

Detailed Surveys of Mineral Potential Areas Recently Identified in Rwanda – Perspectives for National Development

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In 2010, twenty one (21) prospective potential target areas (PTAs) have been delineated in Rwanda based on the results of previous airborne geophysical surveys by New Resolutions Geophysics (NRG) and Paterson, Grant & Watson Limited (PGW). Out of these, four PTAs were selected by the Rwanda Natural Resources Authority (RNRA) and the Ministry of Natural Resources of Rwanda (MINIRENA) for further investigation. In 2012, these surveys have been executed by Beak Consultants GmbH, Freiberg / Germany, in co-operation with Council for Geoscience (CGS), Pretoria / Republic of South Africa. Main target minerals were tin, tungsten, niobium, tantalum and gold. Field work was carried out for detailed geochemical sampling (2550 stream sediments, 650 soil, and 1000 hard rocks samples), detailed geological mapping, geophysical ground measurements (magnetics, reconnaissance EM34, radiometrics, TDEM, IP). Finally, pitting and shallow drilling in selected smaller, prospective areas were completing the survey. During the project, a unique database of previous and newly captured geological, geochemical and geophysical data was compiled.

The following four PTAs have been investigated: Musebeya (PTA N-3), Muhanga (PTA N-2), Kirehe (PTA KIB-1), Nyagatare (PTA KAG-1). PTA N-3, with a size of 310 km², is located in the south-western part of Rwanda. Due to the presence of shear zones and granitic intrusions, it is highly prospective for the detection of Sn and Nb-Ta mineralisations. There are also indications for Au, Co, and W. PTA N-2, with a size of 440 km², is located in the western part of Rwanda. The area is hosting the known pegmatite occurrences of Mwaka and is marked by interesting geochemical anomalies of Sn, Ta, Au and other elements. The regional NW-SE oriented structural zone located between the PTAs N-2 and N-3 is marked by significant magnetic and geochemical anomalies (Zn, Pb, Ag, Cu, W, Ba, Co, Au, Ta, Nb). PTA KIB-1, with a size of 380 km², is situated in the south-eastern part of Rwanda. Because of the presence of NNE-SSW striking regional faults, dominant magnetic anomalies and alteration zones, the area is prospective for different metallic mineralisations. PTA KAG-1, with a size of 600 km², is located in the north-eastern part of Rwanda. Intensive metasomatic alterations and regional shear zones appear in the contact between a meta-granite complex and sedimentary formations. Several anomalies of the elements Sn, W, Nb-Ta, and Au have been identified.

Based on the existing data from earlier geochemical surveys (UNDP, 1968-1984) and airborne geophysical surveys (HUNTING & SANDERS 1973, 1981) and the newly captured geochemical data (Beak & CGS, 2012), country-wide mineral prospectivity maps for Ta-Sn-pegmatite mineralisations and Au-mineralisations have been produced using Beak's neural network based advangeo® - prediction software. These maps are useful instruments to further develop the national mineral sector of Rwanda, to guide mineral exploration activities and to attract international investment to the country.

As final result of the project, significant anomalies have been delineated within the four surveyed PTAs and the way forward for their development was described.

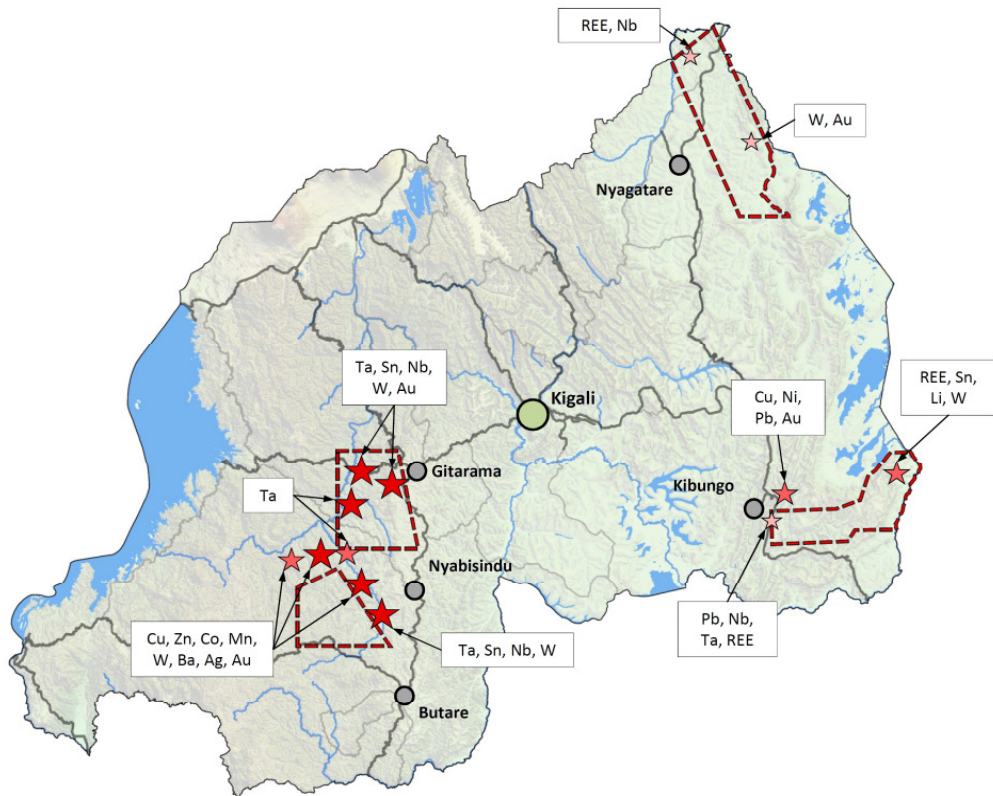


Figure 1: Surveved Prospective Target Areas (PTAs) and Main Follow-Up Targets of the Detailed Exploration in Rwanda