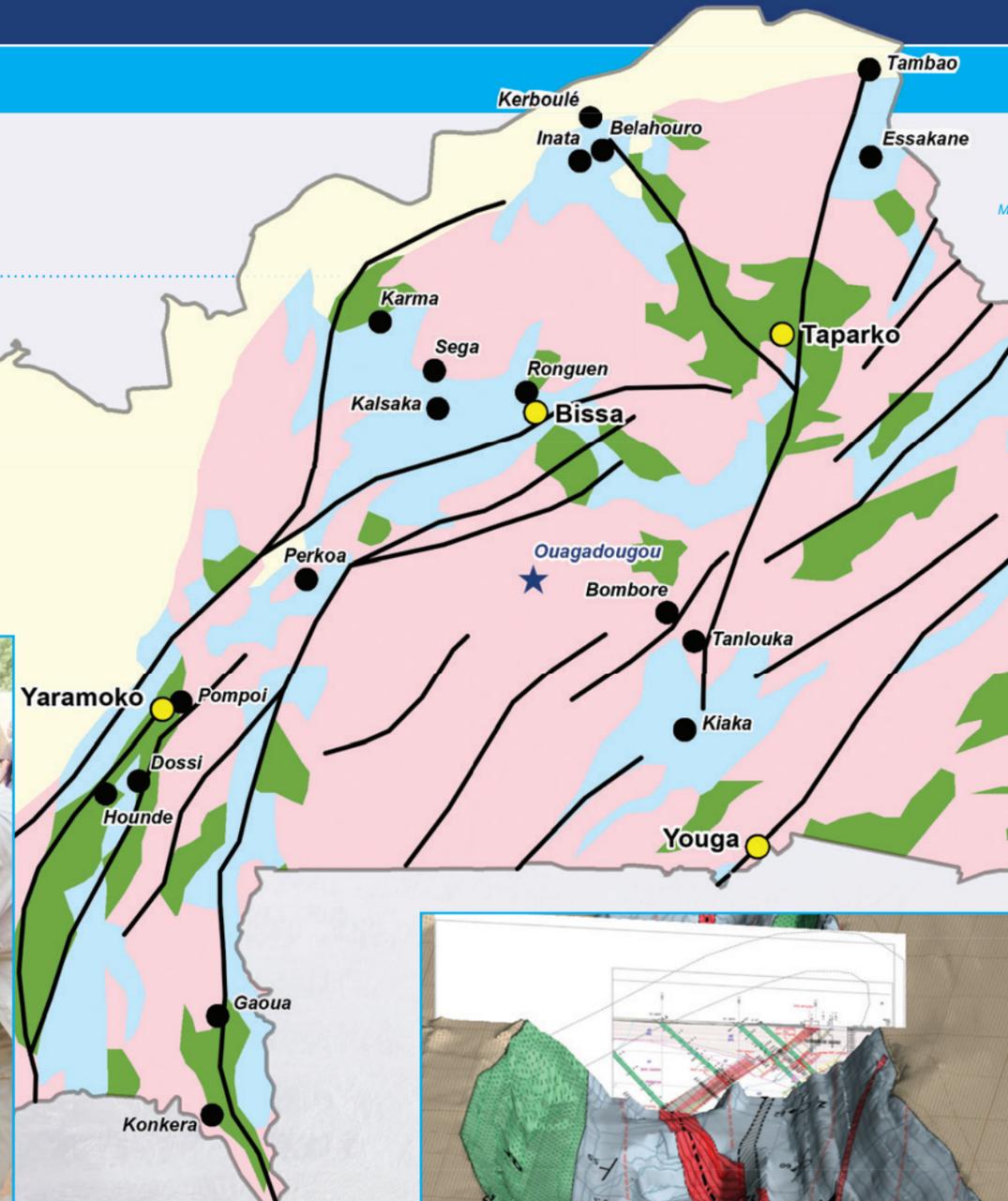
Geological discussions during a site visit

Youga Gold Project

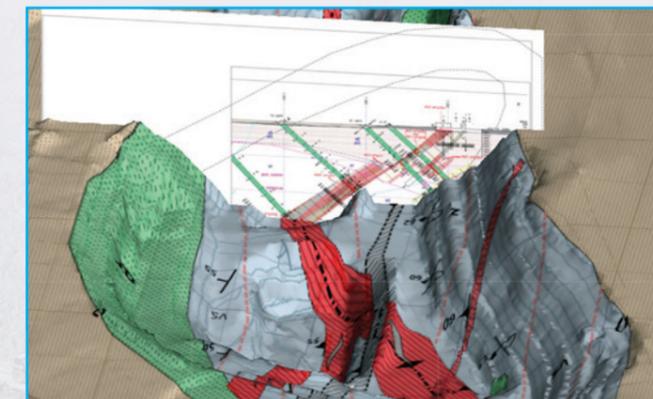
The Youga project is an operating open-pit gold mine 180km south-east of Ouagadougou, near the town of Youga in Boulgou province. The mine is operated by Burkina Mining Company, a subsidiary of Endeavour Mining Corporation.

Endeavour initially commissioned SRK in 2011 to document the timing of the Youga gold mineralisation relative to deformation, determine the geometry and kinematics of host structures, and form a structural framework for the controls on gold distribution. Later that year, SRK compiled a full geological interpretation of the exploration project's aeromagnetic data. The interpretation was aimed at helping Endeavour personnel to understand the structural setting of gold mineralisation in the region and provide a practical structural framework for future exploration targeting. In 2012, SRK undertook further structural mapping, a drill core review, and geological staff training.

The Youga project is in the Nangodi-Bitou volcano-sedimentary belt, a Paleoproterozoic Birimian belt crossing northern Ghana and southern Burkina Faso. The belt comprises weakly to moderately metamorphosed mafic-volcanic rocks and intermediate to felsic intrusive rocks. The Youga project spans the small,



Reviewing orientated core with the Bissa geology team at the exploration camp, as part of the feasibility study



Draped geological map of the Taparko pit with a drilled cross-section

deformed Tarkwaian basin, which is characterised by sandstone, argillite, and conglomerate of fluvio-deltaic origin. Gold mineralisation has been identified in ten zones in the Youga project area, eight of which are within the basin and two outside, around its edges. The rocks at Youga preserve textural evidence of at least two dominant ductile deformation events and indicate that mineralisation occurred early during deformation with likely secondary mineralisation or remobilisation within brittle-ductile fault zones.

By defining the structural control on mineralisation and the geometries deforming the mineralisation, SRK's studies have given Endeavour the required exploration targeting framework.

Bissa and Taparko Gold Projects

SRK has brought its geological modelling strengths to bear on a number of gold mining operations in West Africa, with its skilled geologists using state-of-the-art software to make the most of open-pit outcrops and resource drill holes.

In Burkina Faso, SRK has worked with Nordgold's geologists and mine planners on the Taparko and Bissa gold projects to improve the understanding of structural and lithological controls on metal distribution at the mining and near-mine scale.

SRK uses an open pit's survey as a base for mapping salient features of the deposit and host rocks. Draping the map on the pit survey gives the geology a 3-D form, which is augmented by cross-sectional geological interpretations along lines of resource drill holes. This process often allows incorporation in the model of widely dispersed observations, including features hard to see in map and section. The model may also incorporate feeder structures, ore-bearing controls, fault networks that offset the deposit, and late barren intrusives that stope out the mineralisation.

At Taparko, SRK confirmed that a tight anticlinal fold axis is the main pathway for mineralising fluids and that within this structure some of the higher-grade features have predictable geometry and plunge that can be used to more effectively target drilling for extensions of high-grade ore. Having ascertained the deposit's geological framework, new targeting criteria can be used to increase the chances of exploration success.

A geological makeover can significantly enhance the grade domain definitions that are so important for geostatistical analysis and grade block modelling. With improved control, semivariogram definition may also improve and enable decreased grade control sampling frequency and increased cost-savings for the mine.

With more reliable models and streamlined processes, more time should be available for making well-informed decisions and improving monitoring of short-term mine planning.

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