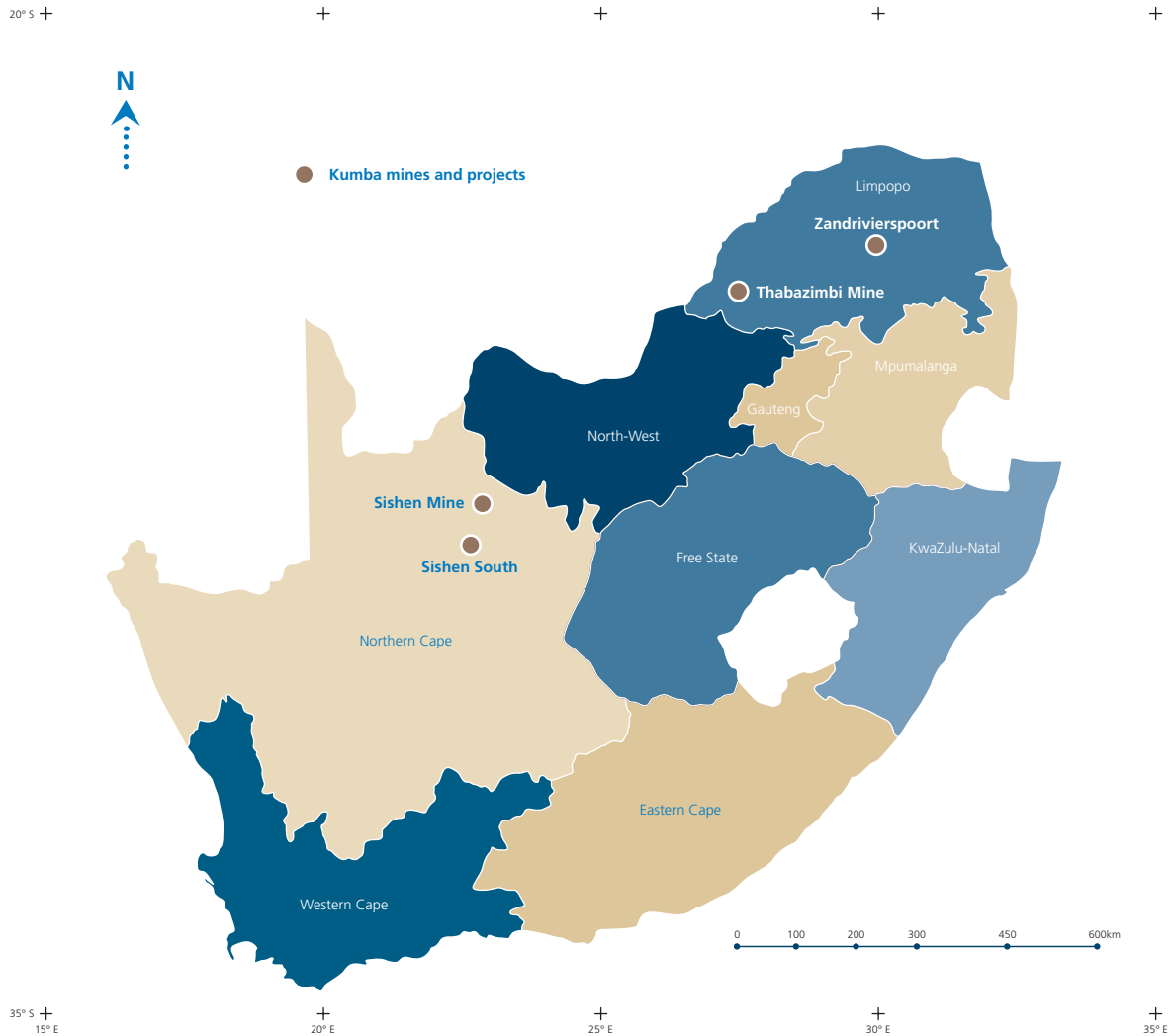


# Review of mineral resources and ore reserves

## Kumba's South African mines and projects



## Geology

The high-grade hematite iron ore at Sishen Mine occurs in the Kuruman Formation (Asbestos Hills Subgroup), a Lake Superior-type, banded iron formation succession in the lower portion of the Griqualand West Supergroup which is preserved along the western margin of the Kaapvaal craton. Medium- and lower-grade iron ore at Sishen Mine occur in the Gamagara Formation and are preserved in deep palaeo sinkholes developed in the underlying dolomites on the southern areas of the deposit. Iron ore occurs in the same stratigraphic horizons at Sishen South.

Thabazimbi Mine extracts iron ore that mainly occurs in basal units of the Penge Formation, a banded iron formation in the lower Transvaal Supergroup. Iron-rich lithologies locally outcrop as remnant fold limbs dipping ~45° south. In the Thabazimbi area, the ore-bearing units have been triplicated by thrust faulting believed to be the result of the intrusion of the Bushveld Igneous Complex.

Iron ore at Zandrivierspoort is not predominantly hematite, but rather magnetite. The lower-grade (~35% Fe) ore comprises Archaean-aged metamorphosed banded iron formation of the Pietersburg greenstone belt that has been complexly structurally deformed into a thick (>100m) sequence of magnetite-quartzite.