



IGF

INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development

Building Competitive Battery Value Chains in the Central African Copperbelt

Assessing the readiness of the DRC–Zambia battery
initiative | **DRAFT**



Secretariat hosted by



Project funded by





© 2026 International Institute for Sustainable Development
Published by the International Institute for Sustainable Development

The International Institute for Sustainable Development (IISD) is a globally recognized think tank with more than 30 years of experience working to solve today's greatest sustainable development challenges. We combine deep expertise across critical policy areas with a collaborative approach to research, advice, and hands-on support that delivers real-world results. Headquartered in Winnipeg, Manitoba, we are a diverse team of over 300 experts working from offices in Canada and Switzerland as well as other locations around the world.

IISD's headquarters in Winnipeg are situated on Treaty 1 Territory—the ancestral lands of the Anishinaabe (Ojibwe), Ininiw (Cree), Anisninew (Ojibwe Cree), Dene, and Dakota Nations, and the homeland of the Red River Métis Nation.

IISD is a registered charitable organization in Canada and has 501(c)(3) status in the United States. IISSD receives core operating support from the Province of Manitoba and project funding from governments inside and outside Canada, United Nations agencies, foundations, the private sector, and individuals.

The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) supports its more than 80 member countries in advancing their sustainable development goals through effective laws, policies, and regulations for the mining sector. We help governments take action to develop inclusive and gender-equitable practices, optimize financial benefits, support livelihoods, and safeguard the environment. Our work covers the full mining life cycle, from exploration to mine closure, and projects of all sizes, from artisanal mining to large-scale operations. Guided by our members' needs, we provide in-country assessments, capacity building, technical training, publications, and events to advance best practices, peer learning, and engagement with industry and civil society. The International Institute for Sustainable Development has hosted the IGF Secretariat since October 2015. Core funding is provided by the governments of Canada and the Netherlands.

**Building Competitive Battery Value Chains in the Central African Copperbelt:
Assessing the readiness of the DRC-Zambia battery initiative**
DRAFT

July 2026

Photo: iStock

Suggested citation: Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2026). *Building competitive battery value chains in the Central African Copperbelt: Assessing the readiness of the DRC-Zambia battery initiative*. International Institute for Sustainable Development.



Acknowledgements

Fabien Mayani is the lead author of this report; William Davis and Isabelle Ramdoo made substantial contributions to the text, and Tahiana Joëlle Ravelomanantsoa provided data and insights used in the report. The authors would also like to thank Jean-Marie Kanda, Bertram Lang, Thomas Scurfield, and John Sloan for very helpful comments. In addition, the authors are very grateful to stakeholders in the Democratic Republic of the Congo and Zambia who were interviewed for the report in November and December 2025, and participants at the workshop organized to discuss the report's findings held on February 11, 2026, on the margins of Mining Indaba 2026.

This report was funded by the Quadrature Climate Foundation (QCF), an independent charitable foundation working to build resilience for people and communities most affected by intersecting climate, social, and economic crises.



EXECUTIVE SUMMARY

The global transition to a low-carbon economy is reshaping the geography of industrial production. As governments and industries seek to secure resilient supply chains for critical minerals and battery materials, competition is increasingly shifting beyond resource extraction toward the manufacturing capabilities that underpin the energy transition. Countries that succeed over the coming decades are likely to be those that combine mineral endowments with competitive industrial ecosystems capable of attracting investment, fostering innovation, and integrating into regional and global value chains.

The Democratic Republic of the Congo (DRC) and Zambia occupy a unique position within this evolving landscape. Together, they host one of the world's largest concentrations of copper and cobalt resources and have emerged as indispensable suppliers of minerals required for battery production. Recognizing that mineral wealth alone does not guarantee industrial development, the two governments launched a joint initiative in 2022 to establish battery value chains through coordinated industrial development centred on special economic zones (SEZs) in Musompo and Ndola.

This report examines the readiness of that initiative. It assesses whether the policy, institutional, and economic conditions required to support competitive battery-related industries are in place and identifies practical pathways for strengthening implementation. While the analysis focuses on the DRC and Zambia, its findings speak more broadly to a question increasingly confronting mineral-producing economies: how can critical minerals become a catalyst for industrial transformation rather than simply another export commodity?

Industrialization Is the Opportunity

One of the central conclusions emerging from this study is that the DRC-Zambia initiative should be understood as an industrial development strategy rather than just a battery manufacturing project.

The two countries already participate in global battery value chains through mining and mineral processing. The strategic opportunity now lies in progressively increasing domestic and regional value addition by expanding into activities that build on existing capabilities while creating new industrial competencies over time.

International experience demonstrates that industrial upgrading rarely occurs through a single transformational investment. Countries that have successfully entered advanced manufacturing have generally done so by strengthening adjacent industries, developing supplier networks, investing in skills and innovation, and gradually moving into more sophisticated segments of production. This evidence suggests that industrial transformation is best viewed as a cumulative process of capability building.



For the DRC and Zambia, this implies that mineral processing, battery-grade chemicals, precursor materials, electric mobility, and, ultimately, battery cell manufacturing should be viewed as complementary stages within a broader industrial trajectory rather than competing development options.

Strong Foundations Have Been Established, but Competitiveness Will Determine Success

The report finds that the initiative has made significant progress in establishing the institutional foundations required for implementation. The bilateral cooperation framework, the Battery Council, the African Centre of Excellence for Research and Innovation on Batteries (CAEB), and the designation of Musompo and Ndola as industrial platforms demonstrate a shared political commitment to industrial development and regional cooperation.

The next phase of the initiative will depend less on creating new institutions than on strengthening the competitiveness of those that already exist.

Across all country experiences reviewed in this study, a common lesson emerges: investors are ultimately not attracted by mineral resources or fiscal incentives alone, but by competitive business environments. Reliable infrastructure, affordable energy, efficient logistics, predictable regulation, skilled labour, access to finance, access to technology, and effective institutions consistently prove to be as important—if not more in some instances—as tax concessions in determining long-term investment decisions.

The assessment suggests that the DRC and Zambia possess important comparative advantages, particularly their mineral endowment, growing processing capabilities, and political commitment. At the same time, strengthening implementation capacity, improving energy reliability, developing technical skills, facilitating access to finance, and reducing logistical costs remain important priorities for enhancing industrial competitiveness.

The Initiative's Greatest Strength Lies in its Regional Dimension

Another key highlight of this report is that the initiative's long-term competitiveness is unlikely to depend solely on the DRC and Zambia. Battery value chains are inherently regional and global. No single country currently possesses all the minerals, industrial capabilities, technologies, and markets required to support a complete battery ecosystem. Southern Africa, however, collectively possesses many of these assets.

The analysis therefore suggests that the initiative could progressively evolve from a bilateral industrial project into the nucleus of a broader Southern African battery ecosystem.



This vision extends beyond regional sourcing of minerals. It envisages the development of complementary industrial capabilities across multiple countries, supported by regional trade, investment, and knowledge networks. Under such an approach, mineral-producing countries would not simply supply raw materials to manufacturing centres elsewhere in the region. Instead, regional value chains could support progressively higher levels of value addition across Southern Africa through processing, manufacturing, engineering services, logistics, research, and innovation.

Existing regional frameworks—including the African Continental Free Trade Area (AfCFTA), the Southern African Development Community (SADC) Industrialization Strategy and Roadmap, and the Common Market for Eastern and Southern Africa (COMESA)—provide an important foundation for this evolution. Leveraging these mechanisms could facilitate industrial specialization, strengthen regional markets, and improve the competitiveness of battery value chains across the region.

Implications for Policy

The analysis presented in this report points toward a set of strategic priorities that extend beyond the implementation of individual projects or SEZs. Collectively, they suggest that the success of the DRC-Zambia initiative will depend on how effectively industrial policy, regional cooperation, and international partnerships reinforce one another over time.

At the national level, the immediate priority is to strengthen the competitiveness of the industrial ecosystem surrounding Musompo and Ndola. While the two countries start from different positions, each has distinct strengths that can be leveraged. For the DRC, this means translating its exceptional mineral endowment into a competitive industrial platform by accelerating the operationalization of Musompo, strengthening the investment environment, expanding reliable infrastructure and energy, and investing in skills, innovation, and effective implementation. For Zambia, the opportunity lies in building on an existing industrial base to position the Ndola Multi-Facility Economic Zone as a regional manufacturing and industrial services hub, while deepening supplier development and strengthening linkages between mining, manufacturing, and local enterprises.

At the bilateral level, the report suggests that the greatest value of the initiative lies not only in cooperation, but in coordination. The DRC and Zambia have already established a robust political framework through the Battery Council. The next phase will require translating this shared ambition into coordinated implementation through a joint industrialization roadmap, a common market strategy, and stronger technical cooperation. In particular, ensuring that Musompo and Ndola evolve as complementary industrial platforms—rather than competing investment destinations—could enhance the attractiveness of the initiative and encourage investors to view the two zones as components of a single regional industrial proposition.

Looking beyond the two countries, the report also highlights the importance of regional integration as a source of industrial competitiveness. Existing African frameworks—



including the AfCFTA, SADC, and COMESA—provide practical mechanisms for supporting regional value chains, facilitating investment, and expanding markets. The battery initiative presents an opportunity to demonstrate how these frameworks can be translated into concrete industrial outcomes. By encouraging complementary industrial capabilities across Southern Africa, strengthening regional infrastructure, and fostering research and innovation networks, the initiative could contribute to a broader process of industrial upgrading that benefits multiple countries rather than concentrating value addition in only a few locations.

Finally, the report underscores the strategic role of international partnerships. As implementation progresses, partnerships will increasingly influence access to finance, technology, research, skills, and markets. Different partnership models, however, are likely to generate different combinations of opportunities and trade-offs. The report does not favour any particular model of partnerships. Instead, it suggests that governments may benefit from assessing partnerships against their long-term industrial development objectives, ensuring that immediate investment opportunities are considered alongside broader ambitions related to local value addition and economic diversification, technology transfer, supplier development, workforce skills, and market access. Such an approach can help maximize the developmental impact of international cooperation while maintaining the flexibility needed to engage with a diverse range of partners.

Looking Ahead

The DRC-Zambia battery initiative arrives at a moment when industrial policy, critical minerals, and regional integration are converging in ways not seen for decades. This convergence presents an opportunity that extends well beyond the development of battery value chains.

If successfully implemented, the initiative could demonstrate a new approach to mineral-based development—one in which critical minerals become a platform for building industrial capabilities, strengthening regional production networks, and supporting economic diversification across Southern Africa.

Realizing this ambition will require sustained political commitment, effective implementation, and continued investment in the enabling conditions that underpin industrial competitiveness. It will also require adaptability. Technologies, market demand, and geopolitical dynamics are evolving rapidly, and industrial strategies will need to evolve alongside them.

Ultimately, the significance of the DRC-Zambia initiative will not be measured solely by the number of factories established or the volume of minerals processed. Its lasting contribution will be determined by whether it succeeds in translating mineral wealth into productive capabilities, regional industrial integration, and long-term economic transformation. If that objective is achieved, the initiative could become an important reference point for how resource-rich economies leverage critical minerals, not simply participating in the global energy transition, but shaping it.



Table of Contents

1.0 Introduction.....	1
1.1 Why Battery Value Chains Matter for the Democratic Republic of the Congo and Zambia.....	1
1.2 Objectives of the Study.....	2
1.3 Research Methodology.....	2
2.0 Institutional Foundations of the DRC-Zambia Battery Initiative.....	4
2.1 Background to the Initiative.....	4
2.2 Key Agreements Underpinning the Initiative.....	4
2.3 Strategic Vision and Industrial Development Model.....	6
2.4 Governance and Institutional Arrangements.....	10
3.0 Progress Achieved and Current Status of Implementation.....	12
3.1 Development of the CAEB.....	12
3.2 Pre-Feasibility Study.....	12
3.3 Development of the Musompo and Ndola Industrial Zones.....	13
3.4 Key Policy Frameworks Developing Mineral Value Chains in the DRC and Zambia.....	16
3.5 Coordination and Implementation Challenges Between the Two Countries.....	16
4.0 Lessons From International Experience.....	19
4.1 Industrial Ecosystems and the Role of SEZs.....	19
4.2 How Countries Built Competitive Industrial Ecosystems.....	20
4.3 Key Lessons for the DRC-Zambia Initiative.....	22
4.4 Implications for the DRC-Zambia Battery Initiative.....	23
5.0 Assessing the Readiness of the DRC-Zambia Battery Initiative.....	24
5.1 Positioning the DRC and Zambia in Battery Value Chains.....	24
5.2 The Strategic Positioning of Musompo and Ndola.....	27
5.3 Readiness of the Industrial Ecosystem.....	32
5.4 Sustainability, Finance, and Market Access Readiness.....	40
5.5 Overall Readiness Assessment.....	44
6.0 Conclusions and Policy Recommendations.....	46
6.1 National Priorities for the DRC.....	46
6.2 National Priorities for Zambia.....	49



6.3 Joint DRC-Zambia Priorities	51
6.4 Expanding the Initiative Into a Southern African Battery Ecosystem	55
6.5 Strategic International Partnerships.....	58
References	61
Appendix A. Gaps in Trade Facilitation Implementation in the Democratic Republic of the Congo and Zambia	74

List of Tables

Table 1. International experiences and lessons for the DRC-Zambia Initiative	22
Table 2. Potential regional suppliers.....	26
Table 3. Strategic pathways for Musompo and Ndola.....	31
Table 4. Competitive strengths and constraints of Musompo and Ndola.....	32
Table 5. Comparison of the DRC and Zambia SEZ frameworks	34
Table 6. Overall assessment of the DRC-Zambia battery hub initiative's investment readiness.....	45
Table 7. Priority actions for the DRC	49
Table 8. Priority actions for Zambia	51
Table 9. Joint DRC-Zambia priorities.....	54
Table 10. A regional industrial ecosystem for battery value chains	58
Table 11. Strategic considerations for international partnerships.....	60
Table A1. Measures under the World Trade Organization Trade (WTO) Facilitation Agreement that were less than fully implemented in the Democratic Republic of the Congo as of 2025	74
Table A2. Measures under the WTO Trade Facilitation Agreement that are less than fully implemented in Zambia as of 2025	75



List of Figures

Figure 1. The lithium-ion battery value chain.....	7
Figure 2. Lithium-ion battery value chain sales revenue forecast for 2030	8
Figure 3. Cathode battery chemistry demand, 2025-2040 (GWh).....	9
Figure 4. The DRC-Zambia Battery Council governance structure	11
Figure 5. A simplified EV battery value chain.....	25
Figure 6. Location of SEZs at Musompo and Ndola, relative to key regional transport corridors.....	36

List of Boxes

Box 1. Infrastructure as a competitive advantage—or constraint	37
Box 2. Potential spillovers for local firms and workers.....	38
Box 3. Strategic lessons from the DRC-China Sicomines Partnership	43



Acronyms and Abbreviations

AfCFTA	African Continental Free Trade Agreement
Afreximbank	African Export-Import Bank
ARISE IIP	Arise Integrated Industrial Platforms
AZES	Agence des Zones Economiques Spéciales (Special Economic Zones Agency)
CAEB	Centre Africain d'Excellence pour la Fabrication des Batteries (African Center of Excellence for Research and Innovation on Batteries)
COMESA	Common Market for Eastern and Southern Africa
DRC	Democratic Republic of the Congo
ESG	environmental, social, and governance
IGF	Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
LFP	lithium, iron, phosphate
MFEZ	Multi-Facility Economic Zone
MoU	Memorandum of Understanding
NMC	nickel, manganese, cobalt
R&D	research and development
SADC	Southern African Development Community
SEZ	special economic zone
SME	small and medium-sized enterprise
SPS	sanitary and phyto-sanitary
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
ZDA	Zambia Development Agency
Zambia MCTI	Zambia Ministry of Commerce, Trade & Industry
Zambia MMMD	Zambia Ministry of Mines & Mineral Development



1.0 INTRODUCTION

1.1 Why Battery Value Chains Matter for the Democratic Republic of the Congo and Zambia

The Democratic Republic of the Congo (DRC) and Zambia occupy the largest area of the Central African Copperbelt and are endowed with abundant mineral resources used in battery production, including copper, cobalt, lithium, nickel, and manganese. The DRC accounts for around three quarters of global cobalt production and is the world's second-largest copper producer. It is estimated to hold over 50% of the world's cobalt reserves (African Development Bank [AfDB] & Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development [IGF], 2025c), as well as around 10% of global copper reserves and significant lithium and manganese reserves (IGF, 2026a; AfDB & IGF, 2025a, 2025g). Zambia is the second-largest copper producer in Africa and possesses significant copper, cobalt, manganese, and nickel reserves (IGF, 2026a; AfDB & IGF, 2025a, 2025c, 2025g). Together, the two countries are emerging as increasingly significant players in global mineral markets due to their vast resource endowment, favourable geology, and expanding infrastructure base (Chibamba, 2025).

Despite their mineral wealth, the DRC and Zambia remain concentrated in the upstream segments of mineral value chains. Their exports largely consist of processed mineral products, particularly smelted and/or refined copper, as well as cobalt intermediates such as matte, oxides, and hydroxides (AfDB & IGF, 2025b, 2025c; IGF, 2026b; Manley et al., 2022; U.S. Geological Survey, 2025). Building on these existing processing capabilities, opportunities exist to further increase value addition by expanding into downstream manufacturing activities that use refined metals as inputs for industrial and consumer products (IGF, 2026b).

As a result, only a limited share of the total economic value generated from the use of these minerals is currently retained within the two countries. According to some stakeholders, the DRC and Zambia capture less than 10% of the value created along their mineral value chains (Watum, 2025). At the same time, communities living along the Central African Copperbelt continue to face high levels of poverty, despite decades of mineral extraction, highlighting the importance of ensuring that mineral wealth contributes more effectively to inclusive economic development (World Bank, 2025a, 2025b).

Recognizing these challenges, both countries have undertaken reforms aimed at increasing domestic value addition and strengthening the developmental impact of their mineral sectors. In 2018, the DRC adopted a revised Mining Code to increase mining revenue and foster local beneficiation and transformation (Cheng & Dong, 2025; The Carter Center, 2025). The country also designated cobalt, germanium, and coltan as strategic minerals, given their importance for renewable energy technologies, advanced manufacturing, information and communication technologies, and defence applications (Prime Minister, 2018). Similarly, Zambia revised its mining legislation in recent years to



increase fiscal revenue, promote local beneficiation, strengthen local ownership, and create jobs through the mandatory procurement and employment of Zambian citizens and firms (Jalasi, Jr. et al., 2025; Natural Resource Governance Institute, 2017).

Building on these national reforms, the DRC and Zambia signed a cooperation agreement in April 2022 to facilitate value chain development in the battery and clean energy sector. This initiative aims to establish a regional battery industry ecosystem, create jobs and industrial development, and facilitate technology transfer and knowledge exchange in the battery sector. The partnership also targets infrastructure development and energy supply to support the growth of the electric battery industry by attracting investment.

1.2 Objectives of the Study

The overall objective of the study is to assess the enabling environment required to support the development of a viable and sustainable battery value chain ecosystem under the DRC-Zambia initiative and to identify practical pathways to strengthen its implementation. The study examines the factors that influence the competitiveness and attractiveness of the initiative, including coordination mechanisms between the DRC and Zambia, the business and investment environment, policy and regulatory frameworks, infrastructure networks, energy access, skills and technology development, governance arrangements, and regional cooperation mechanisms. Particular attention is given to the role of special economic zones (SEZs) in both countries as potential industrial hubs for battery-related activities.

Specifically, the study aims to

- assess the current status of the DRC-Zambia battery initiative, including the effectiveness of coordination and cooperation mechanisms between the two countries;
- review evidence and stakeholder experience on the factors that contribute to the development of competitive battery and industrial ecosystem;
- assess the readiness of the identified SEZs to attract investment in the targeted industrial activities;
- identify achievements, constraints, bottlenecks, and opportunities affecting the development of the initiative; and
- recommend pathways to improve the current business and investment environment to enable value addition, attract responsible investment, and promote inclusive supply chains.

1.3 Research Methodology

This study combines primary research with a comprehensive review of secondary sources. Primary research consisted of in-depth interviews with more than 40 stakeholders in the DRC, Madagascar, and Zambia—as well as international stakeholders, including



government officials at ministerial and technical levels, private sector representatives, development finance institutions, civil society organizations, independent experts, and international stakeholders—conducted between October 2025 and February 2026. Research on Madagascar was conducted as it is a potential key partner in the value chain initiative, because it produces graphite and nickel, which are key inputs to battery production. Field visits allowed direct observation of the SEZ site in Musompo in the DRC. This primary research is complemented by analysis of policy documents and project reports from the two countries and Madagascar relevant to the battery initiative, as well as legal frameworks governing SEZs in the two countries. The authors also reviewed academic and policy literature on battery value chains, SEZs, and industrial policy in comparable contexts.



2.0 INSTITUTIONAL FOUNDATIONS OF THE DRC-ZAMBIA BATTERY INITIATIVE

2.1 Background to the Initiative

The DRC-Zambia battery value chain initiative emerged from a shared ambition to capture greater value from the two countries' mineral resources and strengthen their participation in the growing clean energy economy. While both countries are major producers of minerals used in battery manufacturing, including copper and cobalt, their participation in global value chains remains concentrated in mining and early-stage processing activities. The initiative therefore reflects a broader objective of moving beyond mineral extraction toward higher-value industrial activities linked to battery manufacturing and related industries.

This initiative gained momentum following the DRC-Africa Business Forum held in November 2021 in Kinshasa (DRC).¹ During the forum, DRC President Félix Tshisekedi, Zambian President Hakainde Hichilema, and other African and international leaders highlighted the opportunity to develop a regional electric vehicle (EV) and energy storage value chain in Africa. The forum also underscored the strategic importance of leveraging Africa's mineral resources to support industrial development, job creation, and economic diversification. As a result, the DRC and Zambia announced their intention to establish a bilateral battery value chain initiative (Gerding & Assignon, 2023).

The DRC-Africa Business Forum outcomes subsequently paved the way for a series of cooperation agreements and partnerships aimed at establishing a battery value chain in the Central African Copperbelt. These agreements sought to provide the political, institutional, and financial foundations required to support industrial development, attract investment, and facilitate coordination between stakeholders. The most significant arrangements include the bilateral Cooperation Agreement for Manufacturing Electric Vehicle Batteries; the Memorandum of Understanding (MoU) between the United States, the DRC, and Zambia; and the Framework Agreement with the United Nations Economic Commission for Africa (UNECA) and African Export-Import Bank (Afreximbank) to support the development of SEZs. These agreements are reviewed below.

2.2 Key Agreements Underpinning the Initiative

2.2.1 The Cooperation Agreement for Manufacturing Batteries

Signed in Lusaka (Zambia) in April 2022, the Cooperation Agreement for Manufacturing Batteries constitutes the cornerstone of the battery value chain initiative. It provides the

¹ The key theme of the forum was Developing a Regional Value Chain Around the Electric Battery Industry, and a Market for Electric Vehicles and Clean Energy in Africa.



principal framework for bilateral cooperation and establishes a shared vision for developing an integrated battery industry ecosystem across the two countries.

The agreement seeks to promote coordinated industrial development by encouraging the harmonization of mining and industrial policies, legal and regulatory frameworks, and investment frameworks. Its objective is to create conditions conducive to investment, value chains, job creation, technology transfer, and economic growth within both countries (Osumba, 2022). The agreement recognizes the importance of developing an integrated regional value chain.

A key feature of the agreement is the emphasis on institutional coordination. It provides for the establishment of a common governance framework and calls for the identification of implementation sites, such as a SEZ, in both countries that could serve as industrial hubs for battery-related activities (Zambia Ministry of Commerce, Trade & Industry [MCTI], 2023). The agreement also highlights the importance of skills development and knowledge transfer as necessary components of building a competitive battery ecosystem.

2.2.2 The MoU Between the United States, DRC and Zambia

In December 2022, the governments of the United States, the DRC, and Zambia signed the trilateral MoU to support the development of an EV battery value chain, spanning mineral extraction, processing, manufacturing, and assembly activities, within the DRC and Zambia. The MoU reflected growing international interest in securing diversified and resilient supply chains for critical minerals and battery materials while supporting industrial development in mineral-producing countries.

The MoU therefore established a framework through which the United States could support the DRC-Zambia initiative through technical assistance, awareness raising for U.S. investors, and partnership facilitation. It also emphasized the importance of transparency, good governance, and adherence to international standards, including measures aimed at preventing and addressing corruption across the value chain (U.S. Department of State, 2023).

Although the MoU is not legally binding instrument, it represented an important political commitment and helped raise the international profile of the initiative. It also contributed to positioning the initiative within broader discussions on critical minerals, renewable energy supply chains, and economic diversification (Soulé, 2023).

The future role of the U.S.-DRC-Zambia MoU has become less clear following changes in U.S. policy toward Africa and critical mineral partnerships. In December 2025, the United States and DRC Strategic Partnership Agreement focused on strengthening bilateral cooperation and facilitating the U.S. private sector's access to Congolese minerals, with incentives and fiscal advantages granted to U.S. investment (Bureau of African Affairs, 2025). At the time of writing, it remains unclear how this bilateral arrangement will interact



with the earlier trilateral MoU and whether the two frameworks will operate in parallel or evolve in different directions.²

2.2.3 The Framework Agreement for the Development of SEZs to Produce Electric Batteries in the DRC and Zambia

In March 2023, the DRC and Zambia signed a Framework Agreement with the UNECA and Afreximbank to support the development of SEZs dedicated to battery and EV value chain activities. Signed in Kinshasa, the agreement represents an important step in translating the broader political ambitions of the DRC-Zambia battery initiative into concrete industrial development projects (Mosi, 2024).

Under the agreement, the UNECA and Afreximbank were designated as the initiative's principal technical and financial partners, respectively. The two institutions committed to supporting the establishment of an operating company in partnership with investors (both public and private) from the DRC and Zambia, as well as international investors such as Afreximbank's impact fund subsidiary, the Fund for Export Development in Africa. The operating company was tasked with developing and managing SEZs dedicated to the production of battery precursors, battery materials, and EVs in both countries (Afreximbank, 2023).

The agreement places SEZs at the centre of the industrialization strategy underpinning the battery initiative. The proposed zones are intended to provide the infrastructure, investment framework and industrial clustering required to attract investors and facilitate the development of battery-related manufacturing activities. In doing so, they are expected to serve as key platforms for promoting value addition, industrial diversification, and regional integration within the Central African Copperbelt.

As part of the implementation process, the firm ARISE Integrated Industrial Platform (ARISE IIP) was selected to undertake a pre-feasibility assessment of the proposed SEZs (UNECA, 2023a). The study assessed the technical, economic, and commercial viability of the proposed industrial zones and provided recommendations on their development and operational structure.

2.3 Strategic Vision and Industrial Development Model

2.3.1 Objectives of the Initiative

The DRC-Zambia battery initiative seeks to support the structural transformation of both economies from exporters of mineral commodities to participants in higher-value industrial activities linked to battery and electric mobility value chains. The initiative

² The Lobito Corridor—the railway and port infrastructure connecting DRC and Zambia to the Angolan port of Lobito—was prominently associated with U.S. engagement in the region under the Biden administration's Minerals Security Partnership. Its status under the current U.S. administration should also be confirmed.



reflects a broader ambition to use the region's mineral endowment as a platform for industrialization, economic diversification, and technological upgrading.

According to the agreements signed by the DRC and Zambia, the battery value chain initiative pursues four primary objectives:

- establish a battery and EV industrial ecosystem in the DRC and Zambia;
- promote economic growth, industrialization, and job creation;
- facilitate technology transfer, research and development (R&D), and skills development; and
- mobilize investment and infrastructure required to support battery-related industries.

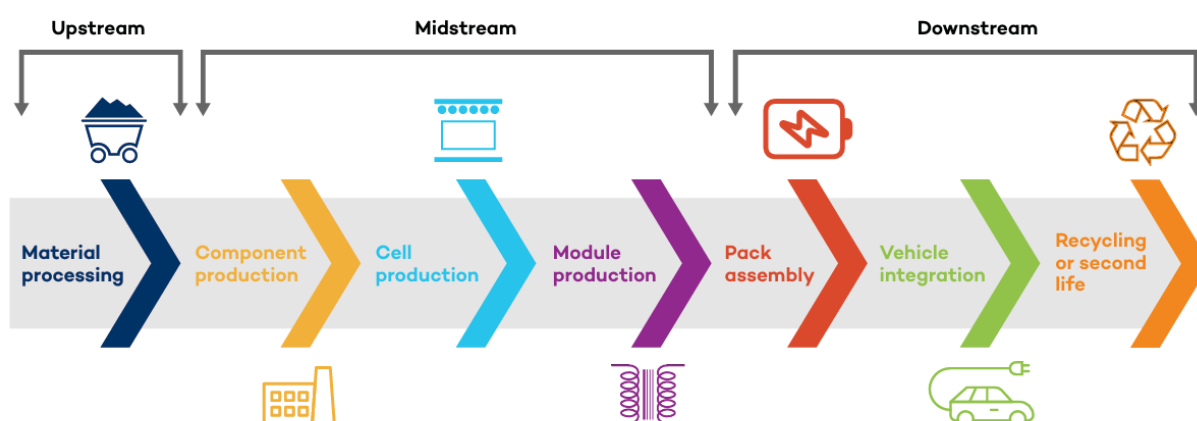
While the long-term ambition is to develop an integrated regional battery value chain, the initiative initially focuses on battery precursor and battery material production as a strategic entry point into higher-value manufacturing activities (UNECA, 2022).

2.3.2 Targeted Value Chain Segments and Technologies

The industrial strategy underpinning the initiative focuses on battery precursor and active material production. These segments occupy an intermediate position between mineral refining and battery cell manufacturing and offer opportunities for greater value addition than the export of refined mineral products alone.

Figure 1 illustrates the position of battery precursors within the broader lithium-ion battery value chain.

Figure 1. The lithium-ion battery value chain



Source: IGF, 2022.

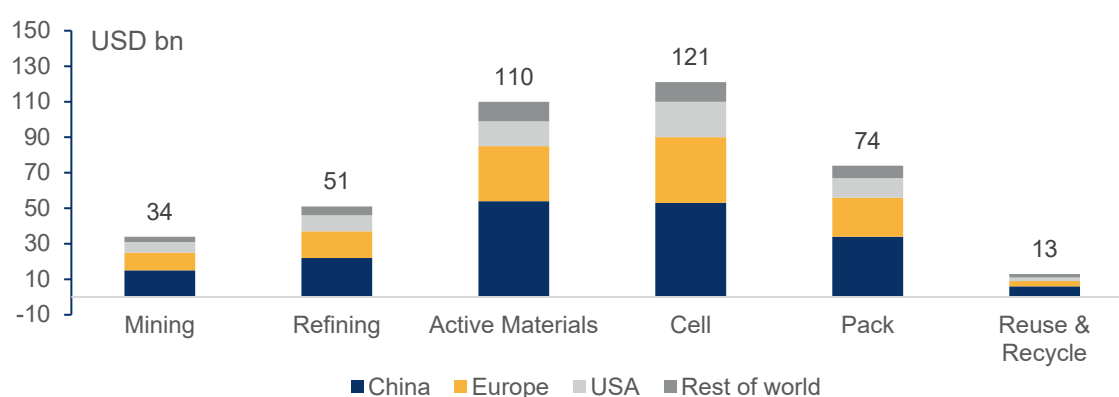
Initial plans focused on precursor materials used in nickel-manganese-cobalt (NMC) battery chemistries, reflecting the mineral resource base of the two countries. NMC batteries combine high energy density, power, and durability, making it widely used in EVs, consumer electronics, (laptops, smartphones, etc.), and other advanced applications.



At the same time, stakeholders have increasingly discussed alternative pathways linked to lithium-iron-phosphate (LFP) batteries and electric mobility technologies. LFP batteries are generally less expensive and are gaining market share in EVs and stationary energy storage systems. However, an LFP-based strategy would require access to minerals and materials that are not currently produced at scale in either the DRC or Zambia, raising important questions regarding regional sourcing and supply-chain development.³

Other options being discussed include opportunities to enter electric mobility value chains through vehicle assembly and related manufacturing activities. (Diene et al., 2022). Such an approach could allow industrial capabilities to develop progressively while creating opportunities for local firms and workers. Zambia has already seen early investments in motorcycle assembly, illustrating the potential for this pathway (SMART Zambia Institute, 2024).

Figure 2. Lithium-ion battery value chain sales revenue forecast for 2030



Source: Fleischmann et al., 2023.

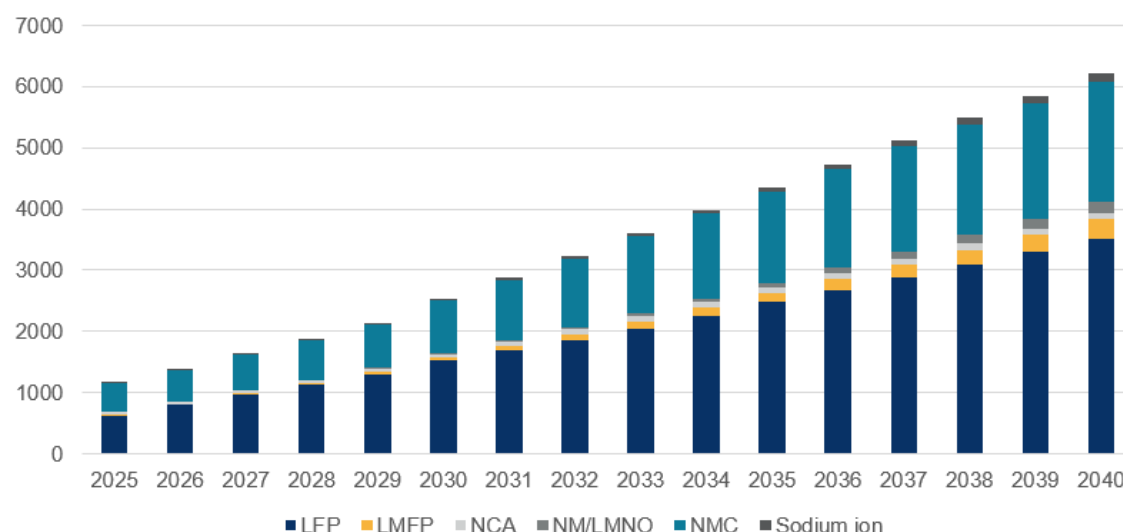
The initiative has emerged at a time of rapid growth in global battery markets. Global revenues from battery value chains are projected to increase nearly fivefold, from around USD 85 billion in 2022 to over USD 400 billion by 2030 (Fleischmann et al., 2023). Manufacturing activities associated with battery precursors and active materials—the segments directly targeted by the DRC-Zambia initiative—are expected to generate around USD 110 billion in annual revenues worldwide by 2030 (see Figure 1).

Similarly, demand for both NMC and LFP battery chemistries is projected to expand significantly through 2040 (Figure 2), creating potential opportunities for countries that can establish competitive positions within emerging battery value chains (Rho Motion, 2025).

³ Lithium production is expected to commence in the DRC in 2026.



Figure 3. Cathode battery chemistry demand, 2025-2040 (GWh)



Note: LMO, Ni-MH, and other batteries are omitted due to low prevalence. LFP = lithium-iron-phosphate, LMFP = lithium-manganese-iron-phosphate, NM/LMNO = nickel-manganese/lithium-manganese-nickel oxide, NMC = nickel-manganese-cobalt.

Source: Rho Motion, 2025.

These trends provide the strategic rationale for the DRC-Zambia initiative. However, the selection of a battery chemistry is only one aspect of the broader industrialization challenge. Equally important is identifying those segments of battery and electric mobility value chains where the two countries can build sustainable industrial capabilities and attract investment. These issues are examined further in Section 5.

2.3.3 Implementation Strategies for the Development of the Battery Value Chain

The implementation strategy outlined in the cooperation agreement centres on the establishment of SEZs in both countries as industrial platforms for battery-related investment (Emran & Tayebi, 2024).

The SEZs are intended to serve as integrated industrial ecosystems combining mineral processing, manufacturing, logistics, energy infrastructure, skills development, and innovation. This approach reflects international experience showing that industrial upgrading is more likely to occur when firms operate within industrial clusters that facilitate access to suppliers, infrastructure, services, and skilled labour.

The initiative originally envisaged the establishment of a cross-border SEZ. However, due to administrative and logistical challenges with cross-border initiatives, stakeholders interviewed for this study indicated that the current approach favours the development of separate but complementary zones in the DRC and Zambia operating within a shared regional value chain framework, where national SEZs are expected to be connected



across countries through regional transport and energy infrastructure corridors such as the Lobito Corridor.⁴

To support this model, the two countries committed to harmonizing relevant mining, industrial, and investment policies; aligning incentive frameworks; and promoting coordinated infrastructure development. The strategy also envisages investment in transport corridors, energy infrastructure, and research and training institutions needed to support industrial development.

2.4 Governance and Institutional Arrangements

The DRC-Zambia battery initiative is one of the few industrial cooperation projects in Africa that seeks to develop a regional value chain across two sovereign jurisdictions. Its success therefore depends on several factors, such as the availability of mineral resources and investment, effective governance arrangements capable of coordinating policies, and institutions and implementation efforts across both countries.

Recognizing this, the cooperation agreement established a common governance framework intended to provide strategic direction, facilitate coordination, and oversee the implementation of the initiative. In addition to political oversight, the governance framework seeks to support policy harmonization, investment promotion, skills development, and the operationalization of the proposed SEZs that form the backbone of the industrialization strategy.

2.4.1 The DRC-Zambia Battery Council

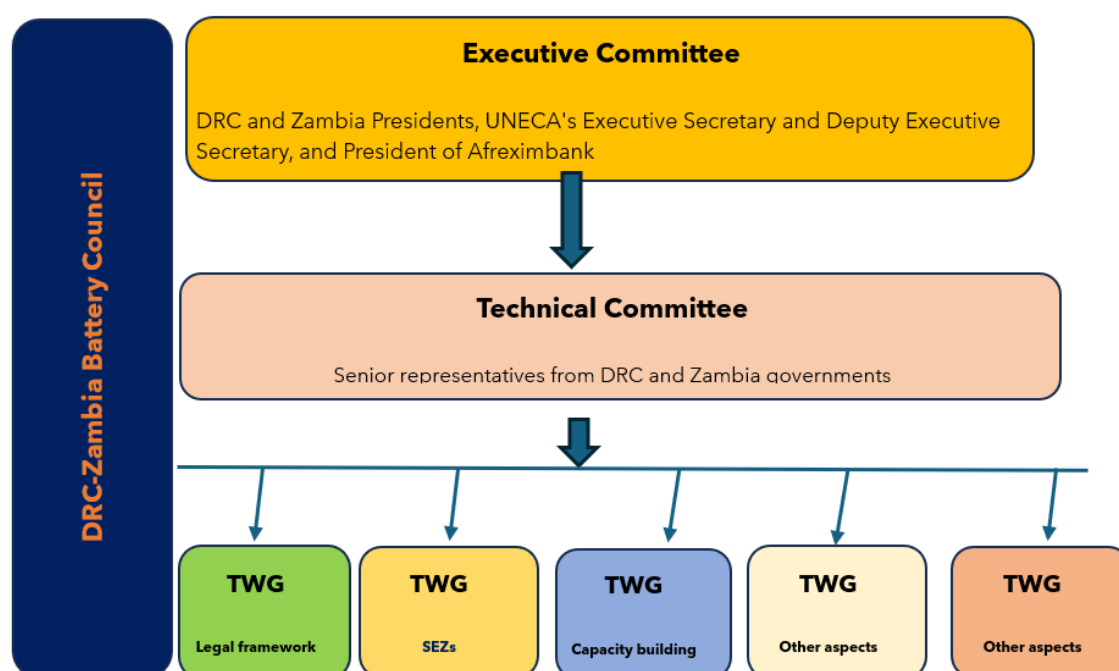
The overarching governance framework established under the 2022 cooperation agreement is centred on the DRC-Zambia Battery Council. The council comprises two main bodies, namely an Executive Committee and a Technical Committee, as illustrated in Figure 4.

The Executive Committee provides overall political and strategic direction and oversight of the initiative. It is composed of the presidents of the DRC and Zambia, UNECA's Deputy Secretary General and Executive Secretary, and the President of Afreximbank.

The Technical Committee is responsible for supporting implementation, monitoring progress, and coordinating technical activities. It is composed of senior representatives from the DRC and Zambian governments. The Technical Committee is supported by specialized working groups covering key aspects of implementation, including legal frameworks, SEZ development, capacity building, and technical matters. These arrangements are intended to facilitate coordination between government agencies, development partners, academia, and the private sector (Zambia MCTI, 2023).

⁴ However, the Congolese and Zambian zones are located far from one another, based on current road infrastructure, with around 10 hours of driving time without traffic needed to travel between the two (authors' analysis based on Google Maps, n.d.).

Figure 4. The DRC-Zambia Battery Council governance structure



Data source: Author's elaboration based on Zambia MTCL, 2023.

2.4.2 The African Centre of Excellence for Research and Innovation on Batteries

Recognizing that industrial upgrading requires skills, innovation, and technological capabilities, the DRC established the African Centre of Excellence for Research and Innovation on Batteries (CAEB) in 2022 through Decree No. 01/MIN.RIST/CAB.MIN/JMK/2022. Hosted by the University of Lubumbashi, the centre forms part of the institutional architecture supporting the battery initiative.

CAEB was established to support research, training, innovation, and knowledge generation related to battery technologies and industrial development. It is also intended to facilitate collaboration between academia, industry, and policy-makers, including through partnerships with universities and research institutions in Zambia and elsewhere in Africa.

As the initiative's principal institution dedicated to skills development and innovation, CAEB is expected to play an important role in strengthening the technical capabilities required for future battery-related industries. Its operational progress is discussed in Section 3.



3.0 PROGRESS ACHIEVED AND CURRENT STATUS OF IMPLEMENTATION

As mentioned in Section 2, since its launch in 2022, the DRC-Zambia battery initiative has moved from a political commitment to establishing several institutional and technical building blocks intended to support implementation.

Important progress has been made in developing governance structures, establishing partnerships, initiating technical studies, and advancing plans for industrial infrastructure. However, implementation remains at an early stage, and progress has been uneven across the two countries. This section reviews the principal milestones achieved to date and assesses the current status of implementation.

3.1 Development of the CAEB

One of the earliest implementation milestones of the DRC-Zambia battery initiative was the establishment of the CAEB. The centre was formally launched in Lubumbashi on April 22, 2022, and is intended to serve as the initiative's principal platform for skills development, research, and technological innovation.

Since its establishment, CAEB has laid the institutional foundations for future collaboration between universities, researchers, and industry stakeholders working on battery technologies and related industrial applications. The centre is also expected to support the development of a skilled workforce capable of contributing to emerging battery value chains in the region.

However, stakeholders interviewed during this study highlighted that the centre remains at an early stage of development. Limited funding and insufficient resources have constrained its ability to undertake large-scale research programs, establish laboratory facilities, and deliver specialized technical training. As a result, its contribution to industrial development has so far been more institutional than operational.

The experience of countries that have successfully developed battery and advanced manufacturing industries suggests that research institutions can play an important role in supporting industrial upgrading, particularly when linked to industry needs and supported by sustained investment. Strengthening the operational capacity of the CAEB may therefore become an important component of the broader industrialization strategy underpinning the DRC-Zambia initiative.

3.2 Pre-Feasibility Study

Another important step in operationalizing the battery initiative was commissioning pre-feasibility studies to assess the viability of SEZs dedicated to battery-related industries.

Following the signing of the framework agreement with UNECA and Afreximbank, ARISE IIP was selected to undertake pre-feasibility assessments for proposed industrial zones in



the DRC and Zambia. The two countries facilitated this pre-feasibility study launched in May 2023 (UNECA, 2023a).

The studies examined potential sites, infrastructure requirements, mineral availability, energy needs, and broader investment conditions required to support battery precursor manufacturing and related industrial activities.

The assessments identified several opportunities, notably the availability of cobalt resources and existing mineral processing activities in the two countries. They also highlighted constraints related to infrastructure, energy supply, and the sourcing of certain minerals required for battery production.

The studies recommended Musompo, in Lualaba Province, as the preferred site for the DRC zone and Ndola as the preferred site for Zambia. They also recommended further feasibility work and highlighted the importance of coordination between the two countries, particularly regarding SEZ frameworks and industrial development strategies.

Although the pre-feasibility studies represent an important milestone, stakeholders noted that some recommendations remain to be implemented and that additional technical work will be required before large-scale investment decisions can be taken.

3.3 Development of the Musompo and Ndola Industrial Zones

SEZs—referred to as Multi-Facility Economic Zones (MFEZs) in Zambia—constitute the principal implementation mechanism of the DRC-Zambia battery initiative. Rather than serving simply as industrial sites, the proposed zones are intended to function as industrial ecosystems capable of attracting investment into battery precursor production and related industries. Their development therefore represents one of the most important indicators of progress achieved under the initiative to date.

3.3.1 Progress in the DRC

In the DRC, the development of the battery-focused SEZ is being coordinated by the Agency for Special Economic Zones (Agence des Zones Économiques Spéciales [AZES]), the institution responsible for the administration, regulation and supervision of SEZs under Law No. 14/022 and Decree No. 15/007.⁵

⁵ For more on Law No. 14/022, see <https://www.leganet.cd/Legislation/Droit%20economie/Loi.14.07.07.2014.htm>; for more on Decree No. 15/007, see <https://www.leganet.cd/Legislation/Droit%20Public/EPub/Decret.14.04.html>



Under the battery initiative, AZES is expected to work closely with the Congolese Battery Council⁶ (Conseil Congolais des Batteries) to develop an industrial platform dedicated to battery precursor production and related activities.

One of the first implementation challenges concerned the selection of the SEZ location. While the cooperation framework identified the broader Katanga region as the preferred location due to its concentration of copper and cobalt resources, stakeholders reported lengthy discussions regarding which of the four former Katanga provinces—Haut-Katanga, Lualaba, Haut-Lomami, and Tanganyika—should host the project.

Following the pre-feasibility assessment conducted by ARISE IIP, the Musompo site in Lualaba Province was ultimately selected as the preferred location. The Musompo SEZ was formally launched in March 2025 by the Minister of Industry, marking an important milestone in the implementation of the initiative (Le Potentiel, 2025).

However, despite this progress, implementation remains at an early stage. Administrative measures have been initiated, including land acquisition processes and the establishment of a commission responsible for managing expropriation and compensation issues. Yet several critical steps remain outstanding, including completion of detailed feasibility studies, infrastructure planning, energy supply planning, financing arrangements, and the selection of an operating model for the zone.

Stakeholders interviewed during this study consistently identified financing constraints, implementation capacity, and the absence of a detailed development roadmap as major obstacles slowing progress. As a result, while Musompo has moved beyond the conceptual stage, it has not yet reached the level of operational readiness required to attract large-scale industrial investment.

3.3.2 Progress in Zambia

Implementation has progressed differently in Zambia. The battery initiative is anchored in the Ndola MFEZ, which is managed by the Zambia Development Agency (ZDA). Unlike Musompo, the Ndola site benefits from an existing industrial and regulatory framework and forms part of Zambia's broader network of operational MFEZs and industrial parks.

Originally developed as the Sub-Saharan Gemstone Exchange Industrial Park, the site was formally incorporated into the MFEZ framework and subsequently identified as Zambia's

⁶ The Congolese Battery Council's mandate includes managing the battery value chains and EVs. This mandate includes identifying partnerships to attract and promote investment, innovation, and technology for processing strategic minerals used in battery manufacturing, ensuring the supply of raw materials to manufacturers in the electric battery sector, proposing and implementing production standards for battery and EV precursors in the DRC, proposing and implementing production standards for raw materials used in the manufacture of battery and EV precursors, and accelerating intra-African trade and collaboration to unlock the potential for innovation throughout the electric battery value chain, among others. This mandate is detailed in the Decree No. 22/43, available here: https://www.droitcongolais.info/files/730.12.22-Decret-du-6-decembre-2022-Conseil-congolais-de-la-batterie_1.pdf



contribution to the battery initiative. The existence of an established industrial platform gives Zambia a relative advantage in terms of implementation readiness, as basic institutional arrangements and industrial development mechanisms are already in place.

While the Ndola zone is not yet dedicated exclusively to battery-related industries, it provides a foundation upon which future battery-related investments can be built. Compared with the DRC, implementation in Zambia has therefore focused less on establishing a new industrial platform and more on adapting and expanding an existing one.

3.3.3 Uneven Progress Across the Two Countries

The experiences of Musompo and Ndola illustrate both the progress achieved and the challenges facing the initiative. Both countries have now identified sites for industrial development and have undertaken technical studies to guide implementation. These are important achievements considering the relatively recent establishment of the initiative.

At the same time, progress has been uneven. Zambia benefits from a more mature industrial zone framework and existing implementation experience, whereas the DRC remains focused on establishing many of the institutional, technical, and financial foundations required to operationalize Musompo.

This divergence is not necessarily problematic. However, it highlights the importance of maintaining effective coordination between the two countries so that differences in implementation speed do not undermine the regional nature of the initiative.

3.3.4 Transparency and Stakeholder Engagement

A recurring concern raised by stakeholders in both countries relates to transparency and information disclosure. At the time of writing, key documents underpinning the battery initiative—including certain cooperation agreements, technical studies, and implementation documents—had not been made publicly available. These documents include the detailed outcomes of the pre-feasibility studies and several decisions relating to the development of the proposed industrial zones.

Government officials interviewed for this study cited confidentiality provisions as one reason for limiting disclosure. While confidentiality may be justified for certain commercial or strategic matters, limited public access to information can create uncertainty among investors, civil society organizations, and local communities.

International experience suggests that transparency can play an important role in building public trust, strengthening stakeholder engagement, and improving accountability. For regional initiatives in particular, public support often contributes to long-term sustainability. Conversely, weak stakeholder engagement can undermine implementation and reduce public confidence in large-scale industrial projects (Olan'G et al., 2025).



3.3.5 Key Takeaways

The development of the Musompo and Ndola industrial zones represents one of the most tangible signs of progress achieved under the DRC-Zambia battery initiative. Site selection has been completed, institutional responsibilities have been assigned, and preliminary technical studies have been undertaken.

However, implementation remains largely at a preparatory stage. While important foundations have been established, substantial work remains before the zones can function as competitive industrial ecosystems capable of attracting battery-related investment.

The next phase of implementation will therefore be critical. Success will depend on the ability of both countries to move from planning and institution-building toward the delivery of infrastructure, energy, investor services, and governance arrangements required to support industrial development.

3.4 Key Policy Frameworks Developing Mineral Value Chains in the DRC and Zambia

The battery initiative builds upon broader policy efforts in both countries aimed at increasing domestic value addition and industrial development.

In the DRC, the revised Mining Code adopted in 2018 strengthened provisions relating to mineral beneficiation and local transformation (The Carter Center, 2021). In 2025, the country adopted a quota system for cobalt exports intended to stabilize prices, support domestic processing, and strengthen participation in critical mineral value chains (African Security Analysis, 2025; Autorité de Régulation et de Contrôle des Marchés des Substances Minérales Stratégiques, 2025).

Zambia has similarly adopted policy frameworks emphasizing value addition and industrial development, including the National Mineral Resources Development Policy (2022-2027) and the National Critical Minerals Strategy (2024-2028). These frameworks identify mineral processing, beneficiation and industrialization as strategic priorities for the mining sector (Zambia Ministry of Mines & Mineral Development, 2022, 2024).

While these policy reforms provide a supportive foundation for the battery initiative, their effectiveness will ultimately depend on implementation and the extent to which they contribute to improving the broader investment environment.

3.5 Coordination and Implementation Challenges Between the Two Countries

A central finding emerging from stakeholder consultations is that the DRC-Zambia battery initiative has been more successful in establishing political commitment than in translating that commitment into coordinated implementation.



The cooperation agreement provides for collaboration between the two countries through the DRC-Zambia Battery Council and its Technical Committee. These mechanisms have helped establish a common vision and maintain political support for the initiative. Stakeholders interviewed in both countries generally agreed that cooperation at the political level remains strong and that both governments continue to view the battery initiative as a strategic priority.

However, stakeholders also noted that coordination becomes more challenging at the technical and operational levels. While the initiative is designed as a regional industrial project, implementation continues to be driven largely through national institutions operating under different administrative systems, legal frameworks, and implementation practices. As a result, progress has not always occurred at the same pace in the two countries.

One manifestation of this challenge is the uneven advancement of implementation activities. Zambia has been able to build on an existing network of MFEZs and associated industrial institutions, while the DRC has had to devote significant effort to establishing the institutional and operational foundations required for the Musompo zone. Although these differences are understandable given the different starting points of the two countries, they highlight the importance of stronger mechanisms to coordinate implementation and maintain alignment between national and regional objectives.

Several stakeholders attributed these challenges to the absence of detailed implementation roadmaps and action plans. While the initiative has established broad objectives and institutional structures, there is currently no comprehensive framework specifying sequencing, timelines, responsibilities, and performance indicators for implementation. This has made it more difficult to translate political commitments into coordinated actions and measurable outcomes.

Implementation challenges have also emerged at the national level. In the DRC, stakeholders highlighted institutional changes, financing constraints, and evolving implementation arrangements as factors affecting the pace of progress. Frequent changes in leadership within key institutions have at times complicated continuity and decision making. In Zambia, implementation structures were generally perceived as more established. However, stakeholders emphasized the importance of ensuring that all relevant actors—including sub-national authorities and sector ministries—remain actively involved in implementation and decision-making processes.

More broadly, the experience of the initiative to date illustrates a challenge commonly observed in regional industrial cooperation projects: establishing a shared vision is often easier than coordinating implementation across multiple institutions and jurisdictions. Sustaining momentum will therefore require stronger implementation mechanisms, clearer roadmaps and more systematic coordination between the institutions responsible for delivering the initiative.



Overall, the DRC-Zambia battery initiative has succeeded in establishing a credible institutional framework for cooperation. The next phase of implementation will depend on the ability of both countries to strengthen operational coordination and convert political commitment into concrete industrial outcomes.



4.0 LESSONS FROM INTERNATIONAL EXPERIENCE

The DRC-Zambia battery initiative seeks to leverage the region's mineral endowment as a platform for industrialization, value addition, and economic diversification. While the initiative is unique in its regional scope and focus on battery value chains, many countries have pursued similar ambitions of transforming resource wealth into broader industrial development.

International experience demonstrates that industrialization does not occur automatically because a country possesses mineral resources, attractive incentives, or SEZs. Rather, successful industrialization requires deliberate policy choices, long-term institutional commitment, and the gradual development of competitive industrial ecosystems.

In this respect, the experiences of countries such as Indonesia, Morocco, the Republic of Korea, Vietnam, Mauritius, and the United Arab Emirates provide valuable insights into how countries have used SEZs and industrial zones, industrial policy, and investment promotion to attract manufacturing activities and move into higher-value industries.

The objective of this section is to identify practical lessons that can inform the design and implementation of the battery initiative. It does not intend to identify a model that can be replicated directly in the DRC and Zambia.

4.1 Industrial Ecosystems and the Role of SEZs

SEZs have traditionally been viewed as tools for attracting investment through tax incentives and streamlined regulations. However, international experience increasingly suggests that successful zones function as industrial ecosystems rather than isolated investment enclaves.

Industrial ecosystems bring together firms, suppliers, infrastructure providers, research institutions, training centres, logistics services, and public agencies within a single industrial platform. This concentration reduces production costs, facilitates knowledge transfer, creates economies of scale, and increases the attractiveness of a location for investors.

This distinction is particularly important for battery value chains. Battery precursor production and battery manufacturing are highly integrated activities that depend on reliable access to infrastructure, energy, chemicals, logistics services, skilled workers, and markets. As a result, battery industries tend to concentrate within industrial clusters rather than disperse across individual sites.

Studies by the United Nations Conference on Trade and Development (UNCTAD) (2021), UNECA (2021), and the World Bank (Zeng, 2016) consistently conclude that the most successful industrial zones combine investment incentives with broader efforts to develop industrial ecosystems. This observation is particularly relevant for the DRC-Zambia



initiative because the proposed SEZs are expected to serve not only as production sites, but also as platforms for industrial transformation.

4.2 How Countries Built Competitive Industrial Ecosystems

4.2.1 Indonesia: Leveraging mineral endowment to build industrial capabilities

Indonesia provides one of the most relevant examples for the DRC and Zambia because it used a dominant position in a strategic mineral (nickel) to attract investment in downstream industries.

Leveraging its world-leading position in nickel extraction, Indonesia combined export restrictions, local processing requirements, investment incentives, industrial parks, and infrastructure investments to encourage domestic refining and manufacturing. The government progressively increased requirements for local processing while simultaneously facilitating investment in industrial parks and supporting infrastructure.

Importantly, Indonesia did not attempt to build an entire battery value chain simultaneously. The country first expanded refining capacity and then gradually attracted investment into battery materials and battery manufacturing. This sequencing allowed industrial capabilities to develop progressively and reduced implementation risks.

The Indonesian experience highlights the importance of sequencing industrial development and aligning industrial policy, infrastructure development, and investment attraction around a clearly defined industrial strategy.

4.2.2. Morocco: Building competitive industrial platforms

Morocco illustrates a different pathway. Rather than focusing on natural resource processing, Morocco concentrated on creating integrated industrial platforms capable of attracting global manufacturers.

The success of the Tangier Med industrial ecosystem is often attributed to its port infrastructure. However, the project's success also reflects the integration of logistics services, industrial zones, workforce development programs, streamlined administrative procedures, and proactive investment promotion (Maroc Diplomatie, 2025; Tangier Med Port Authority, 2023).

Morocco sought to attract anchor investors and supplier networks capable of creating self-reinforcing industrial clusters. Over time, this facilitated the emergence of automotive, aerospace, and manufacturing ecosystems integrated into global value chains.

The lesson for the DRC and Zambia is that industrial zones are most successful when they are viewed as ecosystems rather than infrastructure projects.



4.2.3 Republic of Korea: Building skills and technological capabilities

The Republic of Korea demonstrates the importance of a skilled workforce, technological upgrading, and innovation. Following the Asian financial crisis, Korea combined industrial policy reforms with sustained investments in education, research institutions, and technological capabilities. Free economic zones, investment promotion measures, and regulatory reforms were embedded within a broader industrial strategy aimed at strengthening competitiveness and moving into higher-value industries (AD'OCC Région Occitanie, 2025; Organisation for Economic Co-operation and Development, 2007).

The Korean experience demonstrates that industrial competitiveness depends not only on infrastructure and investment, but also on the accumulation of technical knowledge and innovation capabilities over time.

This lesson is particularly relevant for battery-related industries, which require skilled labour, and in particular, specialized technical skills and continuous technological upgrading.

4.2.4 Vietnam, Mauritius, and Dubai: Creating investor confidence

Vietnam, Dubai, and Mauritius illustrate the importance of policy predictability and investor confidence. Despite very different economic contexts, these jurisdictions share a common characteristic: investors were attracted not only by incentives, but by predictable policy frameworks, efficient administration, and strong investor services.

Vietnam combined industrial parks with export-oriented reforms and workforce development. Mauritius built investor confidence through political stability, regulatory predictability, and export-oriented industrial policies. Dubai developed globally competitive logistics and free-zone ecosystems through streamlined administration and strong connectivity to international markets.

Together, these experiences demonstrate that creating a competitive business environment often matters more than offering generous fiscal incentives.



Table 1. International experiences and lessons for the DRC-Zambia Initiative

Country	How industrialization was achieved	Outcome	Relevance for the DRC and Zambia
Indonesia	Combined industrial policy, local processing requirements, industrial parks, and infrastructure investments around nickel value chains	Became the world's largest nickel refiner and attracted battery investments	Industrial upgrading requires sequencing and long-term policy commitment
Morocco	Developed integrated industrial platforms linking logistics, industrial zones, skills, and investment promotion	Attracted major automotive and manufacturing industries	Industrial zones succeed when embedded within broader industrial ecosystems
Republic of Korea	Invested heavily in skills, research, innovation, and technology acquisition	Developed globally competitive manufacturing industries	Skills and technological capabilities are strategic assets
Vietnam	Combined industrial parks with export-oriented reforms and workforce development	Successfully diversified into electronics and advanced manufacturing	Competitive business environments attract long-term industrial investment
Mauritius	Built investor confidence through stability, predictable regulations and export-oriented policies	Developed successful manufacturing and service sectors	Predictability often matters more than incentives
Dubai	Created efficient logistics and free-zone ecosystems linked to global trade routes	Became a major industrial and re-export hub	Connectivity and investor services are powerful competitiveness drivers

Source: AD'OCC Région Occitanie, 2025; Energy Transition Partnership, 2025; Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH [GIZ], 2025; Invest in Dubai, 2024; Maroc Diplomatique, 2025; Mauritius Africa Fund, 2023; Organisation for Economic Co-operation and Development, 2007; Tangier Med Port Authority, 2023; UNCTAD, 2021.

4.3 Key Lessons for the DRC-Zambia Initiative

Several common themes emerge across these international experiences.

Industrialization requires deliberate policy choices: None of the countries reviewed moved automatically from resource extraction into higher-value manufacturing. In every case, governments pursued deliberate industrial strategies that identified priority sectors, coordinated investments and aligned policies with long-term development objectives.

Industrial upgrading is a gradual process: Countries generally entered value chains through activities that were closely related to their existing capabilities before



progressively moving into more complex industries. This suggests that the DRC and Zambia may benefit from prioritizing selected segments of battery value chains before attempting to develop the full value chain.

Industrial zones work best as ecosystems: Successful zones are not simply locations offering tax incentives. They function as integrated ecosystems linking infrastructure, suppliers, research institutions, logistics networks, and investors.

Competitiveness matters as much as incentives: While incentives played an important role in most successful cases, long-term investment decisions were primarily influenced by infrastructure quality, regulatory predictability, skills availability, and market access.

Industrialization requires access to markets: Industrial zones are most successful when they are connected to growing domestic, regional, or international markets. Investors ultimately locate production where they can competitively serve customers.

For the DRC and Zambia, this implies that industrial strategy should focus not only on production, but also on identifying the markets that battery-related industries are expected to serve.

4.4 Implications for the DRC-Zambia Battery Initiative

The experiences reviewed above suggest that, while the DRC and Zambia possess a significant comparative advantage through their mineral endowment, mineral resources alone are unlikely to be sufficient to support the development of competitive battery value chains.

The success of the initiative will depend on the ability of the two countries to create industrial ecosystems capable of attracting investment, supporting industrial upgrading, and integrating firms into regional and global value chains. This requires more than the development of industrial infrastructure. It also requires effective institutions, coordinated implementation, investment attraction strategies, skills development, and access to regional and international markets.

The next section assesses the extent to which these enabling conditions are currently in place and identifies the principal constraints and opportunities affecting the readiness of the DRC-Zambia battery initiative.



5.0 ASSESSING THE READINESS OF THE DRC-ZAMBIA BATTERY INITIATIVE

The preceding sections demonstrated that the DRC and Zambia have established the institutional foundations of a regional battery initiative and have begun implementing key elements of the project. International experience further suggests that the success of such initiatives depends not only on the geology, but also on the ability to develop competitive industrial ecosystems around industrial parks and SEZs.

The proposed Musompo and Ndola zones are intended to play this role. Rather than functioning solely as domestic investment locations, they are expected to serve as coordinated industrial platforms capable of attracting firms, developing supplier networks, supporting technology transfer, and facilitating industrial upgrading.

This section assesses the readiness of the initiative from that perspective.

5.1 Positioning the DRC and Zambia in Battery Value Chains

The DRC and Zambia already participate in several segments of battery value chains through the extraction, processing, and export of critical minerals. The DRC accounts for approximately three quarters of global cobalt production and is one of the world's largest copper producers, while Zambia is Africa's second-largest copper producer and also possesses significant cobalt, manganese, and nickel resources.

Both countries have already moved beyond mineral extraction into selected processing activities. The DRC exports refined copper and cobalt products and continues to attract investment in mining and mineral processing. Zambia hosts copper refining operations and cobalt processing facilities and has established industrial zones linked to mining and manufacturing activities (IGF, 2026b).

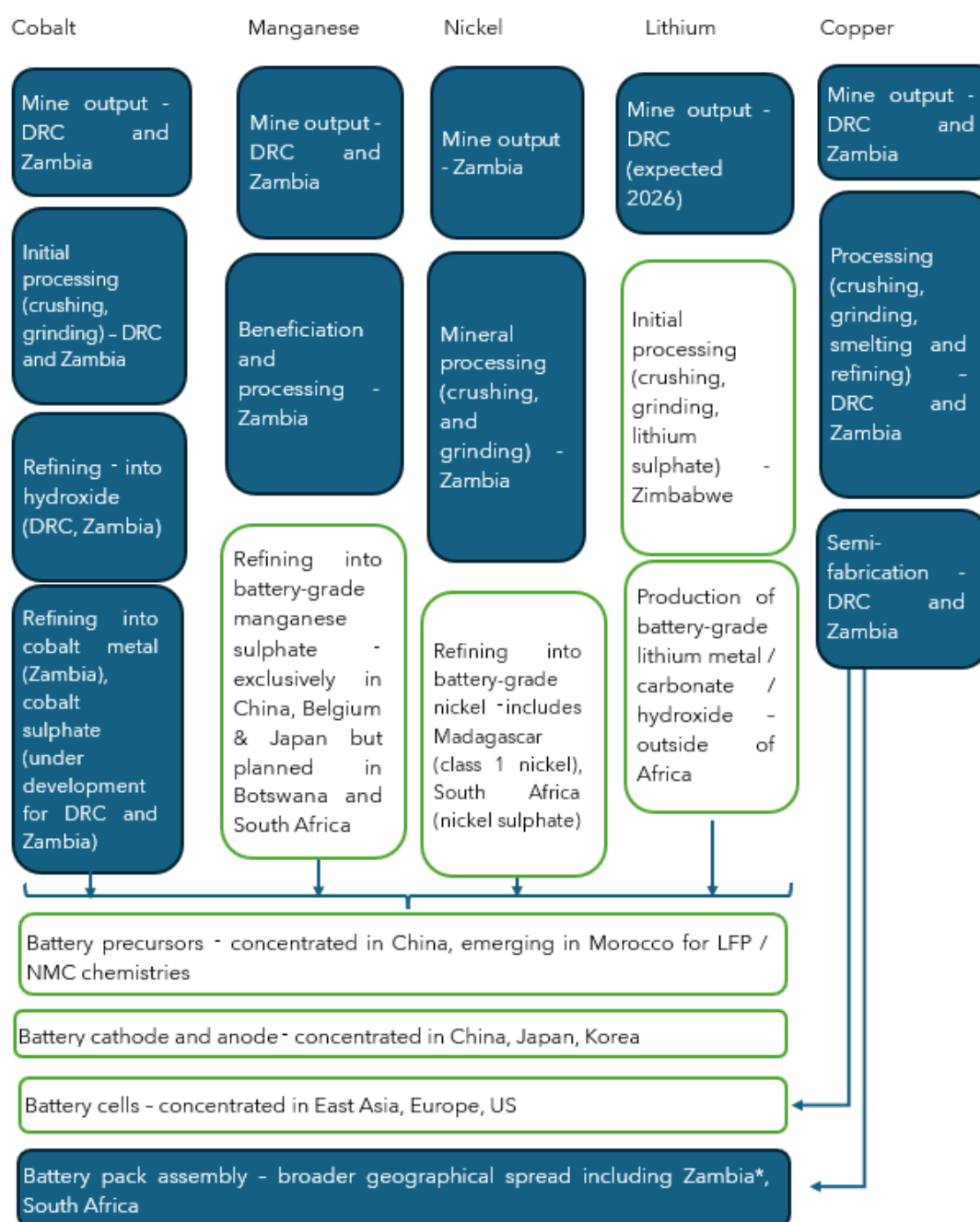
As a result, the central policy question is not whether the two countries can participate in battery value chains—they already do. Rather, the question is how far they can move into higher-value activities capable of generating greater industrial capabilities, employment, and economic benefits.

Figure 5 illustrates the current participation of the two countries across the battery value chain. While mining and selected processing activities are already established, significant gaps remain in battery precursor production, battery materials, battery cells, and downstream manufacturing.

The existence of these gaps does not necessarily imply that all segments should be developed simultaneously. International experience suggests that successful industrial upgrading generally occurs progressively, with countries first expanding activities that are closely related to existing capabilities before moving into more technologically complex segments.



Figure 5. A simplified EV battery value chain



* Battery assembly in Zambia is of lead-acid batteries for cars and lithium batteries for storage.

Note: Copper is not used in the most common EV battery chemistries. However, it is included because it is a key component in the manufacture of lithium-ion batteries that are commonly used in EVs. In the figure, blue boxes represent value chain segments that are present in the DRC and/or Zambia; white boxes represent those that are not.

Source: Authors' elaboration based on AfDB & IGF, 2025a, 2025c, 2025d, 2025g; Buenassa, 2025; Davis, 2024; ERG Africa, 2026; Guest Contributor, 2021; Idoine et al., 2025; International Energy Agency, 2025; Manley et al., 2022; Ministry of Youth, Culture and Communication, 2025; Okafor, 2026; Vision Blue Advisors UK LLP, n.d.; Zijin Mining's First Lithium Mine, 2025.



5.1.1 A Strong Position in Some Inputs, But Not in the Entire Value Chain

One of the most important findings emerging from this assessment is that the DRC and Zambia possess strong positions in some—but not all—segments of the battery value chain.

The two countries are well positioned in

- copper extraction and processing,
- cobalt extraction and processing,
- manganese production (particularly Zambia), and
- emerging lithium production in the DRC.

However, neither country currently produces several inputs required for battery manufacturing at commercial scale.

For example:

- Graphite, a key component of battery anodes, is not currently mined in either country.
- Nickel production remains limited.
- Phosphate resources used in LFP batteries are not currently produced in either country.

This creates an important strategic challenge. The competitiveness of future battery industries in Musompo and Ndola will depend not only on the availability of domestic minerals, but also on the ability to secure reliable access to missing inputs.

5.1.2 Regional Supply Chains Matter But Existing Refining Capacity Remains Weak

Many of the required minerals are available elsewhere in Southern Africa (AfDB & IGF, 2025h) (see Table 2).

Table 2. Potential regional suppliers

Mineral	Potential regional sources
Graphite	Mozambique, Tanzania, Madagascar
Nickel	Madagascar, South Africa
Phosphate	Zimbabwe
Iron	South Africa, Republic of Congo (future Zanaga project)

Source: AfDB & IGF, 2025a, 2025c, 2025d, 2025g, 2025h.

Despite the availability of mineral production in the region, only minimal processing occurs within Africa; 94% of global battery-grade graphite production occurs in East and



Southeast Asia (International Energy Agency, 2025). A graphite processing plant was recently inaugurated in Mozambique, but it is unclear whether this will include the spheroidization that natural graphite undergoes to be used in batteries (AfDB & IGF, 2025h; Houenou, 2026; Xinhua, 2026). The graphite-related challenge for battery manufacturing in Zambia and the DRC may therefore be sourcing or producing battery-grade graphite, rather than graphite as a raw material.

Similarly, if both countries are considering moving into LFP battery production, iron and phosphates would have to be sourced from other African countries.

This suggests that the DRC-Zambia battery initiative should not be viewed solely as a bilateral project. It may need to evolve into a broader regional industrial ecosystem capable of linking mineral producers, processors, and manufacturers across Southern Africa.

Such a model would be consistent with the regional integration objectives of the Southern African Development Community (SADC), Common Market for Eastern and Southern Africa (COMESA), and the African Continental Free Trade Area (AfCFTA).

5.1.3 Existing Capabilities and Diversification Potential

Another important consideration concerns economic diversification. Analysis conducted by the International Trade Centre and UN Trade and Development (UNCTAD) suggests that countries are more likely to succeed when they diversify into activities that are closely related to existing capabilities rather than attempting to leap directly into technologically sophisticated industries (Decreux et al., n.d.; Freire, 2025; International Trade Centre, 2026a, 2026b).

This finding is particularly relevant for the DRC and Zambia. The two countries already possess mining expertise, metallurgical capabilities, mineral processing infrastructure, and engineering and technical skills linked to mining. These capabilities create opportunities to expand into adjacent activities such as battery-grade chemicals and battery precursor materials.

By contrast, battery cell manufacturing requires a much broader ecosystem of suppliers, technology providers, specialized skills, and large-scale demand. As a result, moving directly into battery cell production may prove significantly more challenging in the short-to-medium term.

5.2 The Strategic Positioning of Musompo and Ndola

The proposed SEZs at Musompo and Ndola lie at the centre of the DRC-Zambia industrialization strategy. A central policy question is therefore what role these zones should play in battery and electric mobility value chains over time.

This section presents four complementary pathways that can be viewed as successive building blocks of a long-term industrialization strategy. They differ in terms of



technological complexity, investment requirements, and industrial capabilities, but are not mutually exclusive. Rather, each pathway helps develop the productive capabilities, supplier networks, and institutional capacity needed to support the next stage of industrial upgrading. International experience suggests that countries are generally more successful when they progress through these stages sequentially rather than attempting to establish complete battery value chains simultaneously (Alshamsi et al., 2018; Rodrik & Stiglitz, 2024).

5.2.1 Pathway 1: Midstream value addition - Building the industrial foundation

The first pathway is to position Musompo and Ndola as competitive mineral midstream processing and refining hubs. This pathway builds directly on the comparative advantages that already exist in the DRC and Zambia, particularly their copper and cobalt industries, and therefore represents the most immediately achievable opportunity for industrial upgrading.

Moving from concentrate exports toward refined metals and battery-grade chemicals allows both countries to capture greater value from their mineral resources while strengthening industrial capabilities that will be required for more advanced manufacturing activities.

Although mineral processing generates lower value addition than downstream battery manufacturing, it should not be viewed as an end in itself. Rather, it provides the industrial foundation upon which more sophisticated activities can gradually emerge. Mineral processing also creates industrial capabilities—including engineering services, laboratories, supplier networks, and technical skills—that form a foundation for more sophisticated manufacturing.

Policy priorities:

- expand refining capacity for copper and cobalt
- support production of battery-grade chemicals and intermediates
- strengthen supplier linkages around existing operations
- prioritize industrial infrastructure, energy, and logistics serving processing industries
- develop technical skills and industrial services.

By strengthening these capabilities, mineral processing can become the first building block in a longer-term industrialization strategy, therefore moving beyond a standalone export activity.



5.2.2 Pathway 2: Battery precursor and active material production – Moving into higher value addition

Building on mineral processing, the second pathway involves expanding into battery precursor and active material production. This is currently the principal focus of the DRC-Zambia initiative and represents the segment of the battery value chain where the two countries appear to possess the strongest medium-term opportunity.

Battery precursor production captures significantly greater value than mineral refining while remaining relatively close to the industrial capabilities already present in the region. It therefore provides a realistic bridge between mining and more sophisticated battery manufacturing.

However, this pathway also represents a significant increase in industrial complexity. Competitive precursor production requires reliable supplies of battery-grade chemicals, access to additional minerals, affordable energy, specialized technical skills, and efficient logistics. It also depends on high environmental standards and the ability to consistently meet international quality specifications.

Policy priorities:

- secure regional sourcing arrangements for missing minerals
- expand production of battery-grade chemicals
- invest in laboratories, testing, and certification services
- develop chemical engineering and process industries
- improve cross-border logistics and trade facilitation.

Among the four pathways, precursor production offers perhaps the strongest balance between technological feasibility and value addition. It builds on existing mining and refining capabilities while allowing both countries to capture substantially greater economic value before entering the much more complex battery cell segment.

5.2.3 Pathway 3: Battery cell manufacturing

The third pathway involves expanding into battery cell manufacturing. Battery cells represent one of the highest value-added segments of the battery value chain and offer significant opportunities for industrial development, technological upgrading, and skilled employment. For these reasons, developing battery cell manufacturing is often seen as the ultimate objective of battery industrialization strategies.

At present, however, battery cell manufacturing remains one of the most challenging segments of the value chain to enter successfully. It is characterized by

- long qualification periods with downstream customers,
- rapid technological change and innovation,



- significant economies of scale,
- stringent quality and performance standards,
- complex supplier ecosystems, and
- strong integration with downstream industries, particularly EVs and energy storage.

Today, global production remains concentrated in a relatively small number of countries, particularly China, the Republic of Korea, and Japan, while more recent entrants have generally relied on sustained industrial policies, substantial public and private investment, strategic partnerships with leading manufacturers, and access to large domestic or regional markets.

Although battery cell manufacturing represents a long-term ambition, it should not be viewed as unattainable. It should be approached as a long-term industrial objective supported by a gradual and deliberate capability-building strategy.

If the two countries wish to position themselves for future battery cell production, several enabling conditions would need to be progressively strengthened.

Policy priorities:

- strengthening competitive precursor and battery materials industries as a supply base for cell manufacturing
- investing in a skilled workforce, particularly in electrochemistry, advanced manufacturing, chemical engineering, and quality control
- strengthening research, innovation, and testing capabilities through strategic technology partnerships, joint ventures, and institutions such as the CAEB
- expanding access to reliable and affordable energy
- creating competitive industrial ecosystems that combine efficient logistics, supplier networks, specialized service providers, and supportive regulatory frameworks
- fostering regional demand, including through e-mobility, stationary energy storage, and integration with Southern Africa's automotive industry to complement export opportunities.

For the DRC and Zambia, this suggests that strengthening competitiveness in mineral processing, battery-grade chemicals, and precursor production may provide the foundation upon which battery cell manufacturing could become commercially viable over the longer term.

5.2.4 Pathway 4: Electric mobility and assembly industries - Creating regional markets

The fourth pathway involves expanding into downstream industries such as battery packs, electric motorcycles, electric three-wheelers, and vehicle assembly. Unlike battery cell



manufacturing, these activities are not only driven by global export markets but also by rapidly growing regional demand. Urbanization, electrification, and the expansion of clean mobility across Africa are creating new opportunities for locally assembled vehicles and energy storage systems.

This pathway offers two important advantages.

First, it creates domestic and regional demand for battery materials and components produced within the DRC and Zambia, helping to strengthen the commercial viability of upstream industries.

Second, assembly industries provide an accessible entry point into manufacturing by developing supplier networks, industrial skills, and quality management systems before moving into more technologically demanding activities.

Experience in India suggests that electric two- and three-wheelers can play an important role in developing local manufacturing ecosystems (Diene et al., 2022). Zambia has already demonstrated initial capabilities through motorcycle assembly and battery assembly operations (Ministry of Information and Media – Zambia, 2025).

Policy priorities:

- supporting domestic and regional electric mobility markets,
- promoting local assembly through targeted industrial policies
- encouraging supplier development program
- strengthening standards and quality infrastructure
- integrating assembly industries with regional automotive value chains, particularly in Southern Africa.

In the longer term, downstream assembly activities can help generate the market demand and industrial capabilities required to support more advanced battery manufacturing.

Table 3. Strategic pathways for Musompo and Ndola

Building block	Strategic objective	Priority	Key policy priority
Mineral processing and refining	Strengthen industrial base	Short term	Expand refining capacity, industrial infrastructure, and supplier networks
Battery-grade chemicals and precursors	Increase value addition	Short-to-medium term	Develop chemical industries, secure regional inputs, and strengthen industrial capabilities
Battery cell manufacturing	Develop advanced manufacturing	Long term	Build technology, skills, R&D, and strategic partnerships
Electric mobility and assembly	Create regional demand	Short-to-medium term	Promote assembly industries, supplier development, and regional markets

Source: Authors.



5.2.5 Assessment

Taken together, these pathways show that industrialization should be approached as a progressive and coordinated process, pursued at both the national and regional levels.

The DRC and Zambia are well positioned, individually and collectively, to deepen their participation in battery value chains. Their mineral endowments provide an important comparative advantage, but the success of their industrial strategies will depend on how effectively they sequence investments around existing capabilities while building the skills, infrastructure, technology, institutions, and market linkages required for more advanced manufacturing.

These pathways are complementary, and they may not be linear. They can reinforce one another over time, particularly if the two countries coordinate their SEZ strategies despite being at different stages of implementation. The strategic priority is therefore to progressively strengthen competitiveness across the value chain, while creating the conditions for long-term participation in regional and global battery markets.

Table 4. Competitive strengths and constraints of Musompo and Ndola

Dimension	Current strengths	Strategic gap
Mineral endowment	World-class copper and cobalt base	Missing key battery inputs (graphite, phosphate, nickel)
Infrastructure	Strategic location on regional corridors	Border delays and high logistics costs
Industrial base	Established mining and mineral processing	Limited downstream manufacturing capabilities
Skills	Strong mining and metallurgical expertise	Limited battery-specific engineering and manufacturing skills
Energy	Significant long-term renewable potential	Current supply shortages and reliability constraints
Markets	Access to regional and global markets	Limited defined market strategy and demand creation

Source: Authors.

5.3 Readiness of the Industrial Ecosystem

Building on Section 4, this section examines the readiness of the Musompo and Ndola zones to support competitive battery-related industries, with a particular focus on the policy, institutional, and economic conditions required for long-term industrial development.



5.3.1 Governance and Institutional Readiness

The DRC-Zambia initiative benefits from a relatively sophisticated governance architecture centred on the Battery Council, its Technical Committee, and associated working groups. These arrangements provide a foundation for cooperation and demonstrate strong political commitment by both governments.

However, stakeholder consultations suggest that implementation remains more advanced at the political level than at the operational level. While broad objectives have been agreed, important questions remain regarding implementation sequencing, institutional responsibilities, performance monitoring, and accountability.

A recurring concern raised during interviews was the absence of detailed implementation roadmaps specifying reforms, investment priorities, and timelines. This creates uncertainty regarding how the initiative will move from planning to implementation and increases the risk that the two countries will pursue parallel rather than coordinated industrial development strategies.

Differences in institutional readiness also affect implementation. Zambia benefits from experience managing MFEZs and has existing industrial platforms that can support implementation. By contrast, the DRC remains focused on establishing many of the institutional foundations required to operationalize the Musompo zone.

Overall, governance arrangements provide an important foundation for cooperation. However, stronger implementation mechanisms, clearer roadmaps, and more systematic coordination will be required to support industrial development at scale.

5.3.2 Regulatory and Investment Readiness

A favourable regulatory and investment environment is one of the most important determinants of success for industrial zones. International experience shows that successful battery and manufacturing hubs typically combine predictable regulations, efficient administrative procedures, investor support services, and targeted incentives to attract long-term productive investment (Sustainable Energy for All, 2024; UNCTAD, 2021; Zeng, 2016).

The DRC and Zambia have adopted different approaches to SEZs.

In the DRC, the SEZ framework is governed by Law No. 14/022 and its implementing regulations. The regime provides a relatively comprehensive package of fiscal incentives for both developers and firms operating within designated zones. These include exemptions from corporate taxes and customs duties, preferential treatment for imported machinery and capital goods, and exemptions from export duties on finished products. Amendments introduced in 2023 also provided for the establishment of a Single-Window clearance mechanism, which was formally operationalized in 2025 through a Prime Ministerial Decree (DRC Official Gazette, 2014).



In Zambia, investors in MFEZs benefit from a range of incentives administered through the ZDA, including exemptions on profits and dividends during initial years of operation, value-added tax rebates linked to local sourcing, and the unrestricted repatriation of profits (ZDA, 2025a, 2025b). However, stakeholders noted that Zambia does not currently operate under a dedicated SEZ law and that investors may still need to navigate multiple institutions and approval processes. The pre-feasibility study undertaken by ARISE IIP estimated that approvals can take several months and identified the absence of a fully integrated investor Single Window as a constraint (ARISE IIP, 2023).

Table 5. Comparison of the DRC and Zambia SEZ frameworks

Dimension	DRC (Musompo SEZ)	Zambia (Ndola MFEZ)
Legal framework	Dedicated SEZ Law (Law No. 14/022)	MFEZ regime administered by the ZDA
Fiscal incentives	Extensive tax and customs exemptions for developers and investors	Tax exemptions, value-added tax rebates, and profit repatriation provisions
Single-Window services	Formally established in 2025	Partial implementation
Investor certainty	Strong legal framework, but broader governance concerns remain	More established implementation experience, but no dedicated SEZ law
Main challenge	Implementation capacity and regulatory predictability	Administrative fragmentation and long-term certainty of incentives

Source: Authors.

While both countries provide incentives intended to attract investment, international experience suggests that incentives alone rarely determine investment decisions. For battery-related industries, investors generally place greater emphasis on regulatory predictability, permitting efficiency, customs procedures, access to utilities, contract enforcement, and long-term policy stability.

In this regard, stakeholders interviewed during the study highlighted concerns regarding administrative complexity, regulatory uncertainty, and fragmented approval processes. These challenges may be particularly significant for battery precursor production and advanced manufacturing because such investments are highly capital intensive and involve long payback periods.

A further challenge arises from the regional nature of the initiative. Investors seeking to establish integrated operations across the DRC and Zambia currently face different regulatory systems, incentive structures, and administrative procedures. While complete harmonization may not be necessary, greater alignment in investor services, customs procedures, licensing requirements, and SEZ governance could significantly improve the attractiveness of the initiative.



From an investor perspective, the long-term competitiveness of the battery initiative will therefore depend not only on the incentives offered within Musompo and Ndola, but also on the ability of the two countries to present a coherent and predictable regional investment proposition.

5.3.3 Assessment

The DRC and Zambia have established important regulatory foundations for industrial development and have introduced incentive frameworks intended to attract investment into battery value chains.

However, the evidence suggests that the principal challenge is no longer the absence of incentives. Rather, it is whether the two countries can provide the predictability, efficiency, and coordination required for investors to commit to long-term industrial projects.

In this regard, the regional nature of the initiative creates both opportunities and challenges. While Musompo and Ndola have the potential to function as complementary industrial platforms, their success will depend on the extent to which the DRC and Zambia can reduce regulatory fragmentation and present a coherent regional value proposition to investors.

5.3.4 Infrastructure and Logistics Readiness

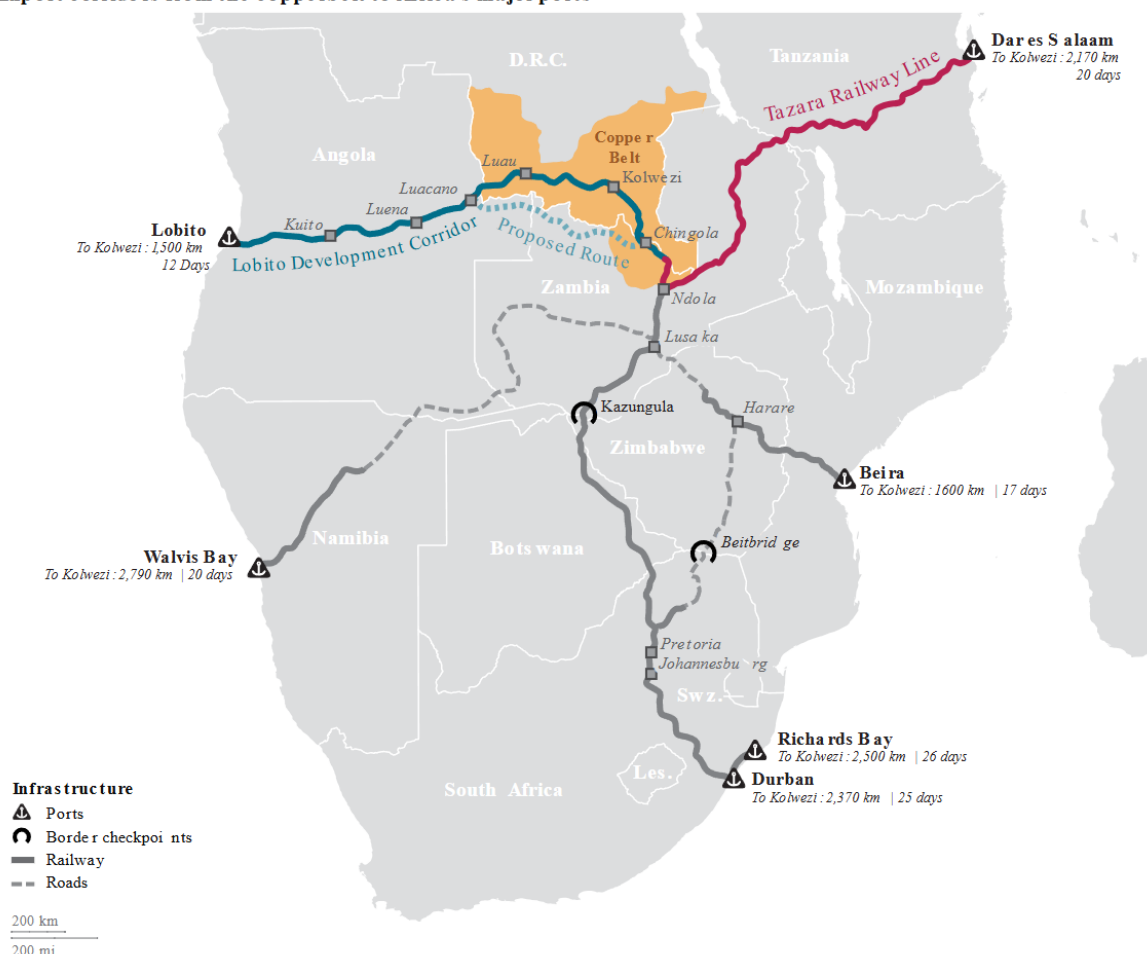
The proposed Musompo and Ndola zones benefit from important geographic advantages. Both are located within the Central African Copperbelt, close to major copper and cobalt production centres, and are expected to benefit from ongoing investments in regional transport corridors.

Musompo is strategically positioned near Kolwezi, one of the world's most important copper and cobalt hubs, and could benefit from planned rehabilitation of the Kolwezi-Dilolo railway and broader investments associated with the Lobito Corridor (Luabeya, 2026b). The site also lies close to the planned Buenassa copper-cobalt refinery, which aims to produce refined copper cathodes and battery-grade cobalt sulphate (Buenassa, 2025). In Zambia, the Ndola MFEZ benefits from an existing industrial base and planned upgrades to road and rail infrastructure, including extensions of the Lobito Corridor and modernization of the TAZARA railway (European Commission, n.d.; Railway Gazette International, 2025).

These projects could improve access to both Atlantic and Indian Ocean ports, strengthening connections to European, North American, and Asian markets. However, many of these investments remain under development, and their contribution to competitiveness will depend on the timing, quality, and cost of implementation.

Figure 6. Location of SEZs at Musompo and Ndola, relative to key regional transport corridors

Export corridors from the copperbelt to Africa's major ports



Note: The Musompo SEZ is located just outside Kolwezi.

Source: S&P Global Energy (Sadden, 2024).

A more fundamental challenge concerns the structure of battery value chains themselves. Unlike traditional mineral exports, battery precursor production depends not only on exporting products but also on importing critical inputs. As discussed in Section 5.1, several minerals required for battery production—including graphite, nickel, and phosphates—are not currently produced or processed at scale in either the DRC or Zambia. Their cost and availability will therefore directly affect the competitiveness of future battery-related industries.

This creates an additional layer of complexity because battery precursor production may require repeated cross-border movements of minerals and intermediate products. For example, cobalt mined in the DRC could be refined into battery-grade cobalt sulphate in Zambia and subsequently used in precursor manufacturing elsewhere in the value chain. Private sector stakeholders highlighted border delays and congestion between the DRC and Zambia as a major obstacle to such integrated production models.



Trade facilitation therefore becomes a competitiveness issue rather than simply a logistics issue. Evidence suggests that delays in customs clearance and border procedures can significantly reduce export performance and increase production costs (Djankov et al., 2010). According to United Nations assessments, both countries still have scope to improve implementation of measures under the World Trade Organization Trade Facilitation Agreement (United Nations, n.d.-a, n.d.-b). The planned one-stop border post at Sakania could therefore make an important contribution to improving trade flows between the two zones (Zambia MCTI, 2025).

The costs of sourcing missing inputs also deserve attention. Authors' analysis suggests that trade costs for importing battery-grade lithium could reach approximately 10% of input value in Zambia and 14% in the DRC, excluding potentially significant domestic transport costs (UNCTAD, 2023, 2024). Such costs could materially affect the economics of battery precursor production.

Box 1. Infrastructure as a competitive advantage—or constraint

The DRC and Zambia possess a significant locational advantage through their proximity to major copper and cobalt resources. However, battery value chains are highly integrated and depend on the efficient movement of both inputs and outputs. For Musompo and Ndola, competitiveness will depend not only on access to export corridors such as Lobito and TAZARA, but also on the ability to import critical minerals and chemicals at competitive cost. Efficient border procedures, reliable logistics corridors, and coordinated regional transport systems may therefore be as important as the zones themselves.

Source: Authors.

5.3.5 Assessment

Musompo and Ndola are well positioned relative to mineral production centres and emerging transport corridors. However, infrastructure readiness should not be assessed solely in terms of physical connectivity. The competitiveness of the zones will depend equally on trade facilitation, regional logistics integration, and the ability to source critical inputs efficiently.

The key challenge is therefore not simply building infrastructure but transforming existing transport corridors into integrated industrial corridors capable of supporting regional battery value chains.

5.3.6 Skills, Technology, and Innovation Readiness

The DRC and Zambia possess important industrial capabilities linked to mining and mineral processing. Existing copper and cobalt operations have created pools of engineers, technicians, and skilled workers that provide a foundation for industrial upgrading. Ongoing investments in copper smelting in the DRC and cobalt refining in



Zambia further demonstrate the ability of both countries to attract technical expertise and industrial investment.

However, battery precursor production and battery manufacturing require capabilities that extend beyond traditional mining and metallurgical skills. Stakeholders consulted during this study highlighted shortages in chemical engineering, electrochemistry, industrial process engineering, quality control, and battery-specific manufacturing skills (Grant et al., 2020; J.M. Kanda, personal communication, April 23, 2026).

These skills gaps have direct competitiveness implications. While new industries often rely on expatriate expertise during the early stages of development, doing so increases costs and limits opportunities for local workforce development (Bloomberg New Energy Finance, 2021). If the DRC and Zambia are to capture broader economic benefits from battery value chains, workforce development will need to occur in parallel with industrial investment rather than after it.

The establishment of CAEB is therefore an important institutional step. The centre has the potential to support research, technical training and industry-academia collaboration linked to battery technologies. However, stakeholders noted that limited resources currently constrain its ability to support large-scale research, laboratory development, and specialized workforce training.

Box 2. Potential spillovers for local firms and workers

If Musompo and Ndola develop into functioning industrial ecosystems, their benefits could extend beyond battery precursor production. Related sectors such as chemicals, logistics, maintenance, engineering, testing, and professional services could all benefit from new industrial demand. This would create opportunities for local small and medium-sized enterprises (SMEs), support higher-skilled employment, and strengthen linkages between industry, universities, and training institutions (Azuelos et al., 2025; Karkare & Medinilla, 2023). However, these benefits will not occur automatically and will require deliberate supplier development programs, workforce training, and stronger industry-academia collaboration.

Source: Authors.

Beyond skills, the development of battery industries also requires access to technology and innovation capabilities. Battery technologies remain concentrated among a relatively small number of firms and countries, particularly in China, Korea, and Japan. This creates a strategic challenge for the DRC and Zambia, as competing in advanced battery manufacturing through home-grown technologies alone is unlikely in the short term (Anderson, 2025; You, 2025).

Consequently, technology partnerships, licensing arrangements, and industrial learning will likely play an important role in the development of battery-related industries. At the same time, technology development should not be viewed solely through the lens of competing with established global producers. African markets may create opportunities



for locally adapted innovations in areas such as electric two- and three-wheelers, stationary storage, and off-grid energy systems. Experience from other developing regions suggests that “frugal innovation” adapted to local conditions can provide an important pathway for technological upgrading (Luke et al., 2016).

5.3.7 Assessment

The DRC and Zambia possess a solid foundation of mining and mineral-processing capabilities, but battery-related industries require a broader skills, technology, and innovation ecosystem.

Strengthening CAEB, expanding technical and vocational training, and developing strategic technology partnerships will be essential if Musompo and Ndola are to support industrial upgrading rather than simply host externally controlled production facilities.

5.3.8 Access to Reliable and Affordable Energy

The DRC and Zambia are both experiencing shortages of energy, with the former also having an unreliable electricity grid. In Zambia, this is a key hindrance to business operations, while in the DRC, companies such as mining firms rely on expensive generators to make up the shortfall (IGF, 2026b; Manley et al., 2022). The prefeasibility study conducted by ARISE, as described in Section 3.2, highlights energy deficiency in both countries as a key challenge to attracting investment in the SEZs (ARISE IIP, 2023).

The two countries are attempting to expand their energy supply, but this may take time; for now, sufficient access through the grid remains elusive. For example, the DRC’s power deficit was estimated at 2,750 MW in 2024, and although several energy generation projects have been approved since then or are still in progress, they are projected to only fill around 50% of this gap in total (authors’ calculations based on GlobalData, 2025; Chariot & Total Eren, 2025; DRC Solar Power, 2025; Ghimire, 2024; *Kamoa-Kakula Inga II to Deliver*, 2025; Luabeya, 2026a; World Bank, 2024, 2026).

Projects with more potential are expected to take time. The Angola-DRC interconnector (which will run through Kolwezi, close to the DRC battery-focused SEZ) is expected to take time to supply electricity—the former to 2029. The Inga 3 Dam (which would fill DRC’s current energy deficit, alongside other planned projects) is expected to generate electricity in at best 8–10 years, but potentially up to 14 years based on the time taken to complete comparable projects, such as the Grand Ethiopian Renaissance Dam. Financing for Inga 3’s construction has not yet been secured (Payton, 2025).

As a result, firms in both the DRC and Zambia are using their own off-grid power solutions. As noted above, generators are used in DRC; in Zambia, some businesses, such as mines, are purchasing energy from captive power plants, ensuring a reliable supply of energy disconnected from the grid; SEZs such as the Lusaka South MFEZ have also sought off-grid energy solutions. The two countries have also adopted regulatory frameworks to facilitate the approval of off-grid energy projects. However, these projects still require approval from government through processes that, in the case of the DRC, are



unpredictable (due to the absolute authority of provincial governors to grant approvals) and complex, which could slow and/or deter investment in off-grid energy production (Carr, 2024; IGF, 2026b). Moreover, various private sector actors interviewed by the authors of this study in the DRC in 2025 pointed out bureaucratic delays in approving energy projects and tax challenges. They called for effective and attractive energy-sector policies and tax incentives, such as tax holidays, to boost the sector.

The Zambian Ndola MFEZ is also expected to host an oil refinery that will reduce imports of imported fuel. The refinery is expected to cover Zambia's entire national demand for refined oil and facilitate exports. It will also include a 130-MW power plant, which could ensure power supply to businesses operating in the economic zone (Agbetiloye, 2025): 100 MW will supply the national grid, with 30 MW remaining for supply within the zone (Dakhling, 2025). The project received approval in late 2025 and underwent a groundbreaking ceremony in 2026 (Ministry of Commerce, Trade and Industry, 2026).

5.4 Sustainability, Finance, and Market Access Readiness

The previous section assessed whether Musompo and Ndola possess the internal conditions required for industrial development. Equally important, however, is whether the initiative can attract investment, secure market access, and maintain the social licence required for long-term industrialization.

Experience from battery value chains suggests that while production costs are the key drivers of competitiveness, environmental performance, access to finance, strategic partnerships, and integration into growing markets are equally essential.

5.4.1 ESG and Social Licence

Environmental, social, and governance (ESG) considerations are becoming increasingly important determinants of competitiveness in battery value chains.

Battery manufacturers, investors, and regulators increasingly require evidence of responsible sourcing, traceability, and environmental performance. As a result, ESG standards are no longer simply compliance requirements; they are increasingly becoming conditions for market access and access to finance.

This issue is particularly important in the Central African Copperbelt, where mining and mineral processing have historically generated significant environmental and social impacts. Studies have documented pollution, health risks, forced displacement, and environmental degradation associated with mining activities in both the DRC and Zambia (Amnesty International & IBGDH, 2023; Muimba-Kankolongo et al., 2022; The Carter Center, 2018). Mineral processing activities have also contributed to environmental contamination in parts of the region (Kříbek et al., 2023; von der Heyden & New, 2004).

Recognizing these risks, UNECA commissioned studies in 2023 to assess the environmental and social implications of the proposed battery-focused SEZs. These studies highlighted that both sites are located within the Miombo woodland ecosystem,



which supports biodiversity and provides important livelihood resources for local communities (Kaniki, 2024; Masinja, 2024). They recommended the integration of green technologies and robust environmental and social management systems into future developments.

Stakeholders interviewed during this study nevertheless expressed concerns regarding the treatment of ESG issues during implementation. In the DRC, for example, decrees signed in 2025 classified the Musompo site as an area of public interest and initiated expropriation procedures affecting local communities. Interviewees noted concerns regarding consultation processes, compensation mechanisms, and the absence of broader resettlement planning. Similar concerns were raised in Zambia regarding land acquisition arrangements and the potential impact of industrial development on local communities.

These examples illustrate that ESG considerations are not only environmental or social issues; they are also implementation and competitiveness issues. Failure to address them adequately could delay projects, undermine investor confidence, and weaken the social licence required for long-term industrial development.

Overall, the DRC and Zambia have recognized the importance of ESG considerations, but stronger integration of environmental and social safeguards into planning, implementation, and monitoring processes will be necessary if the battery initiative is to attract responsible investment and maintain public support.

5.4.2 Access to Finance

The battery initiative has benefited from strong international support, including partnerships involving the UNECA, Afreximbank, and bilateral partners. However, moving from planning to industrial development will require substantially greater levels of investment.

Industrial infrastructure, energy systems, transport corridors, and manufacturing facilities require financing on a scale that exceeds the resources currently mobilized. At the same time, access to finance remains challenging for domestic firms. High borrowing costs, limited availability of long-term capital, and weak access to international financial markets constrain the ability of local firms to participate in emerging value chains (IGF, 2026b; World Bank, 2023). Analysis of Zambia's financial sector suggests that liquidity constraints and limited international investor participation contribute to elevated financing costs (IGF, 2026b). Similar challenges affect firms across much of sub-Saharan Africa (Ayres et al., 2025).

This creates a risk that the battery initiative could become dominated by large foreign investors unless deliberate measures are taken to facilitate participation by domestic firms and suppliers.



5.4.3 Market Readiness

One of the most important lessons emerging from Section 4 is that industrial zones succeed when they are connected to growing and predictable markets.

At present, the battery initiative remains largely supply driven. Considerable attention has been devoted to mineral resources and industrial production, while less attention has been paid to defining target markets and identifying likely customers.

Several potential markets exist:

- battery materials for export to established manufacturing hubs
- battery components for emerging African industries
- electric motorcycles and three-wheelers serving African urban markets
- energy storage systems supporting regional energy transitions
- supply chains linked to South Africa's automotive sector.

The choice of target markets will significantly influence the industrial strategy adopted by Musompo and Ndola. A battery precursor strategy, for example, depends heavily on access to export markets and integration into global value chains. By contrast, electric mobility assembly may depend more on regional demand growth and domestic market development.

This suggests that market strategy should become a central component of future implementation planning. Beyond the types of value chains that could be produced in the SEZ, both countries need to work together to secure national, regional, and global market access.

5.4.4 Strategic Partnerships

International partnerships have become a defining feature of the DRC-Zambia battery initiative. Since its launch in 2022, the initiative has attracted significant interest from multilateral institutions, development finance providers, private investors and governments seeking to strengthen critical mineral and battery supply chains. This growing engagement reflects both the strategic importance of the Central African Copperbelt within the global energy transition and the increasing recognition that industrial development requires more than mineral extraction alone.

The partnership landscape is also evolving. Traditionally, cooperation in the mining sector focused primarily on resource development and infrastructure. Increasingly, however, partnerships encompass a broader range of objectives, including industrial development, technology transfer, research and innovation, workforce development, regional value chain integration, and market access. As a result, partnerships are becoming more diverse in both their structure and their objectives.



This diversity creates important opportunities for the initiative. Different partners bring different comparative advantages. Development finance institutions can help reduce investment risks and finance enabling infrastructure. Industrial partners can provide manufacturing expertise, long-term supply arrangements, technology, and access to global markets. Research institutions and universities can strengthen innovation and workforce development, while regional organizations can facilitate policy coordination and market integration. Together, these partnerships have the potential to provide a combination of capabilities that no single institution or partner could deliver alone.

At the same time, the expanding partnership landscape introduces new strategic considerations. As global competition for critical minerals intensifies, partnership models increasingly combine commercial, industrial, and geopolitical objectives. Some partnerships prioritize securing long-term mineral supply, while others place greater emphasis on industrialization, technology cooperation, or regional economic integration. These objectives are not necessarily incompatible, but they may generate different development outcomes and require governments to balance multiple priorities over time.

A further consideration concerns institutional capacity. The DRC and Zambia are simultaneously engaging with bilateral partners, multilateral development institutions, private investors, regional organizations, and research institutions, each operating under different financing models, governance arrangements, and implementation processes. As the number of partnerships increases, effective coordination becomes increasingly important to avoid fragmented implementation, overlapping initiatives, and unnecessary transaction costs.

Finally, the rapidly evolving nature of battery technologies and global markets introduces an additional layer of complexity. Battery chemistries, manufacturing technologies, trade policies and investment priorities continue to evolve, meaning that partnership arrangements may also need sufficient flexibility to adapt to changing market conditions and emerging industrial opportunities.

These observations suggest that partnership readiness extends beyond the ability to attract international interest. It also encompasses the institutional capacity to coordinate multiple partnerships, align them with national and regional industrial priorities, and ensure that they collectively reinforce the long-term objectives of the initiative.

Box 3. Strategic lessons from the DRC-China Sicomines Partnership

The Sicomines agreement between the DRC and a consortium of Chinese companies illustrates both the opportunities and the complexities associated with large-scale resource-backed partnerships. Signed in 2008, the agreement linked infrastructure development to the exploitation of copper and cobalt resources through a joint venture between Congolese and Chinese partners.

The agreement mobilized significant investment and established an innovative financing mechanism linking infrastructure development and mining. At the same time, subsequent reviews identified challenges relating to governance arrangements, transparency, local value addition, and technology transfer. Assessments undertaken by the DRC General Inspectorate of



Finance, Extractive Industries Transparency Initiative, and civil society organizations also highlighted questions regarding infrastructure delivery, fiscal incentives, and institutional oversight (Extractive Industries Transparency Initiative DRC, 2021; The Sentry, 2021; Congo N'est Pas A Vendre Coalition, 2023).

This experience highlights the importance of ensuring that partnership arrangements remain aligned with evolving national priorities, institutional capacities, and industrial development objectives throughout implementation.

5.4.5 Assessment

The DRC-Zambia battery initiative has already demonstrated a strong capacity to attract international attention and mobilize a diverse range of development, financial, and industrial partners. This provides an important foundation for implementation and reflects the strategic importance of the initiative within the evolving global critical minerals landscape.

5.5 Overall Readiness Assessment

The DRC-Zambia battery initiative possesses several important strengths. The two countries hold globally significant reserves of battery minerals, benefit from strong political commitment, and have established institutional foundations for regional cooperation. They also possess existing mining and processing industries that provide a foundation for industrial upgrading.

At the same time, the assessment suggests that the initiative remains at an early stage of readiness. Several enabling conditions required for competitive industrial development remain underdeveloped, particularly energy availability, implementation capacity, technical skills, and access to finance.

Importantly, the analysis suggests that the principal challenge facing the initiative is not resource availability but competitiveness.

The DRC and Zambia already participate in battery value chains through mining and mineral processing. The challenge is to determine which additional segments of the value chain can be developed competitively and sustainably.

The evidence reviewed in this section further suggests that a gradual approach to industrial upgrading may offer the most realistic pathway forward. Activities closely related to existing capabilities—such as mineral processing, battery-grade chemicals, selected precursor materials, and electric mobility assembly—appear more achievable in the near term than battery cell manufacturing.

Table 6 summarizes the overall readiness assessment.



Table 6. Overall assessment of the DRC-Zambia battery hub initiative's investment readiness

	Dimension	Readiness level
1	Mineral resource base	Strong
2	Political commitment	Strong
3	Institutional foundations	Moderate
4	Governance and coordination	Moderate
5	Regulatory environment	Moderate
6	Infrastructure and logistics	Moderate
7	ESG readiness	Moderate
8	Market readiness	Moderate
9	Regional integration	Moderate
10	Skills and innovation ecosystem	Moderate-Weak
11	Energy readiness	Weak
12	Access to finance	Weak

Source: Authors.

Overall, the initiative possesses strong resource fundamentals and political support. However, its success will depend on whether Musompo and Ndola can evolve from planned industrial zones into competitive industrial ecosystems capable of attracting investment, supporting industrial learning and integrating into regional and global value chains.

The following section presents policy recommendations aimed at strengthening these enabling conditions and supporting the long-term industrial development objectives of the initiative.



6.0 CONCLUSIONS AND POLICY RECOMMENDATIONS

The DRC-Zambia battery initiative represents a significant opportunity to use critical minerals as a platform for industrial transformation. Unlike previous attempts at mineral value addition centred primarily on mineral extraction, the initiative seeks to develop higher-value industrial activities that can strengthen economic diversification, create skilled employment, and increase regional value addition.

The analysis presented in this report suggests three overarching conclusions.

First, the initiative has established strong political and institutional foundations. The bilateral cooperation framework, the creation of dedicated governance arrangements, and the commitment to develop SEZs demonstrate a shared ambition to move beyond mineral extraction toward industrial development.

Second, the principal challenge is not resource availability, but industrial competitiveness. While the DRC and Zambia possess globally significant mineral resources and growing processing capabilities, long-term success will depend on the ability to create competitive industrial ecosystems capable of attracting investment, supporting innovation, and integrating into regional and global value chains.

Third, industrialization is likely to be most successful if pursued as a gradual process of capability building, with coordinated efforts at both the national and regional levels. The evidence reviewed from international experience for this report suggests that strengthening mineral processing, battery-grade chemicals, precursor production, and electric mobility industries can progressively create the conditions required for more advanced manufacturing over time.

Against this background, the recommendations below are organized according to the different levels at which action could be taken to strengthen implementation.

6.1 National Priorities for the DRC

The DRC possesses one of the world's strongest endowments of battery minerals and is expected to play a central role in the development of the regional battery value chain. The immediate priority is therefore to translate this resource advantage into industrial competitiveness by moving the Musompo SEZ from the planning phase toward implementation. While important institutional foundations have already been established, continued efforts to strengthen the business environment, infrastructure, and industrial capabilities could help position Musompo as a competitive industrial platform within the broader regional ecosystem.



6.1.1 Advance the Operationalization of the Musompo SEZ

The successful development of Musompo will be critical to the credibility and realization of the battery initiative. In the short term, priority could be given to completing the technical and institutional foundations required to attract investment and reduce implementation uncertainty.

Areas for consideration:

- completing detailed feasibility studies and the zone masterplan
- establishing a clear governance and operating model
- prioritizing essential infrastructure and utility connections
- developing a phased investment strategy aligned with targeted industrial activities
- strengthening investor facilitation services through a coordinated “Single-Window” approach.

Given the long-term nature of industrial investments, providing greater clarity on the development trajectory of Musompo could help increase investor confidence and facilitate engagement with development partners.

6.1.2 Strengthen the Investment Environment

The DRC has established a comprehensive legal framework for SEZs. As implementation progresses, additional efforts to improve regulatory predictability and administrative efficiency could further strengthen the country’s investment proposition.

Potential measures:

- expand the operational effectiveness of the investor Single-Window mechanism
- improve the transparency and predictability of permitting procedures
- enhance communication with investors regarding regulatory processes and implementation timelines
- strengthen coordination among national and provincial institutions.

Reducing administrative complexity would complement the existing fiscal incentives and help position Musompo as a competitive destination for industrial investment.

6.1.3 Expand Industrial Infrastructure and Energy

Reliable infrastructure and energy supply remain among the most important determinants of industrial competitiveness.

Continued efforts to expand electricity generation at a competitive rate, transmission infrastructure, and industrial utility services could significantly improve the attractiveness of Musompo for battery-related industries. Alongside investments in the national grid, the



DRC could also continue facilitating industrial captive power solutions and renewable energy projects capable of supporting early industrial operations.

Given the strategic importance of Musompo, consideration could also be given to prioritizing energy, transport, and digital infrastructure investments serving the zone as part of a broader industrial development strategy.

6.1.4 Strengthen Skills, Innovation, and Industrial Capabilities

Developing a competitive battery industry will require sustained investment in technical skills, research, and innovation and technologies.

The operationalization of CAEB provides an important opportunity to strengthen national capabilities in battery technologies, chemical engineering, and advanced manufacturing. Continued support for CAEB, together with stronger partnerships between universities, technical institutes, and industry, could help develop the workforce required for future industrial activities.

Consideration could also be given to expanding technical and vocational education programs, promoting applied industrial research, and strengthening collaboration with international research institutions and technology partners.

6.1.5 Strengthen the Uptake of Standards and Community Engagement

As industrial development accelerates, maintaining high ESG standards will be essential to ensuring the long-term sustainability of the initiative.

Continued efforts to strengthen environmental assessment, stakeholder engagement, compensation mechanisms, and community participation could help reinforce public confidence while supporting access to responsible investment and international markets. Integrating ESG considerations early in project development would also contribute to reducing implementation risks and improving the long-term competitiveness of Musompo.

Collectively, these actions could help position Musompo as the DRC's principal industrial platform for higher-value battery-related industries while reinforcing its role within the broader regional initiative.



Table 7. Priority actions for the DRC

Priority area	Priority actions	Lead institutions	Time horizon
Musompo SEZ	Complete feasibility studies, establish governance model, and prepare phased implementation plan	Ministry of Industry, AZES, Battery Council	Short term
Investment climate	Strengthen investor services, improve permitting and institutional coordination	Industry, investment promotion authorities	Short term
Infrastructure and energy	Prioritize industrial infrastructure, energy, and utility connections serving Musompo	Ministries of energy, infrastructure, and industry	Short-medium term
Skills and innovation	Operationalize CAEB, strengthen university-industry partnerships and technical training	Higher education ministry, CAEB	Medium-long term
ESG and stakeholder engagement	Strengthen environmental and social safeguards and community engagement mechanisms	Relevant ministries and provincial authorities	Ongoing

Source: Authors.

6.2 National Priorities for Zambia

Zambia enters the battery initiative with several important advantages, including an established network of MFEZs, existing mineral processing capabilities, and greater experience in industrial zone development. These assets provide an opportunity to build on existing strengths and position the Ndola MFEZ as a complementary industrial hub within the broader DRC-Zambia battery initiative.

6.2.1 Strengthen the Positioning of the Ndola MFEZ

Building on its existing industrial base, Zambia could further position the Ndola MFEZ as a regional hub for higher-value industrial activities linked to battery value chains. Instead of replicating all stages of the value chain, the zone could focus on activities where Zambia already possesses comparative advantages while complementing industrial developments taking place in Musompo.

Potential areas of focus:

- battery-grade chemicals and intermediate products
- industrial services supporting battery value chains
- electric mobility assembly
- supplier development and industrial support industries.

A clear industrial positioning strategy could also strengthen investment promotion efforts and provide greater certainty for prospective investors.



6.2.2 Continue Strengthening the Business and Investment Environment

Zambia has developed considerable experience in managing MFEZs. Continued efforts to strengthen the investment environment could further enhance the attractiveness of the Ndola MFEZ for battery-related industries.

Areas for consideration:

- strengthen the legal and institutional framework governing MFEZs
- expand investor facilitation services
- provide access to finance, in particular, for local investors and SMEs
- provide fiscal and trade incentives to local industries to stimulate domestic investment in SEZs
- simplify administrative procedures
- improve long-term certainty around investment incentives
- strengthen coordination between national institutions and local authorities involved in industrial development.

These measures would complement Zambia's existing investment promotion efforts while reinforcing investor confidence.

6.2.4 Continue Investing in Infrastructure, Energy, and Skills

As in the DRC, reliable infrastructure, energy, and human capital will remain important determinants of Zambia's industrial competitiveness.

Continued investment in industrial infrastructure and energy reliability serving the Ndola MFEZ could further strengthen Zambia's position within the regional battery ecosystem. At the same time, aligning technical and vocational education with industry needs; providing training for future job opportunities with a focus on science, technology, engineering, mathematics, and AI-related skills; strengthening university-industry partnerships; and supporting applied industrial research could help develop the skilled workforce required for higher-value manufacturing.

6.2.5 Strengthen Supplier Development and Industrial Linkages

The development of battery-related industries presents an opportunity to deepen linkages between international investors and domestic firms. Consideration could therefore be given to strengthening supplier development programs, notably through the implementation of local content policies that encourage local participation in engineering services, logistics, maintenance, testing, packaging, and other industrial support activities.

As implementation progresses, Zambia could need to continue strengthening industrial linkages between the Ndola MFEZ and the Musompo SEZ, while promoting integration



with Southern Africa's broader manufacturing and automotive value chains. This would reinforce Zambia's role as a regional manufacturing hub while contributing to the overall competitiveness of the DRC-Zambia initiative.

Table 8. Priority actions for Zambia

Priority area	Priority actions	Lead institutions	Time horizon
Ndola MFEZ	Develop a clear industrial positioning strategy and strengthen investor promotion	ZDA, Ministry of Commerce	Short term
Business environment	Strengthen the MFEZ framework, investor services, and regulatory efficiency	Ministry of Commerce, ZDA	Short-medium term
Infrastructure and energy	Continue improving industrial infrastructure, logistics, and energy reliability	Ministries of infrastructure and energy	Medium term
Skills and innovation	Align education and training systems with industry needs and strengthen university-industry collaboration	Education and skills ministries	Medium-long term
Supplier development	Expand programs linking domestic firms with investors and industrial value chains	ZDA, Ministry of Commerce	Medium term
Regional integration	Strengthen industrial linkages with Musompo and Southern African manufacturing value chains	Ministry of Commerce, ZDA	Ongoing

Source: Authors.

Together, these actions could strengthen Zambia's position as a regional manufacturing and industrial services hub while complementing industrial development taking place in the DRC.

6.3 Joint DRC-Zambia Priorities

Because the battery initiative is founded on regional cooperation, its long-term success will depend on the ability of the DRC and Zambia to move beyond political commitment toward coordinated implementation. As mentioned earlier, while each country continues to pursue its own industrial strategy, closer policy alignment could help reduce investor uncertainty, facilitate cross-border value chains, and strengthen the competitiveness of the initiative as a whole.

6.3.1 Develop a Joint Industrialization Roadmap

The Battery Council could consider preparing a joint implementation roadmap that translates the broad objectives of the cooperation agreement into a sequenced program of reforms, investments, and institutional actions. Such a roadmap could provide a



common reference for government agencies, development partners, and investors while ensuring that implementation remains coordinated despite different national priorities and implementation timelines.

The roadmap could

- clarify institutional and financial responsibilities across both countries;
- define priority value chain segments for short-, medium-, and long-term development;
- identify areas of comparative advantages to enable the development of segments of value chains in the respective zones;
- establish implementation milestones and sequencing of reforms;
- identify target domestic, regional, and international markets; and
- include monitoring, reporting, and periodic review mechanisms.

Particular attention could be given to sequencing industrial development according to competitiveness considerations and evolving market opportunities. This will avoid duplicative efforts and develop all segments of the value chain simultaneously.

Given the rapid evolution of battery technologies and global markets, both governments could consider periodically reviewing the implementation roadmap and industrial priorities to ensure that the initiative remains aligned with technological developments, market demand, and changing comparative advantages.

6.3.2 Develop a Shared Market Strategy

The analysis presented in this report suggests that the battery initiative currently places greater emphasis on production than on market development. Developing a shared market strategy could therefore help guide investment decisions and ensure that industrial development is aligned with future demand.

Such a strategy could identify priority customers and users—such as two- and three-wheelers, passenger cars, energy providers—and target industries and export markets while considering opportunities to strengthen regional demand through electric mobility, energy storage, and integration with Southern Africa's automotive industry.

Potential market opportunities:

- battery-grade chemicals and precursor materials for global manufacturing hubs
- electric mobility industries serving African markets
- battery energy storage systems supporting regional energy transitions
- integration into South African automotive supply chains.



A common market strategy could also support coordinated investment promotion and financing opportunities efforts and help ensure that the two SEZs develop complementary rather than competing specializations.

6.3.3 Strengthen Joint Governance and Coordination

The Battery Council has established an important political framework for cooperation between the DRC and Zambia. As the initiative moves from planning toward implementation, greater emphasis could be placed on strengthening technical coordination and ensuring that institutions responsible for delivering the initiative work in a coordinated and complementary manner.

Rather than developing independently, Musompo and Ndola could progressively evolve as complementary industrial platforms within a shared regional value chain. Building on their respective comparative advantages would enable each zone to specialize in activities where it is most competitive while avoiding unnecessarily duplicating investments.

In this regard, the Technical Committee could play a stronger implementation role by

- coordinating policy reforms across relevant ministries and agencies;
- monitoring implementation progress against agreed milestones;
- supervising technical working groups;
- identifying implementation bottlenecks and proposing corrective actions; and
- facilitating dialogue with development partners, investors, and the private sector.

Regular technical exchanges between the two SEZ authorities could also support

- the development of complementary industrial specializations;
- coordinated investment promotion;
- the exchange of operational experience and good practices;
- the coordination of infrastructure planning and industrial services; and
- joint supplier development and skills initiatives where economies of scale can be achieved.

Regular reporting on implementation progress could further strengthen transparency, improve accountability, and provide investors with greater confidence regarding the direction of the initiative.

6.3.4 Strengthen Regional Trade and Investment Cooperation

The long-term competitiveness of the battery initiative will not only depend on national reforms, but also on reducing the administrative and regulatory costs of operating across two jurisdictions. While the DRC and Zambia do not require identical legal or fiscal frameworks, greater regulatory compatibility and harmonization could facilitate



investment, strengthen regional value chains, and improve the efficiency of cross-border industrial production.

The two countries must build on existing regional integration frameworks, including the SADC, COMESA, and the AfCFTA, which already provide platforms for trade facilitation, investment cooperation, and industrial development.

Priority areas for cooperation could include

- implementing regional commitments on trade and investment made under the Regional Economic Communities;
- streamlining customs procedures and expanding one-stop border arrangements;
- improving the compatibility of investor licensing and business registration procedures;
- facilitating the movement of skilled labour, technical services, and industrial inputs;
- harmonizing standards relevant to battery value chains;
- coordinating the implementation of trade facilitation measures under the World Trade Organization Trade Facilitation Agreement; and
- strengthening cooperation between investment promotion agencies.

Existing regional initiatives—including the SADC Industrialization Strategy and Roadmap, the COMESA industrialization agenda, the SADC Protocol on Mining, and the investment and trade facilitation provisions of the AfCFTA—provide practical platforms for advancing these reforms while avoiding the duplication of institutions.

Leveraging these frameworks would significantly reduce transaction costs for firms operating across both countries while positioning the battery initiative within a broader Southern African industrialization agenda.

Table 9. Joint DRC-Zambia priorities

Priority area	Recommended action	Lead institutions	Time horizon
Strategic planning	Develop a joint implementation roadmap	Battery Council, industry and mines ministries	Short term
Market strategy	Define target markets and priority value chains	Battery Council	Short term
SEZ coordination	Develop complementary industrial specializations and joint investment promotion	Battery Council, SEZ authorities	Short-medium term
Regulatory cooperation	Harmonize key elements of SEZ frameworks	SEZ authorities, investment agencies	Short-medium term



Priority area	Recommended action	Lead institutions	Time horizon
Trade facilitation	Improve customs procedures and border management	Customs authorities, trade ministries	Medium term
Skills and innovation	Develop joint training and research programs	CAEB, universities, governments	Medium-long term
Monitoring and accountability	Publish regular implementation reports	Battery Council	Ongoing

Source: Authors.

6.4 Expanding the Initiative Into a Southern African Battery Ecosystem

The recommendations presented above focus on actions that could strengthen implementation of the DRC-Zambia battery initiative at the national and bilateral levels. Looking beyond the partnership between the two countries, the analysis presented in this report also suggests that the long-term competitiveness of the initiative will increasingly depend on broader regional integration.

As demonstrated in Section 5, neither the DRC nor Zambia currently possesses all the minerals, industrial capabilities, or market scale required to support a complete battery value chain. At the same time, Southern Africa possesses a unique combination of complementary mineral resources, industrial capabilities, transport infrastructure, and regional institutions that together could support the development of a competitive battery ecosystem.

Instead of considering the initiative as a bilateral industrial project, consideration could therefore be given to progressively positioning it as the nucleus of a broader Southern African battery ecosystem. Existing regional frameworks—including the SADC, COMESA, and the AfCFTA—provide practical mechanisms for translating this vision into coordinated industrial action.

6.4.1 Promote Complementary Industrial Capabilities Across Southern Africa

One of the principal opportunities presented by regional integration is to enable countries to build on their respective comparative advantages while progressively developing higher-value industrial capabilities. If industrial capabilities exist across countries and if commitments are implemented, a regional approach could support the emergence of complementary industrial hubs linked through trade, investment, and knowledge networks.

In the case of the DRC-Zambia battery initiative, leveraging regional integration frameworks would help countries move beyond the traditional model in which some countries supply raw materials while others undertake manufacturing. Instead, it could



encourage industrial upgrading across the region by creating opportunities for countries to progressively deepen value addition according to their resource endowments, existing industrial capabilities, and comparative advantages. As regional value chains mature, the development of processing, manufacturing, engineering services, logistics, testing laboratories, and research capabilities in one country can generate spillover effects that stimulate industrial development in neighbouring economies.

For example,

- the DRC could continue strengthening capabilities in copper, cobalt, refining, and battery precursor production;
- Zambia could further develop battery chemicals, industrial services, and electric mobility assembly;
- South Africa could expand downstream manufacturing, automotive industries, battery chemicals, research, and technology development; and
- Madagascar, Mozambique, Tanzania, Zimbabwe, and Namibia could progressively build greater value addition around graphite, nickel, lithium, and phosphate resources, while also developing processing industries, industrial services, and supporting infrastructure linked to regional battery value chains.

Such an approach would encourage industrial development across multiple countries instead of concentrating benefits in a few countries alone. It would also improve the resilience of regional supply chains by diversifying production capacity and reducing dependence on individual suppliers or trade corridors.

Existing regional frameworks provide an important foundation for this approach. The AfCFTA aims to promote regional value chains and industrialization through deeper market integration, while the SADC Industrialization Strategy and Roadmap and the COMESA industrialization agenda explicitly encourage industrial complementarity, regional investment, and value addition across member states. Building on these existing frameworks could facilitate investment, encourage cross-border industrial partnerships, and support the gradual emergence of a more integrated regional manufacturing ecosystem.

Ultimately, the battery initiative could not only serve as a vehicle for industrialization in the DRC and Zambia, but also as a catalyst for broader industrial transformation across Southern Africa. By encouraging complementary investment, industrial learning, and regional production networks, it could contribute to the development of a distributed battery ecosystem in which multiple countries progressively strengthen their participation in higher-value segments of regional and global value chains.

6.4.2 Develop Regional Public Goods for Industrial Development

The competitiveness of battery value chains depends not only on individual industrial zones, but also on the regional infrastructure that connects them.



Continued investment in shared regional infrastructure could therefore support the long-term development of battery industries across Southern Africa.

Priority initiatives:

- the Lobito Corridor
- the North-South Corridor
- modernization of the TAZARA railway
- the Southern African Power Pool
- regional digital and telecommunications infrastructure supporting industrial development.

These investments should be viewed as regional industrial public goods that improve the movement of minerals, intermediate products, skilled labour, and industrial services across Southern Africa. Strengthening these regional assets would not only benefit the DRC-Zambia initiative but could also support broader industrialization across the region.

6.4.3 Strengthen Regional Knowledge, Innovation, and Skills Networks

Industrial upgrading will require stronger regional cooperation in research, innovation, and workforce development.

The CAEB could progressively evolve into the nucleus of a broader Southern African knowledge network involving universities, technical institutes, and research organizations across the region.

Potential areas for cooperation:

- joint research programs on battery technologies
- regional technical and vocational training programs
- technology partnerships with industry
- the mobility of researchers and skilled workers
- the development of regional centres of excellence
- collaboration on testing, certification, and industrial innovation.

Building stronger regional knowledge networks would help accelerate industrial learning, reduce the duplication of investments, and strengthen the technical capabilities required to support higher-value manufacturing across Southern Africa.



Table 10. A regional industrial ecosystem for battery value chains

Regional ecosystem component	Potential contribution to regional industrial development
Critical minerals and mineral processing	The DRC, Zambia, Madagascar, Mozambique, Tanzania, Zimbabwe, and Namibia could progressively strengthen value addition around their mineral endowments, including mining, refining, processing, and battery-grade materials, according to national priorities and comparative advantages.
Complementary industrial hubs	The DRC and Zambia could serve as initial anchors for battery precursor production and related manufacturing, while South Africa and other regional economies continue strengthening downstream manufacturing, chemicals, engineering services, and electric mobility industries. Over time, additional industrial hubs could emerge across the region as investment and capabilities develop.
Regional markets and demand creation	The AfCFTA, the SADC, and COMESA provide opportunities to expand regional demand for battery materials, electric mobility technologies, and energy storage systems while facilitating regional trade and investment.
Innovation, skills, and industrial learning	CAEB, regional universities, technical institutes, and research centres could support joint research, workforce development, technology partnerships, and industrial innovation across Southern Africa.
Regional infrastructure and industrial connectivity	Regional transport, energy, and digital infrastructure—including the Lobito Corridor, TAZARA, the North-South Corridor, and the Southern African Power Pool—can strengthen industrial connectivity, facilitate regional value chains, and support industrial development across multiple countries.
Industrial spillovers and supplier development	Regional value chains can create opportunities for local firms across Southern Africa to participate in engineering services, logistics, maintenance, testing, certification, chemicals, and other supporting industries, allowing industrial capabilities to develop beyond mineral production alone.

Source: Authors.

6.5 Strategic International Partnerships

International partnerships have been instrumental in the development of the DRC-Zambia battery initiative. Support from the UNECA, Afreximbank, and other international partners has helped establish the institutional foundations of the initiative, mobilize technical expertise, and catalyze investment.

As the initiative moves from planning toward implementation, international partnerships will become increasingly important. Beyond financing, they can facilitate access to technology, R&D, industrial know-how, skills, global markets, and long-term investment.



At the same time, governments will increasingly face strategic choices regarding the type of partnerships that best support their long-term industrial development objectives.

6.5.1 Align Partnerships With Industrial Development Objectives

International partnerships will remain essential to the success of the DRC-Zambia battery initiative. They can mobilize investment, facilitate access to technology, strengthen research and innovation, support workforce development, and improve access to international markets.

As international interest in critical minerals continues to grow, governments are also likely to encounter a wider range of partnership models, each offering different combinations of finance, technology, market access, and industrial cooperation. These models are not mutually exclusive, but they may generate different development outcomes and involve different trade-offs.

For example, some partnerships may prioritize rapid investment and mineral supply, while others may place greater emphasis on technology transfer, industrial upgrading, supplier development, or research collaboration. The most appropriate approach will depend on national priorities, market conditions, and the country's stage of industrial development.

Governments should not assess partnerships only on the basis of investment volumes. Instead, they could consider adopting a broader assessment framework that examines their contribution to long-term industrial development.

Potential elements of such a framework:

- contribution to local and regional value addition
- levels of investment in various segments of the value chain
- access to international financial systems
- access to regional and international markets
- technology transfer and industrial learning
- research and innovation partnerships
- skills development and workforce training
- supplier development and SME participation
- transparency, accountability, and good governance
- long-term economic diversification.

Such an approach does not favour one partnership model over another. It provides governments with a structured basis for assessing how different partnerships can collectively contribute to national and regional industrial objectives while balancing immediate investment needs with longer-term development ambitions.



6.5.2 Diversify Partnerships to Strengthen Resilience

Given the scale and complexity of battery value chains, no single partner is likely to provide all the financing, technology, and expertise required.

Continued engagement with a broad range of partners—including international buyers and offtakers, multilateral development banks, regional financial institutions, technology providers, and private investors—could help diversify sources of finance, reduce dependence on individual partners, and strengthen the resilience of the initiative.

Different partnership models are likely to generate different combinations of investment, technology transfer, market access, and industrial development outcomes. A structured assessment framework can help governments evaluate these trade-offs in light of their national and regional development objectives. The DRC-Zambia battery initiative provides an opportunity to build on this evolution by positioning international partnerships as instruments for strengthening industrial capabilities.

Table 11. Strategic considerations for international partnerships

Strategic objective	Potential contribution of partnerships
Investment mobilization	Finance for industrial infrastructure, SEZs, energy, and manufacturing
Technology and innovation	Technology transfer, licensing, R&D, and industrial learning
Skills development	Technical training, workforce development, and university partnerships
Industrial development	Supplier development, SME participation, and value addition
Market access	Integration into regional and global value chains, commercial partnerships, and export opportunities
Governance	Transparency, accountability, and implementation support
Regional integration	Cross-border investment, regional value chains, and complementary industrial development

Source: Authors.

International partnerships will remain essential to the implementation of the DRC-Zambia battery initiative. Their greatest contribution, however, is likely to arise when financing, technology, research, market access, and industrial development objectives reinforce one another.

Developing a structured approach to assessing partnerships can help ensure that international cooperation supports both immediate implementation needs and the long-term ambition of building competitive industrial capabilities that support long-term economic transformation, regional integration, and greater participation in global clean energy value chains.



REFERENCES

- AD'OCC Région Occitanie. (2025). *Corée du Sud : Investir* (in French). <https://export.agence-adocc.com/fr/fiches-pays/coree-du-sud/investir>
- Afreximbank, DRC, Economic Commission for Africa, & Republic of Zambia. (2023, March 27). *Framework agreement for the establishment of Special Economic Zones (SEZ) for the production of Battery and Electric Vehicles (BEV) in the Democratic Republic of Congo (DRC) and the Republic of Zambia*.
- African Development Bank & IGF. (2025a). *Critical Mineral Insights: Factsheet 1 – Nickel*. African Development Bank. <https://www.afdb.org/en/documents/critical-mineral-insights-factsheet-1-nickel>
- African Development Bank & IGF. (2025b). *Critical Mineral Insights: Factsheet 2 – Copper*. African Development Bank. <https://www.afdb.org/en/documents/critical-mineral-insights-copper>
- African Development Bank & IGF. (2025c). *Critical Mineral Insights: Factsheet 3 – Cobalt*. African Development Bank. <https://www.afdb.org/en/documents/critical-mineral-insights-cobalt>
- African Development Bank & Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2025d). *Critical Mineral Insights: Factsheet 4 – Lithium* (Text No. 4; Critical Mineral Insights). African Development Bank Group and Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. <https://www.afdb.org/en/documents/critical-mineral-insights-lithium>
- African Development Bank & Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2025e). *Critical Mineral Insights: Factsheet 6 – Phosphate*. African Natural Resources Management and Investment Centre (ECNR). https://www.afdb.org/sites/default/files/documents/publications/phosphate_factsheet_final_nov_21.pdf
- African Development Bank & Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2025f). *Critical Mineral Insights: Factsheet 8 – Iron*. African Natural Resources Management and Investment Centre (ECNR). <https://www.afdb.org/en/documents/critical-mineral-insights-iron>
- African Development Bank & Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2025g). *Critical Mineral Insights: Factsheet 10 – Manganese*. African Development Bank. <https://www.afdb.org/en/documents/critical-mineral-insights-manganese>



African Development Bank & Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2025h). *Critical Mineral Insights: Factsheet 11 – Natural graphite*. African Natural Resources Management and Investment Centre (ECNR). <https://www.afdb.org/en/documents/critical-mineral-insights-natural-graphite>

African Export-Import Bank. (2023, November). *Afreximbank and ECA sign framework agreement towards establishing Special Economic Zones for the production/ of battery electric vehicles in DRC and Zambia*. <https://www.afreximbank.com/afreximbank-and-eca-sign-framework-agreement-towards-establishing-special-economic-zones-for-the-production-of-battery-electric-vehicles-in-drc-and-zambia%E2%82%AC/>

African Security Analysis. (2025, September). *DRC shifts cobalt policy: Export quotas replace ban (Effective 16 October 2025)*. <https://www.africansecurityanalysis.com/updates/drc-shifts-cobalt-policy-export-quotas-replace-ban-effective-16-october-2025>

Agbetiloye, A. (2025, July 21). *Zambia plans \$1.1 billion oil refinery in copperbelt to cut fuel imports*. Business Insider Africa. <https://africa.businessinsider.com/local/markets/zambia-plans-dollar11-billion-oil-refinery-in-copperbelt-to-cut-fuel-imports/cs2ffe2>

Alshamsi, A., Pinheiro, F. L., & Hidalgo, C. A. (2018). Optimal diversification strategies in the networks of related products and of related research areas. *Nature Communications*, 9(1), 1328. <https://doi.org/10.1038/s41467-018-03740-9>

Amnesty International & IBGDH. (2023). *Powering change or business as usual? Forced evictions at industrial cobalt and copper mines in the DRC*. <https://www.amnesty.org/en/latest/news/2023/09/drc-cobalt-and-copper-mining-for-batteries-leading-to-human-rights-abuses/>

Anderson, M. C. (2025, July 15). *China imposes export controls on critical EV battery technologies*. Battery Technology. <https://www.batterytechonline.com/battery-manufacturing/china-tightens-grip-on-ev-battery-tech-with-new-export-controls>

ARISE Integrated Industrial Platforms. (2023). *A pre-feasibility study for implementation of battery SEZ in the DRC and Zambia*.

Autorité de Régulation et de Contrôle des Marchés des Substances Minérales Stratégiques. (2025, September). *Extension of the temporary suspension of cobalt exports from the DRC and adoption of a quota policy*.

Ayres, S., Hakyemez, V., & Carter, P. (2025). *A mobilisation machine: International corporate bonds in sub-Saharan Africa* (Insight). British International Investment. <https://assets.bii.co.uk/wp-content/uploads/2025/09/12152951/A-mobilisation-machine-international-corporate-bonds-in-Sub-Saharan-Africa.pdf>



- Azuélos, S., Boubekour, S., Gourdon, J., Githinji, P. K., Hornook, C., Mulyukova, A., & Ouari, Z. (2025). *Reassessing the role of special economic zones in Africa: Evidence on expert performance and socioeconomic impacts*. Éditions AFD. https://www.afd.fr/sites/default/files/2025-07/pr354_web.pdf
- Bloomberg New Energy Finance. (2021). *The cost of producing battery precursors in the DRC*. https://assets.bbhub.io/professional/sites/24/BNEF-The-Cost-of-Producing-Battery-Precursors-in-the-DRC_FINAL.pdf
- Buenassa. (2025). *The Buenassa Refinery Project*. <https://www.buenassa.com/about-6>
- Bureau of African Affairs. (2025, December 4). *Strategic Partnership Agreement between the Government of the United States of America and the Government of the Democratic Republic of the Congo*. U.S. Department of State. <https://www.state.gov/strategic-partnership-agreement-between-the-government-of-the-united-states-of-america-and-the-government-of-the-democratic-republic-of-the-congo/>
- Carr, H. (2024, August 7). *Distributed energy resources regulation market highlight: Democratic Republic of the Congo*. CrossBoundary Energy. <https://crossboundaryenergy.com/distributed-energy-resources-regulation-democratic-republic-of-the-congo/>
- The Carter Center. (2018). *Those left behind in the DRC mining industry*. <https://www.congomines.org/fr/dans-lactualite/entree/128345/>
- The Carter Center (2021). *Le Centre Carter appelle le gouvernement congolais à créer les conditions favorables à la transformation locale des minerais afin de garantir que les ressources minières du pays profitent davantage au peuple congolais*. https://wpstorage7ceb827ed5.blob.core.windows.net/wpblob7ceb827ed5/formidable/17/TCC_EIG_Communique%CC%81_Transformation_Locale_Minerais_Juin_2021_20210615.pdf
- The Carter Center. (2025, April). *Entre espoirs & réalités. Regard critique sur le régime fiscal du Code Minier Révisé de la RDC* (in French). [https://congominespdfstorage.blob.core.windows.net/congominespdfstorage/Centre%20Carter%20Entre%20Espoirs%20&%20Réalités_TCC%20A4\[1\].pdf](https://congominespdfstorage.blob.core.windows.net/congominespdfstorage/Centre%20Carter%20Entre%20Espoirs%20&%20Réalités_TCC%20A4[1].pdf)
- Chariot & Total Eren to power DRC lithium mine with solar: DRC solar news. (2025, April 8). PV Knowhow.Com.
- Cheng, J. & Dong, H., (2025, May). *Analysis of revised Mining Code in Democratic Republic of Congo*. Law.asia. <https://law.asia/drc-revised-mining-code-analysis/>
- Chibamba, A. (2025, December 11). *DRC and Zambia set to dominate global copper production*. IR Global. <https://irglobal.com/article/drc-and-zambia-set-to-dominate-global-copper-production/>



- Congo N'est Pas A Vendre Coalition [Congo is Not for Sale Coalition]. (2023). *CNPAV Communiqué Revisitation Convention Sicominex* [Press Release on the revision of the Sinio-Congolese Agreement] (in French). Afrenews. <https://afrenews.org/cnpav-communique-revisitation-convention-sicomines/>
- Dakhling, P. (2025, November 26). *Zambia approves \$1.1B Ndola oil refinery*. African Energy Council. <https://africanenergycouncil.org/zambia-approves-1-1b-ndola-oil-refinery/>
- Davis, W. (2024). *How can Africa make the most of its transition minerals: A pledge for enhancing value addition for development and prosperity* (Just Minerals Africa). Publish What You Pay. <https://pwyp.org/wp-content/uploads/2024/09/PWYP-transition-minerals-research-Draft-V4.pdf>
- Decreux, Y., Spies, J., Cantero, M., Hauser, C., Ochem, D., Périllat, S., Ouriques Poffo, L., Seiermann, J., & Stevens, C. (n.d.). *Export potential and diversification assessments*. International Trade Centre. https://umbraco.exportpotential.intracen.org/media/cklh2pi5/epa-methodology_230627.pdf
- Democratic Republic of the Congo & Zambia. (2022, April). *Cooperation Agreement for Manufacturing Electric Vehicle Batteries*.
- Democratic Republic of the Congo Official Gazette. (2014). *Loi fixant le régime des zones économiques spéciales en République Démocratique du Congo* (Law No. 14/022, establishing the regime of SEZs) (in French). <https://www.leganet.cd/Legislation/Droit%20economie/Loi.14.07.07.2014.htm>
- Diene, P. D., Manley, D., Olan'g, S., & Scurfield, T. (2022). *Triple win: How mining can benefit Africa's citizens, their environment and the energy transition*. Natural Resource Governance Institute. <http://resourcegovernance.org/publications/triple-win-mining-africa-environment-energy-transition>
- Djankov, S., Freund, C., & Pham, C. S. (2010). Trading on time. *The Review of Economics and Statistics*, 92(1), 166–173. <https://doi.org/10.1162/rest.2009.11498>
- DRC solar power: \$100M Fuels Essential Project DRC solar news*. (2025, November 18). PV Knowhow.Com.
- Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH. (2025). *Sector analysis Vietnam: Battery energy storage systems in Vietnam*. <https://www.giz.de/de/downloads/giz2025-en-sector-analysis-vietnam-battery-energy-storage-systems.pdf>



- Editorial Team. (2026, May 6). *Users report system gaps in Zambia Electronic Single Window (ZeSW) platform*. *Zambian Business Times*.
<https://zambianbusinesstimes.com/users-report-system-gaps-in-zambia-electronic-single-window-zesw-platform/>
- Emran S., & Tayebi, O. (2024, February). *When elephants fight”, Africa transforms: The new geopolitics of critical mineral supply chains and the emergence of local value chains* (Policy paper). Policy Center for the New South.
https://www.policycenter.ma/sites/default/files/2025-03/PP_01-24%20%28Sabrine%20%26%20Oussama%29%20EN%20.pdf
- Energy Transition Partnership (2025). *Vietnam’s battery supply chain: Current state analysis and investment opportunities*. Energy Transition Partnership.
https://www.energytransitionpartnership.org/wp-content/uploads/2025/08/20250712_Executive-Summary_EN.pdf
- ERG Africa. (2026). *Chambishi Metals*. <https://www.ergafrica.com/cobalt-copper-division/chambishi-metals/>
- European Commission. (n.d.). *Lobito Corridor*.
<https://ec.europa.eu/commission/presscorner/api/files/attachment/875970/2817-Zambia-Angola-Economic-Corridor-G20.pdf>
- Extractive Industries Transparency Initiative. (2021). *Etude d’évaluation de la mise en œuvre de la convention de collaboration relative au développement d’un projet minier et d’un projet d’infrastructures en RD Congo Projet SICOMINES* (Assessment of the Sino-Congolese Agreement relating to the development of a mining project and an infrastructure project in the DRC-Sicomines Project) (in French).
https://drive.google.com/file/d/1PBwLjwllJwG7kUXryoYfCug_b352-v6f/view
- Fleischmann, J., Hanicke, M., Horetsky, E., Ibrahim, D., Jautelat, S., Linder, M., Schaufuss, P., Torscht, L., & van de Rijt, A. (2023) *Battery 2030: Resilient, sustainable, and circular*. McKinsey & Company. <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/battery-2030-resilient-sustainable-and-circular>
- Freire, C. (2025, November 4). *Rapid assessment of value addition and diversification capacity: Unlocking value—Opportunities and challenges in Africa's critical energy transition minerals sector* [Conference presentation]. 21st IGF Annual General Meeting, Unlocking Value: Helping Economies in Africa to Diversify Within and Beyond the Critical Energy Transition Minerals Value Chain, Geneva, Switzerland.
- Gerding, J., & Assignon, C. (2023, October). *Will electric batteries soon be produced in the DRC?* Deutsche Welle. <https://www.dw.com/fr/rdc-batteries-%C3%A9lectriques-produites/a-67006598>



- Ghimire, S. (2024, June 20). *Africa's largest mini-grid to provide affordable and sustainable electricity in DRC*. Multilateral Investment Guarantee Agency.
<https://www.miga.org/story/africas-largest-mini-grid-provide-affordable-and-sustainable-electricity-drc>
- GlobalData. (2025, March 25). *Copperbelt to invest \$500m in solar power and transmission line upgrades*. Yahoo Finance.
<https://finance.yahoo.com/news/copperbelt-invest-500m-solar-power-093010704.html>
- Google. (n.d.). *Google Maps*. Retrieved January 12, 2026.
<https://www.google.com/maps/dir/Ndola,+Zambia/6G8Q%2BPC+Kolwezi+Musompo+Village,+Kolwezi,+Congo+-+Kinshasa/>
- Government of the United States of America, Government of the Democratic Republic of the Congo, & Government of the Republic of Zambia. (2022, December 13). *Memorandum of Understanding Among the United States of America the Democratic Republic of the Congo, and the Republic of Zambia Concerning Support for the Development of a Value Chain in the Electric Vehicle Battery Sector*. U.S. State Department. <https://www.state.gov/wp-content/uploads/2023/01/2023.01.13-E-4-Release-MOU-USA-DRC-ZAMBIA-Tripartite-Agreement-Tab-1-MOU-for-U.S.-Assistance-to-Support-DRC-Zambia-EV-Value-Chain-Cooperation-Instrument.pdf>
- Grant, A., Hersh, E., & Berry, C. (2020). *So, you want to make batteries too: A framework for developing lithium-ion battery supply chain industrial strategy* (Payne Institute Commentary Series: Viewpoint). Payne Institute for Public Policy.
<https://static1.squarespace.com/static/5c9aa323c46f6d499a2ac1c5/t/5edfa19561368867b4e11eb2/1591714198285/Payne+Commentary+Series++So+You+Want+to+Make+Batteries+Too.pdf>
- Guest Contributor. (2021, March 9). *Thakadu nickel sulphate refinery starts production in South Africa*. Mining Review Africa. <https://www.miningreview.com/battery-metals/thakadu-nickel-sulphate-refinery-starts-production-in-south-africa/>
- Houenou, A. S. (2026, February 2). *Mozambique opens \$200mIn graphite project to revive mining sector*. Ecofin Agency. <https://www.ecofinagency.com/news/0202-52490-mozambique-opens-200mIn-graphite-project-to-revive-mining-sector>
- Idoine, N. E., Raycraft, E. R., Hobbs, S. F., Everett, P., Evans, E. J., Mills, A. J., Shaw, I. R., Watkins, I., & Shaw, R. A. (2025). *World mineral production 2019-23*. British Geological Survey. https://nora.nerc.ac.uk/id/eprint/539285/1/WMP_2019-2023_COMPLETE.pdf
- International Energy Agency. (2025). *Global critical minerals outlook 2025*. IEA Publications. <https://iea.blob.core.windows.net/assets/ef5e9b70-3374-4caa-ba9d-19c72253bfc4/GlobalCriticalMineralsOutlook2025.pdf>



Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2022). *A brief guide to batteries*. International Institute for Sustainable Development. <https://www.iisd.org/system/files/2023-09/brief-guide-to-batteries.pdf>

Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2026a). *Copper* [Commodity profile]. International Institute for Sustainable Development. <https://www.iisd.org/system/files/2026-02/commodity-profile-copper.pdf>

Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. (2026b). *Leveraging copper for economic transformation: Policy choices for value addition in Zambia*. International Institute for Sustainable Development.

International Trade Centre. (2026a). Export potential by product (estimate for 2030) [Data set]. *Export Potential Map Beta*. <https://exportpotential.intracen.org/en/products/gap-chart?fromMarker=i&exporter=894&toMarker=w&market=w&whatMarker=k>

International Trade Centre. (2026b). Product diversification [Data set]. *Export Potential Map Beta*. <https://exportpotential.intracen.org/en/diversification/products?fromMarker=i&exporter=180&toMarker=w&market=w&whatMarker=k>

Invest in Dubai. (2024). *Free zones in Dubai: List and profiles*. <https://www.investindubai.gov.ae/fr/business-setup/free-zone-companies/free-zones-in-dubai-list>

Jalasi, Jr., J. A., Bande, Y., Chama, S., & Chinyemba, W. (2025, September 16). *Mining laws and regulations report: 2026 Zambia*. ICLG International Comparative Local Guides. <https://iclg.com/practice-areas/mining-laws-and-regulations/zambia/>

Kamoa-Kakula Inga II to deliver essential 50 MW in DRC. (2025, November 4). PV Knowhow.com <https://www.pvknowhow.com/news/kamoa-kakula-solar-project-supply-30mw-2026/>

Kaniki, A., (2024). *Special Economic Zone for batteries in the DRC: Inclusive and green industrialization*.

Karkare, P., & Medinilla, A. (2023). *In search of shared benefits: Europe and Africa in a global green transition* (Discussion Paper No. 345). ecdpm. <https://ecdpm.org/application/files/5416/8597/1541/In-search-shared-benefits-Europe-Africa-global-green-transition-ECDPM-Discussion-Paper-345-2023.pdf>

Křibek, B., Nyambe, I., Sracek, O., Mihaljevič, M., & Knésl, I. (2023). Impact of mining and ore processing on soil, drainage and vegetation in the Zambian Copperbelt mining districts: A review. *Minerals*, 13(3). <https://doi.org/10.3390/min13030384>



- Liu, S. (2022, December 27). *Why do EVs still need 12 V lead-acid batteries? Well, they don't!* Power Integrations Green Room. <https://www.power.com/community/green-room/blog/why-do-evs-still-need-12-v-lead-acid-batteries>
- Luabeya, R. (2026b, April 24). *DR Congo awards €25 mln solar mini-grid contract to German firm.* Bankable. <https://bankable.africa/en/news/2404-2807-dr-congo-awards-25-mln-solar-mini-grid-contract-to-german-firm>
- Luabeya, R. (2026a, February 9). *Lobito Corridor: Rail works on DRC section expected to begin in late 2026.* Bankable. <https://bankable.africa/en/news/0902-2368-lobito-corridor-rail-works-on-drc-section-expected-to-begin-in-late-2026>
- Manley, D., Heller, P. R. P., & Davis, W. (2022). *No time to waste: Governing cobalt amid the energy transition.* Center for Law, Energy and the Environment & Natural Resource Governance Institute. https://resourcegovernance.org/sites/default/files/documents/no_time_to_waste_governing_cobalt_amid_the_energy_transition.pdf
- Maroc Diplomatique. (2025). *Zones économiques spéciales: Le pari gagnant de l'industrialisation au Maroc* (in French). <https://maroc-diplomatique.net/zones-economiques-speciales-le-pari-gagnant-de-lindustrialisation-au-maroc/>
- Masinja, J. (2024). *Special economic zones as a tool to foster inclusive and green industrialization in Zambia* [Special report]. Economic Commission for Africa.
- Mauritius Africa Fund. (2023). *Zones économiques spéciales : Le Mauritius-Africa Fund se penche sur cinq pays.* *Business Magazine.* <https://www.business-magazine.mu/actualites/autres/zones-economiques-speciales-le-mauritius-africa-fund-se-penche-sur-cinq-pays/>
- Ministry of Commerce, Trade and Industry. (2026, April 10). *INVESTMENTS AND INDUSTRIALISATION FOR THE WIN 🤖🤖* [Video]. Facebook. <https://www.facebook.com/reel/2116466529133821/>
- Ministry of Information and Media – Zambia. (2025, August 28). *Zambian motorcycle company Gatoma goes international. From its roots in Eastern Province, Gatoma has grown into a brand that now assembles bikes locally, opening up markets beyond Zambia's borders. Hundreds of youths are earning a living as taxi riders, farmers are reaching markets faster, and the industry is cutting import costs while creating jobs. With President Hakainde Hichilema's push for local manufacturing and supportive reforms, businesses like Gatoma are proof that Zambian enterprise can rise, and compete* [Video]. Facebook. <https://www.facebook.com/100069038505521/videos/zambian-motorcycle-company-gatoma-goes-international-from-its-roots-in-eastern-p/1108718854117658/>



- Ministry of Youth, Culture and Communication. (2025, June 25). *COBCO's Manufacturing unit for electric battery materials, major milestone in Morocco's Industry*. Kingdom of Morocco. <https://www.maroc.ma/en/news/cobcos-manufacturing-unit-electric-battery-materials-major-milestone-moroccos-industry>
- Mosi, R. (2024, May). *Can the net-zero transition offer a new dawn for Africa's industrialisation?* International Institute for Environment and Development. <https://www.iied.org/can-net-zero-transition-offer-new-dawn-for-africas-industrialisation>
- Muimba-Kankolongo, A., Banza Lubaba Nkulu, C., Mwitwa, J., Kampemba, F. M., & Mulele Nabuyanda, M. (2022). Impacts of trace metals pollution of water, food crops, and ambient air on population health in Zambia and the DR Congo. *Journal of Environmental and Public Health*, 2022, Article 4515115. <https://doi.org/10.1155/2022/4515115>
- Natural Resource Governance Institute. (2017). *Ninth time lucky: Is Zambia's mining tax the best approach to an uncertain future?* <https://development.resourcegovernance.org/sites/default/files/documents/ninth-time-lucky.pdf>
- Natural Resource Governance Institute. (2023). *The DRC-Zambia battery plant: Key considerations for governments in 2024*. <https://resourcegovernance.org/publications/drc-zambia-battery-plant-key-considerations-governments-2024>
- Organisation for Economic Co-operation and Development. (2007). *Zones franches d'exportation : Étude et retours d'expérience*. https://www.oecd.org/content/dam/oecd/fr/publications/reports/2007/05/export-processing-zones_g17a19ee/034675306778.pdf
- Okafor, C. (n.d.). *How Zimbabwe got China to pour in a billion dollars into value-added lithium investments*. Business Insider Africa. <https://africa.businessinsider.com/local/markets/how-zimbabwe-got-china-to-pour-in-a-billion-dollars-into-value-added-lithium/36j224m>
- Olan'G, S., Scurfield, T., Black, A., & Smith, M. (2025). *Regionalizing African mineral value chains*. Natural Resource Governance Institute. https://resourcegovernance.org/sites/default/files/2025-10/Regionalizing_African_Mineral_Value_Chains_Report.pdf
- Osumba, E. (2022). *Creation of a battery precursor value chain: Overview of the DRC's structural framework*.
- Payton, B. (2025, June 11). *World Bank commits \$250m to controversial Inga Dam scheme*. African Business. <https://african.business/2025/06/energy-resources/world-bank-commits-250m-to-controversial-inga-dam-scheme>



Le Potentiel. (2025, March 26). *Lualaba: Louis Watum Kabamba pose la première pose de la ZES de Musompo* (in French). <https://lepotentiel.cd/2025/03/26/lualaba-louis-watum-kabamba-pose-la-premiere-pose-de-la-zes-de-musompo/>

Prime Minister. (2018, November). *Loi fixant le regime des zones economiques speciales en République Démocratique du Congo* (Decree No.18/042 classifying cobalt, coltan and germanium as strategic minerals). Democratic Republic of the Congo. https://wpstorage7ceb827ed5.blob.core.windows.net/wpblob7ceb827ed5/foridable/17/Strategic_Substances_Decree.pdf

Railway Gazette International. (2025, December 4). *China-backed TAZARA revitalisation officially launched*. <https://www.railwaygazette.com/infrastructure/china-backed-tazara-revitalisation-officially-launched/70087.article>

Rho Motion. (2025). *EV and battery database* [Data set].

Rodrik, D., & Stiglitz, J. E. (2024). *A new growth strategy for developing nations*. https://drodrik.scholar.harvard.edu/sites/scholar.harvard.edu/files/dani-rodrik/files/a_new_growth_strategy_for_developing_nations.pdf

Sadden, E. (2024, April 29). *Duelling rail projects hint at intensifying contest for Africa's critical minerals*. S&P Global. <https://www.spglobal.com/energy/en/news-research/latest-news/metals/042924-duelling-rail-projects-hint-at-intensifying-contest-for-africas-critical-minerals>

SMART Zambia Institute. (2024, May 10). Ministry of Commerce Trade and Industry. <https://www.mcti.gov.zm/?p=7293>

Soulé, F. (2023, August). *What a U.S.-DRC-Zambia electric vehicle batteries deal reveals about the new U.S. approach toward Africa*. Carnegie Endowment for International Peace. https://carnegie-production-assets.s3.amazonaws.com/static/files/Folashade_DRC-Zambia.pdf

Sustainable Energy for All. (2024). *Africa Renewable Energy Manufacturing Initiative (Africa REMI)*. <https://www.seforall.org/programmes/un-energy/green-industrialization-hub/aremi>

Tanger Med Port Authority. (2023). *Bilan des zones d'activités de Tanger Med en 2021* (in French). Tanger Med Special Agency. <https://www.tangermedport.com/fr/bilan-des-zones-dactivites-de-tanger-med-en-2021/>

The Border Management and Trade Facilitation Act, 2025, 8 § Border Management and Trade Facilitation (2025). Government of Zambia. <https://www.parliament.gov.zm/sites/default/files/documents/acts/Act%20No.%208%20of%202025%20-%20The%20Border%20Management%20and%20Trade%20Facilitation%20Act%20.pdf>



The Sentry. (2021). *Congo Hold-up: Africa's biggest-ever data leak*.

<https://thesentry.org/reports/congo-hold-up/>

United Nations. (n.d.-a). *Trade facilitation and paperless trade in Democratic Republic of the Congo: Economy data*. UN Global Survey on Digital and Sustainable Trade Facilitation. <https://www.untfsurvey.org/economy?id=COD>

United Nations. (n.d.-b). *Trade facilitation and paperless trade in Zambia: Economy data*. UN Global Survey on Digital and Sustainable Trade Facilitation. <https://www.untfsurvey.org/economy?id=ZMB>

United Nations Conference on Trade and Development. (2021). *Guide sur les zones économiques spéciales en Afrique* (in French). https://unctad.org/system/files/official-document/diaeia2021d3_fr.pdf

United Nations Conference on Trade and Development. (2023). *Technical note on critical minerals: Supply chains, trade flows and value addition*. (UNCTAD/DITC/MISC/2023/14). https://unctad.org/system/files/official-document/ditcmisc2023d1_en_0.pdf

United Nations Conference on Trade and Development. (2024). *United Nations Trade and Development Data Hub* [Data set]. <https://unctadstat.unctad.org/datacentre/dataviewer/US.TransportCosts>

United Nations Economic Commission for Africa. (2021). *Independent special economic zones to steer DRC's battery, electric vehicle value chain*. <https://www.uneca.org/stories/independent-special-economic-zones-to-steer-drc%E2%80%99s-battery,-electric-vehicle-value-chain>

United Nations Economic Commission for Africa. (2022). *Zambia and DRC sign cooperation agreement to manufacture electric batteries*. <https://www.uneca.org/stories/zambia-and-drc-sign-cooperation-agreement-to-manufacture-electric-batteries>

United Nations Economic Commission for Africa. (2023a). *Concept note: Needs and financing mechanisms of the Special Economic Zone (SEZ) for battery electric vehicles (BEVs) in the Republic of Zambia*. https://www.uneca.org/eca-events/sites/default/files/resources/documents/sro-sa/sez-for-bevs-zambia/concept_note_zambia_bev_consultative_meeting_august102023.pdf

United Nations Economic Commission for Africa. (2023b, August). *Special Economic Zones as a tool to foster inclusive and green industrialization in Zambia* (Policy report). <https://www.uneca.org/special-economic-zones-as-a-tool-to-foster-private-sector-development-and-inclusive>



- United Nations Economic Commission for Africa. (2025). *Lusaka South Multi-Facility Economic Zone visit informs ECA SRO-SA strategy for regional SEZ development*. <https://www.uneca.org/stories/lusaka-south-multi-facility-economic-zone-visit-informs-eca-sro-sa-strategy-for-regional-sez>
- United Nations Economic Commission for Africa. (2025). *Strengthening regional special economic zone development*. Subregional Office, Southern Africa.
- U.S. Department of State. (2023, January). *The United States releases signed memorandum of understanding with the Democratic Republic of the Congo and Zambia to strengthen electric vehicle battery value chain*. <https://2021-2025.state.gov/the-united-states-releases-signed-memorandum-of-understanding-with-the-democratic-republic-of-congo-and-zambia-to-strengthen-electric-vehicle-battery-value-chain>
- U.S. Department of State. (2025). *2025 investment climate statements: Zambia*. <https://www.state.gov/reports/2025-investment-climate-statements/zambia>
- U.S. Geological Survey. (2025). *Mineral commodity summaries 2025* (Version 1.2). National Minerals Information Center. <https://doi.org/10.3133/mcs2025>
- Vision Blue Advisors UK LLP. (n.d.). *Kobaloni Energy*. <https://www.vision-blue.com/portfolio/kobaloni-energy/>
- von der Heyden, C. J., & New, M. G. (2004). Groundwater pollution on the Zambian Copperbelt: Deciphering the source and the risk. *Science of The Total Environment*, 327(1), 17-30. <https://doi.org/10.1016/j.scitotenv.2003.08.028>
- Watum, L. (2025, February). *DRC industrialization in the context of energy transition* [Conference presentation]. Stakeholders' workshop on fostering the development of environmentally and socially responsible, decarbonized, inclusive and transformative value chains for energy transition minerals in the SADC region. Lusaka, Zambia.
- World Bank. (2023). *Democratic Republic of the Congo country economic memorandum: Case study 1: Mining value chains*. <https://openknowledge.worldbank.org/bitstreams/baa268e9-de4a-43ff-a9f1-568c6524b510/download>
- World Bank. (2024, December 9). *Inga 3 Development Program (P506438): Project information document (PID)*. <https://doi.org/10.1596/37100>
- World Bank. (2025a, October). *Democratic Republic of Congo* [Poverty & Equity Brief]. <https://documents1.worldbank.org/curated/en/099546004212516530/pdf/IDU-9f41a38d-172a-4c26-86bd-da0ff319912.pdf>



- World Bank. (2025b). *Repositioning Zambia to leverage energy transition minerals for economic transformation: A roadmap*. World Bank.
<https://openknowledge.worldbank.org/server/api/core/bitstreams/b065d8ef-f8bd-4e4f-b309-d838a34c5930/content>
- World Bank. (2026). *World Bank Private Participation in Infrastructure (PPI) Database* (Version 2025) [Data set]. <https://ppi.worldbank.org/en/ppi>
- Xinhua. (2026, January 31). *Mozambique inaugurates Chinese-built graphite plant; President Chapo hails value addition*. News.cn.
<https://english.news.cn/20260131/22c35c72c27648f29a98167aaed3010a/c.html>
- You, X. (2025, November 13). *"They're just so much further ahead": How China won the world's EV battery race*. BBC Future. <https://www.bbc.com/future/article/20251110-how-china-won-the-worlds-battery-race>
- Zambia Development Agency. (2025a). Home. <https://zda.org.zm/>
- Zambia Development Agency. (2025b). *Special economic zones*.
<https://zda.org.zm/special-economic-zones/>
- Zambia Ministry of Commerce, Trade and Industry. (2023, October). *Overview of the Zambia-DRC electric vehicle battery initiative and the framework for the sector*.
https://view.officeapps.live.com/op/view.aspx?src=https.www.uneca.org/Feca-eventssez-for-bevs-zambiamcti_presentation_on_the_evb_initiative_uneca_workshop_02.10.23_1.pptx
- Zambia Ministry of Mines and Minerals Development. (2022). *National mineral resources development policy*. <https://www.mmmd.gov.zm/wp-content/uploads/2024/09/National-Mineral-Resources-Development-Policy-2022.pdf>
- Zambia Ministry of Mines and Minerals Development. (2024, August). *National critical minerals strategy 2024-2028*. <https://www.mmmd.gov.zm/wp-content/uploads/2024/09/1-National-Critical-Minerals-Strategy-2024-%E2%80%93-2028-Booklet-August-27-2024.pdf>
- Zeng, D. Z. (2016). *Multi-facility economic zones in Zambia: Progress, challenges and possible interventions*. World Bank Group Trade & Competitiveness.
<https://documents1.worldbank.org/curated/en/720981495115586647/pdf/115143-WP-PUBLIC-Feb-2016-GTCCS-ZambiaMFEZ.pdf>
- Zijin Mining's first lithium mine project in DRC to start production in Q1 2026. (2025, January 13). SMM: The Leading Metals Information Provider.
<https://news.metal.com/newscontent/103135110/zijin-minings-first-lithium-mine-project-in-drc-to-start-production-in-q1-2026>



APPENDIX A. GAPS IN TRADE FACILITATION IMPLEMENTATION IN THE DEMOCRATIC REPUBLIC OF THE CONGO AND ZAMBIA

Table A1. Measures under the World Trade Organization Trade (WTO) Facilitation Agreement that were less than fully implemented in the Democratic Republic of the Congo as of 2025

Measure	Implementation status
Online publication of import-export regulations	Planning stage
Stakeholder consultation on draft regulations	Partially implemented
Advance publication/notification of trade regulations	Partially implemented
Independent appeal mechanism	Planning stage
Risk management	Partially implemented
Separating release from final customs duties determination	Partially implemented
Establishment and publication of average release times	Partially implemented
Trade facilitation measures for authorized operators	Partially implemented
Expedited shipments	Partially implemented
National legislative framework for border agency cooperation	Partially implemented
Agencies delegating border controls to customs	Partially implemented
Internet access for customs and border agencies	Partially implemented
E-submission of customs declarations	Partially implemented
E-submission and issuance of import/export permits	Planning stage
E-submission of sea cargo manifests	Partially implemented
E-application/issuance of preferential certificates of origin	Planning stage
E-payment of customs duties	Not implemented
E-application for customs refunds	Not implemented
Laws and regulations for electronic transactions	Planning stage
Electronic exchange of customs declaration	Planning stage
Electronic exchange of certificate of origin	Not implemented
Electronic exchange of sanitary and phyto-sanitary (SPS) certificate	Partially implemented
E-application/issuance of SPS certificates	Partially implemented
Single window facilitates traders access to finance	Not implemented
Legal framework to facilitate cross-border e-commerce	Not implemented
eCITES application/issuance/exchange	Planning stage

Note: Measures where the implementation status was classed as "not clear" are omitted. CITES refers to the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Source: United Nations, n.d.-a.



Table A2. Measures under the WTO Trade Facilitation Agreement that are less than fully implemented in Zambia as of 2025

Measure	Implementation status
Online publication of import-export regulations	Partially implemented
Stakeholder consultation on draft regulations	Partially implemented
Advance rulings on import tariff classification and origin	Partially implemented
Risk management	Partially implemented
Pre-arrival processing	Partially implemented
Separating release from final customs duties determination	Partially implemented
Trade facilitation measures for authorized operators	Partially implemented
Expedited shipments	Partially implemented
Alignment of formalities/procedures with neighbouring economies at borders	Partially implemented
Internet access for customs and border agencies	Partially implemented
E-Single Window system	Partially implemented
E-submission and issuance of import/export permits	Partially implemented
E-submission of sea cargo manifests	Not implemented
E-application/issuance of preferential certificates of origin	Partially implemented
E-Application for customs refunds	Not implemented
Legal framework for digital authentication	Not implemented
Electronic exchange of customs declaration	Partially implemented
Electronic exchange of certificate of origin	Partially implemented
Electronic exchange of SPS certificate	Partially implemented
Cooperation between agencies of economies involved in transit	Partially implemented
Small and medium-sized enterprises (SMEs) in authorised economic operator scheme	Not implemented
SMEs' access to Single Window	Partially implemented
SPS national standards and accreditation bodies	Partially implemented
Trade facilitation measures benefiting women	Not implemented
Single Window that facilitates traders access to finance	Not implemented
Authorities engaged in emerging tech project(s) covering trade finance	Not implemented
AEO program for cross-border e-commerce	Not implemented
Trade facilitation of green and climate-smart goods	Partially implemented
eCITES application/issuance/exchange	Not implemented
Facilitation of legitimate trade in waste	Not implemented



Note: In August 2025, the Zambian parliament adopted the Border Management and Trade Facilitation Act, 2025, which provided the legal basis for an electronic Single Window. Though users report it is working well, they have also experienced system gaps (Editorial Team, 2026; Zambia Business Times, personal communication, n.d.).

Source: United Nations, n.d.-b.



INTERGOVERNMENTAL FORUM
on Mining, Minerals, Metals and
Sustainable Development