

Beneficiation and value chains:

The interface between mining and manufacturing

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The issue of mineral beneficiation and value addition has become highly topical in South Africa. Gold and diamond mining, on which the modern economy was built, is now a depreciating asset. In their heyday, these industries spawned a substantial engineering industry that supplied components and services to mining. In a few decades, many significant medium-sized enterprises flourished in the periphery of the mines, together with new financial and consumer services. Mining also provided taxes and royalties for the state. Hundreds of thousands of migrant workers were drawn from neighbouring areas and countries

In recent decades, lower-quality gold and diamonds have been mined at ever-deeper levels and at greater cost. Companies like Anglo American have moved their headquarters abroad and gone global, changing their perspective on domestic mining interests from a domestic to an international focus. This has led to some de-industrialisation and loss of capabilities in the South African economy. Necessary components that were previously manufactured domestically are now imported, which puts a strain on the country's balance of payments.

However, new minerals are now being mined: platinum, ferrous metals, titanium, manganese and many others. South Africa is thought to have the best minerals endowment in the world. The paradox of great wealth in natural resources and low manufacturing capability

has to be resolved in the interests of expanding the base of the real economy, modernising the economy, rapidly increasing skills and, most important of all, creating jobs.

AFRICA'S SHARE OF GLOBAL NATURAL RESOURCES

- The bulk of the world's diamonds and chromium
- Potential hydro-electric power supply: 40%
- Uranium: 30%
- Gold: 50%
- Cobalt: 90%
- Phosphates: 50%
- Platinum: 40%
- Coal: 7.5%
- Iron ore: 3%
- Manganese: 64%
- Copper: 13%
- Known petroleum reserves: 8%
- Natural gas: 12%
- Vast reserves of bauxite, nickel and lead
- Millions of hectares of untilled farmlands

South Africa holds a major part of these resources.

THE SOUTH AFRICAN CHAMBER OF MINES

Unfortunately, the Chamber of Mines holds to its traditional distinction between "mineral beneficiation" (e.g. mining and refining) and "manufacturing beneficiation". It argues that separating mining from manufacturing in the value chain is critical to understand its activities and responsibilities. It also argues that the availability of mineral resources does not necessarily translate into the development of manufacturing beneficiation industries, and that the mining industry should not be called upon to subsidise manufacturing beneficiators. If government wants to subsidise downstream beneficiators, it believes this should be done via on-budget tax incentives and support.

It nevertheless states that a substantial downstream



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beneficiation industry already exists, which in 2009 employed about 100 000 people, with R157 billion in sales based on R58 billion of primary mineral sales to the domestic market. (Some critics believe the domestic sales figure includes imported goods and was not confined to locally produced goods.)

From the view of national interest, the Chamber's position is too limited. Firstly, minerals are a depleting national asset whose value must be maximised while it lasts. Secondly, in law and in principle, minerals belong to the people as a whole, with the state as custodian. Private corporations operate under licences that include conditionalities. Thirdly, the mining companies are now foreign-based and their profits externalised, which has reduced their South African taxes and royalties to a low level. Mining policy in these corporations is also largely determined abroad and they react bitterly to any changes proposed by the South African government. The inclusion of a few local personnel as a concession to black empowerment is a fig leaf that actually undermines the reputation of the individuals concerned.

THE DEPARTMENT OF MINERAL RESOURCES

In pursuance of the agreed Mining Charter, the DMR released its "Beneficiation Strategy for the Minerals Industry of South Africa" in June 2011. This characterised South Africa's trade with the rest of the world as "the export of raw materials and the import of manufactured goods". It defined beneficiation as "the transformation of a mineral (or a combination of minerals) to a higher value product, which can either be consumed locally or exported. The term is used interchangeably with 'value addition'."

The subsequent draft Mineral and Petroleum Resources Development Amendment Bill (2013) referred to a primary stage of extraction and treatment, a secondary stage where the concentrate is turned into an intermediate product, a tertiary stage conversion into a product suitable for enterprises, and a final stage of processing and manufacturing. Two new elements were introduced in the Bill: namely "ownership requirements" and "domestic procurement". The original powers of the Precious Metals Act 2005 were to be increased to provide for conditionalities attached to mining licences. It also referred to "the prevalence of anti-competitive import parity pricing" that did not directly "stimulate downstream fabrication". The DMR proposed "setting aside a portion of production for local consumption", and an "export duty on some mineral ores/concentrates". It also proposed allocating 26 percent to BEE ownership.

The parliamentary portfolio committee proposed further amendments, such as a "mine gate price" that excludes transport costs, "production sharing agreements" between the state and a mining company, and "state participation" in exploration and production.

A highly controversial proposal is "free carried interest", which means interest allocated to the state without any financial obligation. The minister would also be required to regulate the industry to meet national development imperatives and promote beneficiation of mineral resources.

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REAL ECONOMY MULTIPLIERS

The most useful approach to beneficiation and value addition is to unpack the linkages that govern the practical use of minerals. These are, broadly, input linkages, forward linkages and lateral linkages.

The input linkages are the steps that bring the mineral to the surface and process it to an intermediate level. They include the manufacture of capital goods, which provide more financial returns than beneficiated goods. The forward linkages are those that lead to fabrication. Lateral linkages are the training and services that accompany the whole exercise.

In order to grapple with these issues in a practical manner, we have created a model for the top priorities of the Industrial Policy Action Plan (IPAP) of the department of trade and industry. The object is to identify how each stage of the value chain relates to each mineral in a complex web. By doing this we can identify obstacles to beneficiation and value-addition in the domestic value chain. IFAA is currently promoting research to identify those obstacles and to increase the domestic use of our minerals in manufacturing.

One of the most sensitive obstacles is import parity pricing (IPP), which requires domestic manufacturers to pay the same price for a mineral product as others in the international market. Hence, being in close proximity to the mineral product offers no local advantage to the manufacturer, while the seller gains a profit benefit, as there are no transport costs or duties.

To conclude, a great deal of further research is required to unpack where interventions in the value chain can be made to advance manufacturing capabilities and industrialisation in all its aspects.

