

Technical Factsheet



Project: Promoting the development of a green hydrogen economy for South Africa (H2.SA)

Tender: Impact Analysis of Critical Raw Materials' Mining and Use for the Green Hydrogen economy in South Africa

Main Objective:

To conduct an assessment including actionable insights and recommendations for the mining industry, policymakers, and other stakeholders to ensure promotion of sustainable sourcing and utilization of critical minerals in the South African green hydrogen sector.

Approach:

- Review where critical raw minerals are produced in South Africa.
- Investigate the potential for expanding the production of critical raw minerals in South Africa.
- Analyse the potential positive and negative social, economic and environmental impacts of critical raw material mining for the Green Hydrogen economy in South Africa.
- Investigate the security and resilience of critical minerals supply chains that may impact South Africa's green hydrogen sector and identify opportunities to diversify and strengthen these supply chains.
- Propose good practices as well as innovative technologies for responsible critical minerals extraction that would minimize negative environmental and social impacts.
- Identify technological advancements and alternatives to help reduce the reliance on critical minerals and promote sustainability.
- Recommend strategies for optimizing critical minerals utilization, reducing waste generation, and promoting circular economy principles.
- Develop actionable insights and recommendations for the mining industry, policymakers, and other stakeholders to ensure promotion of sustainable sourcing and utilization of critical minerals.
- Produce training material summarizing insights on critical raw materials.

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Est. timeframe:

05/02/24-
15/12/24

Overview about the tasks, included activities and planned products

| Task | Activities | Planned products / Results | Deadline |
|------|--|--|------------------|
| 1 | <p>Task clarification and kick off meeting</p> <p>An internal (GIZ-Consultant) kick-off meeting was conducted on the 15th February 2024 to</p> | <ul style="list-style-type: none"> • Workplan • Inception Report | 22 February 2024 |

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| | clarify different tasks and deliverables including agreeing on the next steps. | | |
| 2 | <p>Assess potential environmental impacts of extracting critical minerals in South Africa's mines</p> <p>Workpackage (WP) 2 aims to develop a map of South Africa showcasing where the minerals are produced while overlaying important environmental features and social demographics.</p> <p>WP 2 also features scenarios forecasting the potential demand (high and low) for critical minerals in South Africa for the Green Hydrogen Economy and evaluating the potential environmental effects of critical minerals extraction and use for green hydrogen technologies in South Africa.</p> | <ul style="list-style-type: none"> Map & description of critical minerals in SA | 15 May 2024 |
| 3 | <p>Examine Social, human rights and socio-economic impact.</p> <p>WP3 investigates potential positive and negative social issues such as labour conditions, human rights violations, and community displacement associated with critical minerals mining.</p> <p>WP3 intends to also assess the involvement of local communities and indigenous populations in decision-making processes related to mining activities.</p> <p>Economic benefits and drawbacks of critical minerals mining for green hydrogen technologies, including job creation, revenue generation, and contributions to regional economies will be examined in WP3.</p> | <ul style="list-style-type: none"> Draft the Impact Analysis Report combining results from work packages 2 and 3. | |
| 4 | <p>Identification of Risk and opportunities of critical minerals supply chains</p> <p>WP4 analyses the impacts on the supply chains for South Africa's critical minerals by investigating its security and resilience and identifying opportunities to diversify and strengthen the supply chains.</p> <p>During the implementation of WP4, a workshop with relevant stakeholders will take place.</p> | <ul style="list-style-type: none"> Impact Analysis Report: Environmental & Social Impacts of Critical Minerals Extraction & use in South Africa's GH2 economy 1x Workshop | 31 July 2024 |

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| <p>5</p> | <p>Review & recommend sustainable practices for critical minerals extraction and utilization</p> <p>WP5 promotes the need to reduce negative environmental and social impacts caused by critical mineral extraction by identifying and proposing good practices as well as innovative technologies. In addition, WP5 aims to review the literature to find suitable and sustainable alternatives and technology advancements.</p> <p>Strategies for optimizing critical minerals utilization, reducing waste generation, promoting circular economy principles and the potential to recycle and reuse critical minerals from end-of-life components will be provided in WP5.</p> | <ul style="list-style-type: none"> • Update Impact Analysis Report | |
| <p>6</p> | <p>Recommendations and Training Material</p> <p>WP6 includes recommendations that can be used by the mining industry, policymakers, and other stakeholders to ensure the promotion of sustainable sourcing and utilization of critical mineral resources.</p> <p>Training material summarizing the findings of critical raw minerals will be developed in WP6.</p> | <ul style="list-style-type: none"> • Policy Brief • Updated Impact Analysis Report (with Executive summary) • Training Material (Short Power Point Summary) • 2x Information Sessions | <p>31 October 2024</p> |

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| <p>Key benefits for South African stakeholders</p> |
| <ul style="list-style-type: none"> • The promotion of sustainable extraction and utilization of Critical Raw Minerals for the Green Hydrogen economy in South Africa and in turn promote the sustainable development of other industries dependent on these critical minerals such as renewable energy, electric vehicles and electronics. • Both the negative and positive environmental, social and economic impacts are identified, and recommendations thereof are developed in the impact analysis assessment. |

Main contact persons/focal points



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