

Community social-needs assessment tool

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Mining, mining modernisation, and eventual mine closure have impacts on mine communities, and an understanding of community socio-economic needs is necessary. This understanding is further important for the conceptualisation of communities that are self-sustainable beyond the closure of mines. The aim of the project was to develop a community social-needs assessment tool for potential use by gold and platinum group metal mines. The project was informed by desktop research, literature review and stakeholder engagement, and the tool was developed for use and piloted with industry partners. The assessment tool that was developed comprises of questionnaires for small, medium, and micro enterprises, community members, community-based organisations and non-governmental organisations, a notice board, and a resource library of useful information. Implementation of the tool is expected to generate an improved understanding of community socio-economic needs towards shared value creation to support environmental, social and governance agendas.

Keywords: Alternate economies, co-creation, community engagement, localisation

INTRODUCTION

Shareholders demand a balance of profitability, planet, and people. For mines' licences to operate, Social and Labour Plan (SLP) targets need to be met, amongst other aspects, in terms of community social responsibility. The Sustainable Development Goals (SDGs) are a call for action towards ending poverty and other social deprivations, with aligned strategies to improve health and education, reduce inequality, and spur economic growth – with consideration of the environment. It is essential for mines to act in this regard. Mining impacts on mine communities, and an understanding of community socio-economic needs is necessary. These impacts include environmental, social, and economic outcomes within communities. The dependence of host communities on mines needs to be considered (Ritchken, 2018). The modernisation of mining is a further factor to consider, and this has been accelerated by the COVID-19 pandemic. In addition, the legacy that mines leave behind once resources are depleted and shafts close is crucial. Improved understanding of the impacts of mining and modernisation is important for the conceptualisation of communities that are self-sustainable beyond the closure of mines. As such, the need to develop a tool to assess community socio-economic needs was identified.

The aim of the project was to develop a community social-needs assessment tool for potential use by gold and platinum group metal (PGM) mines. The tool is intended to acquire data on the changing socio-economic concerns and needs of mining community members and organisations, and information about local initiatives and businesses, to assist mines to effectively support community development. These organisations include small, medium, and micro enterprises (SMMEs), non-governmental organisations (NGOs) and community-based organisations (CBOs). NGOs were considered key role players in determining the 'real' socio-economic needs of communities in this project. The tool enables the assessment of current and perceived future needs, which may help the strategic thinking of mines, and identify potential black industrialists, and asset bases within their local community.

The identification of mine-led and community-led initiatives would inform the decision-making processes of the mines to better empower communities to continue meeting their needs.

The objectives of the study were:

- To uncover various approaches and practices from industry (locally and globally) relating to community social-needs and related survey tools;
- To avail an assessment tool for potential use by gold and/or PGM mines; and
- To pilot the assessment application for securing of community social-needs to support social indicators.

The project was commissioned by the Successful Application of Technology Centred Around People (SATCAP) Programme of the Mandela Mining Precinct. SATCAP aims to understand the impacts of mining modernisation on people in the minerals sector. In 2022, the focus of SATCAP was to support the environmental, social and governance (ESG) agenda and, in particular, the social aspect. The project (Work Package 3.2) was aligned to three concurrent SATCAP projects (Work Packages 2.1, 2.2 and 3.1) that focused on tools for the assessment of training needs, digital leadership competencies, and SMME engagement, respectively.

A collaborative research team was commissioned to develop and pilot the community social needs assessment tool. The project was led by the Research Institute for Innovation and Sustainability (RIIS), in collaboration with the Council for Scientific and Industrial Research (CSIR), Mining Dialogues 360°, WinWin Consulting International, and key mining partners, including a gold and a multi-commodity mining company (Likaku *et al.*, 2023).

LITERATURE REVIEW

A review of literature was conducted to gain a better understanding of mining community needs, industry approaches, leading practices, and related existing tools.

The SLPs for the areas where the envisaged pilot testing was to be conducted, were reviewed. SLP initiatives at the multi-commodity mine company included farming initiatives, water supply, road construction, stormwater management, clinics, schools, multi-purpose centre and community health centre development, and sports field upgrading. Initiatives at the gold mine included a human resource development programme, and local economic development programmes such as building school laboratories and classrooms, a community care centre, park, ICT centre and health care clinic, upgrading or development of sports facilities, and support for social entrepreneurship initiatives and agricultural projects. It was evident that SLPs were not always easily accessible to communities. Additionally, individual mine SLPs are often duplicated and uncoordinated (Ritchken, 2018).

The concept of Asset-Based Community Development (ABCD) was identified as an approach for tool design in this project. ABCD focuses on the linkages between the micro-assets in the community and the macro-environment in the province or country (Mhar, 2022). It was evident that the identification of current asset bases or local initiatives in the community can be helpful for understanding the socio-economic needs in the community, and who can be supported to better contribute to the local economy. Existing asset bases in the specific mining communities involved in the tool piloting included:

- Social or human assets e.g., health facilities sports fields, schools, malls, and community centres;
- Economic assets e.g., road infrastructure, water and sanitation, electricity, agriculture, and tourism; and
- Environmental assets e.g., dams, rivers, parks, and conservation areas.

Further research was conducted to understand potential alternative economies for post-mining

communities. Some of these findings are described in Table 1. The main streams of alternative economies that were identified included mine waste beneficiation and waste-mining, recycling and waste management, regenerative agriculture, agro-processing and re-forestry, carbon alternative and renewable energy production, tourism and cultural attractions, and information and communications technology (ICT). These alternative economies can be used for the creation of direct and indirect jobs and resources, especially post-mine closure (Aleke and Nhamo, 2016; Bizcommunity, 2016; Burger, 2022; Hartley *et al.*, 2019; Maia *et al.*, 2011; Nwaila *et al.*, 2021; Parliamentary Monitoring Group, 2021; Tshivhengwa, 2019).

Related tools and applications that were available both locally and internationally, and from mining and other sectors, were assessed for applicability for this project, and a gap analysis was conducted. Tools used include mobile applications and paper-based surveys. Examples of leading practices that were identified included the International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability, the International Council on Mining and Metals (ICMM) Community Development Toolkit and Anglo-American Social Way principles and guidelines (Anglo-American Social Way, n.d.; ICMM, 2012; IFC, 2012). The IFC Performance Standards describe ideal community engagement practices, which refer to the ethical practices used by an organisation to minimise the implications of their operational activities on community health and well-being. The ICMM Toolkit consists of 20 practical tools and provides comprehensive guidance for key steps of the mining cycle. The Anglo-American Social Way Toolkit gives direction on how an organisation's Socio-Economic Development strategies can effectively help stakeholders achieve long-term gains in their well-being at the individual, home, and/or community level.

In addition, specific tools were assessed as benchmarks to inform the project tool design and layout. These tools included the Social Screening Tool of the American Academy of Family Physicians (AAFP), the Accountable Health Communities Health-Related Social Needs Screening Tool, and the SDG Impact Assessment Tool (UN-SDSN) (AAFP, 2019; Centres for Medicare and Medicaid Services, 2019; SDG Impact Assessment tool, n.d.). The Social Screening Tool identifies social determinants of health, such as food, transportation, housing, utilities, safety, employment, financial status, and childcare. The Accountable Health Screening Tool is used to assess patient needs where community programmes can potentially assist, such as housing, transportation, food security, utility needs, and safety. The UN-SDSN is a free online learning instrument that enables self-assessment of how a certain practice, institution, or development impacts SGDs and how to prioritise future activities.

Table I. Alternative economies

Alternative economies	Social needs
Mine waste beneficiation and 'waste mining'	<ul style="list-style-type: none"> • Establishing diverse sources of employment • Health/medical services • Water treatment • Uncontaminated land/housing • Education and awareness/educational and training facilities • Mine-waste facilities
Recycling	<ul style="list-style-type: none"> • Recycling resources, e.g., equipment needed for recycling (metal mining and exploration) • Safety/appropriate clothing (masks, gloves, overalls, boots, etc.) • Ablution facilities (provisions for temporary toilets, clean drinking water, etc.) • Recycling centres (buy-back centres and drop-off centres) • Recycling awareness and educational programmes • Logistics and infrastructure • Scrap treatment • Health facilities
Regenerative agriculture, agro-processing and re-	<ul style="list-style-type: none"> • Agricultural advisory services • Rural finance

forestry	<ul style="list-style-type: none"> • Agricultural technology • Small-scale irrigation facilities • Rural enterprise development • Animal health services
Carbon alternative and renewable energy production	<ul style="list-style-type: none"> • Employment • Educational awareness • Health facilities and services • Energy access
Small/light manufacturing, industrial parks – based on District Development Model	<ul style="list-style-type: none"> • Development if integrated transportation infrastructure (on-site and off-site) • Communications infrastructure • Integrated utilities infrastructure • Solid waste collections, transport, and treatment facilities • Water source development • Wastewater treatment and recycling • Development of knowledge, training and research support infrastructure • Air quality monitoring system • Healthcare services and facilities/emergency services • Logistics and parking centres • Environmental permits/compliance requirements and licences
Tourism and cultural attractions	<ul style="list-style-type: none"> • Tourism awareness training • Tourism skills training • Leadership and mentorship • Tourism facilities • Vehicles and licences (transportation) • Compliance requirements • Education and cultural awareness • Financial resources • Accommodation • Employment
Information and Communication Technologies (ICT)	<ul style="list-style-type: none"> • Internet access/connectivity • Technological infrastructure (phones, computers, connectivity facilities, etc.) • ICT awareness (especially in rural communities) • Language of resources • Online access centres • Community centres

(Sources: Aleke and Nhamo, 2016; Bizcommunity, 2016; Burger, 2022; Hartley et al., 2019; Likaku et al., 2023; Maia et al., 2011; Nwaila et al., 2021; Statista, 2021; Tshivhengwa, 2019)

METHODS

Research Design

An explanatory design was incorporated into the study to provide a functional explanation for why the solution has specific components as per the design requirements. A design thinking approach was followed, which included the steps of understanding and synthesising data; ideation and analysis; and testing, iteration, and refinement.

Study Setting and Population

The study context was the South African mining industry and surrounding communities. The study participants included Community Engagement and Social Performance departments at mines, community leaders, NGOs, CBOs, and subject-matter experts.

Data Collection Tools and Procedures

Data were collected during literature review and stakeholder engagements to inform the tool design. Focus group discussions and co-creation workshops were held with mining partners and external stakeholders for tool characterisation. The survey tool content was drafted, and validated in sessions with internal team members, mine representatives (including Social Performance, Stakeholder

Relations, and Supply Chain Development teams), and subject-matter experts. A pilot version of the survey tool was developed using an iterative process. A physical pilot was conducted with 38 participants, including community engagement practitioners, community leaders, and SMMEs. Thematic analysis was conducted on participants' responses. The tool was refined based on insights received. The transfer of the tool has been facilitated by the development of a guideline and video tutorial.

Ethics Approval

Ethics approval to conduct the study was granted by the CSIR Research Ethics Committee (Ref: 405/2022).

RESULTS AND DISCUSSION

Stakeholder Engagement

Engagements, including focus group discussions, co-creation sessions, and smaller working group sessions, were held to gain insight into mine communities' socio-economic needs and tool design considerations. These engagements were held with participants from mining companies, including Social Performance and Supply Chain Development departments, CBOs and NGOs, and project partners. Findings from the engagements are indicated in Table II. From the discussions it was evident that understanding the direct needs of the communities was important for making the right decisions relating to imminent mine closure. Additionally, it was evident that there were communication barriers between community members and the mines. Regarding tool design characteristics, mine partners indicated that engagement with communities and stakeholders occurred via community forums and informal and formal interviews. The use of a zero-rated data, learning platform was also mentioned, that allows for engagement between communities and mining companies.

Assessment Tool Application Development

The content for the assessment tool was drafted and iterated onto a digital application. The tool was designed as an application with a survey component, resource library, and noticeboard that would feed into a platform with dashboards that would present the various community and SMME needs currently and for future alternative economies. The survey comprised of questionnaires for community members, SMMEs, CBOs, and NGOs. The survey questions were segmented into specific categories to get information about demographics, education and skills, employment, available facilities and infrastructure, current needs, and SMME services and support. Table III indicates the categories of questions included in the survey. The tool was designed using open-source code and as a stand-alone web-based application that is accessible on a smartphone, laptop, or tablet.

Table II. Stakeholder engagement insights

Stakeholder group	Insights
Mining partners	<ul style="list-style-type: none"> • The mines are looking to understand the direct needs of the community to make better decisions about how to assist the community with their needs. • Due to the various grievance mechanisms that they have already, this tool should not be another grievance-venting instrument for the community to the mine's management. • There is room for tools to supplement those already in place. For some mines the use of formal and informal methods of community engagement, and surveys and questionnaires were prevalent. Other mines had begun the piloting of apps to gain data for their internal platforms. • Some mines already have operations in the sectors that are earmarked as alternative economies. • Mines can also benefit from identifying standout businesses and black industrialists in their community to direct their assistance accordingly in some of the identified alternative economies. • The tool should be able to identify already existing initiatives and assets that are empowering the economy and either support them or partner with them. • Community and SMME's socio-economic needs are evolving; the tool should be able to capture the growing needs.
CBOs and NGOs	<ul style="list-style-type: none"> • The priority needs to be on empowering the community to do their own engagement with the mine and to remove the middleman. • Community-based organisations are the best way to identify the key points of the marginalised groups and existing assets to get information to the mines. • The community often engages with the mines, but the latter are not transparent and do not avail information at the same level as that shared with regulators. Mines need to improve their way of giving communities information that they may need to be aware of, regarding their operations. • With the tool design, capacitating the local community is a major priority to ensure that they know how to use it. Similarly, mine personnel need retraining to be sensitive to and capable of using the participatory methodologies that are central to ABCD approaches. • There are challenges with having a tool that requires the use of a cell phone and other devices as communities require some level of digital literacy and access to internet/data.
Project partners	<ul style="list-style-type: none"> • ABCD methods are the best way to ensure that the communities can thrive post-mining as these identify and empower existing local businesses and initiatives. • There are other initiatives already in place that are not mine-led in the communities around the mine. • Agriculture is a standout post-mining economy. • Mining companies face local procurement constraints, as SMMEs are not adequately ready to tender for work with the mines. • There are issues in finding a meaningful way to engage with SMMEs to present opportunities that are available now versus those that will be available in the future. • Soft skills are an integral part of the modernisation of mines. • The language of the tool should be clear and concise to assist the understanding of various participants. • The tool will be web-based and not a catch-all application. • Accessibility is a key aspect to be taken into consideration. • Language limitation regarding open text inputs.

(Source: Likaku et al., 2023)

Table III. Survey question categories

Category	Respondent group	Social needs
Current needs	Community	<ul style="list-style-type: none"> • Education • Environmental needs • Livelihood needs • Skills improvement • Access to jobs • Finances to start a business • Transportation • Security • Water • Food • Shelter/housing • Healthcare • Recreational centres
	SMMEs	<ul style="list-style-type: none"> • Finance/funding • Skills • Collaborations and partnerships • Learning and development • Infrastructure • Connectivity • Utilities • Security
Future needs	Community	<ul style="list-style-type: none"> • Skills needs • Clean air • Healthy fertile soil • Access to land • Pollution-free environment • Functioning waste management system
	SMMEs	<ul style="list-style-type: none"> • Collaboration and partnerships
Current asset bases	Community	<ul style="list-style-type: none"> • Health facilities • Community hall • Primary and secondary (high) schools • Police station • Tuckshops/spaza shops • Retail shopping centre • Transport stations • Sports and recreational facilities • Solid waste disposal and recycling depot • Post office • Community agriculture/training/gardening areas
	SMMEs	<ul style="list-style-type: none"> • Natural assets
Future asset bases	SMMEs	<ul style="list-style-type: none"> • Health facilities • Community hall • Primary and secondary schools • Police station • Tuckshops/spaza shops • Transport stations • Sports and recreational facilities • Solid waste disposal and recycling depot • Post office • Agriculture/farming/gardening

(Source: Likaku et al., 2023)

Pilot Testing and Validation

Various levels of validation took place to advance the tool from draft content questions into a usable application. The assessment tool was reviewed, tested, and validated by project collaborators and mine partners before and after the pilot testing. Feedback regarding language, syntax, and usability of the tool was provided and then incorporated into the tool. This collaborative process helped to ensure that the surveys were appropriate for the target users. Onsite pilot testing for the tool was conducted in September and October 2022. The study participants included community engagement practitioners, community leaders, and SMMEs. The physical pilot testing sessions were scheduled to be three hours long, and included the following three phases:

- Orientation phase – project introduction, question and answer session, and request for informed consent;
- Tool run-through – facilitated progression through the tool content on laptops, smartphones, or computers; and
- Tool validation with participants – focus group discussions to gain verbal feedback about the tool.

Feedback was received regarding the usability, functionality, language, and structure of the tool. During the pilot, it was also determined that ongoing stakeholder engagement and inclusion are critical for the success of the tool. Pilot testing feedback was collated and incorporated into the following application iteration, as per the section below.

Final Tool Development

The final application comprises a survey tool, notice board, and resource library. The survey tool consists of 37 questions for community members, CBOs and NGOs, and 44 questions for SMMEs. The question formats include multiple choice, checkboxes, drop-downs, and open texts. Each participant needs to provide consent before they proceed to the survey. The notice board allows space for mines to disseminate information directly to community members and SMMEs. The resource library acts as a repository of useful information about socio-economic needs and alternative economies. Figures 1 & 2 show the layout of the application pages.

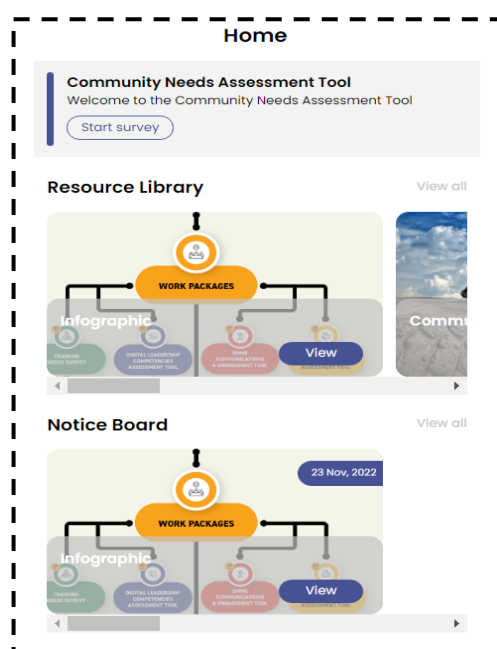


Figure 1. Home screen of application.

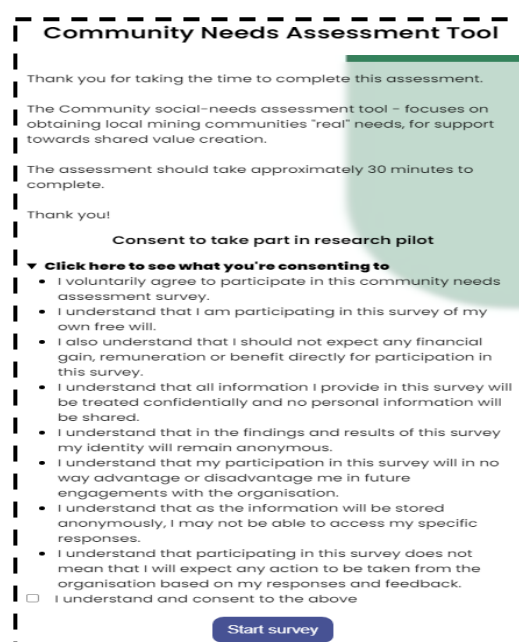


Figure 2. Survey page and consent information.

The application is housed on a web-based platform and is expected to be managed by mine administrators. Mine administrators will be able to create localised surveys for different operations and are expected to host and manage the generated database. Built into the application are standardised dashboards that can be generated for decision-making purposes towards appropriate interventions, as determined by mines.

Reporting outputs that the tool can create include the following:

- Current community challenges report
- Future community needs report
- Current SMME needs report
- Future SMME needs report
- Community asset bases report; and
- Future SMME beneficiation of assets report.

Traffic light/aggregator reports are also generated for mining partners to assist with data analysis by outlining areas of socio-economic needs that require support.

Recommendations for future enhancement of the application include customising the tool to include other languages used in mining communities, adapting the tool to capture evolving needs, and disseminating the tool in collaboration with SATCAP WP 2.1 (community/SMME training needs survey tool) to ensure that all needs are considered.

Transfer to Industry

The tool, along with a guideline and video to support the use of the application, are availed on the Mandela Mining Precinct website. Mines will be able to download the open-source coded tool, and there is no hosting or subscription cost. Internal and external mechanisms are recommended for the transfer of the tool within mining operations and across the South African mining industry, respectively. Internal mechanisms include integrating the application into community development initiatives at the mines, identifying a champion to drive the use of the tool, and issuing communication about the tool throughout the company. External mechanisms to increase awareness of the tool, include promoting the tool through online platforms and communication channels, conferences or symposiums, and academic papers.

CONCLUSION AND RECOMMENDATIONS

Implementation of the tool is expected to generate an improved understanding of community needs towards shared value creation to support the ESG agenda. However, the implementation of community-based initiatives would need to be dealt with in collaboration with NGOs, CBOs, and mines in the surrounding community. In particular, the intended impact of the application includes:

- A better understanding of the asset bases in communities which can be supported by mines for further development;
- A better understanding of asset bases in communities that the mine can partner with to continue assisting in meeting the needs of the community;
- An understanding of SMMEs, high-performing entrepreneurs and black industrialists that can promote local economic development;
- Increased visibility and understanding of opportunities for economic growth post-mine closure for community/SMME members; and
- A continuous dataset of real-time community and SMME challenges that can direct mine decision-making on how to tailor their support.

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REFERENCES

- Aleke, B.I. and Nhamo, G. (2016). Information and communication technology and climate change adaptation: Evidence from selected mining companies in South Africa. *Jambá: Journal of Disaster Risk Studies*, 8(3), pp.1-9.
- American Academy of Family Physicians (AAFP) (2022). Social Needs Screening Tool. https://www.aafp.org/dam/AAFP/documents/patient_care/everyone_project/hops19-physician-form-sdoh.pdf [accessed 19 May 2022].
- Anglo-American (n.d.). Anglo-American Social Way. <https://staticcontents.investis.com/files/a/angloamerican/socialway/toolkit/socialway-toolkit-v4.pdf> [accessed 9 Mar. 2023].
- Bizcommunity (2016). Saldanha Bay IDZ Creating Opportunities. <https://www.bizcommunity.com/PDF/PDF.aspx?l=196&c=586&ct=1&ci=140689> [accessed 14 Jun. 2022].
- Burger, S. (2022). South African Green Energy Transition Can Create 250 000 More Jobs Over 25 Years – GWEC. <https://www.engineeringnews.co.za/article/south-africangreen-energy-transition-can-create250-000-morejobs-over-25-years-gwec-2022-02-17#:~:text=In%20a%20business%2Das%2Dusual,development%2C%20construction%20and%20installation%20phase.> [accessed 22 Jun. 2022].
- Centers for Medicare and Medicaid Services (2019). The Accountable Health Communities Health-Related Social Needs Screening Tool. <https://innovation.cms.gov/files/worksheets/ahcm-screeningtool.pdf> [accessed 9 Mar. 2023].
- Hartley, F., Burton, J., Cunliffe, G., McCall, B., Caetano, T., Ntuli, N., Fourie, R. and Chiloane, L. (2019). Future skills and job creation through renewable energy in South Africa – Assessing the cobenefits of decarbonising the power sector. Energy Research Centre, University of Cape Town (UCT), and Council for Scientific and Industrial Research (CSIR), Pretoria.
- International Council on Mining and Metals (ICMM) (2012). Community Development Toolkit. https://www.icmm.com/website/publications/pdfs/social-performance/2012/guidance_community-development-toolkit.pdf [accessed 9 Mar. 2023].
- International Finance Corporation (IFC) (2012). Performance standards on environmental and social sustainability. Washington DC, USA.
- Likaku, Y., Bull, S., Swettenham, T., Khan, S., Pelders, J., Andersson, G., Woolmington, S. and Meyer, N. (2023). Final Report – People-Centric Modernisation: NGO Community Social Needs Survey Tool. SATCAP WP 3.2. Mandela Mining Precinct, Johannesburg, South Africa.
- Maia, J., Giordano, T., Kelder, N., Bardien, G., Bodibe, M., Du Plooy, Jafta, D., Kruger-Cloete, E., Kuhn, G., Lepelle, R., Makaulule, L., Mosoma, K., Neoh, S., Netshitomboni, N., Ngozo, T. and Swanepoel, J. (2011). Green Jobs: an estimate of the direct employment potential of a greening South African economy. Trade and industrial policy strategies. Industrial Development Corporation, Development Bank of Southern Africa.

- Mhar, R. (2022). Asset Based Community Development (ABCD) - Nurture Development. <https://www.nurturedevelopment.org/asset-based-community-development/> [accessed 8 Jul. 2022].
- Nwaila, G.T., Ghorbani, Y., Zhang, S.E., Frimmel, H.E., Tolmay, L.C., Rose, D.H., Nwaila, P.C. and Bourdeau, J.E. (2021). Valorisation of mine waste – Part I: characteristics of, and sampling methodology for, consolidated mineralised tailings by using Witwatersrand gold mines (South Africa) as an example. *Journal of Environmental Management*, 295: 1113013.
- Parliamentary Monitoring Group (2021). Special Economic Zones and Industrial Parks Outcomes in Respect of Investments, Economic Growth and Job Creation: Stakeholder Engagement; with Deputy Minister. Available: <https://pmg.org.za/committee-meeting/32576/> [accessed 15 Jun. 2022].
- Ritchken, E. (2018). The Gold of the 21st century: a vision for South Africa's Platinum Group Metals, in Netshitenze. The Future of Mining in South Africa.
- SDG Impact Assessment Tool (n.d.). <https://sdgimpactassessmenttool.org/en-gb> [accessed 11 Jun. 2022].
- Statista (2021). South Africa: Contribution of Tourism to GDP. [https://www.statista.com/statistics/1290545/contribution-of-travel-and-tourism-to-gdp-in-south-africa/#:~:text=In%202021%2C%20travel%20and%20tourism,19\)%20pandemic%20on%20the%20sector](https://www.statista.com/statistics/1290545/contribution-of-travel-and-tourism-to-gdp-in-south-africa/#:~:text=In%202021%2C%20travel%20and%20tourism,19)%20pandemic%20on%20the%20sector) [accessed 17 Jun. 2022].
- Tshivhengwa, T. (2019). Travel and Tourism: A Key Sector in Unlocking the Economy and Creating Jobs – TBCSA. <https://tbcsa.travel/travel-and-tourism-a-key-sector-in-unlocking-the-economy-and-creating-jobs/> [accessed 10 Jun. 2022].



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