SDMR is a three-year technical assistance programme, funded by UK Aid, deploying an innovative market systems development approach in Rwanda’s mining sector

Overview

Implemented by Cardno Emerging Markets (UK), Ltd. alongside key government partner Rwanda Mines, Petroleum and Gas Board (RMB), SDMR aims to contribute to the economically and environmentally sustainable growth of Rwanda’s mining sector, in line with the Government of Rwanda’s Economic Development and the Poverty Reduction Strategy (EDPRS).

The programme is delivering developments in access to formal finance, vital at all levels in Rwanda’s mining sector. The sector is comprised almost exclusively of artisanal and small-scale mining (ASM). In 2019, these labour-intensive operations employ approximately 60,000 to 98,000 workers, depending on seasonal demand and metal price fluctuations. (NISR, 2019a; 2019b).

Focused mainly on extracting the 3Ts (tin, tungsten, tantalum), the Rwanda Mines Petroleum and Gas Board report there are a total 238 mining licenses across more than 3,000 mine sites, of which ASM comprises of over half of actively mined concessions (RMB, 2019).
Three key needs for access to finance

SDMR research (Lesser and Habyarimana, 2019) identified three key needs for access to finance in Rwanda’s mining sector. These cut across all sizes of operations and most stages of the value chain.

1) Financing for technology and equipment

Improvements in technology and equipment range from US$20-10,000 dollars for spades, personal protective equipment, wheelbarrows, sluices, jackhammers, water pumps and generators to US$100,000+ for excavators, stone crushers, and advance processing machinery. These would improve labour conditions, productivity, and efficiency. Ongoing technical training is also needed for more complex machinery to ensure it is set up to the local conditions and being used properly.

Further, each site is unique in terms of geology, geography, and organisational arrangements, so the exact needs and appropriateness of technology and equipment varies.

2) Working capital

Working capital is required to fund the daily operations and activities of mining at all stages. This includes pre-mining operations when little money is available for site preparation, establishing accessibility, drilling and planning.

The amount of finance needed varies according to the purpose, and the size of the mining operation. Many small and medium sized mining companies and cooperatives need working capital to bridge honorary and license fees, wages, power and water bills, and payments to traders.

3) Growth, expansion, and exploration

To meet government targets to increase mineral export revenues to US$800 million annually by 2020 [3] and ensure that Rwanda’s mining sector continues to contribute to national and local economic growth, development and livelihoods there is a need to grow, expand and invest in operations.

This growth and expansion requires financing to geologically explore and establish new sites, upgrade production techniques to improve efficiencies and professionalise operations at existing sites, and to move into new market segments to add value such as further processing and refining to near-end mineral and metal products linked to other sectors of the economy. There is also a need to attract foreign direct investment as well as unlock sources of capital within Rwanda’s existing financial sector.

In addition to these three key needs, SDMR research found that the type and accessibility of the financial products also needs be addressed. Products must be tailored to mining work and lifecycles with flexibility in repayment including longer and more flexible repayment periods, and diversity in products tailored for different levels such as companies and cooperatives needing working capital and mine workers needing savings and loans products.

Recommendations

Geological information and additional data for bankable collateral and to attract investment

To de-risk lending to ASM operations and encourage investment in the sector there is a need to provide easily accessible and up-to-date geological information that guarantees the minimum value of deposits. This can then be used as collateral against financing and to attract investment both locally and from overseas.

To this end, through SDMR, a new Geological Information and Mining Cadastre System (GIMCS) is currently being developed by the Geological Survey of Finland with support from the British Geological Survey, Royal Museum of Central Africa, GISPO and Enabel.

The team is collating and digitising Rwanda’s historical geological maps and geo-data spread across thousands of documents and building an online platform to include new data and details on concessions and manage licensing that will be publicly accessible. The platform will go live in December 2019.
Low-cost independently verified and expert-backed valuations – using drone surveys

While geological data can be made available at scale through platforms such as GIMCS, innovative models are also needed to provide low-cost solutions direct to ASM operators at the mine site level. There is a need to introduce a recognised standard of geological reporting on exploration work completed by ASM operators. One example, is through SDMR’s innovative pilot crowding-in drone survey company Charis UAS to photograph programme partner and mining cooperative COMIKAGI’s concession, combined with geological sampling at key locations, has shown the huge value in tailings and mine heaps across their site. Through this work, SDMR conservatively estimate that if 65% of the minerals contained within the heaps could be extracted, they would be worth US$3 million.

Replicating this calculation using historical production data since 1930 for tailings at mine sites in Rwanda shows a potential of US$3.6 billion in ‘secondary’ deposits scattered across the country (Figure 1) in a neutral scenario. This initial analysis demonstrates how historical environmental reclamation could be funded while also adding to mineral production and stimulating new markets and job creation in reprocessing.

Develop a variety of tailored financial products

SDMR research identified five types of tailored financial products for ASM

Equipment leasing helps spread the cost of the purchase across the useful life of the equipment. SDMR is trailing a modular mobile processing plant with COMIKAGI. Costing just US$60,000 it comprises proven technologies such as scrubbers and rock crushers to improve consistency in feed materials, and metal sluices and centrifugal concentrators to extract more minerals.

This equipment could see an increase in average recovery of tin, tungsten, and tantalum (3Ts) from 50-60% to 70-80% and would therefore pay for itself relatively quickly. Combined with off-take agreements, contracts to sell materials as collateral, and sharing of such machinery there are a range of leasing models that could be deployed.

Equipment and asset loans for the purchase of new assets, replacement of old ones or expansion of current business operations. Customers are encouraged to make prior regular savings to contribute to initial outlay, with SDMR research suggesting up to 30%. The loans differ from leasing in that the mining company or cooperative owns the equipment and/or asset. The repayment term suggested is four months to five years to make the loan affordable and allow flexibility.

Business loans are regular credit with short repayment term of up to four months and repaid monthly depending on cash flow. These loans are designed primarily for improving business competitiveness through upgrading activities such as training, small business-related purchases, and production tools.

Figure 1: Scenarios valuing ‘waste’ heap tailings across Rwanda (US$)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Value (US$)</th>
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<tbody>
<tr>
<td>Pessimistic</td>
<td>0.8</td>
</tr>
<tr>
<td>Neutral</td>
<td>3.6</td>
</tr>
<tr>
<td>Optimistic</td>
<td>8.8</td>
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</tbody>
</table>

Short-term loans and overdrafts

Respond to very short-term liquidity needs and finance emergency needs. The duration ranges from two weeks to three months and is repayable in one instalment.

A line of credit is a short-term loan targeting mining business individuals, companies and cooperatives and aimed at responding to their short-term working capital needs. Usually repayable in maximum 12 months, with possibility for progressive disbursement tranches and repayments.
A guarantee fund is financially used to underwrite loans so that if a recipient defaults on their payments, a financial institution can still recover the initial loan value. Creating a new guarantee fund, or expanding existing funds to include mining, would help de-risk and catalyse access to finance for the sector.

SDMR research recommends an initial pilot guarantee fund of US$5 million, later rising to US$40 million, to be managed by the Government of Rwanda and funded through government (50%); contributions from development agencies (30%); mining sector royalties (10%); participating financial institutions (10%).

The model is a ‘direct individual guarantee scheme’ whereby each loan applicant is individually appraised and directly awarded funding if approved. The fund would guarantee 80% of the risk, the borrower 15%, and the lender 5% to incentivise all parties. The fund would need trained staff to appraise applications, monitor the portfolio, technical assistance and claims handling.

If a US$40 million loan from international development banks was sought to finance the fund, based on 2017 export revenue of US$370 million and assuming improved mineral processing and exploration leads to an increase of just 30% in production (of the 70% estimated to come from ASM), this would add US$78 million per year in export revenue alone.

Allowing four years for these improvements to kick-in and accounting for an increase in royalties, means that by the end of this period the initial loan could be easily repaid in full and an additional US$ 40 million recouped (Table 1).

The fund would need trained staff to appraise applications, monitor the portfolio, technical assistance and claims handling.

Table 1. Four-year Guarantee Fund costs and impacts

<table>
<thead>
<tr>
<th>Costs and impact</th>
<th>Annual (USD)</th>
<th>4-yr Total (USD)</th>
</tr>
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<tbody>
<tr>
<td>Guarantee Fund</td>
<td>9,800,000</td>
<td>39,200,000</td>
</tr>
<tr>
<td>Training for miners</td>
<td>200,000</td>
<td>800,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,000,000</strong></td>
<td><strong>40,000,000</strong></td>
</tr>
<tr>
<td>2017 export revenue</td>
<td>370,000,000</td>
<td></td>
</tr>
<tr>
<td>Export value with 30% increase in ASM output</td>
<td>77,800,000</td>
<td>311,200,000</td>
</tr>
<tr>
<td>Additional mining royalties at 4% p.a.</td>
<td>3,112,000</td>
<td>12,448,000</td>
</tr>
<tr>
<td><strong>Year 4 total increase in annual revenue</strong></td>
<td><strong>80,912,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

Dialogue, education, outreach and knowledge exchange

Education is needed to sensitize the financial sector and investors to the opportunities, risks and rewards offered by ASM, and scale up capacity within financial institutions to support the mining sector.

Lenders need to familiarise themselves with mining industry norms, best practice, sector trends and developments, and risk assessment tools.

Financiers must know where to educate themselves on the sector and miners must know where to learn about how to present their business and pitch for a loan. Accreditation of professionals would also provide confidence in the sector’s professionalism.

Above all, finance and mining stakeholders must work together to improve understanding of each other’s business and develop workable financial products for both sides.

Training on mine planning, technical skills, and best practice operational standards

In addition to unlocking access to finance, there is a need to improve skills so that the financing can be invested and used effectively. Improved mine planning and mainstreaming of gender and social inclusion policies not only ensure legal compliance but also reduce the risk of costly – and deadly – accidents such as tunnel collapses as well as improvements in employee health and safety, well-being and retention, and relatedly efficiency and productivity.

Combined with improved productivity, a Guarantee Fund could add $US78 million per year in mineral export revenue.

Participants at ‘Access to Finance for Exploration and Mining Operations in Rwanda’ workshop, 9:00-12:00, 15th July 2019, Park Inn Radisson Hotel, Kigali. Front table (left to right): Kalima J.Malic, Chairman Rwanda Mining Association; Ezra Mbonye, Programme Officer DFID Rwanda; Lindsey Allwright Private Sector Development Adviser DFID Rwanda; Cissy Mucyo, Director Corporate Services Nglali Holdings; Honourable Francis Gatare, CEO RMB; Simon Sindambiwe, Owner Ets Sindambiwe

References


Citation


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