

Paper Number: 5268

## **Critical Metals and Materials; an African perspective**

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Any definition of critical / strategic metals or materials (CSMM) is dependent on the perspective, timing, location and interests of the individual, company, institution or government creating the definition. Since the Senkaku boat collision incident in 2010, when Japan impounded a Chinese trawler, a significant focus has been on rare earth elements and the near-monopoly that China has had on production. However, the concept of CSMM is not new, in 1983 the US Congress published a paper on “Strategic and Critical Nonfuel Minerals: Problems and Policy Alternatives” which can be considered a response to the “oil crisis” of 1973 and the realisation of dependence on imports of “64 strategic and critical minerals and metals”. Various lists of CSMM have been produced by industrialised nations highlighting imports critical to sustaining industrial and technological output within these countries. In addition environmental pressures to reduce fossil fuel usage has led to the desire for so-called “green technologies” with increased usage of CSMM.

A perspective from the developing world is somewhat different; where industrialisation is limited the preservation of secure commodity inputs to a manufacturing industry is less critical especially where these countries are net exporters of raw materials including CSMM. However, where developing countries receive significant income from exports of raw materials including CSMM then the definitions (lists) of CSMM could remain broadly the same from industrialised to developing countries and focus on the capability of the developing countries to provide CSMM as exports. However, the pressures for beneficiation to occur in developing countries is likely to result in attempts to beneficiate and ultimately manufacture goods made with CSMM or CSSM-containing components. Alternatively, if the growth and development of developing countries is to be considered as a priority the raw materials critical and strategic to the developing world are highly unlikely to be the same: they are more likely to include commodities required for agriculture and construction such as aggregates, cement and phosphates.

Africa possesses abundant resources of some currently regarded CSMM including: PGE from the Bushveld Complex in South Africa and the Great Dyke in Zimbabwe; Sn from deposits in Central Africa, Bushveld Granites and Morocco; Ta from pegmatites in Ethiopia and from both pegmatite and alluvial/elluvial deposits in Central Africa; and carbonatite-associated REE from Malawi, Namibia, South Africa, Tanzania and Kenya.

Although what is perceived as a critical metal changes from year to year with the development of new technology, substitution by cheaper materials, political instability or changes in supply, it is likely that Africa will continue to make a significant contribution to world supply of a number of the CSMM.

