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new things
Make
new connections*

Ditchley Summit on Critical Minerals and the Green Transition

3rd-4th March 2023

Summary Notes

These notes are a summary of points made. The notes do not reflect the position of The Ditchley Foundation, neither is any participant in any way committed to their content or expression.

As summary notes they do not intend to reflect every point made but instead provide some highlights from the discussion.

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Plenary I: Navigating the practical and political challenges of securing critical minerals for the green transition

A competition and a race. Geopolitical competition underlies critical mineral supply chains. The US, Europe, and China are among many actors involved in a global race for relevant technologies.

A concentration of skills and capacity. Two key components in the critical mineral supply chain are having the know-how and possessing the capacity for mixture and processing, particularly for industrial purposes. China has both of these traits, so the question is then how such capabilities can be built out among our own allies at all points of the critical minerals supply chain, as a counter to China.

The US has significant influence in this space. Historically, the US has been willing to move fast and far without its allies, simply re-accommodating after the fact. While not the most ideal scenario, it demonstrates how the country is well poised to direct investment in and influence the critical mineral industry at a global level.

Devise incentives for vertical integration. In seeking to reduce reliance on risky inputs, there are several technological, platform, and structural alternatives available, among which are investments for vertical integration. There are already industrial policies aimed towards this, like the Inflation Reduction Act and European critical mineral policies. Identifying means to continually incentivise such measures moving forwards will be crucial, and it will be especially important to discuss those incentives and platforms at the bottleneck points of the industry.

Engagement at both the governmental and private sector levels. Discussion both within and among governments will help to determine the right types of funding and governmental support necessary to bring this new ecosystem into fruition. However, there must also be a concurrent dialogue among the private sector as the drivers of products in this sphere, identifying potential cooperation initiatives and acknowledging the limitations in cooperation given inherent competition in the private sector.

A supply and demand problem. There will likely be a huge increase in usage and mining of critical minerals in the future. However, many supply chains currently are dominated by risky countries with issues around ESG compliance. This is further complicated by the stigma against new mining companies among banks, for example, thereby inhibiting means for supply chain diversification.

The UK needs more bargaining power. The country has a lot to offer, but does not have enough attention on this industry at the moment. If the UK cannot develop potential in this sphere, its future partnership influence may not be as big as it could be. The UK needs to start by working out what it will bring to any potential alliance.

Polycrisis or polyopportunity? The world is facing a series of crises now, with the green transition and critical minerals being central to many of them. Providing open access to affordable and abundant resources that can get everyone on the same level of energy usage is critical as their demand rises, especially amidst this transition from a fossil-fuel-based economy to a mineral-based one. However, rather than frame it as a crisis, it may be more productive to frame it as an opportunity, reshaping our mindset from a scarcity model to one of abundance.

Responsibility as a critical pillar. National security, security and supply stability are important discursive frames, but only form part of the story. Questions around responsible acquisition and production of these minerals are both crucial and strategic, particularly

given the traditional reputation of lower ethical standards in the mining industry. We need to instil a mentality of putting people and planet ahead of economic gain; the challenges we face are global, and so the response must be global as well.

Benefits being spread within and across regions. In the case of the US, focusing on industrial policies in this sphere at a national level could help bridge economic divides between heartland areas and prosperous coasts, avoiding potential blame and resentment from those residing in the former. The benefits of this focus would also ideally expand to allies in Europe and beyond, requiring means that do not box out allies in the first place. *Made in Democracies* is better than *Made in America*.

Working with partners in the global South. In countries like Nigeria, there are efforts to increase mining sites, but Chinese influence in these areas is harmful for investments. Western presence in these areas would be crucial in shaping the supply chain of critical minerals in Africa.

A new kind of offer. China is in many cases on the ground, putting pressure on countries important to the critical mineral supply chain. As we face greater decoupling from China, Western countries should be ready to offer concrete proposals and substitutes. However, it is important to note that such initiatives would need to offer something fundamentally different, ideally moving past the traditionally extractive model. Rather than focusing on costs, it will be valuable to think about governance principles as a core guiding measure.

Is the China vs. West framework too restrictive? China has certain capabilities in this space that are superior to those in the West. It is important to consider how allied countries would be able to effectively collaborate when there is pushback from China or other countries. However, China also has the capability of retaliating, as we have seen recently with magnets. Thus, it can be important to question whether there is value in keeping the door open with China on this issue, as difficult as it may be given the concern of living in a Chinese capability-driven environment. Furthermore, there is scepticism as to whether a “Western bloc” even exists, prompting additional questions about the potential for coordinated responses against China.

One size may not fit all. As appealing as the goal of global high standards is, they may be unachievable for the poorest, most marginalised communities. Having companies recognise this disparity and develop measures to support these communities will be critical in developing the most suitable business propositions. Additionally, it will be important to think of such communities not as victims, but as economic actors in their own right. This not only enables easier adaptation to realities, but also can provide further incentives for engagement.

Political polarisation is an inescapable hindrance. While technology could rescue us, it may not help in time; politics and polarisation are currently holding back the success of several investments and initiatives. However, fixing it is not likely a viable solution. Knowing that, there will be greater value in identifying how business collaborations can help drive policymakers forwards to make meaningful progress on critical minerals.

Alternatives are a key, but their exact manifestation is unclear. There are several possible paths for alternative measures, whether it is about reducing demand for mineral use, substitution technologies, changing transport systems, or collaboration initiatives. The question that then arises is who will be leading the quest to search for and choose these alternatives.

Critical minerals may be the new geopolitical proxy. In relatively recent history, there was a lot of debate about China not doing enough in this space. That stands in stark contrast to the current narrative. It is worth reflecting on whether the green transition has simply

become the latest proxy for discussing geopolitical control, and whether that then is impeding our ability to commit to the fastest and most ecological transition. We should not confuse polarisation with active participation. On a related note, political decisions and government negotiations in this sphere should not be conducted behind closed doors anymore, instead relying to a certain degree on public input.

Slowing down could be crippling. As the war in Ukraine has demonstrated, energy is a viable tool to sanction measures and crippling economies. China is joining the fray amidst increasing global fragmentation in critical minerals. It has become crucial to understand how the renewables transition can happen quickly, with manipulation of capital and capital flows into sensitive technologies being one potential means of influence.

Working Group A1: Managing the scaling up of the industry

Opportunities and constraints. We need to think about scaling up the industry within existing laws, regulations, and standards. Moreover, we need to keep in mind the geopolitical realities and how social development goals affect our everyday lives.

Side effects of scaling up. In the past, we have made mistakes by trying to scale up too quickly and without the necessary reflection beforehand. For the green transition to be successful we need to think more deeply about the side effects of industry shifts and scaling up.

Learning from the Canadian approach. Canadian mining companies play a huge role globally, since they make up for more than half of the value of mining companies worldwide. Moreover, they have experience dealing with indigenous communities, which will be key in industries like seabed mining. On top of this, their new Critical Minerals Strategy aims to position them as a global supplier for critical minerals.

What falls under the scope of risk assessment. Before mining takes place there needs to be an assessment of the impact it will have, what was there before mining started, if there are especially important things around that could be affected and thinking about what will happen afterwards. The limitations for risk assessment mostly come from the limitations of companies on the ground since they can lack capacity to assess and act on risk assessments. There is also the social impact side that needs to be accounted for, on top of the environmental impact.

A capacity problem for assessing risks. It should be the state's responsibility to assess the risks or potential damages of mining, not the responsibility of companies. Doing it this way would take the burden off of companies with fewer resources and create a useful ranking system for impacts.

Changing our approach to risk assessment. Instead of using a checklist to evaluate risks (which can miss certain specific impacts) a new approach could be to ask companies to argue a safety case from the ground up. Using a blank sheet of paper will force them to think more thoroughly about all the risks and the "unknown unknowns".

Avoiding data extractivism. Communities in mining areas are not only being negatively affected by resource extraction, but also by data extraction by private companies, which is not shared with them. This data could help communities by informing policy makers better and allowing them to benefit directly from these insights.

Issues related to seabed mining. First, there is the challenge of timescales, and the fact that seabed mining will not be able to start fully for another 10 to 20 years, meaning it will be online too late to assist meaningfully in the green transition. Second, we still do not have enough data to assess the impacts it will have, which means we could be doing more damage than good. Third, the oceans are already under pressure from climate change, so now would not be the right time to have another industry putting pressure on this.

Challenges with the ISA. The International Seabed Authority has control over 50% of the ocean. However, private interests have become entangled with it, which has created polarisation within the institutions. This has caused a complete lack of trust by civil society in the processes going on in the ISA.

Alternatives to seabed mining. If we accept that seabed mining will not be functional by the time we need it, then we need to start thinking of alternatives for the green transition. We need to look at pursuing renewable energies which rely less on critical minerals, making

more efficient use of resources, recovering materials through recycling, and utilising tailings.

Treating climate change as an emergency. When Covid-19 first appeared, it was treated as a global emergency, which made things happen much faster (e.g. vaccine approvals). If climate change was treated as such, things would move at a much faster pace and we would have a better chance of stopping it.

Engaging the communities. In order to not replicate colonial attitudes, we need to think about what the effects are of changing the mining landscape. Currently, many African nations are dependent on mining, so moving this practice to other countries could have negative impacts on these nations. This is why it is important that companies invest in those communities - especially in innovation, since this part of the process is currently mostly reserved for countries in the global North.

From ESG to SDG. To successfully measure advances in the green transition, it would be more valuable to move from ESG ratings (since they align with a very narrow risk-based supply chain transparency theory) and think more in terms of SDGs.

The role of government in risk mitigation. Governments will need to play a bigger role in approval processes to assist with risk mitigation, given the priority that they are attaching to extracting and processing vast volumes of critical minerals.

China is taking the lead. China and Russia have been investing where the West has not, which has made them a key player within critical minerals. This means that we need to figure out how to work with them to utilise the private sector in our favour.

Value creation in source countries. Instead of just taking resources from developing countries, we should be working towards value creation. The unlocking and tapping of data in those areas can accelerate processes and incentivise people to collect more data. Moreover, scientists and experts should be trained in high value parts of the supply chain, instead of bringing in experts from abroad.

Working Group A2: Managing the scaling up of the industry

What does opening up the deep sea mean for our respective economies? There are few African countries involved in deep-sea mining. The interest in this is mainly in the global North. This means that the financial benefits of deep sea mining are likely to be skewed towards richer countries.

Do we have sufficient scientific knowledge to allow deep-sea mining to happen? There will need to be a consultative process for deep-sea mining to go ahead with stringent criteria applied. There are reservations about deep sea mining, especially around the long-term environmental impacts, although it may play a role in proving critical mineral resources in the future.

Environmental standards in DSM. The lack of scientific research in deep sea mining means that it is hard to assess what the impacts will be. The regulations are trying to catch up. It would be best to have adequate social and environmental protections in place to mine. We must learn from mistakes from terrestrial mining, and mine with principles.

Seeking to enable mining rather than just imposing restrictions. Given the need to drastically increase the output of minerals over the next few years, we should seek to facilitate mining rather than restrict it. Policymakers set the standards too high, creating a race to the bottom. For example, the ERMA standards are hard to implement. ASM standards should be at the heart of the Critical Minerals Act.

Investment in communities. It should not just be about government investing; it should be about big private players investing. More foreign investment is required in the short term; in the long term, the challenge will be meeting the standards of a just transition. There is a need to give money back to the communities where mining is happening.

It takes a long time to bring a mine into operation. Regarding private investment, there is a problem of the time taken to obtain permits for extraction, and having to pay royalties. It takes around 7-10 years to open a mine. Mining could make a lot of money for countries such as the Congo, but the time it takes to build a mine, and there is a lack of capacity to be able to do this.

Should we contextualise ESG standards? The 'gold standard' for mining is clear, but we must realise that countries are at different stages. Improvements in mining should match the investments put into the project. We should not push for fewer standards and cause a race to the bottom, as it is well-documented that China does not care about ESG. Contextualising ESG standards may become necessary as there are many nuances and subjectivity. At the very least, governance should be gold-standard across the board.

The auto-industry is starting to realise the problem. They need to understand the mining sector more. There needs to be more dialogue between car companies and those across the supply chain who are striving to be sustainable. If standards are too high, they will not be adhered to.

You cannot have sustainable mining, but you can work for responsible mining. Honest brokers have moved away from the sustainable development framing, as mining is inherently unsustainable given that it is an extractive industry. Responsible mining, however, has become necessary.

The proliferation of standards means that reporting burdens companies. The need to hire entire teams to check boxes can be a drain, especially for SMEs. This is increasingly a problem when we are in a time of needing to open up more mines. It is also time-consuming. Can governments stop coming up with different standards and instead agree on one global standard?

Working Group B: Strengthening democratic alliances

Data to map out existing and potential resources. Gathering this kind of data will allow us to better think about where to invest and build. Such decisions will depend on the location of basic infrastructure, low labour costs, and ease of permit provisions, to name a few examples.

There are a lot of moving geopolitical parts. The framework of China versus the West is not so simple: for starters, the reputation of the Americans and the British is not stellar among allies like Canada; Southeast Asia has become an important region with regards to critical minerals; and China provides an option for allies like Canada that is neither very exciting nor necessarily as concerning as people may believe. The discrepancies among western countries thus adds scepticism around whether there can or should be a single category of “western democracies”.

Pragmatism should be the driving factor. Proposals to share resources among Western democracies are likely too maximalist, especially if implemented too quickly. The reality is that virtually all countries will pursue their own interests, as opposed to making sacrifices for a potential collective good. As such, focusing on individual projects, and broadening the scope of engagement beyond democracies, may be more fruitful in fortifying the supply chain whilst still allowing for competition. Whom a given country partners with will depend on what resources are needed and where they are located. That being said, a coalition of democracies could form the base of an ally-shoring effort, one that can set the bar on certain standards and then later expand to the rest of the world.

Diversification from, not elimination of, China. While there are concerns about a dependency on China, it will not be a simple matter of cutting China out of the supply chain. Technologies that would be key to a fully onshoring transition are not yet developed to the capacity needed for many western countries. Instead, splitting up tasks along the supply chain will provide a more effective means of ensuring a strategic advantage, partitioning responsibilities based on existing strengths of a given country. Such a process is not governed by anti-China sentiments, but more generally embracing the realities of geopolitical tensions and doing smart, responsible business.

A struggle to control the rules of the game. A core tension underlying current US-China relations is the ability for either one to control the rules that govern the critical mineral industry, thus dictating their relationship with the world. A key question that arises from this is whether countries continue to make decisions in the traditional manner, or with regard to economic security measures. Additionally, there exist several tools already that may help to establish best practices and create a regulatory space, but these are not well coordinated among allies at the moment.

Involve the private sector. Businesses are able to better assess where opportunities already exist, where the human capital is, and whether diversification or alternatives are needed. These elements then place business leaders in a stronger, more reliable position than political leaders to push for meaningful impact measures.

Could development financing be leveraged to bridge to the global South? Through development financing, allies could pool together to develop financing packages in which the risks are shared, and their deliverables are tailored to specific needs of a country.

Agility is key. It is highly unlikely that a single international governing body would be able to manage the critical minerals industry. Instead, there could be several coalitions among more targeted actors (such as between the US and certain EU countries), in order to make the rules more appealing and tailored to specific market and sector needs.

Democratic alliances are overrated. The framework of *Democracies Versus The Rest* seems like a red herring, given that it is unlikely to expect people to stop working with countries simply because they are not democratic (a term that also begs further clarification). The US, EU and UK provide a track record of not working only with democracies to achieve their goals. If you only sell the concept of working with democracies, the lesser extent of practicality in such measures may result in its failure. That being said, there are and should be certain incentives to promote democracies over autocracies, especially at the nascent levels.

Working group C: Innovative approaches

The implications of recycling. For some companies, recycling is part of their strategy – though this is limited given that recycling opportunities are still in the early stages. Cost-benefit analysis of using recycled material versus virgin material has driven approaches thus far.

Recovery and reuse of critical minerals. In terms of innovation, some companies that are launching in the next few years claim that they can recover up to 90% of rare earth minerals. Leftover batteries are currently often used for energy storage, but they could be reused for their original purpose.

Using resources carefully. Recycling rare earths, for example, is very difficult as these are often used in very small quantities in devices such as phones or hard drives, meaning it is difficult to separate them without compromising on their quality. Exploring some policy measures to stop some industries using non-recyclable goods with critical mineral components could help in the effective use of resources.

The role of the state in ensuring critical mineral security. The Defence Production Act and executive orders being used in the US shows that the government is trying to get supply chain logistics in order, which is particularly crucial given the need for alternatives and speed. Across allies, developing bilateral and multilateral agreements to gain both individual and collective security will be key.

Engagement between the public and private sector. Some industries may be endangered by government policies. Better private sector engagement with government procurement bodies could address this pressure.

Leadership through an international body. An intergovernmental body like the IEA or the World Bank could take responsibility for critical materials, because no government can fully guarantee access to all critical minerals on its own. There is no need to reinvent the wheel by creating a new body, approaches could develop under existing banners within organisations such as the UN.

Sharing data for international security. Sharing information on stockpiling could be helpful, but it is likely too hard to access this data due to national security concerns. Having an international body to lead would be ideal but the increasingly securitised manner of the world makes it unlikely. However, having the private sector lead the discourse allows for discussions on national security in other areas such as cyber security. A coalition of the willing rather than the world as a whole could be a starting point.

Substitution has a role to play. There is not enough material to build wind turbines for the next twenty-five years, so a substitution of minerals is sensible where possible. Using aluminium instead of copper for certain applications is one example of this.

Substitution comes in different forms. The narrow idea of substitution is (e.g.) replacing a specific mineral in a battery. The wider idea is using (e.g.) an entirely different magnet. However, the latter may require reengineering the whole system, with the performance and size of the components potentially affected. Recycled batteries face similar challenges relating to quality and may need refurbishing – but specific policy ought to explore if this is the whole battery, the cathode segment, or the parts that make up the cathode.

Economic viability of western renewable energy. Without state support, the three European wind turbine companies are operating at a loss. Meanwhile, China has ten companies with closer access to materials and greater subsidies. Subsequently, European companies are cutting back on R&D as it is hard to justify long term investment when making short term losses for shareholders.

Longer-term thinking needed in the West. A problem in the West is thinking in a much more short-term way than the Chinese. Mineral mining and processing was outsourced decades ago. China saw this as an opportunity, giving them first mover advantage, so we are currently not even playing on the same pitch. Strategic thinking from Western governments in tandem with the private sector is required.

Plenary II: Report-backs and discussion

A – Managing the scaling up of the industry

Collaboration and community benefits. It is worthwhile encouraging downstream actors to engage with upstream actors in critical mineral supply chains. Downstream actors should be interested in what is happening upstream, and ensuring that people involved across the supply chain benefit from investment in skills and resources. Investing in source countries to create buy-in via local gains could also better incentivise collaboration.

Appropriate standards. It is important to understand what this means practically on the ground and to accept trade-offs, as not all states have high standards yet. There are opportunities to build capacity via regulation in countries that do not have much yet. The private sector corporations can and should maintain high standards even if the artisanal mining sector lacks them.

Standards in the mining sector. ASM cannot and should not be stopped. However, protecting environmental standards and human rights is key. Standards in mining will be the defining issue for the industry in the next ten years. A minimum agreement is needed on international standards and countries can then individually build upon this. Business/investor involvement at all levels of the supply chain is required to coalesce around standards, because (e.g.) solar investment is indirectly part of mining investment. Different actors may require different standards, with major mining companies able to provide higher and different standards to ASM.

The picture on seabed mining. The mining industry is not particularly interested in seabed mining as it remains too much of an unknown. We are perhaps better off exploring R&D and innovation in relation to seabed mining at this stage. Multiple levels of questions remain on seabed mining such as the regulation of international waters, and authoritarians undermining standards within their own territories. There is disagreement on whether seabed mining will happen in the short term. Deep sea mining is already underway through test projects but is not yet commercially viable.

Importance of capacity building in countries where mining is happening. For example, it is important to build technical skills among those in the mining industry. Joint partnerships and ventures to upskill domestic workers rather than bringing in a workforce from external countries could incentivise developing countries to partner with democracies. Governance standards have a knock-on effect on environmental standards too.

B – Strengthening democratic alliances

Geopolitical framing. Is ‘democracy versus autocracy’ really the right framing of the issue? There is a certain benefit in talking about a democratic alliance from a political perspective in terms of coordination. However, this could also be limiting in certain ways, particularly with the prior history of how democracies have behaved in relation to many developing countries. Democracies are somewhat in decline, so any coordination has to help both nascent democracies and citizens within established democracies too.

Decoupling between China and the West. Democracies cannot completely cut China out of critical mineral supply chains, but they do need to secure their own supply chains. China is also exploring decoupling from the political west via their dual circulation strategy, with the intention of being a major exporter while providing for their entire internal market.

Economic pragmatism is necessary, but where possible, decisions should further incorporate political risk in the private sector.

The role of a multilateral collaborative body. There is a consensus that an international collaborative body may be needed, but it is worth looking at current bodies like AUKUS and regional development banks.

Fragmentation between western states. There is an inherent tension between EU and US due to both trying to drive standards. Coordination may be easier on an individual state level. Resource pressures may also result in fragmentation among allies too.

Making a good offer to developing countries. The overarching goal is to try to strengthen the rules-based international order. With developing countries, the case must be made that there is an opportunity for democratic countries to hear how they want to take their country in the future and a clear outline of how the democratic approach may be in their interest. The framing is with norms and rules but helps developing nations and democratic nations simultaneously, rather than being exploitative.

C – Innovative Approaches

Defining innovation. Innovation can be understood both narrowly and broadly. The narrow sense covers the technical dimension and potential R&D solutions that can assist acceleration of ideas. The broader sense can be understood as rethinking approaches to public policy, business practices, finance and public-private partnerships. It also requires defining what we leave to the market and where the government should get involved.

Defining our objectives around mineral supply. Having enough minerals to meet clean energy goals is different to affordability targets (electric cars for example are largely unaffordable for most households). Security in the sense of resilience in supply chains also differs from social and environmental sustainability. The difficulty arises in the fact that it is necessary to pursue all simultaneously.

A variety of approaches. Using fewer resources, wasting less (efficiency, reuse, recycling), and producing more, are all needed. We cannot recycle or substitute our way alone out of the critical minerals challenge, even if these approaches will play a key role, because demand will certainly increase.

Plenary III: The big picture of responding to the critical minerals challenge

Remaining optimistic about geopolitics. The international order is becoming more competitive, if not confrontational. There is the divergence of economies and decoupling, but we should not become fatalistic. We must believe in ourselves and our capabilities and that the future still belongs to us. We should ditch the faulty thinking that has swept through the political scene.

Being mindful of the current dependencies and how to prevent this from happening with critical minerals. Before the Russian invasion of Ukraine and the consequent decoupling from Russian energy, countries questioned their ability to wean themselves off of Russian gas supplies. A similar dependence on authoritarian nations may occur with critical minerals and increased efforts towards net zero.

Critical minerals are an issue of national security. There are rare earths located worldwide; the real problem lies in processing these. It is an issue of national security and well-being and not something to leave up to the market. All the problems we face now are being compounded by net zero.

The real intention behind the Belt and Road. The development assistance that countries such as China and Russia have given was a guise for creating dependencies. The intention was to bulldoze the West-led rules-based international order, which provided more prosperity worldwide.

Onshoring will not work, as it pulls us apart from alliances. Pulling out of global supply chains makes us weaker when we need to be at our strongest. Cultivating allyshoring is the alternative, building partners in Europe and the developing world.

Making this work for the global South is essential. Russia and China have been good at winning over countries in the global South, in order to extract their minerals. Democracies should be offering a better option. It is less about democracies asking others to join their team and more about meaningful and non-corrupting relationships. The term 'ally' applies a military/security dimension with negative connotations. Better language to use may be 'partnership' or 'friendshoring'.

A cascading of priorities. Should we prioritise allocation of materials for batteries, for example, in order of the importance of the technologies they are being used for? A priority list becomes useful here. We should design this list with a longer-term view beyond the election cycle.

Weaving together policy goals with the engine for getting it done (i.e. the private sector). Think tanks and government conversations are good, but industries must force themselves into these conversations, as they are the ones on the ground delivering.

Making a better offer. One of the main concerns that countries have is securing economic opportunities. Do they have the luxury of not choosing a side when China offers them investment? Making a better offer to the developing world is one way to achieve better outcomes. Critical minerals are like oil for Saudi Arabia, a unique opportunity for work and development in the source countries.

Being aware of international security. Soft power is being developed through the investment that China is putting into developing countries. Many communities in Africa are sending their children to China to study now, rather than to western nations. What will happen when they grow up to be leaders? Isis are investing in more robust networks throughout Africa too. The West needs to wake up to this reality and offer an alternative.