

Exploration success and refinement of mineralisation models in the Western Forelands of the Democratic Republic of Congo.

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Ivanhoe staked a 50,000 square kilometres land package in the Democratic Republic of Congo in the late 1990s consisting of ground peripheral to the sought-after Congo Copper Belt (CCB). Systematic high-quality geophysics and geochemistry was collected resulting in the discovery of Kamoa in 2008. Kamoa has been followed by further discoveries in the region, most notably the high-grade Kakula deposit in 2016, with a total of 1 901 Mt at 2.5% Cu identified to date.

Sediment-hosted Cu at Kamoa-Kakula in the Western Forelands (WF) of the Central African Copper Belt occurs in a setting not previously thought to be prospective. The ore host to the historically known deposits on the CCB, the Mine Series, is not present and there is no evidence of salt deposition on the WF. These factors were widely believed to limit the prospectivity of the WF and were the reason for limited exploration prior to 2000. Mineralisation at Kamoa-Kakula is hosted in pyritic siltstones and diamictites of the Grand Conglomerate at the base of the Nguba Group, and is underlain by a thick sequence of “red bed” clastics which allowed the circulation of mineralising basinal fluids.

Ivanhoe has continued to invest in exploration and this persistency has resulted in the recent discovery of the Makoko and Kitoko orebodies to the west of Kamoa-Kakula which has further modified the regions mineralisation model. The mineralisation is hosted in a pyritic siltstone reductant similar to Kamoa-Kakula but with the Grand Conglomerate directly overlying basement without a proximal sandstone aquifer. Basement proximal to mineralisation is pervasively hematite altered with a high proportion of fractures and veins in comparison to basement intersected in areas distal to mineralisation. This change in the basement associated with mineralisation suggests fluids may have circulated in the basement without the need of a sandstone aquifer.