D+C

Development and Cooperation

dandc.eu/en

05|2026

Tomorrow needs technologies, what's the price?

Focus: The race for critical minerals **Opinion:** In the conflict between Pakistan and Afghanistan, neither side can claim the moral high ground **Opinion:** More inclusive governance is the best strategy for sub-Saharan Africa to combat social, economic and political exclusion **Around the world:** How Iranians are coping with war

Opinion — 5

Gen Z protests in sub-Saharan Africa criticise, among other things, a lack of inclusive governance, p. 8.

Photo: picture alliance/SIPA/Fred Scheiber

"The many killed and injured civilians are paying the price – as is the Afghan population, whose humanitarian situation is deteriorating by the day."

Katja Mielke, p. 5

Little news from the suffering of Iranian civilians reaches the outside world, p. 13.

Photo: picture alliance/NurPhoto/Morteza Nikoubaz

Around the world — 13

25 Focus

Tomorrow needs technologies, what's the price?

Photo and artwork: Eduardo Relero

Cover image by Eduardo Relero (see p. 4).

The demand for critical minerals as building blocks of future technologies is growing. However, their extraction in Global South countries continues to take place under exploitative conditions. Mining activities exacerbate conflicts, destroy natural resources and harm the health of local communities. Laws aimed at improving the situation – in both exporting and importing countries – are being implemented too slowly for miners or are not being consistently enforced. To ensure a fairer share of the value of mineral resources remains in the Global South, it would be necessary to retain more value added within the producing countries.

ARTIST

Eduardo Relero

Photo: Eduardo Relero

Argentinian artist Eduardo Relero creates giant 3D artworks designed to encourage the public to interact with them. He lives in Madrid, but his art has travelled across locations around the world – including Rome, Tokyo, New York and Buenos Aires. Relero is well-known for his large-scale works on streets, in public spaces and on walls. An optical illusion creates a striking 3D effect.

Some of Relero's 3D paintings have been used for campaigns by civil-society organisations. Our cover image, a 5-by-10-metre street art piece, was displayed by Amnesty International at the 2019 Hannover Messe, the world's largest industrial trade fair. The 3D artwork at the start of our focus section addresses the issue of electronic waste and was displayed at the 2018 Mobile World Congress in Barcelona.
eduardorelero.com

The good news

These two examples show: activism can pay off. After *three French NGOs filed a lawsuit against TotalEnergies* in 2022, the oil company was recently convicted by a Paris court for making misleading claims about its environmental performance. The case centered on a major campaign in which the company suggested it could become climate neutral by 2050 – visually supported by images of wind turbines and solar parks. At the same time, however, it continued to invest heavily in expanding oil and gas production. The court therefore decided, for the first time, to apply France's anti-greenwashing law.

Meanwhile, the *Brazilian government has reversed a decision to privatise the Tapajós River* in the Amazon and open it up for industrial use, after Indigenous activists from the Munduruku, Arapiun and Apiaká communities protested for several weeks. The reversal is seen as an important step against the expansion of agribusiness in the Amazon, which had planned to develop the river into a key transport route.

23.1%

This was the **year-on-year decline in official development assistance from donor countries** in 2025, according to preliminary OECD data. This is the **sharpest fall since records began**. According to the OECD, spending on development cooperation fell in 26 out of 34 donor countries, including Germany, France, the UK and Japan. The cuts to US funding were particularly drastic. A Lancet study suggests that 14 million preventable deaths, including over 4.5 million children under five, could result by 2030 from USAID cuts under the Trump administration alone.

If you're worried about disinformation, this one's for you: Our editor-in-chief, Eva-Maria Verfürth, spoke to Merle Becker in *a recently published episode* of the podcast Almendra Impact. They analyse the problem we're facing – but most importantly, they also speak about solutions and counter-measures that are already having an effect. Don't despair, give it a listen!

P.S.: The episode is in German. Find a written French summary *here*.

CROSS-BORDER CONFLICTS

A war, not a development corridor

The current armed conflict between Pakistan and Afghanistan is more than just an escalation of decades of border disputes. It is also one consequence of Pakistan's support for Islamists in Afghanistan. It is above all the civilian population of both countries that is paying the price. The conflict is also making cross-border infrastructural projects that would benefit the entire region an increasingly distant prospect.

BY KATJA MIELKE

Funeral for the victims of a Pakistani airstrike on a drug rehabilitation clinic in Kabul in March. According to UN sources, at least 143 civilians were killed in the attack.

Photo: picture alliance / ASSOCIATED PRESS / Siddiqullah Alizai

For decades, Islamabad sought to resolve its security problems by befriending the regime in Kabul. Fears of a war on two fronts, with Afghanistan in the west and India in the east, gave rise to the notion of using Afghanistan as a strategic safe haven ("strategic depth" doctrine). To this end, Pakistan's intelligence agency ISI armed Islamist actors: initially to fight the Soviet Union in the 1980s, later in Kashmir (since the 1990s) and then against the Afghan Republic (from around 2005). This led in 2007 to the emergence of the Pakistani Taliban (Tehrik-e-Taliban Pakistan, TTP) – a loose collection of militants who were originally fighting "for Pakistan" in Afghanistan. For as long as they were active on the other side of the border, they were considered "good" Taliban. Only when certain factions of the TTP turned their weapons against Pakistan were they declared to be "bad" Taliban – but by then their infrastructure was already firmly established in their own country and difficult to control.

Today's war is the military manifestation of this dilemma. Islamabad accuses the Islamic Emirate of Afghanistan of violating its sovereignty by providing TTP members with safe havens, training and logistics. The Taliban, in turn, condemn Pakistani airstrikes against Kabul and Kandahar, calling them a blatant violation of *their* sovereignty. Pakistan frames the war as necessary self-defence against attacks launched from Afghanistan.

TTP cadres and the Afghan Taliban are linked by close family ties and deep-seated loyalties, bonds the Emirate can't credibly deny despite its claims not to support terror. At the same time, terrorism in Pakistan is largely homegrown, not imported: it is fed by precisely those networks that the state created itself and has only combated selectively. Airstrikes, drones, declarations of "open war" – all of these serve merely to turn an internal security problem into an external one, without tackling its root causes.

OPPRESSION OF WOMEN IN AFGHANISTAN, POWERFUL MILITARY IN PAKISTAN

Neither of the warring parties can claim the moral high ground. The Taliban regime has institutionalised a system that systematically oppresses women. It enjoys only limited support within Afghan society. Pakistan's policymaking is heavily influenced by the military: issues such as border areas, the extraction of raw materials, the decades-long presence of Afghans in Pakistan and grassroots movements fighting for the rights of ethnic minorities are viewed and addressed primarily as security concerns.

> "For Islamabad, the war appears to be the perpetuation of an old doctrine by new means; for Kabul it is an instrument of internal consolidation against an external enemy."

In this situation it is the civilian population in both states that pays the highest price. Afghans have been living in a near-constant state of war and crisis since 1978; for many, "everyday life" is synonymous with uncertainty and poverty. In Pakistan, especially in the border province of Khyber Pakhtunkhwa, people have been experiencing extreme violence since 9/11 – in the form of attacks by the TTP and military operations carried out by their own state.

The economic costs to the region are already high – and will continue to rise as the situation further escalates. Border closures, disruptions to trade and discontinued transport and pipeline projects are seriously hampering links between Central Asia and Pakistan. Hopes that the region could serve as a corridor between markets have given way to a reality characterised by buffer zones, bombardments and mass deportations. More than 2 million Afghans have been expelled from Pakistan since September 2023, with families torn violently apart, arrests and expropriations – a means of exerting political pressure that severs social and economic ties. In an environment further compounded by the war in Iran, volatile energy prices and global rivalries, it is becoming increasingly unlikely that Afghanistan and Pakistan will profit in the foreseeable future from the planned cross-border energy and infrastructural projects. Where connectivity once appeared a tangible possibility, collective isolation is in fact the result.

> "It is the civilian population in both states that pays the highest price."

LITTLE PROSPECT OF STABLE PEACE

International mediation efforts – by everything from Islamic states to China – have done little so far to alter this fundamental constellation. They negotiate ceasefires, urge that certain red lines to be observed and appeal for dialogue. However, while Pakistan continues to adhere to its security agenda and the Taliban regime is able to exploit the conflict to boost its support at home, such initiatives offer little prospect of success.

Pakistan's latest diplomatic role as a mediator in the Iran-US conflict and its close relations with the Trump administration have strengthened the Pakistani military at home. At the same time, it means the international community is willing to turn a blind eye to the militarisation of Pakistan's domestic policy and its violent crackdown against the Pashtun ethnic minority and Afghanistan. Meanwhile, every airstrike, every drone and every attack widens the existing rift, with new generations of fighters becoming radicalised on both sides of the border.

Lasting peace under these circumstances is just as unlikely as the realisation of the much-trumpeted connectivity prospects. For Islamabad, the war appears to be the perpetuation of an old doctrine by new means; for Kabul it is an instrument of internal consolidation against an external enemy. The many killed and injured civilians are paying the price – as is the Afghan population, whose humanitarian situation is deteriorating by the day. Those whose livelihoods depend on the free flow of cross-border goods and services are also directly affected: merchants, transport workers, landowners and day labourers. A war, not a development corridor is more than just a headline, in other words: it is a bleak description of political failure that is driving those affected ever further to the fringes of the global order.

KATJA MIELKE
is a senior researcher at the bicc – Bonn International Centre for Conflict Studies.
katja.mielke@bicc.de

GOVERNANCE

How Africa is caught in the governance trap

Governance plays a central role in development, but progress in this area has been slow in sub-Saharan Africa over the past two decades. This affects many aspects of life, from well-being and political freedom to economic growth.

BY AIMÉ MULIGO SINDAYIGAYA

Gen Z protests in Madagascar last year.

Photo: picture alliance/SIPA/FRED SCHEIBER

Despite having abundant natural resources and a young population, 32 of the 46 countries currently classified by the UN as least developed are located in sub-Saharan Africa. Whether a country becomes rich or poor depends, among other reasons, on its institutions, the rules that shape how the economy works and the incentives that motivate people to participate in the formal labour market and pay taxes. Some institutions in sub-Saharan African states are neither robust nor effective enough to foster growth and deliver quality services, as evidenced by poor management of public funds and weak public services in the region.

According to the African Development Bank Group's "African Economic Outlook 2025", African countries lose around three percent of their GDP annually due to the misallocation and misuse of public funds. The report shows that, in an average year, Africa loses around $ 90 billion through illicit financial flows, $ 275 billion through profit shifting by multinational corporations and $ 148 billion (or 25% of GDP) through corruption. A further $ 74 billion in potential savings is lost every year due to high interest rates imposed on African countries because they are classified as high-risk by credit rating agencies.

The World Bank's 2025 "Africa Country Policy and Institutional Assessment" shows that service quality in sub-Saharan Africa has lagged behind other regions, particularly in terms of human capital development, infrastructure and security. Citizens regularly list poor services among the top problems facing their countries.

Ineffective institutions are not the only governance problem in sub-Saharan Africa. Inclusivity and accountability also remain challenging. This is principally due to weak control mechanisms and a persistent pattern of exclusive power structures in many countries.

Evidence shows that constraints on judicial, legislative and constitutional powers in sub-Saharan Africa have remained largely unchanged over the past three decades. Thirty out of 54 African political leaders have either circumvented limitations on their period in office to stay in power for more than two terms, suspended their country's constitution after assuming power or face no term-limit restrictions. These practices foster authoritarian politics and exploitative institutions.

A governance system of this nature discourages accountability and spawns development policies that benefit a select few at the expense of the majority, resulting in imbalanced economic outcomes. For instance, the economic growth many sub-Saharan African states achieved between 2000 and 2014 – a period termed "Africa Rising" – was neither sufficient, efficient nor inclusive enough to dramatically reduce poverty.

Furthermore, Freedom House's report for 2025 shows that 50% of African countries are not free at all, while 31% are partially free in terms of political rights and civil liberties. According to the Heritage Foundation's 2026 Index of Economic Freedom, economic freedom – the ability of citizens to make their own economic decisions without government coercion – is mostly absent in 26 sub-Saharan countries and repressed in 14 countries.

Finally, institutions in sub-Saharan Africa are unable to respond to social expectations and political mobilisation. This is evident in growing protests against broken social contracts and in citizens' distrust of institutions. In 2022, 7697 demonstrations took place in the region in total, compared to 2188 a decade ago and 359 two decades ago, according to the Armed Conflict Location & Event Data Project.

WHAT CAN BE DONE?

Governments in sub-Saharan Africa must take action to improve governance by ensuring institutions are inclusive rather than exploitative. This process must begin with governments listening to and acting on the aspirations of the people.

Afrobarometer, a pan-African, nonpartisan survey research network, indicates that the majority of Africans strongly support presidential term limits, even in states that have never had them or have removed them from their constitutions. Young Africans (aged 18-35) demonstrate a rejection of dictatorship (80 %) and military rule (65 %), saying instead that democracy is their preferred form of government (64 %).

> "African countries spend more on debt servicing than on developing their health and education systems."

Governments in sub-Saharan Africa must therefore push ahead with reforms towards democratic governance. This is particularly important given the recent increase in protests by Generation Z in various African states and the growing number of armed conflicts in the region – 41 % of global armed group activity takes place in Africa. These events are

driven by social, economic and political exclusion. A shift towards inclusive governance would be the most effective strategy to address these issues.

Sub-Saharan countries stand to gain significantly from inclusive governance – not only through stronger democracy and greater citizen satisfaction but above all via economic gains. The African Continental Free Trade Area (AfCFTA) dominates discussions across the continent. If fully implemented, it could lift 30 million people out of extreme poverty. However, it will not be able to deliver on this promise without stable governance across the continent. Remittance flows offer another opportunity for development. Better governance would encourage recipients to invest rather than simply consume these funds, bringing about investment-driven growth across the region.

Furthermore, the global financial market currently perceives African countries as having weak governance, which means that they are charged higher interest rates on loans. Today, African countries spend more on debt servicing than on developing their health and education systems. Poor institutions enable illegal financial flows and inefficient spending. Improved governance would reduce debt servicing payments and curb resource leakages.

While the rest of the world seeks to exploit Africa's resources – including critical minerals, a growing consumer base and a young workforce – to increase its own prosperity, sub-Saharan Africa must ensure that it takes advantage of these resources itself and invests the profits efficiently in the welfare of its citizens. Without effective and inclusive governance, this will not be possible.

AIMÉ MULIGO SINDAYIGAYA
is an economist with nearly 20 years of experience in the financial services industry.
sindaimy@gmail.com

AFRICA

Economic infrastructure alone is not enough for growth

The African Union and OECD are right to call for significantly more investment in Africa's transportation, energy, communication and water infrastructure. In order for these funds to have the greatest impact, however, more must also be done to improve social infrastructure, create stable framework conditions and promote an active industrial policy.

BY GEORG SCHÄFER

The African Union (AU) and the Organisation for Economic Co-operation and Development (OECD) are calling on African governments, donor countries and the private sector to significantly increase their investment in Africa's economic infrastructure from the current average of $ 83 billion per year to $ 155 billion in future. Over the long term, this would double the growth of Africa's gross domestic product (GDP) from an average of 4.4 % per year to 8.9 %, according to their report "Africa's Development Dynamics 2025 – Infrastructure, Growth and Transformation". The report rightly highlights how important it is to develop Africa's economic infrastructure and identifies fundamental problems. However, it raises a number of methodological questions and neglects factors that are equally central to Africa's economic development.

In recent years, 41 % of Africa's economic infrastructure has been financed by the governments of African countries, 48 % by development partners and 11 % by private investors. The report calls on all three sources to increase their funding. At the same time, it identifies the obstacles to doing so and suggests how they can be overcome: Africa is confronted with growing debt problems that are constricting governments' fiscal leeway, many development partners are cutting their budgets, and private financing is very expensive due to the high risks involved. Therefore, it is essential to resolve debt problems, stabilise development aid budgets and lower the high cost of private capital through improved risk assessment.

The allocation of funding suggested in the report should be called into question, however. It determines that the investment needs for all of Africa are highest for roads (32 %), followed by railways (24 %), fibre-optic cables (23 %) and solar energy (17 %). Only four percent of the total sum is left over for everything else. But is that really enough to expand sea- and airports, wind- and hydro energy, power grids and water supplies? It is particularly doubtful whether the planned investment in water of less than one percent of the total is sufficient. That corresponds neither to the current average value of about $ 11 billion per year nor to the estimate made by the High-Level Panel of the AU in 2023, which puts the annual needs of the water sector at $ 30 billion.

OTHER FACTORS ARE IMPORTANT TOO

Moreover, the report creates the impression that the expansion of economic infrastructure is the single most decisive lever to boost Africa's economic development. The argument is that the expansion of economic infrastructure would

Photo: picture alliance / Visually / Ivan Nesterov

The port of Lobito in Angola, which gave its name to the Lobito Corridor.

lead to a diversification of the economy, especially in the industry, service and export sectors, which in turn would encourage growth. That is not necessarily wrong, but it downplays an important point: social infrastructure is also of central importance to economic development, especially health and education. Without a healthy and well-educated population, African countries will not be able to achieve the desired economic goals.

In addition, structural factors are hampering Africa's economic development. These include the fragmentation of the economic landscape into many small and medium-sized countries, a problem that can only be overcome through more regional and continental integration. Yet conflicts and crises are straining cross-border cooperation, for instance in the Sahel region, the Horn of Africa and the eastern Democratic Republic of the Congo (DRC). Political instability has increased recently, as evidenced by military coups, disputed elections and protests by young people. Many countries continue to struggle with corruption and governance problems.

Last but not least, colonial patterns must be broken. The added value has to remain within the respective countries. In this context, it must be critically examined why the report focuses so strongly on investments in transnational corridors, such as the Lobito Corridor, which primarily serves to export raw materials from Zambia and the southern DRC to Western countries via the port of Lobito in Angola. Without an industrial policy framework at the national and regional level, traditional patterns of the international division of labour threaten to become entrenched. What is needed, therefore, is an active industrial policy that particularly promotes promising sectors with high added value, such as manufacturing, renewable energies and digital services.

All of these reasons show that investments in economic infrastructure do not automatically lead to economic diversification. Instead, they must be coupled with measures that create stable political and social environments for sustainable economic development. Without a simultaneous strengthening of the social infrastructure, an active industrial policy, successful regional cooperation, fewer conflicts and crises and greater political stability, even doubling investments will only have a limited impact.

LINK

AU, OECD, 2025: Africa's Development Dynamics 2025 – Infrastructure, Growth and Transformation.

GEORG SCHÄFER
is an expert on sustainable economic development, employment promotion and poverty reduction. He worked in German development cooperation for many years.

geo.schaefer@t-online.de

IRAN

“The darkening horizon of our future”

Little news from inside Iran reaches the outside world. In this exclusive report for D+C, an Iran-based journalist describes daily life in the war-torn country, where military strikes and an internet blackout have cut people off from life-saving medicines, disrupted businesses and shattered livelihoods.

BY ARIYA FARAHMAND

Photo: picture alliance/NurPhoto/Morteza Nikoubazl

An Iranian woman with a mobile phone outside a café in Tehran in April 2026. The windows are covered with tape to prevent them from shattering in the event of an explosion.

After three weeks of war, Armin, a 28-year-old graphic designer in Tehran, could no longer bear being trapped at home. Feeling increasingly depressed, he and his wife decided to drive across town to see friends.

When they stopped for coffee at a café, they suddenly heard the ominous roar of a low-flying jet. Then, a thunderous explosion followed.

"Everyone was terrified," Armin says. "My wife ran into the café out of fear." The staff quickly slammed metal shutters over the windows and locked the doors, sealing everyone inside. The sound of bombs crashing echoed off the walls. All they could do was wait. Ten minutes later, the strikes were over. So, too, was any pretence of a night out.

Just over a month into the war between the US and Israel against Iran, such scenes have become common. According to the US-based human-rights organisation "Human Rights Activists in Iran" (HRANA), over 1500 Iranian civilians have been killed. Tehran, the capital city with a population of over 9 million, has been hit especially hard, accounting for approximately 70 % of the recorded attacks.

HEALTHCARE COLLAPSE

The bombing campaigns are collapsing the healthcare system, even as a growing number of Iranians require medical treatment.

According to the Iranian Health Ministry, strikes have already put 12 hospitals out of service, killed at least 23 healthcare workers and wounded more than 100. The World Health Organization has verified attacks on hospitals and other healthcare facilities. It reports that several hospitals have been evacuated. Emergency vehicles have been destroyed or badly damaged, and the remaining medical facilities are buckling under the pressure of a constant inflow of wounded patients.

> "The remaining medical facilities are buckling under the pressure of a constant inflow of wounded patients, disrupting access to critical care for everyone else."

This is disrupting access to critical care for everyone else. Maliheh, a 73-year-old retired teacher from eastern Tehran, said that her knee surgery had been postponed indefinitely. She is left in debilitating pain.

"Both of my knees are causing me severe problems," she says. "I endure a lot of pain, and I have lost the ability to walk." Her only option is to visit the emergency room every two weeks, where doctors inject her with a potent painkiller to make life bearable.

Outside the capital, years of sanctions have created medical shortages that further complicate access to life-saving treatment.

Javid, 43, lives in Babolsar, a coastal city in northern Iran. To treat his leukaemia (blood cancer), he needs to travel regularly to Tehran. Before the war, specialised doctors and chemotherapy equipment were more readily available there than in the provinces.

Javid says the threat of strikes and the ongoing communications blackout have made securing treatment nearly impossible. He worries that a prolonged war will destroy his chances of making a full recovery. "Travelling to Tehran under these conditions, when specialists aren't taking appointments and medicine cannot be found, is simply not possible," he says.

TERRIFYING AIR STRIKES

In Tehran, constant strikes have left the population shell-shocked. Pardis, a 19-year-old architecture student, says that rainstorms now fill her with dread. During a recent storm, the crackle of thunder was indistinguishable from the sound of bombs crashing into nearby buildings.

"They bombed an area near our house so hard that I felt the walls were going to collapse on our heads right then and there," says Pardis. "Every time thunder struck, we thought it was another bomb and took shelter. Now, whenever I hear thunder, I am terrified it might be a bomb."

The internet blackout is also wreaking havoc on businesses and workers, many of whom rely on the internet for their income.

Mahnaz, a 30-year-old journalist living in western Tehran, lost her job in March after the news site she worked for lost

its advertising revenue. Companies had pulled out after the internet cuts.

Mahnaz and her husband must now search for a cheaper flat. Rental prices are soaring amid a general cost-of-living crisis that predates the war. According to data from the International Monetary Fund, Iran's annual GDP is projected to decline over six percent in 2026, while Iran's official statistics agency cited inflation of over 50 % as of mid-March.

Yasmin, 36, left her job last year to start an online clothing store. The war has knocked it offline, leaving her without an income. "Right now, there is no prospect of the internet returning or the war ending. It is not even clear if we will still have electricity," she says.

Farokh, 56, works in human resources at a food factory in Tehran. This month, his company laid off 10 % of the workforce due to a dip in sales. He's worried he's next. "It is difficult enough to make ends meet even with the salaries we receive now, let alone if I am laid off," he says.

As the United States ponders a possible ground invasion, Iranians like Farokh fear that the worst is yet to come. "The main problem is the darkening horizon of our future," says Farokh.

This article was first published in mid-April in collaboration with Egab.

ARIYA FARAHMAND
is the pseudonym of an Iran-based journalist.
euz.editor@dandc.eu

MASTHEAD | IMPRINT

D+C DEVELOPMENT AND COOPERATION

Vol. 54, 2026
D+C is the identical twin of the German edition E+Z.
Website: dandc.eu
ISSN 2366-7257

The production of this Digital Monthly was finalised on 30 April 2026.

D+C Development and Cooperation is funded by Germany's Federal Ministry for Economic Cooperation and Development and commissioned by ENGAGEMENT GLOBAL. D+C does not serve as a governmental mouthpiece. Our mission is to provide a credible forum of debate, involving governments, civil society, the private sector and academia at an international level. D+C is the identical twin of E+Z Entwicklung und Zusammenarbeit, the German edition.

We invite people who work in different sectors and live all around the world to contribute to D+C/E+Z. The editors request that no unsolicited manuscripts be sent, but proposals for contributions are welcome. After editing manuscripts according to journalistic standards, we ask the authors to approve the final texts before publishing their items. As we edit interviews for clarity and brevity, we also ask our interviewees for approval of the final manuscripts to ensure we do not distort their message. That is standard practice in German journalism.

ENGAGEMENT GLOBAL gGmbH
Service für Entwicklungsinitiativen
Friedrich-Ebert-Allee 40
53113 Bonn
Phone: +49 (0) 2 28 2 07 17-0
Fax: +49 (0) 2 28 2 07 17-150
engagement-global.de

ADVISORY BOARD:
Prof. Dr. Dr. h.c. Kai Ambos, Selmin Çalışkan, Prof. Dr. Anna-Katharina Hornidge, Prof. Dr. Katharina Michaelowa, Bruno Wenn

PUBLISHER:
Fazit Communication GmbH
Executive directors: Jonas Grashey, Hannes Ludwig

ADDRESS OF THE PUBLISHER AND EDITORIAL OFFICE:
Pariser Straße 1, D-60486 Frankfurt am Main, Germany
This is also the legally relevant address of all indicated as responsible or entitled to represent them in this imprint.

EDITORIAL TEAM:
Eva-Maria Verfürth (EMV, editor-in-chief, responsible for content according to Germany's regulations)
Editorial staff: Dr Katharina Wilhelm Otieno (KO, editor), Jörg Döbereiner (JD, managing editor), Maren van Treel (MVT, social media editor), Dagmar Wolf (DW, assistant)
Freelance support: Chris Cave (translation), Claire Davis (translation), Leon Kirschgens (LKI, Nowadays column), Roli Mahajan, Lucknow (RM), Alba Nakuwa, Juja (AN), Ronald Ssegujja Ssekandi, Kampala (RSS)
Phone: +49 (0) 69 75 91-31 10
euz.editor@dandc.eu

Disclaimer according to § 5,2 Hessian Law on the Freedom and Rights of the Press: The shareholder of the company is FAZ Fazit Stiftung.

DESIGN:
Anabell Krebs, Charlotte Rother

Photo: picture alliance / Anadolu / Gerald Anderson

Many African communities have traditionally cared for and respected their elders, but modern pressures and economic strain have weakened support systems.

OLDER POPULATIONS

Ageing in the shadows

More Africans are living into old age, yet many rural elders are being left behind. Urban migration, poverty and climate shocks leave them vulnerable while health systems neglect geriatric care. Civil-society groups are stepping in, but sustainable solutions require stronger government action and inclusive policies.

BY RICHARD WAINDI

Africa is seeing a significant increase in its older population, with more people entering their later years than ever before. This change entails serious challenges, especially for those living in rural and remote areas.

Although many African communities have traditionally cared for and respected their elders, modern pressures such as urban migration and economic strain have weakened those support systems, leaving many older adults at risk of neglect and marginalisation. Various groups and community initiatives are drawing attention to these issues and working on practical responses, but the gap between what older people need and what is currently available remains wide.

Kenya reflects many of these continental trends. A growing number of older people live in rural areas where health services, income opportunities and social support systems are already limited. As younger family members move to towns and cities for work, older adults are increasingly left to manage farms, households and care for grandchildren with little support. Furthermore, older persons in Kenya's rural communities face growing vulnerability due to climate change, including crop loss, flash floods and waterborne diseases.

> "The migration of younger generations to urban areas in search of employment often means older family members are left behind."

Nonetheless, older citizens remain largely excluded from climate adaptation planning and public health responses. Field experience shows that local climate and health policies rarely consider the specific needs of ageing populations, who often depend on rain-fed agriculture and have limited access to healthcare or disaster preparedness resources.

The lack of participation of older people in decision-making exacerbates their marginalisation. This exclusion deepens inequalities, hinders sustainable adaptation and compromises community well-being.

AGE, POVERTY AND RURAL ISOLATION

While government programmes, community schemes and civil society efforts aimed at improving elder people's well-being do exist, the resources available are often insufficient to meet the needs on the ground. Kenya's experience shows how ageing and related health issues, poverty and rural isolation intersect, creating several complex key challenges that require sustained attention:

- Economic insecurity and poverty: Poverty is arguably the most pervasive challenge. Many older adults in rural areas have spent their lives engaged in informal labour without access to formal pension schemes or retirement benefits. When their physical strength declines, so too does their ability to undertake strenuous agricultural work, which is the primary livelihood in most rural areas. The resulting drop in income leaves them unable to afford basic essentials such as adequate nutrition, housing repairs and medical expenses.

- Lack of social protection: Most African nations offer little to no formal income support. Even where social pensions or cash transfers exist (like in South Africa and Kenya), coverage is often inconsistent, the benefits are too small or the eligibility process is complicated, requiring documentation that many rural residents lack.

- Dependence on remittances: The migration of younger generations to urban areas in search of employment often means older family members are left behind. While remittances can be a lifeline, they are often irregular and insufficient, leaving many older adults to run households and periodically care for grandchildren with limited resources.

- Social isolation and neglect: The erosion of traditional extended family systems, largely due to socioeconomic changes, has increased social isolation among the rural elderly.

- Stigma and discrimination: In some rural communities, older women are especially vulnerable to mistreatment and harmful stereotypes. They may face blame for misfortunes or be viewed as burdens, which can lead to social exclusion, verbal abuse or even physical harm. These attitudes deepen isolation and make it harder for them to access support.

- Inadequate healthcare access and services: Rural areas are often characterised by low population densities and significant geographic distances, making it difficult and expensive to establish and maintain a comprehensive healthcare infrastructure.

- Distance and cost: Older persons in rural areas often have to walk long distances to reach the nearest health clinic, a significant challenge given age-related mobility issues, poor eyesight and chronic conditions such as arthritis. The associated transport costs, along with out-of-pocket medical fees for consultations and prescription drugs, pose immense financial burdens, prompting many to forgo necessary care.

- Systemic neglect: National health systems in Africa have historically focused on maternal and child health and infectious diseases, with a significant gap in capacity for geriatric care, chronic disease management (such as hypertension or diabetes) and mental health services. Older patients often face long waiting times and a lack of trained geriatric professionals, which can lead to negative interactions and a reluctance to use formal health services.

- Reliance on traditional medicine: Due to the inaccessibility and cost of formal healthcare, traditional healers are often the only available source of care for many older persons, reflecting the deep-seated challenges in the public health sector.

> "Older persons in rural areas often have to walk long distances to reach the nearest health clinic."

Addressing these challenges requires a comprehensive, multi-sectoral approach involving governments, NGOs, communities and families. Several organisations are helping to fill gaps in care for older people in rural areas.

AgeWatch Africa Foundation (AAF), a Kenyan-based older persons' organisation, is one of them. The foundation partners with communities to provide mobile health services, nutrition support, caregiver training and advocacy for better geriatric care. Its model centres on dignity and community-based support, including home visits, local engagement and plans for future long-term care options. By creating a more coordinated system of services, it helps reduce loneliness and ease the effects of poverty for older adults. After piloting this approach in one county, the foundation is now working to expand its reach to more parts of Kenya.

Rural ageing in Africa comes with complex challenges, but there is progress. With continued focus and stronger policies, older adults can live healthier and more secure lives. Their wellbeing is not just a social responsibility but an important part of building resilient and inclusive communities.

LINK

AgeWatch Africa Foundation: *agewatchafrica.com*

RICHARD WAINDI
is the founder and CEO of AgeWatch Africa Foundation and the Chairman of CommonAge Kenya Chapter.

richard@agewatchafrica.com

Zambian women take part in the International Women's Day celebration in Lusaka, the country's capital, in March 2024.

Photo: picture alliance/Xinhua News Agency/Peng Lijun

GENDER EQUALITY

Promoting women's property rights in Zambia

The topic of women's property rights is of vital importance to Zambia's economic development. In theory, many policies advocate inclusivity and gender equality. In practice, however, there are numerous gaps and limitations to achieving these goals. At issue is more than gender equity: women's land ownership is a core economic issue that affects the country's productivity, health, education, security and sustainable growth.

BY BEAULAH N. CHOMBO

Zambia's constitution recognises two systems of land tenure. The first is the customary system, which governs land under the control of traditional leaders. The second is the statutory system, which governs land that is titled. The coexistence of these two systems creates gaps that limit women's rights to property ownership, which in turn affects households, private sector development, poverty reduction efforts and economic resilience.

Gender-inclusive rights support broader economic growth by leveraging the full potential of a country's population. Studies indicate that an increase in women's rights to property and land ownership is directly proportional to an increase in agricultural productivity. In other words, when women enjoy secure land rights, they are more likely to invest in improving their land for sustainable growth, which benefits not only their current family but future generations as well. They have better access to credit, provide more educational opportunities to their children and are better able to achieve food security, thereby breaking the cycle of poverty while creating household stability.

> "When women enjoy secure land rights, they are more likely to invest in improving their land for sustainable growth, which benefits not only their current family but future generations as well."

Zambia's constitution prohibits discrimination based on gender. Several legal frameworks exist to protect women's property rights, such as the Lands Act of 1995, the Gender Equity and Equality Act of 2015 and the National Gender Policy of 2023, all of which aim to eliminate any form of discrimination against women and enable them to participate in all aspects of life.

Nevertheless, Zambian women are facing culturally entrenched practices that limit the full exercise of these rights. These include patrilineal inheritance, a system in which property or land ownership is passed down only through the male line. Other cultural limitations include marriage-related practices in which women can only access land through their husbands, as well as the practice of paying a "bride price", which is often associated with the notion that women are being bought. Women's subordination to and dependence on their husbands in these traditional arrangements restricts not only their access to land but also their ability to make decisions where land and property are involved.

These cultural norms are standing in the way of gender equality, especially concerning women's opportunities to generate wealth and secure assets. Despite Zambia having statutory laws that affirm and support women's rights, customary laws are typically held in high regard because of the powerful influence of traditional authorities and cultural beliefs.

GAPS BETWEEN POLICY AND ENFORCEMENT

Zambian law has undertaken efforts to address this disparity. However, progress is lagging due to structural limitations. For example, Article 23 of the constitution, which prohibits discrimination, does not include personal laws that are specifically related to inheritance and does not fully apply to customary law.

In addition, the National Lands Policy, which was launched in 2021, aims to increase land tenure security for all Zambians, especially women, youth and people with disabilities. However, barriers such as a lack of information, high costs, cumbersome administrative procedures and the aforementioned cultural norms still need to be addressed.

With regard to information in particular, studies indicate that despite a favourable legal environment, low numbers of women have actually managed to acquire land, which is due in part to a lack of awareness of their rights, particularly in rural and peri-urban areas. Women need to be educated on their rights under both customary and statutory laws.

When these two systems conflict, statutory law is supposed to take precedence. But enforcement of existing policies, laws and regulations that support women's property rights is frequently weak because access to formal legal resources is lacking in rural areas too. As a result, gender inequalities arising from traditional practices often continue unchecked. These shortcomings make implementing women's constitutional protections a central challenge.

TRADITIONAL LEADERS AS POTENTIAL ALLIES

Men and traditional leaders have the potential to be the greatest allies, supporters and champions of gender equality. While customary practices should be aligned with statutory protections, traditional leaders can also review and revise customs and traditional laws that discriminate against women and establish laws that promote equity. In addition, they can involve women and promote their active

participation in land allocation committees. They can also lead by example, for instance by allocating land to their wives and daughters. Doing so will encourage other men to do the same, especially once they see the returns on women's investments.

> "Traditional leaders can lead by example, for instance by allocating land to their wives and daughters."

For a country seeking private sector development and inclusive growth, it is important that Zambia takes the necessary steps towards strengthening women's land ownership. This will broaden participation in the economy and enhance productivity. As the country pursues economic transformation, women's property rights must be recognised as an economic multiplier rather than a social add-on. After all, ownership is about more than assets; it is about the ability to participate meaningfully in the economy.

LINK

Kalinda, R., Masauso, C., Thankian, K., 2022: Women and land tenure in Zambia: Legal and customary challenges for women. Archives of Current Research International, Volume 22, Issue 8.

BEAULAH N. CHOMBO
is an economist and trade advocate.

beaulahchombo27@gmail.com

Illustration: D+C, AI generated

DISABILITY RIGHTS

Better inclusion for people with disabilities in Nigeria

Nigeria's disability law guarantees inclusion and job quotas, yet weak enforcement and inaccessible infrastructure continue to exclude millions from the labour market and public life.

BY SARAFADEEN OLALEKAN OYELEKE

When Amina Yusuf arrived for a job interview in northern Nigeria, the building had no lift, only a steep staircase leading upstairs, a reminder of how legal requirements often fail to be fulfilled due to physical accessibility issues. As a graduate with a mobility impairment, she could not reach the office. "I was barred before it began," she recalls. She didn't get the job, not because of her qualifications but because even basic accessibility standards were not enforced.

Her experience illustrates a deeper institutional challenge in Nigeria: disability rights are formally protected by law, yet enforcement gaps continue to undermine their practical impact. Nigeria's Discrimination Against Persons with Disabilities (Prohibition) Act of 2019 mandates that at least five percent of public-sector jobs be reserved for persons with disabilities and establishes the National Commission for Persons with Disabilities (NCPWD) to oversee implementation.

About seven years after its passage, however, gaps in implementation remain, highlighting the challenge of translating legal commitments into measurable inclusion outcomes. According to a new report, about 35 million Nigerians are living with disabilities. Despite this scale, labour participation rates remain significantly lower than those of citizens without disabilities.

> "Inclusive employment is a path to independence and full participation in society."

For many, legal guarantees have yet to translate into real opportunity – although the country had already ratified the UN Convention on the Rights of Persons with Disabilities in 2008, committing to inclusive governance and equal participation and binding the state to progressively implement and enforce the rights of persons with disabilities.

Ayuba Burki Gufwan, Executive Secretary of the NCPWD, admitted to the Nigerian media that implementation of the five percent quota is progressing but stressed that stricter monitoring and greater institutional commitment are essential. He also noted that inaccessible infrastructure, a lack of awareness among employers and weak enforcement mechanisms at state level continue to undermine the law's effectiveness. Without a clearer framework for accountability, compliance with the regulations remains more a matter of voluntary action than an enforceable obligation.

International experience shows that effective enforcement mechanisms are essential. In Brazil, quota systems for the employment of people with disabilities – compliance with which is ensured by labour inspectorates and financial penalties – have, according to labour market studies, led to a measurable increase in recruitment figures. This demonstrates that legal reforms must be accompanied by appropriate enforcement capacities and continuous monitoring.

For, amidst all the figures and political objectives, we must not forget that for Amina Yusuf and millions of others, inclusive employment means more than that – it is a path to independence and full participation in society. Furthermore, it is also an investment in economic productivity and social cohesion. The real test for Nigeria now lies not in the strength of its laws but in the political will and institutional capacity to enforce them.

SARAFADEEN OLALEKAN OYELEKE
is a professional amputee football player, coach, writer and disability sports educator based in Ilorin, Kwara State, Nigeria.

rhassmako@googlemail.com

© Roman

Get the D+C app!

With our app, you'll always have D+C at your fingertips.

Download it here: *dandc.eu/en/app*

Tomorrow needs technologies, what's the price?

Photo: Eduardo Relero

Unearthing injustice

Who profits from the natural resources of the Global South? In many places, colonial patterns of exploitation are repeated. However, some developments offer hope for greater distributive justice.

BY JÖRG DÖBEREINER

Brazil and Germany intend to work more closely together to extract and supply raw materials, as announced by the heads of government Luiz Inácio Lula da Silva and Friedrich Merz on the sidelines of the world's largest industrial fair in Hanover in April. Brazil has what Germany needs: critical minerals like cobalt and copper, as well as the world's second-largest reserves of rare earth elements, surpassed only by China. Without these commodities, no smartphone would run, no electric vehicle would drive, no windmill would turn. They are key components of the energy transition, which is urgently needed. Industrialised countries depend on them.

For countries in the Global South, earnings from commodity exports continue to represent an important source of income. In Guinea and the Democratic Republic of the Congo (DRC), mined products make up over 80 % of exports, according to the UN. Importing countries like Germany are also interested in reducing their reliance on China, which dominates the rare earths market, for example.

The global critical minerals market is valued at hundreds of billions of dollars, and it is growing. It is a profitable business for those who control the resources. But people who live in mining regions continue to pay a horrendous price. Workers toil in mines under exploitative conditions. Mining is exacerbating conflicts in many areas and destroying both natural resources and the health of local people. Where laws to protect people and the environment exist at all, weak state institutions often stand in the way of their enforcement.

The trade in critical minerals obviously reproduces colonial patterns. Industrialised countries, including China, source raw materials in economically weaker countries, process them and profit from the added value. In their article about the situation in the DRC, development researchers Ezra Moïse Amisi and Bossissi Nkuba note that while the wording and the methods of coercion have changed since Belgium's colonial exploitation, the question of who controls the resources remains (see p. 27). In the DRC, the answer is partly domestic militias, partly foreign troops and partly powerful investors – but not the local people.

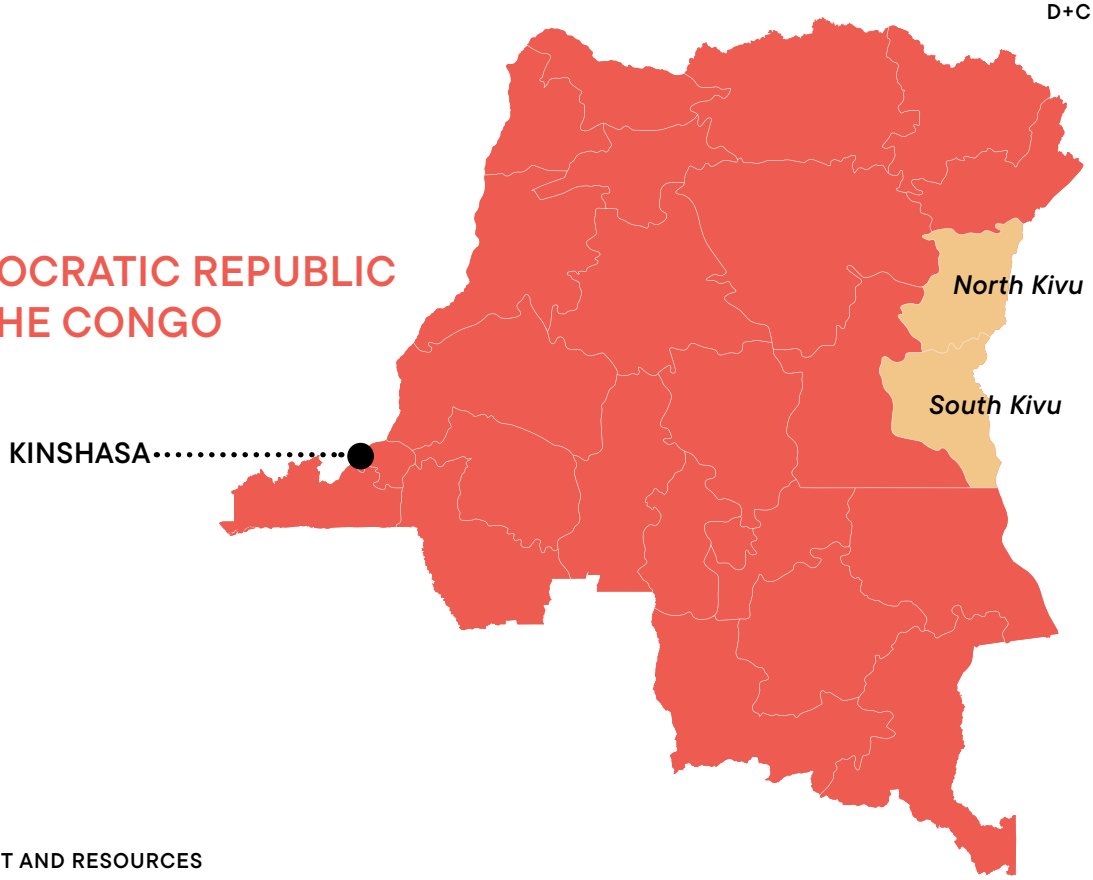
PROFOUND CHANGES ARE NEEDED

Noticeable progress has been made, but it is happening too slowly. The EU Supply Chain Act, for instance, is an achievement with regard to due diligence, but it was recently weakened and postponed. International cooperative efforts like the Global Battery Alliance, which promotes more sustainable and socially responsible battery production, are welcome, but need to be emulated on a much larger scale across all sectors.

The oft-cited "race for critical minerals" is a race against time for countries in the Global South. Will they manage to keep more added value in their own countries before the resources are exploited? And will these riches be shared fairly with the people in mining regions?

Brazilian president Lula da Silva made it clear in Hanover that his country has no intention of allowing itself to be reduced to the role of resource supplier. Instead, he insisted that a technology transfer was needed so that raw materials could be processed in Brazil. Reports from Burundi (p. 35) and Bolivia (p. 38) show that other countries sound the same note. For those at the bottom of the supply chain, fairer distribution can't come soon enough.

JÖRG DÖBEREINER
is managing editor of D+C.
euz.editor@dandc.eu



CONFLICT AND RESOURCES

Minerals for peace – or war over minerals?

The US-brokered "minerals for peace" deal promises to end conflict in the Democratic Republic of the Congo (DRC). But for the Congolese people, this sounds all too familiar. The question is not whether it will deliver peace, but why this cycle keeps repeating – and whether there is any hope of breaking it.

BY EZRA MOÏSE AMISI AND BOSSISSI NKUBA

Two things happened in January 2025. Donald Trump was sworn in as the 47th president of the United States and promised peace for everyone – whilst putting "America first". Three days later, on 23 January, the M23, an armed rebel group supported by Rwanda, launched one of its most intense offensives in over a decade in eastern DRC.

Within a few weeks, the M23 had captured Goma and Bukavu. Each of these cities has a population of over one million. However, international attention remained focused on Trump's return to the White House.

A few months later, on his way to achieving world peace and receiving the Nobel Peace Prize, Trump claimed he had brought an end to a so-called "machete war" after the DRC and Rwanda signed the US-brokered "Critical Minerals for Security and Peace" agreement in Washington in June 2025.

Central to the agreement is a commitment by both countries to develop a framework for regional economic integration. This is meant to expand cooperation between the two states, the US government and American investors with a view to establishing "transparent, formalised, end-to-end mineral

supply chains". In return, Washington made powerful – albeit vaguely worded – security promises for the region.

TRUMP AND LEOPOLD II – ECHOES OF THE PAST?

In 1884-85, King Leopold II of Belgium secured private ownership of the Congo Free State at the infamous Berlin conference. Competing European superpowers granted him a territory larger than Western Europe. His justification: combating the Arab slave trade and "civilising" the Congolese.

What he built instead was a machine of exploitation. The road and river network of the Congo Free State established under his rule served not to connect communities but to transport resources such as rubber and minerals to the coast as efficiently as possible.

The pressure on the Congolese people was crushing. Historians estimate that the Congolese population halved between 1880 and 1920 – a demographic collapse caused by forced labour, famine and violence. The systematic amputation of hands as a punishment for failing to meet rubber quotas is particularly notorious.

Leopold and the Belgian colonial rulers who followed him built infrastructure to extract raw materials, not to develop the country. Where mining was no longer profitable, the infrastructure came to an end. Today, in Lualaba province and in the remote forest areas in the south and east of the DRC, many communities are only accessible because artisanal mining has created trading posts, informal paths and motorbike tracks that pass for roads. It was not the mines that followed the roads; the roads followed the mines. As a result, the entire country became dependent on mining as its sole economic lifeline.

> "Resource extraction is not synonymous with development."

A mining site near Rubaya in eastern DRC.

Photo: picture alliance/Xinhua News Agency/Zheng Yangzi

> "The Congolese people have been repeatedly assured by influential voices that their suffering is only temporary, a price they must pay for a better future."

When the DRC gained independence in 1960, mining increasingly became a breeding ground for many conflicts in the region, such as the secessionist attempt in Katanga in the 1960s. Since the 1990s, "blood minerals" – primarily coltan, tin and gold – have fuelled repeated violent conflicts, especially in the east of the DRC. Rebel groups, foreign troops and other militias have used artisanal mines to fund arms purchases, thereby exploiting the local population; the M23 offensive is nothing more than the latest development in these conflicts.

What has changed over the decades between Leopold and Trump is the wording (and, fortunately, the methods of coercion): the "fight against the slave trade" has become the need to "stop a machete war". What remains unchanged is the question of who will control the resources once the dust has settled.

DEPENDENCE ON MINING PREVENTS A WAY OUT

One might wonder why Congolese communities and grassroots movements do not unanimously reject the lies of the extractive industry and those in power who have caused them so much suffering over the decades. In fact, 150 years of exploitative colonialism, followed by decades of predatory governance, have left communities across large parts of the DRC in a structural trap. Mining is not an option they – or their parents or grandparents – have chosen. For many, it is the only thing that protects them from complete isolation and, in the most remote communities, from starvation.

The question that preoccupies these communities – and us as researchers – is whether a future without mining is even possible. Not because mining is a good source of income, but because for many people the alternative is not a diversified economy with a variety of income opportunities: it is hunger and invisibility.

Resource extraction is not synonymous with development. What has happened in the DRC is that around 150 years of deliberate underdevelopment have rendered any alternative structurally inaccessible to millions of people who had no say in shaping the system on which they now depend. This dependence is infrastructural, historical and political in nature. Mining companies and armed groups fill the governance vacuum created by an absent state in different ways: companies build roads on their own terms; armed groups secure loyalty through taxation and protection. Neither serves the communities in the first instance. Both ensure that the communities remain dependent on external actors for access to the most basic necessities of modern life.

NOTHING NEW UNDER THE CONGOLESE SUN

For the Congolese government, the current instability in the DRC and the motives for signing the "Critical Minerals for Security and Peace" agreement brokered by the US go beyond the conflict with the M23. In a regional context marked by a series of coups d'état, fears are growing that a similar situation could be unfolding in the DRC. These concerns are being fuelled by internal protests, territorial battles in the east and an army widely perceived as ineffective. This concern is compounded by the fact that, although the mining sector accounts for more than 95 % of the country's exports and is estimated to have generated around 30 % of budget revenue last year, the state's ability to convert this wealth into political stability remains extremely limited.

In this light, the offer to grant the US privileged access to minerals in exchange for diplomatic and security guarantees could be linked just as much to the conflict with the M23 as to the survival of the Tshisekedi regime beyond its two constitutional terms of office. Over the past two years, President Félix Tshisekedi has been preparing a constitutional amendment that could enable him to seek a third term, and the deal with the US serves this ambition. By securing Washington's support, Tshisekedi gains the external legitimacy and political backing he needs to push through constitutional changes in his own country, as he knows that a powerful ally with an interest in the country's stability is unlikely to stand in his way.

The US is following a transactional logic whereby democracy is quickly forgotten if it stands in the way of the access of those in power to resources and begins to demand the rights of local communities. If access is guaranteed, however, even an authoritarian regime can seemingly receive all the support it needs to establish and maintain itself.

So far, despite the agreement, the M23 shows little sign of retreating. One wonders whether the DRC will not inherit

from its "minerals for peace" deal yet another complex instability, from which a way out could range from extremely difficult to simply impossible.

For the Congolese people, such uncertainties are nothing new. After all, the old myth of "minerals for peace" formed the basis for the DRC's establishment as a political entity. Disappointment over promises of prosperity is also part of everyday life for the population. In fact, the average Congolese person sees in the news how Congolese minerals are being used in technological marvels around the world. Yet they experience first-hand the reality of a country with one of the lowest Human Development Indices. These lived paradoxes are not mere coincidences of a region suffering from war. They are the predictable consequences of a system designed to extract value from an area rather than invest in it.

IS THERE A FUTURE WITHOUT MINING? AND WHO GETS TO IMAGINE IT?

Our current research analyses if communities most affected by extractive industries can imagine and shape a future beyond mining – given that mining was often the only thing that ever brought them roads, income and a modicum of attention from the outside world.

Many analysts and community members will argue that there is no credible short-term alternative, and they are not wrong. When the choice is between a dangerous mine that brings in money and a village without a road, a clinic or a market, insisting on post-mining alternatives sounds like a luxury that only outsiders can afford. Dependence on mining has been built up over generations and is highly likely to continue. Change can only occur if the political framework governing the exploitation of resources undergoes a fundamental shift – not at the level of supply chain certification or diplomatic agreements but at the level of who controls the revenues, who builds the roads and who decides what is being built in the first place.

As long as minerals are mined in an environment where the state cannot enforce regulations, where the communities living in mining villages have no real say in how the revenues are spent and where international actors view the DRC primarily as a strategic supplier rather than as a society, minerals will continue to promise prosperity while they actually bring about the opposite, namely poverty and dependency. The future of the DRC depends on the mineral wealth being channelled into roads for communities rather than into concessions, into schools rather than company towns and into institutions that are accountable to citizens rather than to shareholders or geopolitical partners.

The Congolese people have been repeatedly assured by influential voices that their suffering is only temporary, a price they must pay for a better future that will ultimately be financed by the extraction of raw materials. Leopold said so. The Belgian state said so. The international financial institutions said so. Today, a new generation of mineral diplomats are saying the same. The question is not whether the Congolese people believe it. The question is whether they ever had any real choice not to.

EZRA MOÏSE AMISI
is a PhD student in Development Studies at the University of Antwerp, a lecturer at the Institut Supérieur de Développement Rural de Bukavu and collaborates with the Center of Expertise on Mining Governance of the Université Catholique de Bukavu.

emoiseamisi@gmail.com

BOSSISSI NKUBA
is a professor at the Institute of Development Policy at the University of Antwerp, the Center of Expertise on Mining Governance of the Université Catholique de Bukavu and the Earth Science Department of the AfricaMuseum in Tervuren, Belgium.

bossissi.nkuba@uantwerpen.be

Photo: Bridging Rural Integrated Development and Grassroot Empowerment (BRIDGE)

Rare earth mining site in Kachin State, Myanmar.

RARE EARTHS

The new conflict minerals

Many of the minerals that power electric cars and wind turbines come from northern Myanmar's conflict zones. While China is maintaining its grip on the mining sites, rare earth extraction is driving deforestation, poisoning water supplies and funding armed groups. On-the-ground reporting from Myanmar's isolated border regions is rare. For this exclusive report, the authors drew on local research and spoke to people in Kachin State.

BY SENG LI AND JOHANNA SYDOW

When President Donald Trump declared his intention to acquire Greenland a few months ago, he brought the US to the brink of conflict with its European NATO partners. His ambitions are widely seen as driven by one key concern: reducing American dependence on China for rare earth elements – metals that have become indispensable to modern technology and the green energy transition.

Rare earth elements – a group of 17 metals essential for permanent magnets used in wind turbines, electric vehicles (EVs), electronics and defence systems – have moved to the centre of the geopolitical race for resources. Unlike their name suggests, these elements are not particularly rare compared to minerals like tantalum. Yet they often occur in low concentrations and are only extracted in a few places worldwide. Market concentration, especially in the

refining industry, is huge. More than 90 % of rare earths are currently processed in China and enter the global market from there. This creates huge market power. When China restricted exports of seven heavy rare earth elements including terbium and dysprosium in April 2025 – elements indispensable for permanent magnets used in wind turbines and EVs, for example – the EU and US faced immediate pressure to secure alternative sources.

What remains less prominently discussed is where China sources these elements. According to Chinese customs data, two thirds of the heavy rare earth elements terbium and dysprosium processed in China originate from war-torn Myanmar. Particularly after China had raised its environmental mining standards, Myanmar became an important territory for rare earth extraction where Chinese standards do not apply. This has severe impacts on the environment, people's health, social structures, criminal activities and conflict dynamics.

At the same time, the fragile political situation in Myanmar poses supply chain risks to China as well as to importers of heavy rare earths and permanent magnets worldwide. Yet despite the country's crucial role in a critical supply chain, there is hardly any reporting on Myanmar. Even the International Energy Agency's 2026 report on rare earth elements excludes Myanmar from central charts "due to lack of reliable data on reserves".

KACHIN STATE: CHINA'S ROLE IN THE MYANMAR CONFLICT

Rare earth mining in Myanmar began in the early 2010s along the China–Myanmar border in northern Kachin State and accelerated sharply after Myanmar's 2021 military coup. According to a Global Witness report (2024), the number of mining sites reached 300 in 2023, representing a 40 % increase from 2021.

After the 2021 coup, armed conflict has intensified. Widespread clashes have erupted between ethnic armed organisations, their allied resistance forces known as people's defence forces and the Myanmar military with its allied militia groups nationwide. Control over mining areas brings substantial economic benefits and provides leverage when dealing with external political and economic pressure.

Since 2021, Chinese companies have taken advantage of the power vacuum in the region and unregulated rare earth mining has expanded. Chinese companies cooperate with different actors to secure their access to rare earth reserves. In the Kachin region, these have long been mainly the military and militia groups. China's role in the conflict became more visible in 2023, when ethnic armed organisations gained control over the resource-rich territories. Reports indicate that China applied immense pressure to protect its interests, forcing several ethnic armed organisations to return central mining areas to the Myanmar military regime. For example, China detained the leader of the armed resistance group MNDAA after they seized the city of Lashio in Shan State and refused to withdraw.

> "According to Chinese customs data, two thirds of the heavy rare earth elements terbium and dysprosium processed in China originate from war-torn Myanmar."

In September 2024, the Kachin Independence Army (KIA) – an ethnic armed organisation and the armed wing of the Kachin Independence Organization (KIO) – captured several key border areas, including the towns of Chipwi and Pangwa. This region contains the country's most extensive rare earth mining sites and had previously been controlled by the Border Guard Forces, a militia aligned with the Myanmar military regime. Mining activities were largely backed by Chinese capital and investment.

Shortly after the KIA seized these key trade towns, China closed all border crossings and suspended trade with Kachin State. This put significant political and economic pressure on the KIO/A, as the border communities depend on China for basic goods and services. However, China also has an interest in continued access to resources. In December 2024, negotiations between Chinese authorities and the KIO/A took place and trade resumed. In return, the KIO/A permitted Chinese investors to continue rare earth mining operations in the newly captured region.

MINING BOOM, SOCIAL AND ECOLOGICAL DECLINE

The rapid expansion of mining operations in Myanmar's border regions has come at a high cost. Environmental degradation and social disruption have intensified. Forests have declined, mountains are scarred by excavation, and once-clear streams now run discoloured from chemical runoff. The once quiet border landscape has transformed into a crowded, chaotic mining zone.

Myanmar's economic situation is dire, and the mining industry in Kachin State has attracted thousands of people

from across the country in search of job opportunities. The influx of workers has brought a sharp increase in gambling, drug use and trafficking and criminal activities. Local residents in the mining towns of Chipwi and Pangwa report feeling increasingly unsafe in their own communities.

> "Inside the mining sites, Chinese operators oversee and manage operations while local workers carry out dangerous and low-paid jobs."

Environmental damage has also grown more severe. The extraction process relies heavily on chemical substances such as ammonium carbonate and oxalic acid. Their widespread use has largely contributed to deforestation, water contamination and land degradation. In 2024, landslides at rare earth mining sites in Pangwa killed around 50 people and left many others missing.

Improper disposal of chemical waste has further compounded the damage. Toxic runoff has entered nearby streams and water systems, affecting communities in the Chipwi district and the Mai Ja Yang area. Residents who rely on these water sources for bathing and drinking have developed skin diseases and eye illnesses.

LABOUR EXPLOITATION AND LOCAL CONFLICT

Inside the mining sites, Chinese operators oversee and manage operations while local workers carry out dangerous and low-paid jobs. According to the Myanmar Mining Watch Report 2023, wage exploitation is widespread. Women in particular face significant constraints on employment, with reports indicating that some have been forced into exploitative relationships with supervisors or investors. Those who refuse have, in some cases, lost their jobs without reasonable justification.

In some places, the local communities therefore oppose further rare earth extraction. In villages such as N'Ba Pa and Ding Sing Pa, protests over environmental and health issues emerged after the Kachin Independence Organization (KIO) initiated mining operations in 2023. Due to strong resistance, the KIO eventually suspended mining activities in these areas.

Today, the impact of rare earth mining extends beyond Kachin State. Mining activities have also been reported in areas such as Namtu, Namkham and Mong Wi in northern Shan State, causing environmental degradation, dust pollution from heavy transport trucks and declining agricultural productivity. In eastern Shan State, rare earth mining has also spread along the Lwe and Kok river basins. Pollution flows through the river systems and eventually into the Mekong River, raising concerns about cross-border impacts on downstream communities in Chiang Rai, Thailand.

EFFORTS TO IMPROVE THE SITUATION IN KACHIN STATE

The environmental and social damage caused by rare earth mining in Kachin and Shan states is enormous. However, the KIO authorities in Kachin State are undertaking efforts to improve the governance of rare earth mining.

Ying, a local businessman, reports that after the KIO seized control of the rare earth mining towns of Chipwi and Pangwa, the KIO designated both as special administrative vil-

Photo: picture alliance/ASSOCIATED PRESS/Uncredited

Sacks of rare earth ores in Kachin, Myanmar, waiting for transport to China.

lages and placed them under the direct authority of the KIO's central Department of General Administration. A recent report by Ta-Wei Chu, an assistant professor at Chiang Mai University in Thailand, and Seng Li, founder of the Shaba Foundation, indicates that due to the KIO's administrative efforts, drug trafficking, gambling and criminal activities have largely declined in both villages.

Additionally, the KIO introduced a rare earth mining management regulation in October 2025 to formalise the industry. It addresses key areas including permit applications, the responsibilities of investors, environmental protection, the use of chemicals, labour standards and enforcement mechanisms.

Investors, both domestic and international, must now meet stricter financial requirements. They must provide a guarantee of 500,000 Chinese yuan (about $ 73,000) to ensure land rehabilitation and ecological restoration. Additionally, they must pay a concession fee of 100,000 yuan (about $ 15,000) per acre of mining land and a royalty of 40,000 yuan (about $ 6,000) per ton of extracted minerals. All revenues and financial guarantees are collected by the KIO's Central Department of Commerce. Business operators who violate the provisions will have their mining permits revoked and will be subject to legal action.

To support implementation, the KIO has established a rare earth mining monitoring committee tasked with overseeing mining operations. Nor Nor, a mining worker, says that the committee conducts regular inspections of mining sites. During a recent visit, it instructed operators and workers to minimise environmental harm.

However, while governance of rare earth mining is improving, enforcement remains uneven. Recent reports from the local news outlet Kachin News Group indicate that in some areas, particularly in Mai Ja Yang, workers did not receive their salaries for up to five months. Female workers continue to face barriers to employment unless they comply with exploitative demands from supervisors, highlighting persistent labour and human rights abuses.

REGIONAL CONFLICT AFFECTS INTERNATIONAL SUPPLY CHAINS

Myanmar's rare earth crisis reveals the hidden costs of the global green energy transition and the production of communication technologies, among others. The minerals that power electric vehicles and wind turbines can fuel armed conflict, environmental destruction and labour exploitation. When European manufacturers source terbium and dysprosium from China, chances are high that these minerals originate from war-torn Kachin or Shan State. The social and political crisis in these regions poses a serious risk for a reliable supply of these minerals. Moreover, according to international norms such as the UN Guiding Principles for Business and Human Rights and supply chain legislation, companies have a responsibility to act.

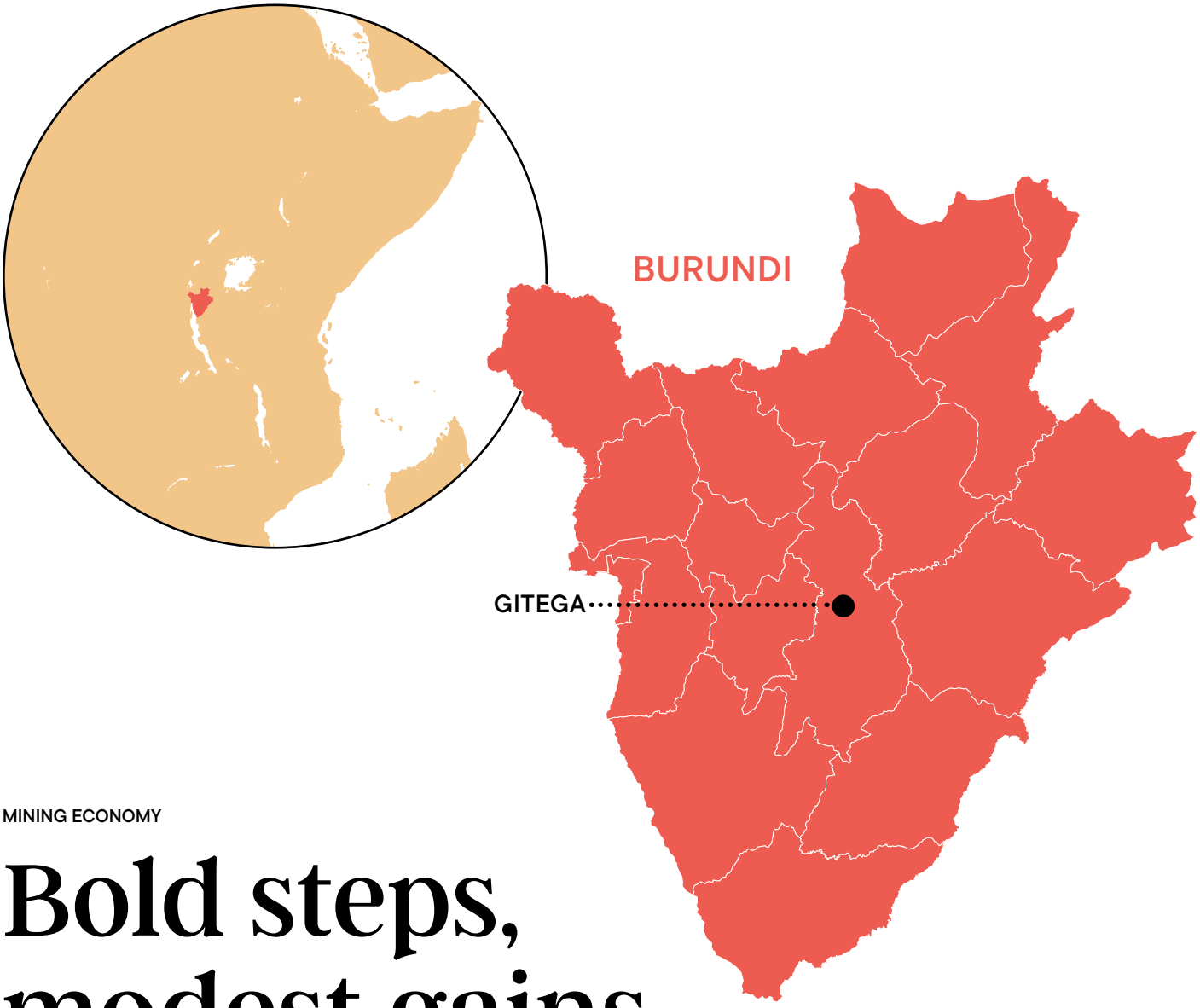
Several steps can be taken: Firstly, European companies should team up with local civil society to find allies in the region and identify ways in which they can contribute to improving the conditions of extraction and remediation. This would also help to secure supply. According to the UN Guiding Principles for Business and Human Rights and the OECD due diligence requirements, building such relationships is key. Secondly, finding alternative sources and technological solutions could help to reduce reliance on Chinese suppliers. Efforts in rare earth recycling must be stepped up. The upcoming EU circular economy act should tackle this with more rigorous measures. It is also key to build smaller cars and invest in good and attractive public transport. In the end, all of this would help reduce demand for the "conflict minerals" dysprosium and terbium.

SENG LI
is a Kachin researcher, development practitioner and a founder of Shaba Foundation. In his research he examines land rights, displacement, resistance to large-scale agricultural investments and natural resource governance in Myanmar's northern Kachin State.

senglisumlut@gmail.com

JOHANNA SYDOW
heads the International Environmental Policy Division at Heinrich Böll Foundation in Germany. She was a senior policy advisor with Germanwatch and has investigated and worked on issues relating to resource extraction, the circular economy and corporate accountability in Ghana, Ecuador, Peru, Colombia and the EU.

sydow@boell.de



MINING ECONOMY

Bold steps, modest gains

The Burundian government has shown courage by temporarily suspending the operations of international mining companies in order to demand fairer terms. Yet bold gestures alone do not guarantee prosperity. Without transparency, accountability and genuine structural reforms, Burundi's mineral wealth will still not benefit the majority of Burundians.

BY MIREILLE KANYANGE

Burundi possesses considerable mineral resources, including gold, tin, tungsten and tantalum, as well as lithium, rare-earth elements, vanadium, titanium and nickel. But despite its mineral-rich soil, the country does not generate sufficient export revenue to significantly boost its gross domestic product. In the annual national budget, revenue from mining is often negligibly small; for the current financial year, the Burundian Ministry of Finance reported revenue from this sector of around $ 2.6 million. For years, the authorities have also complained that mining operators are selling minerals fraudulently and outside official channels.

In February 2023, the Council of Ministers stated: "Since 2013, Burundi's mining and quarrying sector has adopted new legislation designed to attract both domestic and foreign investors, but over time, shortcomings have become apparent in these laws. To address these shortcomings, the Ministry has begun the process of revising Burundi's Mining Code and its implementing regulations to bring them into line with the reality on the ground." Five months later, the country introduced the new Mining Code intended to foster "win-win" partnerships between the state and the sector.

Politicians, economists and civil-society organisations argue, however, that significant grey areas remain. For Olivier Nkurunziza, leader of the opposition party "Union for National Progress" (Union pour le Progrès national, UPRONA), the shortcomings cited by the Council of Ministers are more than just technical details. He says that mining contracts are never published and that corruption is rife. In his view, production figures are underreported and there is a lack of transparency in contract negotiations.

Nkurunziza also argues that communities in mining areas derive no tangible benefits from the sector, such as the construction of infrastructure. Another point of criticism is that Burundi exports minerals in their raw form rather than processing them locally. As a result, according to Nkurunziza, the country will never reap the true value of the resources leaving its territory.

SUSPENDED CONTRACTS, HALTED OPERATIONS

The new Mining Act came into force two years after Burundi took a bold step. In July 2021, Bujumbura suspended several major mining companies, including the British firms Rainbow Rare Earths and African Mining Limited as well as the Russian-linked company Tanganyika Mining.

At the time, Minister Ibrahim Uwizeye told company representatives that the contracts would need to be revised. "The agreements between these companies and the Burundian government were characterised by a significant imbalance that risked causing major losses for the country," he was quoted as saying during a meeting with mining

Photo: picture alliance/Xinhua News Agency/Xie Jianfei

Tries to balance his country's economic interests against those of foreign mining companies: Burundi's President Évariste Ndayishimiye, pictured here in Addis Ababa in February when Burundi officially assumed the chairmanship of the African Union.

company officials. Uwizeye explained that a review was necessary to establish a partnership that was beneficial to all parties but assured the representatives that this did not mean that operating licences would be revoked.

Pamphile Malayika, a former MP with a focus on the mining sector, agrees that renegotiation made sense. He notes, however, that the aim was a fairer distribution of profits and a higher state stake of at least 16% – yet the state currently still holds a stake of only 15% in all mining projects. He also emphasises that the abrupt suspensions had immediate consequences: companies halted work, the state lost foreign exchange earnings, jobs were lost and cases of fraud in small-scale mining increased.

> "Setting aside the economic back-and-forth between business and politics, the fundamental question remains: how does this benefit the people?"

OFFICIAL EXPORTS – AND THE TRANSPARENCY QUESTION

The decline in foreign exchange earnings resulting from Burundi's radical measures took a particularly heavy toll on the country. Economic realities eventually caught up, and on 7 October last year, Burundian President Évariste Ndayishimiye officially launched the export of green quartz and amethyst to China. This move was presented as a new chapter and formed part of a 100-day export campaign that had already begun at the end of July 2025.

At the end of February 2026, the Governor of the Central Bank, Edouard Normand Bigendako, stated that just over 200 kilogrammes of gold had been exported in the fourth quarter of 2025, generating revenue of over $ 27 million. For other minerals, he reported official exports of more than 950 tonnes worth over $ 7 million, with more than $ 1 million already repatriated.

Despite these positive economic trends, Burundian civil-society organisations and politicians, including the Observatory for the Fight against Corruption and Economic Misconduct (Observatoire de Lutte contre la Corruption et les Malversations Économiques, OLUCOME), stress that sustainable structural change requires transparency. They argue that Burundi should join the Extractive Industries Transparency Initiative (EITI) and point out that the Burundian Government formally committed to implementing the EITI standard 11 years ago. Furthermore, they argue that the mineral trade should be centralised through the Burundian Mining and Quarrying Office (Office Burundais des Mines et Carrières, OBM).

THE POTENTIAL OF NICKEL AND NEW DOUBTS

Of all Burundi's mineral resources, nickel is one of the key commodities for the country's long-term prospects. The country has oxidised nickel deposits estimated at around 285 million tonnes. Burundi's nickel reserves are estimated to account for around six percent of global reserves.

In March, Burundi signed a 14-month exclusive contract with the US company Lifezone Metals for the development of the Musongati nickel project in the south-east of the country. The deposit is estimated to contain 150 million tonnes of nickel alone.

However, concerns arose almost immediately. MP Malayika described it as regrettable that the Public Procurement Act had apparently not been complied with in connection with the tender. He acknowledges that Lifezone operates in Tanzania and possesses strong technical and financial capabilities. Nevertheless, he argues that such a strategic investment should have been made through an international tender process, particularly as the exclusivity prevents other potential partners from evaluating the project.

Setting aside the economic back-and-forth between business and politics, the fundamental question remains: how does this benefit the people? Like many African countries, Burundi needs a sustainable solution that ensures its immense mineral wealth is serving the well-being of the Burundian people – and not merely fill the coffers of foreign investors and a small local elite. Only transparent governance, fair contracts and genuine public participation can transform Burundi's mineral resources into a foundation for inclusive development.

MIREILLE KANYANGE
is a journalist and reporter at Radio Isanganiro in Burundi.
mika.kanyange@gmail.com

The Bolivian lithium extraction plant, Llipi, at the Uyuni Salt Flat.

Photo: picture alliance/ASSOCIATED PRESS/Mika Otsuki

BOLIVIA

The untapped treasure of the Andes

Bolivia may have enormous lithium reserves, but it is reliant on international alliances to extract them. The government is quite clear on one thing: the country itself – not just foreign investors – should reap the lion's share of the profits. The EU and Germany are positioning themselves as potential partners.

BY KATJA DOMBROWSKI

Covering more than 10,000 square kilometres, the Salar de Uyuni is the biggest salt flat in the world, Bolivia's top tourist attraction and also where some of the planet's largest known lithium deposits are situated. This highly coveted light metal is needed primarily for rechargeable batteries – in everything from smartphones and electric cars to battery energy storage systems. It plays a vital role in electric vehicles and the transition to renewable energies, and demand is soaring: the International Energy Agency (IEA) estimates that lithium demand will increase five-fold by 2040.

Bolivia is the world's number two in terms of its lithium deposits. Of the 150 million tonnes of lithium that the U.S. Geological Survey identified in 2026, Bolivia is home to an estimated 23 million – behind Argentina, with deposits of

28 million tonnes, and ahead of Chile, which has 13 million tonnes. Together, the deposits of these three countries in the Andes are known as the Lithium Triangle. For Bolivia, one of South America's poorest countries, this natural treasure offers a great opportunity to tap into a new source of revenue and to drive economic growth.

THE LITHIUM FIRST NEEDS TO BE EXTRACTED FROM SALT WATER

However, a resource is not yet an extractable reserve, and this is precisely what has proven the stumbling block for Bolivia so far. Although lithium extraction has been talked about for decades and various attempts have been undertaken, little progress beyond pilot facilities has been made to date.

Under Evo Morales, the country's president from 2006 to 2019, Bolivia's lithium resources were declared to be the property of the state. However, the country lacks the money, technology and expertise to extract and process them. Though the state-owned company Yacimientos de Litio Bolivianos (YLB) put the first industrial lithium extraction plant into operation at Salar de Uyuni in late 2023, it has experienced various design issues and operational problems and produces only a fraction of the intended quantity.

Bolivia is thus reliant on joint ventures with foreign companies, yet this has borne little fruit so far. In recent years, agreements have been signed with Chinese and Russian firms to build lithium extraction facilities at several Bolivian salt pans. This has led to two contracts so far – with the Russian company Uranium One, which belongs to the state-owned firm Rosatom, and with a Chinese consortium. However, Bolivian law requires such contracts to be greenlighted by parliament, which has not happened as yet due to political disagreement, criticism of the process and certain elements in the contracts – meaning construction of the plants has not even begun.

A NEW LAW TO LURE IN INVESTORS

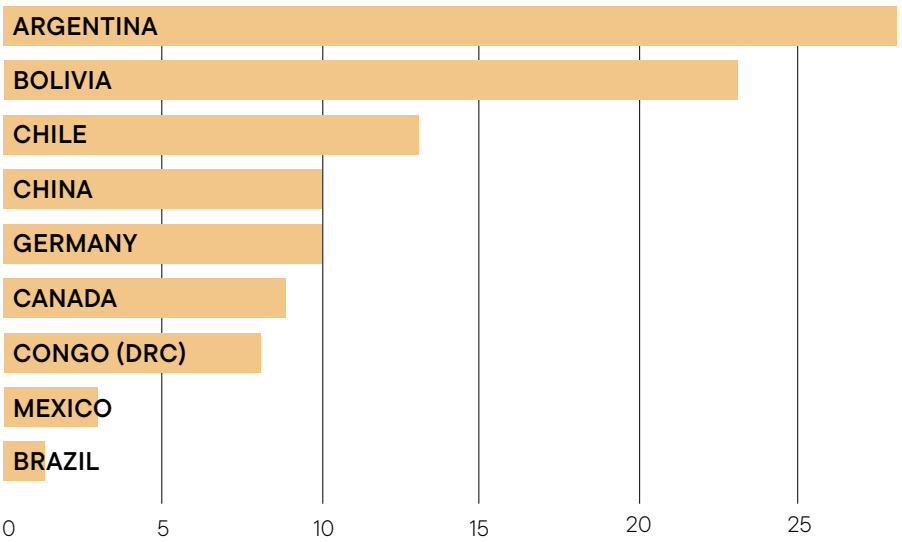
A new government has been in power in Bolivia since November 2025. Rodrigo Paz, the conservative president from the Christian Democratic Party PDC, advocates a completely different economic policy from that of his predecessor Luis Arce, who, like Evo Morales, was a member of the Movement for Socialism party MAS. President Paz is also determined to finally start extracting lithium to generate revenue, but he has his sights set on different partners.

The new government is drawing up a new lithium law as part of a package of legislation in the area of energy and critical minerals. The aim, the ministry responsible says, is to demonstrate sustainability and reliability in a bid to lure in international investors.

Whereas the MAS government had turned its back on the West to align itself with the BRICS states – a group of countries keen to position themselves as a counterbalance to the West and to make the global financial system less dependent on the US dollar – the government led by Rodrigo Paz is once again turning more towards Europe. It has even resumed diplomatic ties with the US after two decades of frosty relations. The new government is expressly signalling its openness to cooperate with Western firms, including those in the minerals, energy and technology sectors. Meanwhile, it plans to review the contracts with the Russian and Chinese lithium companies.

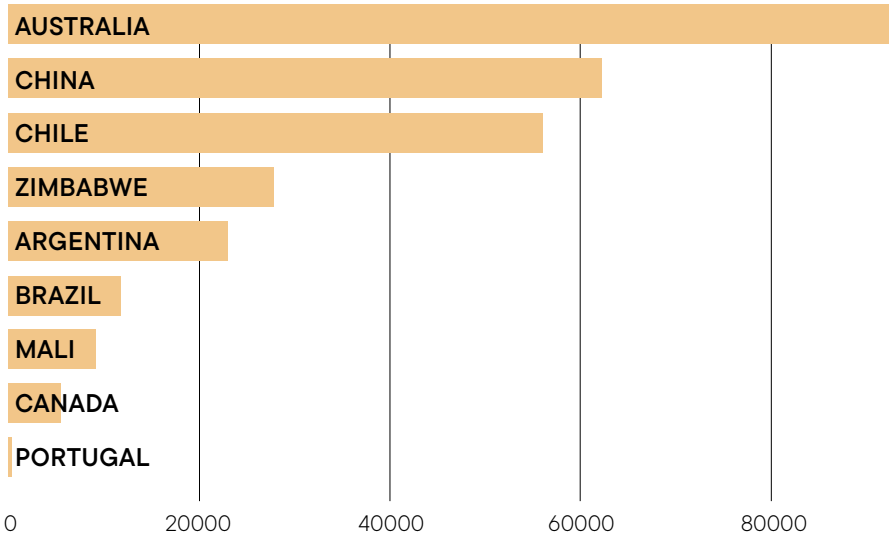
One sign of the new and closer relationship with the West was the visit to Bolivia of a European Union (EU) delegation in February. Renewable energies were among the main topics discussed, and the EU delegates also made a trip to Salar de Uyuni.

LITHIUM RESOURCES BY COUNTRY IN MILLION TONNES (AS OF FEB. 2026)



Source: U.S. Geological Survey

LITHIUM PRODUCTION BY COUNTRY IN TONNES (FORECAST 2025)



Source: U.S. Geological Survey

THE EU AND GERMANY ARE GETTING INVOLVED AS PARTNERS

The EU has promised the Bolivian government that it will invest € 11 million as part of the Global Gateway initiative – an investment programme for sustainable infrastructural projects in the Global South. In addition, the EU and Germany's Federal Ministry for Economic Cooperation and Development (BMZ) are jointly funding the EU4ProTransición programme to the tune of € 9 million. This is intended to boost Bolivia's energy transition by helping to produce green hydrogen and extract lithium.

Shortly after the visit, EAU Lithium, a consortium comprising the Australian mining company EAU Mining and the German-Australian firm Vulcan Energy Resources, signed a negotiation agreement with YLB. This brings Bolivia a step closer to building more industrial lithium extraction plants.

OPEN TO INTERNATIONAL COOPERATION – WHILE PROTECTING ITS OWN RESOURCES

The Paz government has not backtracked from one of its predecessor's policies, however: the nationalisation of the country's resources. It is equally determined that as much of the value chain for lithium-ion batteries as possible should be established in Bolivia. Bolivians fear that this valuable resource could be sold to foreign companies that would get rich from the profits without benefiting Bolivia in any significant way. The country experienced similar exploitation in the colonial era, when the Spanish built their wealth on the silver deposits – the world's largest at the time – of the Cerro Rico in Potosí.

Another sensitive issue concerns the social and ecological consequences of lithium extraction. Many of those who live near the salt flats are opposed to their industrial exploitation. They complain that they are insufficiently involved in decision-making and fear that tourism and the fragile ecosystem will suffer. In the summer of 2025, for example, the body representing the Indigenous Peoples of Nor Lipez province denied the Chinese and Russian companies access to their territory, arguing that the contracts had been signed without the agreement of the Indigenous Peoples.

To date, evaporation has been used to extract lithium at Salar de Uyuni. Not only is this a lengthy process; it also requires vast quantities of water – a scarce resource in the Andean Highlands. A different method is currently being adopted: direct lithium extraction. This involves extracting the raw material directly from the brine and then reusing the water. This method saves water, is more environmentally friendly and far quicker, and it requires less space than the evaporation process. Furthermore, the extracted lithium is very pure. This is also the process that EAU Lithium uses.

The BMZ is committed to ensuring not only that technological progress is made but that people and the environment are respected. According to Bolivian media reports, BMZ Policy Advisor Christina Seeberg-Elverfeldt, who was a member of the EU delegation, stressed: "It is crucial to respect communities and social and environmental standards; this is where we can make a contribution."

KATJA DOMBROWSKI
is a journalist specialising in global development and a former member of the editorial team of D+C. She worked for the World Peace Service (WFD) in Bolivia from August 2022 until January 2025.

kd@katja-dombrowski.info

RECYCLING

How India aims to secure rare earth supply through e-waste

India holds the world's third-largest reserves of rare earth elements, which amount to about eight percent of the global total. Yet the extraction is limited due to infrastructure limitations, technological gaps, regulatory hurdles and environmental concerns. As the country seeks rare earth security, attention is now turning to an overlooked source – electronic waste.

BY ROLI MAHAJAN

Historically, India has extracted and exported raw rare earth concentrates while relying heavily on imports of processed rare earths. In the 2024–25 fiscal year, it brought in over 53,000 metric tonnes of rare earth element (REE) magnets, primarily neodymium-iron-boron (NdFeB) and mainly from China. These magnets are essential for manufacturing electric vehicles (EVs), wind turbines and electronics and for defence applications.

Now, the country is aiming to achieve self-reliance. In 2025, under the National Critical Minerals Mission (NCMM), the government approved a massive $ 4 billion incentive package, which will be invested over seven years. The mission envisions 1200 domestic exploration projects by 2031, the acquisition of 50 overseas assets and self-sufficiency in processing at least five key REEs. This move aims to cut import reliance and build a domestic supply chain for defence, EVs and electronics.

A main component of this push is an $ 800 million incentive scheme specifically designed to establish a domestic ecosystem for rare earth permanent magnets (REPM). Under this policy, the Ministry of Heavy Industries recently invited global bids to set up manufacturing units with the goal of creating a complete domestic value chain to meet domestic demand, which is expected to double within five years. Raw-material security is also being strengthened by the fact that IREL, a public-sector company, can provide a dependable supply of oxides that are needed by the industry. Oxides serve as fundamental building blocks for high-tech components.

The urgency is a direct consequence of the uncertain geopolitical situation facing the world. In April 2025, for example, China imposed export restrictions on rare earth magnets, sending shockwaves through global manufacturing supply chains. The move was part of a broader retaliation to

> "Experts say India could meet up to 70 % of its rare-earth demand through scaled-up e-waste recycling."

Photo: picture alliance/ZUMAPRESS.com/Ravi Batra

The Ghazipur landfill in New Delhi, one of India's largest e-waste dumps.

steep US tariffs, with Beijing using its commanding position in the sector – it accounts for around 70 % of global mining and 90 % of the processing of rare earth magnets – as an economic pressure lever. For India, the exposure was stark: the country sources 80–90 % of its REEs, magnets and related materials from China, with official figures placing imports at approximately $ 221 million in 2025.

CHALLENGES TO HARNESSING DOMESTIC RESERVES

India holds about eight percent of the world's rare earth reserves, which are primarily found in monazite sands along the coastlines of the states of Odisha, Kerala, Tamil Nadu, Andhra Pradesh, Gujarat and Maharashtra. However, domestic mining currently accounts for less than one percent of global production.

The primary hurdle is the country's historical regulatory framework, which favoured state-owned dominance and discouraged private investment, thereby constraining refining capacity. India also faces a compositional imbalance: it has a surplus of "light" rare earths but lacks extractable quantities of "heavy" elements like dysprosium and terbium, which are critical for high-performance magnets. This problem is compounded by a massive technological gap: India lacks the commercial-scale industrial expertise held by nations like Japan or Germany.

> "Indian-made magnets must be priced competitively to avoid being undercut by cheap Chinese imports."

URBAN MINING

Amid the ecological and technological challenges of traditional mining, India is pivoting towards "urban mining", the recovery of rare earths from electronic waste (e-waste). As the world's third-largest producer and importer of e-waste, India generates approximately 1.75 million metric tonnes annually, a figure that grew by around 75 % over the last five years.

Experts say India could meet up to 70 % of its rare earth demand through scaled-up e-waste recycling. Leading firms like Attero Recycling have already developed patented homegrown technology to extract neodymium and cobalt from discarded magnets and batteries.

> "India's journey towards rare earth self-sufficiency is a race against time and international competition."

In July 2025, a landmark development in this sector was the partnering of India's BatX Energies with Germany's Rocklink GmbH to establish the country's first fully integrated rare earth magnet recycling facility. This project uses patented reverse logistics platforms to collect end-of-life magnets from motors and industrial equipment. The magnets are then refined in a zero-liquid-discharge (ZLD) plant, an advanced process in which industrial wastewater is fully treated, recycled and reused so that no wastewater is discharged into the environment. Such initiatives align with the EU-India Trade and Technology Council (TTC) vision for circular supply chains and provide India with a foothold in a non-Chinese REE ecosystem.

THE ROADMAP TO SELF-RELIANCE

Despite this momentum, the lack of formalisation remains a major obstacle. While formal recycling jumped 240 % between 2019 and 2024, nearly 95 % of e-waste workers remain in the informal sector, often working without protective gear in "toxic sinks" like New Delhi's 70-acre Ghazipur landfill. Bridging the gap between these informal scrap yards and high-tech formal facilities like Recyclekaro, an e-waste and lithium-ion battery recycling company in Mumbai, is essential for securing a sustainable supply.

Furthermore, Indian-made magnets must be priced competitively to avoid being undercut by cheap Chinese imports. Success will require strategic international partnerships to import technology and upskill the workforce, such as the Minerals Security Partnership, a 15-member coalition – including the EU, Japan, Korea and Canada – aimed at accelerating the development of sustainable critical energy mineral supply chains.

India's journey towards rare earth self-sufficiency is a race against time and international competition. By combining aggressive fiscal incentives for magnet manufacturing with a pioneering focus on e-waste recycling and regional diplomacy, New Delhi is attempting to move up the value chain from a raw material exporter to a high-tech manufacturer. While the road is fraught with technological gaps and environmental concerns, the transition to a circular economy model offers a path to strategic autonomy that does not sacrifice the country's ecological future.

ROLI MAHAJAN
is a journalist based in Lucknow, India.

roli.mahajan@gmail.com

There can be no energy transition without batteries, and when it comes to the battery industry, there is no getting around China: wind turbines in China's Jiangxi Province.

Photo: picture alliance/CFOTO

JUST TRANSITION

High ambition: jointly improving the battery industry

If humanity is to move away from fossil fuels there is one product we cannot do without: batteries. A global alliance of over 150 companies, NGOs and international organisations, including the German government, has set itself the goal of making the industry more sustainable. The potential is huge: the critical minerals in batteries can be recycled to a high degree, making them a cornerstone of a circular economy. We spoke with the Global Battery Alliance's Executive Director Inga Petersen about traceability, multi-stakeholder collaboration and what it really takes to build a sustainable battery value chain.

INGA PETERSEN IN AN INTERVIEW WITH EVA-MARIA VERFÜRTH

The Global Battery Alliance (GBA) was founded in 2017, following the publication of several reports on the cobalt mining industry in the Democratic Republic of the Congo (DRC). A report by Amnesty International on child labour gained global attention. What was the motivation of the GBA's initial members?

Back then, it was already clear that the battery industry would have to scale rapidly. We need batteries to decarbonise both transport and the power sector through renewables and stationary storage. At the same time, public attention was putting pressure on automotive companies using cobalt in batteries for electric vehicles (EVs) as well as on electronics companies like Apple that use the same materials in lithium-ion batteries for consumer electronics. The initial members of the alliance came together to grow this industry responsibly and to manage the associated risks: child labour, forced labour, human rights abuses and the carbon emissions produced by battery manufacturing itself.

> "Unlike fossil fuels, which we extract at environmental and social cost only to burn them, critical minerals in batteries can be recycled almost infinitely."

What is the environmental potential of greener battery production and consumption?

In an EV, for example, the battery is the most carbon-intensive element to manufacture. By measuring and reporting greenhouse gas emissions during battery production, the value chain can collaborate to reduce the battery carbon footprint and greatly reduce emissions over the total life cycle of the vehicle. Unlike fossil fuels, which we extract at environmental and social cost only to burn them, critical minerals in batteries can be recycled almost infinitely, creating the material feedstock of the circular economy of the future.

The GBA's structure is unique in that it brings together companies, NGOs and even government actors. Why this format, and how does it work?

The problems we want to address are so complex that we need collective action that spans the full value chain from mining to recycling. Automotive companies, mining companies, governments – none of them can solve these issues alone. The GBA is the largest multi-stakeholder alliance in the energy storage sector, and its members cover the full industrial value chain: from the world's largest mining companies, like Rio Tinto and Anglo American, through cell manufacturers and battery buyers like CATL, Panasonic Energy, Tesla or Engie who purchase and integrate these batteries into their products. But it also includes NGOs, think tanks and international organisations. This diversity of views really allows us to have a holistic definition of what a sustainable battery value chain should look like.

What were the GBA's initial steps?

First, we decided we needed to bring transparency into the value chain. After all, you cannot manage what you cannot measure. We wanted to shed light on the environmental, social, human rights and governance impacts, and we have captured all of that in our battery passport framework. This digital product passport contains critical information, including the provenance of materials – where the lithium, cobalt and nickel come from, where they were refined, and how they were processed. It also covers which standards companies along that value chain are adhering to. This makes it easier for purchasers to compare products, whether they are end consumers buying an EV, investors or cities like Oslo looking to electrify their public bus fleets.

What were the biggest challenges in developing this framework?

The biggest challenge is the complexity of the value chain. Comparable certification schemes typically have one input material – whether that is cotton, chocolate, coffee or timber – and then a complex product range. For the GBA, it is almost the reverse: we have a very complex set of input materials, each with its own intricacies depending on origin and processing method, but a single end product: the battery.

Is it even possible to fully trace the supply chain of batteries and account for sustainable sourcing of all materials?

For parts of the supply chain, we have already established full traceability from the mine site to the vehicle. This is easier for relatively vertically integrated companies like Tesla. They know their suppliers and can trace the cobalt back to the mine in the DRC and follow it through the supply chain to the end product using traceability solutions or a book-and-claim system. At the same time, many companies are still struggling to map their value chain. Large companies such as BASF, a German multinational company and the largest chemical producer in the world, may have tens of thousands of suppliers.

However, traceability is not an end in itself, as it says nothing about social or ecological performance. Once consistent reporting has been established, though, we can start comparing products and drawing conclusions about their footprint.

> "There are alliances of the willing, and there are alliances of the doing. The GBA has really moved towards being an alliance of the doing."

Engaging in such a complex international process requires significant effort from companies. They are mapping supply chains, implementing reporting frameworks and undergoing site audits. What motivates them to participate?

The motivations of individual companies vary, but regulatory compliance is certainly one of them. These companies are under scrutiny regarding their value chains and must demonstrate that they engage with their suppliers on issues such as human rights, biodiversity and deforestation. The GBA provides a framework that validates and showcases these efforts.

In 2023, the EU adopted a new regulation setting sustainability requirements for batteries sold on the EU market. How has this changed the dynamics?

Market access is a real motivator, and the EU regulation has been a very significant driver of engagement. We saw a big uptick in interest from companies wanting to learn from our experience. The GBA offers a unique pre-competitive space where companies can test their regulatory readiness and discuss requirements with their peers. For Chinese manufacturers, for example, understanding what European regulators are requiring and being able to demonstrate compliance is significant.

China is not generally considered a leader in social and ecological responsibility, and geopolitical competition over resources is intensifying. Does this affect the GBA's work?

Anyone working in the industry knows that there is no battery industry without China. But we are actually seeing the opposite of what you might expect: a strong willingness to collaborate across geopolitical divides. We see robust engagement from Chinese actors in sustainability reporting, human rights due diligence and capacity building. Let me put it this way: there are alliances of the willing, and there are alliances of the doing. The GBA has really moved towards being an alliance of the doing.

The GBA is not the only certification scheme. Several commercial battery passport providers have similar offers. What sets the GBA apart?

In the near future, simply complying with the EU Battery Regulation will not give a company a competitive advantage. The GBA's standards are comprehensive and establish comparability, enabling companies to differentiate their products in the market. Some fleet operators and institutional investors are looking for products that stand out from the cheapest option, and they seek independent validation. For example, we work a lot with the European Bank for Reconstruction and Development and the International Finance Corporation, which are big investors in stationary storage in the Global South.

Along with Zambia, Germany is one of the governments that have joined the alliance. What does Germany bring to the table?

The impact of these governmental members cannot be underestimated. There is a disconnect between intergovernmental and business processes, and not many platforms bring these together in a truly integrated way. Germany joined the GBA with the express purpose of incorporating the perspectives of mineral-producing countries in the Global South.

> "In the near future, simply complying with the EU Battery Regulation will not give a company a competitive advantage."

Why is this important?

Currently, performance expectations such as reporting on carbon footprints or human rights due diligence are being defined by the downstream markets, where processing and production take place. But these are not necessarily the priorities that a producing country would identify. For them, factors such as contributing to local economic development and engaging responsibly with the artisanal mining sector are very important. Through the battery benchmarks, we are trying to incorporate

these perspectives, even if it starts with voluntary reporting. Because this is what will really make a just transition: ensuring that the costs and benefits of the shift to green energy are equitably distributed around the world.

> "Germany joined the GBA with the express purpose of incorporating the perspectives of mineral-producing countries in the Global South."

How has Germany been supporting mineral-producing countries in having a voice at the table so far?
The German BMZ has given government representatives the opportunity to participate in our meetings and to exchange with companies. It supports them in presenting their countries as attractive investment destinations. Meeting certain standards enables them to differentiate themselves from other critical mineral producers as meeting these standards is important in end markets. The government of Zambia officially joined the GBA thanks to the BMZ's engagement. The country representatives participated in learning journeys in China including visits to battery manufacturing plants in Ningde.

The BMZ has also funded an outreach advisor to be seconded to the GBA for three years. Industry stakeholders are accustomed to working in these international processes and have entire teams dedicated to it. By contrast, government stakeholders often lack the capacity for systematic engagement, so having a dedicated person to focus on this is extremely important.

Founded as a World Economic Forum initiative, the GBA only became an independent organisation in 2022. It is entirely membership-funded, thus running on limited funds and a small team. Yet it operates in an industry that evolves extraordinarily fast. How do you keep pace?
It has been a challenge of building the aeroplane while keeping it flying. The multi-stakeholder setup means things take time. At the same time, industry stakeholders can only engage in a process for so long before they need to see a real return on investment. Therefore, we are genuinely excited to take it over the line this year by starting to roll out the certification scheme.

The industry itself is phenomenal in terms of the pace of change. In less than two years, it has moved from predominantly cobalt-based NMC chemistry to lithium iron phosphate (LFP) batteries with more chemistries being commercialised. I have never seen another industry innovate so quickly. It makes our work extremely challenging but also extremely exciting.

INGA PETERSEN
is the Executive Director and Board Member of the Global Battery Alliance.

secretariat@globalbattery.org

LinkedIn | Global Battery Alliance

Photo: picture alliance/dpa / Christian Charisius

Good repairability can significantly extend the lifespan of a smartphone.

TECHNOLOGY

Why “fair” smartphones should become the new standard

The manufacture of smartphones causes severe ecological damage and social injustices. Therefore, they should be produced in a more resource-efficient way, used longer and be repaired, reused and recycled better than they have been to date. There are already inspiring examples of how this can be done.

BY VIKTOR SCHÖDWELL

Smartphones have become an indispensable part of everyday life for many people around the world. They help us connect, relax and stay organised, and they give us access to information. Worldwide, over 1.6 billion of these complex, high-performance computers are sold every year. Their manufacture requires many specialised materials, such as gold for circuit boards, cobalt in batteries and neodymium in speaker magnets. It can be assumed that global sales correspond to an annual consumption of dozens of tonnes of gold and cobalt as well as hundreds of tonnes of neodymium.

This massive consumption of resources has serious environmental consequences. At the same time, hundreds of millions of mobile phones and smartphones are lying unused in drawers – an enormous, largely untapped source of raw materials. From the point of view of environmental and resource protection, this situation is no longer tolerable. That's because every new smartphone consumes valuable raw materials, generates climate-damaging emissions and harms ecosystems all along global supply chains.

The greatest environmental and climate impacts of a smartphone – about 80 % of its CO_2 emissions – occur even before it is used for the first time. They are primarily attributable to raw-material extraction, production and the products' complex global supply chains. The widespread assumption that buying a new device with a more efficient battery or display is more sustainable and therefore makes ecological sense is misguided. Due to smartphones' large material-related carbon footprint, it is essential that the environmental impacts that have already been incurred continue to provide benefits for as long as possible. In other words: smartphones should be used for as long as they can be.

> "Every smartphone that is reused or professionally refurbished helps avoid new raw-material extraction."

The extraction of the raw materials needed for smartphones is frequently associated with massive environmental degradation. Soil and water can be polluted by hazardous chemicals and heavy metals. In the worst-case scenario, entire ecosystems can be destroyed. In many regions of the world, resource mining is closely connected to social injustices and human-rights abuses, such as in cobalt mines in the Democratic Republic of the Congo.

Whoever looks at smartphones from an environmental and human-rights perspective will unequivocally conclude that we can't keep doing "business as usual". We can no longer tolerate the fact that new devices keep coming onto the market while functional old devices are being replaced far too early and often lie around unused. What is needed instead is a fundamental change – away from short-lived consumption toward durability, repairability, reuse and fairer supply chains.

EXTENDING SERVICE LIVES

The most important lever is avoiding new production. The most sustainable smartphone is typically the one that doesn't need to be manufactured in the first place. If a device breaks, repair should be the norm, not the exception. Buying used or professionally refurbished smartphones helps conserve resources and reduces the demand for new raw materials. Doing so extends the service life of existing devices – which is precisely what is needed from an ecological perspective. A 2018 study by the Fraunhofer Institute found that extending the service life from 2 to 4 years would conserve 14 kilogrammes of resources and 58 kilogrammes of climate-damaging emissions per smartphone.

If buying a new smartphone can't be avoided, it should be chosen based on whether it fulfils so-called "eco-design" requirements. For example, it should be easy to repair and have long-term software update support. Since June 2025, the EU has required smartphones to carry an energy label that includes information on durability and repairability. It is also important that manufacturers disclose where their raw materials come from, the risks that occur in their supply chains, and how they are actively and verifiably preventing environmental destruction, exploitation and child labour. Fairness cannot simply be a marketing claim but instead has to be verifiable and traceable.

The Dutch firm Fairphone, considered a pioneer in the field of fairer smartphones, shows that such a path is possible. The company relies on a modular design that allows many components to be replaced using ordinary tools. For the latest generation of Fairphone, the company provides a five-year guarantee for registered devices as well as a comparatively long period of software support until 2033. As a result, the device has achieved the highest EU energy-label rating for repairability and durability. At the same time, the company is working to improve its supply chains, particularly for critical raw materials such as cobalt, gold, indium and lithium. For example, Fairphone is a member of the Fair Cobalt Alliance and has also established a supply chain for Fairtrade certified gold.

STRUCTURAL CHANGES ARE NEEDED

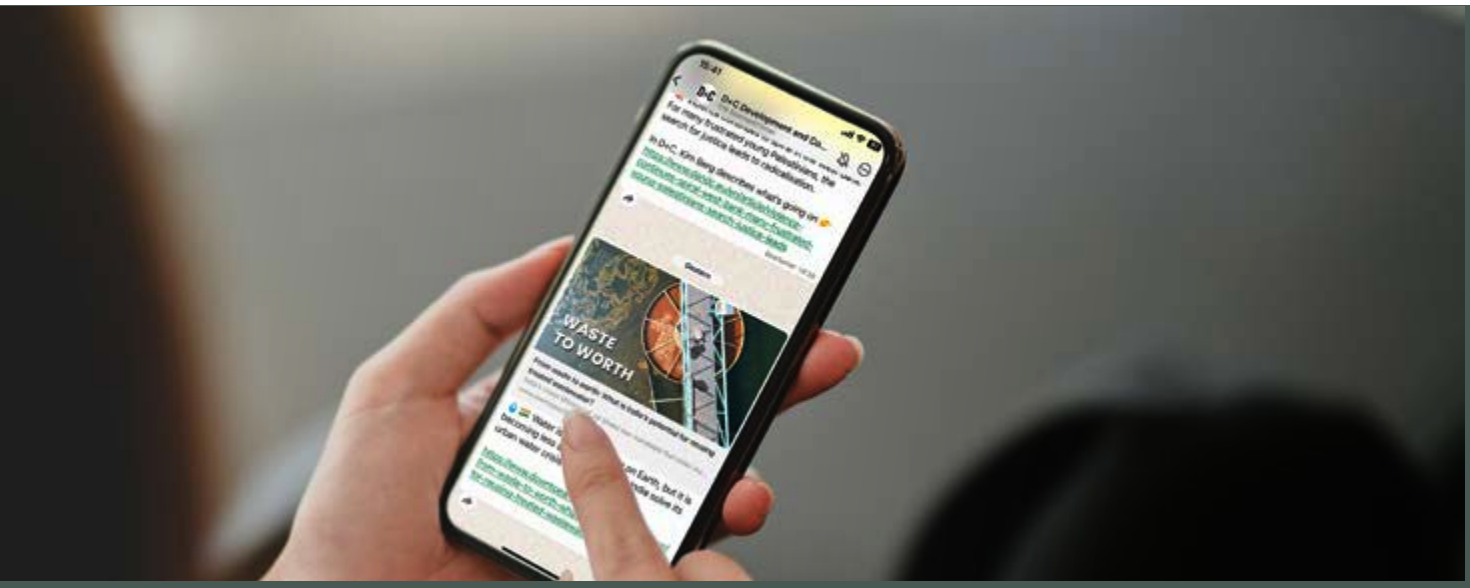
While model companies like Fairphone are important, they cannot do enough on their own to change the market. For fairer and more resource-efficient smartphones as well as more ecologically responsible consumption to become the norm, political and structural changes are needed.

For example, manufacturers must be held more accountable for making repair and reuse easier for consumers. Stricter requirements for product design are therefore required. Smartphones should be made in such a way that they can be easily opened and repaired – without special tools, adhesive barriers or software restrictions. Manufacturers should also provide free access to repair manuals and software support for at least ten years. Equally important are more consumer-friendly regulations on the availability and pricing of spare parts.

Moreover, we urgently need to bring the many unused devices back into circulation. Every smartphone that is reused or professionally refurbished helps avoid new raw-material extraction. To take advantage of the potential of these "drawer phones" to protect resources and the environment, there are collection programmes in Germany such as "Handys für die Umwelt" ("mobile phones for the environment") run by the civil-society organisation Deutsche Umwelthilfe e. V. (Environmental Action Germany). The collected devices are tested for reuse, and certain parts are used as spare parts. Only then are the devices or remaining components sent for recycling to recover the recyclable materials they contain.

Ultimately the issue of smartphones is about more than just a technological device. It requires us to consider whether our society wants to keep pursuing a linear economic model based on constant new product purchases, high resource consumption and social crises or whether the future consumption of smartphones should be designed in such a way that the ecological boundaries of our planet are respected and fair working conditions are created along global supply chains.

VIKTOR SCHÖDWELL
is a Senior Expert in Circular Economy at Deutsche Umwelthilfe e. V.
schoedwell@duh.de



MINING

How to limit hazards of energy transition

The transition to clean energy is necessary, but its environmental costs may be quite high. Mining for critical minerals is a crucial issue. Its ecological impacts must be minimised, as a WWF study published last year calls for.

BY HANS DEMBOWSKI

The expansion of clean-energy infrastructure will lead to more and stronger battery capacities, refurbished grids as well as vastly increased generation of both solar and wind power. Related projects will require commodities such as copper, cobalt, lithium, nickel and rare earths. Seventeen minerals are essential for the energy transition, so demand for them is set to rise fast. The International Energy Agency reckons that such demand must increase fourfold from the current level by the end of this decade. Otherwise, the goals of the Paris Agreement on Climate Change cannot be achieved.

Mining is an environmentally disruptive industry. That is particularly true in biodiversity hotspots. According to research done by the World Wide Fund for Nature (WWF) in cooperation with the Boston Consulting Group (BCG), about seven percent of the relevant minerals are found in such places. As a matter of fact, not quite nine percent of the currently operational mines are located in key biodiversity areas. Almost seven percent of exploration is happening there too. The WWF published the study with the headline "Critical minerals at a critical moment" in May 2025.

The erosion of biodiversity is a challenge of equal magnitude as the climate crisis. Therefore, the authors want us to minimise the harm mining can do. Ecosystems depend on a multitude of species. They cannot be restored once they are destroyed, and that happens when species dwindle or even disappear. Such losses can end important ecosystem services such as the provision of freshwater to local communities or pollinators for plantations. If natural carbon sinks are destroyed, moreover, that contributes to making the climate crisis worse.

Global heating and the dwindling of biodiversity are interrelated in many ways, but they are also different phenomena, so it is impossible to assess some kind of global trade-off that might define what kind of nature destruction is acceptable for the sake of climate mitigation. Both trends are dangerous.

The WWF points out that, on the upside, the transition to clean energy can dramatically reduce the need to produce fossil fuels. That kind of mining obviously causes environmental harm too, and it is happening at a much larger scale than mining for energy-transitional minerals ever will. Nonetheless, the harm of critical-mineral mining is quite specific and dangerous in itself. Nation states and the international community must limit the damage and do their best to protect biodiversity and especially fragile ecosystems.

QUADRUPLING SUPPLY IN A RESPONSIBLE MANNER

Increasing supply by a factor of four is a huge challenge. The good news the WWF conveys, however, is that this does not necessarily mean a quadrupling of critical-mineral mining. The better we become at reusing and recycling, the less newly mined commodities we will need. Technological innovations, moreover, may help to reduce the need for mining, for instance if they make the use of minerals more efficient.

The damage mining causes typically only occurs slowly, so the general public hardly takes notice. Occasional acci-

Photo: picture alliance / ASSOCIATED PRESS / Moses Sawasawa

There have already been two landslides this year at Rubaya, the largest coltan mine in the Democratic Republic of the Congo, each claiming several hundred lives.

dents, however, reveal how dangerous this industry is. The WWF authors are right to insist that mining must be done in responsible ways in order to reduce the damage that cannot ultimately be prevented. Prudent spatial planning, for instance, will ensure that no mines are started in particularly valuable ecosystems. Efficiency matters too. Well-run mines use water sparingly, and they extract as much of the desired raw materials from the ground as possible. They also manage waste prudently.

Minimising the harm of mining obviously increases the costs. In a short-term business sense, the relevant measures are thus unattractive. We know from experience, moreover, that mining in remote forests with fragile ecosystems is often not done responsibly. Though the environmental impacts can be severe in the long term, they do not figure much in business calculations. The reason is that mining companies do not believe that they will bear those costs.

All too often, that assumption is correct. Others must bear the brunt. The rights of local communities and especially Indigenous Peoples tend to be violated. Where environmental standards are neglected, labour stands tend to be ignored too.

These things must change, if we do not want the environmental costs of the energy transition to be higher than necessary. They may indeed prove excessive, should vital ecosystems be destroyed. The warning spelled out by the WWF makes sense.

LINK

WWF, 2025: Critical minerals at a critical moment: Assessing the impact of energy transition mineral mining on nature globally.

HANS DEMBOWSKI
is the former editor-in-chief of D+C.

dembowski@posteo.de