HOUSE OF COMMONS

Foreign Affairs Committee

Oral evidence: Critical minerals, HC 1095

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Watch the meeting

Members present: Alicia Kearns (Chair); Liam Byrne; Neil Coyle; Drew Hendry; Bob Seely; Henry Smith; Royston Smith; and Graham Stringer.

Questions 1 to 62

Witnesses

I: Guillaume Pitron, Journalist and Author of *The Rare Metals War*; Henry Sanderson, Journalist and Author of *Volt Rush*.

II: Jeff Townsend, Founder, Critical Minerals Association; Christopher Vandome, Senior Research Fellow, Africa Programme, Chatham House.

Examination of witnesses

Witnesses: Guillaume Pitron and Henry Sanderson.

Q1 **Chair:** Welcome to this session of the Foreign Affairs Committee on critical minerals. Welcome to you both. Would you like to introduce yourselves, please?

Henry Sanderson: I am Henry Sanderson. I am the author of the book *Volt Rush: The Winners and Losers in the Race to Go Green*.

Guillaume Pitron: I am Guillaume Pitron. I am a French journalist and documentary maker. I am the author of a book with the title *The Rare Metals War* and I am a researcher in a French think-tank on geopolitics.

Q2 **Chair:** Thank you ever so much for joining us. As you know, our inquiry is into critical minerals. We are looking specifically at the geopolitics around this topic and how the UK should be rising to the challenge of the criticality of those minerals.

To start off with the most obvious point and look at China, it would be very helpful to understand when China started to identify critical minerals as something strategically important to engineer opportunities in and to make sure it had a strong position within the critical minerals value chain.

Henry Sanderson: It is important to split it into rare earths and then the minerals that are needed in electric vehicle batteries. Rare earths—Guillaume can talk more about this—have long been on China's mind. Deng Xiaoping said, "The Middle East has oil; China has rare earth". That goes back quite a long time, to the 1980s and even before.

The battery minerals, such as nickel, lithium or cobalt, which are being used in electric vehicle batteries, are something more recent. It stems from China taking over from Japan as a battery producer for consumer electronics in the late 1990s, when labour costs were low and environmental standards were weak. We saw a lot of production shift to China.

BYD, the biggest EV maker in the world after Tesla, started off making batteries for consumer electronics. CATL, the biggest battery producer in the world, started off in a similar way. From that industry, they realised they needed minerals like cobalt and lithium. That is how they started to get interested in it.

They essentially moved up the value chain from making cheap batteries for consumer electronics to making electric vehicle batteries and now innovating and dominating a very high value-add manufacturing sector, which is the goal of Xi Jinping. They have shifted from being at the lower end of global supply chains to now being in a very advantageous position.

Q3 **Chair:** Guillaume, is there anything you would like to add? How important are these minerals to China's industrial strategy?

Guillaume Pitron: What Henry has said is pretty much what I would have said. China understood the importance of these minerals back in the 1980s and 1990s. They had the resources, but that does not mean they wasted their time. Back in the 1980s, they were not able to produce these resources on their own. The United States, Australia and France were producing and refining rare earths, but the environmental cost of extracting and refining these metals was high. For environmental reasons, mining and refining operations were partly or entirely closed.

At the same time, China was ready to say, "We have all these resources in our territory. Why not relocate all your mining activities? You will get the resources at a cheap price, and we will get richer". That was a good deal; it was happy globalisation.

Back in 2000, China started to understand that it could make much more than just sales in minerals; it could make the metals. It could sell the refined metals. It could also make more than it did selling the metals; it could produce alloys and magnets, some of which are made from neodymium, which is a rare earth. It is the same with batteries, as has been explained by Henry Sanderson.

If we look at the plan, Made in China 2025, which has been public for many years now, we can see that for the last six, seven, eight or 10 years China has understood that, if you want to become the leader in digital technologies, biotechnologies and green technologies, you need to get the resources. They have very cleverly and patiently understood this and built a strategy to go from the mine to the laboratory, and here we are.

Q4 **Chair:** You have given us an overview of that journey from the 1980s to where we are now in terms of industry and technologies. Could you give us a geopolitical overlay of that journey? At what point did China start to talk about critical minerals and rare earths within their diplomatic efforts? When did they start having political alliances that were focused specifically on these? Has the geopolitics and diplomacy always been an add-on? What is their approach to how they do this?

Guillaume Pitron: There was a rare earths event that took place in 2011, which was an informal embargo. You may have heard about the Senkaku Islands dispute between Japan and China. They are disputing the territoriality of this small set of islands that are situated in the South China Sea. These islands have been occupied by Japan since the Second World War, and China is disputing this.

There was a diplomatic fight between Chinese vessels and Japanese vessels, then for six months after that there were suddenly no more rare earths going through the pipeline to Japan and the United States. Officially, there was no embargo, but in fact there was an embargo.

People started to figure it out. They said, "What are we talking about? We do not know about these minerals". Even people in industrials and the automotive sector were not aware because they buy finished or semi-finished products that they assemble but not raw materials. Slowly, we understood that China was doing much more than just selling the metals and trying to go down the value chain. It could use these metals for a diplomatic purpose.

This happened again in 2019, against the backdrop of the trade conflict with the Trump Administration. Back in 2019, Xi Jinping visited a rare earths refinery in Jiangxi province. He did not say anything, but the *Global Times* wrote an article saying, "If you keep raising international trade issues with China, we could retaliate". Rare earths are necessary for F-35 fighter jets, for example.

We can see that for the last decade there have already been some issues around that. It could possibly happen that China may act in the same way not only with rare earths, on which it has a near monopoly in relation to extraction and refining, but other metals such as battery metals.

Henry Sanderson: To speak more broadly, China's linking of minerals with diplomacy started in the late 1990s and early 2000s, when they realised their economy, which was growing at double digits, needed to be fed by all these minerals. It was a strategic vulnerability for China that they relied on Australia, Latin America and Africa.

As part of the "going global" policy that Jiang Zemin launched, we saw a lot of the state-owned sector go overseas to Africa or other countries and try to do mineral-resources-for-loans deals. A lot of these were clumsy and did not work very well, but China realised it was vulnerable to imports, like it is to oil and gas. It is not blessed geologically with great deposits. Out of that programme grew an effort to engage with countries in Latin America and Africa, as part of efforts to build a world that was not dominated by the US and win over these countries, which later turned into Belt and Road and other initiatives.

Later, something else happened that was very interesting. Under the surface of these big state-owned announcements, we have seen entrepreneurial private Chinese companies go out to Africa and Latin America and invest in lithium and cobalt. That is the situation we are in today. It is not the state-owned players; it is these very nimble private companies that have gone to the Democratic Republic of Congo or to Zimbabwe for lithium. They are investing around the world.

This is the new wave of Chinese companies. They are listed on stock markets; they can raise lots of capital; they can move very fast. This type of company is very competitive with western companies and hard to beat.

Q5 **Chair:** You said the minerals-for-loans programmes were not very successful at start. Could you unpack that a little bit?

Henry Sanderson: For instance, in the DRC we saw this big deal with Joseph Kabila, the Sicomines deal, where they said, "We will loan you the money for infrastructure and roads in return for access to cobalt and copper". A lot of people have complained about the infrastructure that was built. The DRC is trying to renegotiate the whole agreement at the moment. They are not happy with the agreement.

Q6 **Chair:** China got what it was looking for out of it; it just was not necessarily that successful for the other parties. It was not that they collapsed at the time.

Henry Sanderson: Yes, that is a good point. You could say China that did get access to resources, but I would say the private companies that have gone into the DRC have done much better at getting cobalt. The situation today is that almost all the cobalt from the DRC goes to China to be processed. Around 75% of cobalt is refined in China. We see this supply chain created, which is very difficult for the West to replace.

Chair: That is helpful.

Q7 **Drew Hendry:** We have been talking about China's activities in the critical minerals market, specifically in the rare earths market. What do you feel they are trying to achieve by their activities in those markets? Is it an attempt, for example, to destabilise markets? What are your thoughts on that?

Guillaume Pitron: I can try to answer that. It is a difficult question. First, for a while the Chinese have followed a strategy of environmental and social dumping. You do not integrate the environmental and social impacts into the final price of the rare earths, and you can sell at a price that is half what it would be if the western producers were producing these metals. That has killed the market. Some western producers tried to survive back in the 1990s in that context, but they could not. In a way, that was a way to manipulate the market.

Today, there are discussions amongst experts that China may be trying to manipulate the rare earths market. It is a very tiny market. It is a couple of billion dollars, maybe $7 billion to $10 billion. It is 200,000 tonnes, which is nothing compared to the 20 million tonnes in the copper market. You can more easily manipulate this market, especially when you have 80% of it, by bringing prices up or by bringing them down.

There were some discussions among experts a couple of years ago, saying that it made no sense for the Chinese to act in a purely capitalistic way in the rare earths market. They were ready to lose money and sell rare earths at a cheap price so that there would be no alternative mining companies, especially from the West, that were able to open a mine and compete with the Chinese activities.

The Chinese act in a non-capitalistic way. They understand that they can lose in the upstream chain because they are going to get much more in the downstream chain, especially as they control everything. These discussions have been going on. It is very hard to put some specific facts on that, but it has been discussed.

Today we also see China trying to restructure the rare earths market. It is a market made of private and public producers, and it is completely scattered. Some 40% of it is a black market. China is trying to organise its activities under the authority of a single company in order to bring up prices for its own market. That also allows it to integrate the cost of environmental degradations into the price. Here is what I can answer.

Henry Sanderson: What is important to understand about China's strategy is that they want to produce the end product. The West has a huge advantage because we have all these allies that are very mineral-rich, such as Australia, et cetera. China needs these materials. Their advantage in is producing the products from these minerals, and the eventual aim is to export, which they are doing, electric vehicles to the world. That is their strategy.

In terms of prices, yes, the Chinese Government, the Communist Party, is always very keen to try to control prices as best as they can. In lithium, which is a battery mineral, Australia is the biggest producer. You cannot control the price at which it is dug up in Australia. They have found themselves in a very uncomfortable position over the last year or so because they cannot control that price even though they process most of the lithium.

The way Xi Jinping sees it, their eventual goal is to move to high value-add manufacturing done by robots and export those high-value products to the world. China has overtaken Germany as an auto exporter. We are going to see many more electric vehicles being exported to the UK and Europe.

Guillaume Pitron: I wanted to react to that and add a comment on the manipulation of prices. It is a fact that there have been some WTO procedures launched by western countries such as the European Union, Mexico and the United States against China over unfair competition. China is selling graphite, for example, at a lesser price to Chinese clients than to non-Chinese clients.

As I speak, this is being discussed in relation to lithium. There have been some discussions about how CATL, the biggest battery maker, is selling batteries at a cheaper price to certain automotive clients but at a higher price to Tesla. Tesla still gets its products also partly from CATL. That creates a distortion of competition. I would also call that price manipulation; they are taking an advantage from that.

Q8 **Drew Hendry:** What response has China seen internationally when they have tried to use rare earths as a political tool? Are there any lessons we can take here in the UK?

Henry Sanderson: Guillaume mentioned banning exports to Japan. The reaction was that capacity was built outside China. Japan invested in Australian mining. I do not know how successful a strategy it was. It encouraged the capacity to be built. We are seeing the same thing with the Inflation Reduction Act. That is very much a reaction to China's dominance. The US is putting a lot of money behind competing.

China's strategy for a lot of the supply chain is not necessarily to ban exports; it is to try to come to European markets and the US market and to get their companies to go global, to go overseas, so they become more competitive and more dominant.

China is also using the leverage they have with countries such as Indonesia, Chile and Argentina. These countries are not necessarily in the western camp. They are using the leverage they have through investments in the supply chain. That is the strategy. Yes, they could stop exports. They could use that as a weapon, but it would probably be self-defeating to their overall goals.

Q9 **Drew Hendry:** Guillaume, you touched on this earlier. Are there any lessons for us here?

Guillaume Pitron: I did not get your question. I am sorry.

Drew Hendry: It was about the international response when China has been using rare earths as a political tool. What exactly has been done? Are there any lessons that have come out of that?

Guillaume Pitron: At the time, back in 2011, it created a strong reaction in the West because we were discovering the existence of these metals. We were discovering that rare earths were just the tip of the iceberg. Behind rare earths you have gallium, indium, graphite, silicon metals and other metals.

Companies started to investigate their supply chains. They started to map the resources they use. They had not necessarily had any idea about that. Governments started to react by establishing the first critical minerals list, which came into existence at European Union level in 2011. There was a moment when suddenly there was an understanding of this new risk rising, and we at least had to get a full picture of the situation.

That did not mean there was any political reaction from an industrial standpoint. Nothing happened, to be honest. Things are starting to happen right now because we are engaged in the energy transition. For a couple of years the understanding was there, but it was not followed by action such as what is going on right now.

Q10 **Chair:** You touched on the US and Japan and their attempts to respond to the market interventions. Have you seen the UK attempt to do anything either successfully or unsuccessfully? Are we anticipating our future needs successfully or not? Is it a bit like the 2011 EU attempt, where they vaguely recognised it but there is nothing meaningful taking place?

Guillaume Pitron: I can try to answer, but I am sure a UK citizen would give you a better reply. When I wrote this book—

Chair: Apologies; I will find time to read both of your books.

Guillaume Pitron: I came with some copies, if you want. Back in 2012, 2013 and 2014, I was somehow investigating in the UK. At the time there were very few UK specialists in this. I would find more French specialists than UK specialists. That was what I saw. I wanted to say something else, but I have forgotten it.

Henry Sanderson: I do not want to underestimate the issue for the UK. The challenge of competing with China is very difficult because the West has left it so long. We face a situation where the economies of scale in China are huge. At the same time, as the IPCC said this week, we have a window of opportunity. We have to move fast to tackle climate change. The planet does not want to wait around to let the West learn how to do this. We have to move fast.

The issue we have is that what the US is doing with the Inflation Reduction Act is helping subsidise production to compete with China. That is the difficult thing and that is what production incentives do so well in the US.

The challenge for the UK is that we probably cannot launch a big package as big as the IRA. What can we do to incentivise the market and to help the market? That is the challenge. In my mind, the number one thing we can do is, like China, engage with countries like Indonesia, Chile and Australia, these mineral-rich countries, and then try to build up processing in the UK and some more of the supply chain so we can re-map these supply chains.

At the moment, all these minerals being dug up around the world are pretty much all sent to China. We need to recreate these supply chains. Minerals coming from Australia need to come to Europe to be processed and then turned into products.

The challenge of what we are trying to do is that we almost need a reindustrialisation. It is not just processing the mineral; you need to turn it into a battery material, into a battery and then into an EV. If you do not do all these stages, you end up shipping back to China or buying from China. That is why in the US we see something like a World War II mobilisation mindset. To catch up now, starting from such a late position, you will need all these ingredients.

There are areas where the UK can look to stimulate and help the market. We have future technologies coming down the track, such as sodium ion batteries and other things, where the UK can look to play a role. The number one thing with clean energy is that it needs to be cost-competitive. We need it to be cheap, and we need economies of scale. We do not have time to have high-cost products.

Q11 **Liam Byrne:** Very briefly, can I just play devil's advocate for a second, Henry? I just want to ask you whether there is any point in us getting worried about this. We do not have an industrial strategy. Our automotive industry needs something like eight gigafactories' worth of capacity. They take five years to build. We are not really going to be able to build those gigafactories in time for the rules of origin about automotive exports to run out.

Given that batteries are 40% of a car's value, most of the automotive manufacturing—we can see this in the West Midlands now—is already leaving to move to where the gigafactories are. Given that the Government have left it too late to put in place an industrial strategy or the necessary investment in gigafactories, have we not just lost this opportunity already?

Henry Sanderson: It is a good question. The issue is that we want the jobs. As you say, we want the auto industry in the UK. There is still a window. At this stage, we need an international battery company to come to the UK.

Q12 **Liam Byrne:** The one we have is owned by China.

Henry Sanderson: Yes, that is right. Envision is a Chinese company that bought a Japanese company. Yes, you are right. The only gigafactory is being built by a Chinese company. We probably need to attract another international company that knows how to make batteries to come to the UK to help keep the auto industry.

Q13 **Liam Byrne:** The irony of our current position is that it is today in the UK's interest to safeguard lithium supplies to a Chinese company because they are the only guys operating a battery factory on our shores.

Henry Sanderson: Let us see whether we can attract another player to the UK. At this stage we need to attract an experienced player rather than another start-up. That is probably too challenging.

Are we securing critical minerals for a company? I would not put it like that. We are hoping to attract more investment into the UK. Having a critical minerals strategy will help other investors. It is a very globally competitive market. You have South Korean battery companies and Japanese ones. They can go to the US and receive all these subsidies. There are also the other EU countries, et cetera. It is very competitive to attract this investment.

Q14 **Liam Byrne:** If those gigafactories are not built within the next two years, we have timed out. We will not have them up and running by 2030, and therefore we will not be able to produce electric cars that satisfy the rules of origin that we negotiated in the brilliant Trade and Cooperation Agreement. It is game over.

Henry Sanderson: It is a challenge. As I say, we need to see international investment coming to the UK.

Guillaume Pitron: If I may quickly add a point to your question, the battery market is moving very fast. In a sense, the same critical minerals will not be featured in batteries even in two, five or 10 years. Henry Sanderson mentioned sodium rather than lithium. Lithium iron phosphates helped replace cobalt and nickel. What else will happen?

We see now a rush towards diversifying the types of metals that will be in batteries, which makes me say that the energy transition will not happen on the technological and material basis we know today. The critical minerals of today, the 18 identified by the BGS, will be different in two years and will be different in 10 years. That even includes base metals. Maybe it will include iron. Who knows?

What I mean is that maybe there is space here for a strategy that takes into account what will be important in five years, that looks far ahead at what the next technologies will be for storage or for running the motors of electric cars. Instead of rare earths, there will be substitutes. Maybe this is where there is a leapfrog opportunity for Britain.

Q15 **Liam Byrne:** We need to learn the lesson from our failure to produce an industrial strategy for the automotive sector and not make the same mistake again. Is that a fair conclusion?

Guillaume Pitron: We should maybe learn the lessons from the Chinese. The Chinese were so far behind when it comes to oil and diesel cars compared to the West. Have you ever driven in an oil-fuelled Chinese car? No one has ever tried that because they were not able to enter the European markets. The turn to EVs has been such an opportunity for China to break the trade barriers to the entry of such vehicles into the EU markets.

There has been a leapfrog effect, and this has been an opportunity for China. Conversely, this is where I see an opportunity for western countries to act in exactly the same way with the next technologies in the battery storage business.

Henry Sanderson: I would just add a note of caution. Guillaume is right, but guessing future technologies is a very difficult game. I would look at what we saw in the past with solar in the US, for instance. If you think back to the financial crisis, both China and the US wanted to stimulate their economies with green technology, but a lot of companies failed because they tried to develop the next great thing, the next great technology.

It is not always the best technology that gets scaled up. China scaled up silicon solar technology, and it got very cheap. That is why it is a success. It is very hard to plan a strategy on future technologies because they might not be cost-competitive; they might not scale up. You end up trying to support an industry that cannot survive. That is the caution you have to have.

Q16 **Neil Coyle:** A lot of the points today have focused on China; a lot of the Committee's work is focused on China; and the integrated review focused on China. Are there other countries we should be looking at that are seeking to manipulate or monopolise critical minerals or the supply chain? Do we miss anything if we focus only on China?

Guillaume Pitron: The critical metals race is going global, not only because China is able to get non-refined metal from Chile, the DRC and Australia, bring it back to its territory and refine it. That is the first chapter of this race to go global. It is also happening because countries that discover they are rich in these resources want to be big players in the game. Let us look at copper with Chile; let us look at lithium with Australia, Bolivia or Argentina; let us look at cobalt.

Interestingly enough, I would also concentrate on and look at the Indonesian example. Indonesia is just an amazingly rich country in terms of metals and minerals, especially nickel. Joko Widodo, the President, does not just want to produce nickel; he wants to make the batteries. When Elon Musk comes to Indonesia and says, "Give me your spice", as he says, he is talking about nickel. Widodo says, "Build a gigafactory on my territory". This is where we see Indonesia taking the example of China and trying to go down the value chain. Indonesia wants to be an end-product manufacturer in exactly the same way as the Chinese did.

They want to be electrostates. There have been petrostates, oil states, in the 20th century. They want to become electrostates. Yes, this race is getting global. In a way, China has set the rules of the game. In my view, these rules are being replicated elsewhere in the world with these countries.

Henry Sanderson: I would just agree on Indonesia. A few years ago, they banned the export of raw nickel. If you wanted the nickel, you had to come and invest in Indonesia. He is right: Joko Widodo's strategy is to build out the mine-to-EV supply chain in Indonesia and use those resources as leverage. DRC wants to try to do a similar thing, but that is much more challenging.

Indonesia has been the most successful example of a country leveraging its resources to get investment. The problem has been that a lot of the investment has been Chinese investment. Only now are we seeing other western investment coming to Indonesia.

Q17 **Neil Coyle:** My constituency might find this hard to conceptualise. Who is winning this geopolitical war? What is it they are winning? Is it the investment in jobs? Is that what my constituents need to be more aware of? Is it political advantage through economic control? What is it that my constituents may need to understand better about this particular debate?

Henry Sanderson: In winning this race so far, China is getting the jobs, the investment and, most importantly, the innovation of the future. It is getting the high-value jobs in innovation in future technologies. That means, in order to solve climate change, we have to be reliant on China. China does not separate it from the broader relationship. That is the key challenge for a lot of western countries. China will wrap it all up into the whole relationship. It is going to include it. We saw this with Pelosi's visit to Taiwan. Battery companies were talking about not producing there. They wrap it all up. That is the challenge.

That is what they are winning: the jobs of the future, the innovation of the future. With that comes geopolitical influence, especially in the developing countries that have the minerals, where China's influence has expanded. We already see in Chile and Argentina that those two countries are not signing up to US-led initiatives like the Minerals Security Partnership. In some ways China has won over these countries.

In my mind, it is all those things together. The auto industry is a big industry, and China aims to get the benefit of being a big producer of electric vehicles.

Guillaume Pitron: I will try to answer shortly. Green jobs are being created, but where are they being created? If they are being destroyed here to be created somewhere else in the world, that is something that can be heard by your constituency.

You also talked about sovereignty. That is an important word, including in France. I would say we need ecological sovereignty because we are as clean as the Chinese. Our capacity to be clean depends on the way the Chinese produce the metals and the technologies for us. If the Chinese produce a silicon metal using electricity that comes from a coal power plant, that affects how clean we are. How can we be ecologically sovereign compared to the Chinese? That is something that is important.

My last point would be the military. We want to sell weapons to the Ukrainians, but how do we get the metals for these weapons?

Q18 **Neil Coyle:** From our Select Committee trip to Chile, a lot of the focus of the discussion was around the commercial relationship. There was almost a resistance to have a discussion about there being any political or other element to the relationship. What is the primary benefit to the countries that partner with China and others? How do they get decoupled? Is it purely through a better financial offer?

Henry Sanderson: For countries like Chile, the benefit they get is Chinese investment in Chile, which we have seen in the electricity grid. I am sure you will have seen BYD buses in Santiago. What they are trying to do now, like every resource-rich country, is to get some investment in moving up the supply chain from lithium to materials.

As you will have noticed, they are very happy to sell to China. For any company, diversifying is a good strategy. They are keen to diversify where the demand is. Right now, they know that China's EV market is the biggest, so that is where they are focused. Chile is included as a free trade agreement country in the Inflation Reduction Act. They want to take advantage of that. Diversification is not only good business for these companies; it also makes strategic sense for countries.

Guillaume Pitron: Maybe there are some arguments to be brought by the western countries in that regard. We could deal with them, in our mineral diplomacy, in a different way to the way the Chinese do. The example of cobalt in DRC is very interesting. China gets everything to be transformed in China. There is no upper value for the Congolese.

We see Antony Blinken coming to Congo and saying, "We want your cobalt, but we are going to share the value added in a better way than the Chinese did. How do we bring this argument? We need to say, "We are going to get the resource, but you are going to get the grey matter in exchange for the resources so that the benefits of the energy transition and the rush to these minerals are distributed in a better way".

We also need to think about ESG standards. It is an important part of this diplomacy. We are an ambitious market with ambitious consumers who really want to be green, and that means extracting and refining these metals in a better way than the Chinese. In the EU, our standards are very high. That probably makes green technology more expensive, by the way. That is also a discussion to have. That is a way to make these countries comfortable with the fact that we have some values and we act accordingly.

Q19 **Graham Stringer:** Is it realistic to expect the development of a non-China supply chain for both rare earths, which, as you say, are a small part of the international trade, and some of the more common metals?

Guillaume Pitron: China used to extract 80% of rare earths until five years ago. Today, this figure has gone down to 58% or 60%. In the meantime, some alternative providers of rare earths have appeared in the market. I would mention Lynas, an Australian company, which is being very much sustained by the Japanese.

I would also mention Myanmar and the United States, but they are refining their rare earths somewhere else. The United States extracts rare earths from their Mountain Pass mine in California, but they have no refinery. Where does the metal go to be refined? It goes to China. It is the same with Myanmar. The rare earths are being extracted in black market conditions, but nothing is being refined over there. Everything goes through the border and is refined in China.

You asked me whether there are alternative suppliers. Yes, but, in the end, does it change the Chinese grip on the market? No, absolutely not. If we were to have a strategy about reopening mines, that would be very good. I would support reopening mines. But it is also about going down the value chain and opening refineries and magnet facilities, which is being discussed in my country right now in France. It is about going down the value chain.

The Government Accountability Office in the United States was asked to calculate the time it would take for the United States to reconstruct the rare earths value chain just for its defence needs. The answer was 15 years.

Q20 **Graham Stringer:** That is very interesting. In terms of the development, you mentioned previously a map of the resources. As far as I understand, there has never been a survey of rare earths in the United Kingdom and Europe, with one exception. The sources of rare earths are not really known. Is it possible to do surveys elsewhere in the world and to develop the extraction of rare earths in Europe and the United States?

Guillaume Pitron: Rare earths are already being extracted in the United States.

Graham Stringer: That is in California.

Guillaume Pitron: Yes, in California at Mountain Pass. There are known deposits, in a way. For example, in Sweden there was the recent news about LKAB, which is a Swedish mining company. LKAB announced that it was sitting atop a wealth of rare earths that could be produced within 10 years. The mining time is not the energy transition time. It is a different timing.

I cannot answer precisely about the UK. I just would like to tell you something. There is a difference between resources/reserves and the ability to extract them. It is not because you have it that you can extract it. Here comes the financial issue. How much will it cost? Here come ecological issues, social issues and political issues. You may have a deposit that is available, such as lithium in the Jadar region of Serbia, but no one wants to extract it because of environmental protection, social unrest and political reluctance to do it. I would really consider not only the availability of the resource, but the capacity of the public body, of politics, to turn that potential into action.

Q21 **Graham Stringer:** I just have a couple more questions. You have already answered some of the questions I was going to ask in previous answers. Some 25 years or so ago, we used to hear talk of peak oil; people said we were going to run out of oil. It turns out that was wrong. If anything, there is a problem of surplus supply of petrochemicals. Is there any particular metal or element that is genuinely likely to run out over the next 10, 20 or 30 years?

Guillaume Pitron: Scarcity is a relative concept. Nothing is really scarce. We even find these metals in the depths of the oceans and even on asteroids. What is rare? What is not?

The only metal—I would also like to have your viewpoint because I am interested—is cobalt. There are huge worries about the availability of cobalt in the relatively short/medium term. For other metals, the reserves and resources are huge. The more we consume them, the more we find new technologies to be able to extract them at a better price. But I would maybe pinpoint cobalt specifically.

Henry Sanderson: Guillaume is right. As with the peak oil example, with high prices and effort we can always find more. Something like copper is a concern because copper mines, as you saw on your trip to Chile, are big and capital-intensive projects. The grade of copper in Chile has been going down. Some of the easier deposits have already been mined. We need to go to more challenging areas to find copper. Copper is an issue.

Something like lithium is abundant. A lot of the other minerals are abundant. I do not necessarily see an issue of scarcity.

Q22 **Graham Stringer:** You have both written books explaining the problems of the market and China's exploitation of this market. If I can ask you an impossible question, how do you see the developments over the next 10 or 20 years?

Henry Sanderson: To Guillaume's point, in this decade it is going to be difficult for the West to compete with China. This decade we should focus on diversifying rather than cutting China out from tomorrow. Post 2030, with the investments we are seeing in the US now and with recycling coming in 2035, I hope we will have a more balanced market. The potential benefits of clean energy, which saves us energy overall, should accrue to the countries that have invested in it. The supply chain should be more diversified. The important thing to remember is that climate change is really impacting this supply chain.

From that angle alone, we need to diversify. We saw hydro power in China impacted last year by record droughts. We cannot rely on one country or one province in one country for our supply. We need to diversify. I am confident that, post 2030, that should hopefully happen.

Guillaume Pitron: I agree with Henry Sanderson. I would just remind you that the time for mining is a long time. The International Energy Agency considers that it takes on average 15.5 years to open a mine. One mining project out of 500 exploration activities comes into existence. That is one mining project out of 500.

I would just remind you that, whatever we decide right now, this is metals that will be available in seven or eight years, if you can do it very quickly. That includes the lithium space, which goes quicker. It might be up to 15 years or more. It changes and it will change, but mining time is what it is. It takes time.

Q23 **Henry Smith:** Is it inevitable that China will maintain its dominance in the critical minerals market? Are there signs of other states starting to challenge that Chinese dominance through global market pressures and states beginning to act in a much more protective capacity?

Guillaume Pitron: In the very short term, no. China will be leading the race at every stage of the process. In the medium term, by 2035 or 2040, it will be very different. It will be different. There will be more actors who are more willing to follow their own interests.

The reaction of the United States is quite impressive, seen from a European perspective. The reaction of the Biden Administration is no different from the Trump Administration. I have to say that Trump did well on the specific issue of critical metals because he politicised what had to be politicised. Biden is doing exactly the same thing. The rapidity of their reaction is explainable by the fact that these minerals affect national security and the defence industry. Their reaction was extremely rapid.

I have no crystal ball, but, if we see each other in 15 years, the market will be different. I do not know to what extent, but, yes, it will be more balanced compared to what it is today. That is my view.

Henry Sanderson: I would agree. You see countries like Australia. They have built lithium processing in Australia. Already we see Australia taking some of that supply chain away from China. Now that lithium can perhaps avoid China and go straight to other markets. We are going to see more of that chipping away at China's dominance.

We have to be careful about Chinese companies going around the world and investing in processing plants and other facilities. We might see the supply chain move out of China, but it might still be in the hands of Chinese companies, like we have in the UK with the gigafactory here. That is also something we have to be aware of.

Guillaume Pitron: I will very quickly add that the Minerals Security Partnership is very interesting. This is an alliance of countries saying, "We are going to trade metals with each other, producers and consumers, on the same level playing field". That excludes the Chinese.

On the Chinese side, there is a wariness that there may be a way to exclude the Chinese from western markets because the Chinese way of extracting metals would not be consistent with our own ESG standards. Battery metals would become "blood batteries", and suddenly that would become a problem. The Chinese worry that this activity will be a new way to do away with their technology, a new protectionist way of doing things.

I am telling you about something that is not clear yet, but it is interesting to follow how the West will exclude China from its markets. In the future we could possibly or partly see two separate markets evolving.

Q24 **Henry Smith:** You are absolutely right. The US response is impressive. You have mentioned the Australian example as well, with more refining taking place domestically there. What more should the EU and UK be doing? You talk about a western response, but it seems to me that it is not a united western response at the moment. What more can the EU and UK be bringing to the table in terms of that development of the global market away from Chinese dominance?

Henry Sanderson: As I said before, the West could try to bring these countries into the fold: Indonesia, DRC, Chile and Argentina. These players will be key for the energy transition. From their point of view, as I said earlier, they want to hedge their bets. We have seen that the DRC is looking at all these Chinese contracts. It is important to try to engage these countries.

As Guillaume said, from an ESG point of view, we have to try to improve standards and sustainability, but we have to do that in a way that does not push up costs or delay the energy transition. That is the only thing I would say is key.

Guillaume Pitron: The Critical Raw Materials Act—it was published by the European Union last week—says what has been said for the last 15 years in the expert world. When I look at what your Committee is envisioning, this is precisely what needs to be done.

I will probably insist upon one point, which is mining in our territories. I am a strong supporter of relocating the mines for many reasons: for mineral sovereignty, for jobs and also for ecology. It is better to mine in our own countries than to let the poor do the job with their own regulations and standards. This would potentially make the energy transition more acceptable. It is difficult to say that, but it is precisely because we will do it in a responsible way. In the end, green technology will be greener than it is today. I would insist upon mining locally.

Q25 **Royston Smith:** Has the invasion of Ukraine had an impact on the way in which the UK and its allies approach supply chain resilience? Is there any evidence that countries are turning away from partnering with Russia? If that is the case, are there any opportunities in that for us?

Guillaume Pitron: To be very honest, you do not partner that much with Russia already. Maybe European countries are dependent upon Russia for titanium and palladium—that is true—but titanium can be extracted in South Africa. The industry is already thinking about recognising the titanium supply chain with third countries such as South Africa. Palladium can also be produced in South Africa.

In a way, for the last three decades Russia has not been very keen to pursue the same strategy as the Chinese, regardless of their huge mineral potential. We do not see them in this market, to be very honest. It is good news for us that we are not very dependent upon Russian supplies, at least in a way that would put large areas of our economy at risk.

Overall, I would only mention those two metals, titanium and palladium, but I would also tell you that this can be dealt with by using alternative supplies. I would add the fact that Russia does not count for very much in this market and we can do away with the Russians. Then we can start understanding that these commodities will be very interesting to the Chinese. Some partnerships will take place in the future, with the Russians extracting and the Chinese refining or something like that.

Henry Sanderson: Russia is a big nickel producer. Before the war, the European battery supply chain had prepared to use Russian nickel. It was going to be processed in Finland and it was going to come into the European supply chain. That is not possible now. As Guillaume said, we now see Russian nickel going to China.

The big concern with these supply chains is, "Where does that go in China? What is the traceability like?" One main reason to diversify is, when material enters China, it can enter an opaque supply chain within China where everything gets mixed. That is another incentive for why we need to diversify: so we can trace and make sure it is not Russian nickel that is going into China and coming out in products that we can use.

Chair: Thank you both ever so much. Should there be anything further, please do feel free to write to us.

Examination of witnesses

Witnesses: Jeff Townsend and Christopher Vandome.

Q26 **Chair:** Welcome back to this session of the Foreign Affairs Committee. Can I ask our two new guests to introduce themselves?

Christopher Vandome: My name is Christopher Vandome. I am a senior research fellow with the Africa programme at Chatham House, and I am also a PhD candidate at the University of the Witwatersrand in Johannesburg.

Jeff Townsend: Hi. I am Jeff Townsend. I am the founder of the Critical Minerals Association here in the UK. We also have critical minerals associations in Australia and the USA.

Q27 **Chair:** Just before I hand over to Drew, I want to take us away from state actors for a moment. Christopher, this is probably mainly for you with your background in Africa. I am also particularly interested in non-state armed actors and what they are doing in terms of critical minerals.

We have had some reporting today about the Democratic Republic of Congo, Rwanda and the conflict there with the M23 armed group. The US Treasury appears to have confirmed this, saying that 90% of the DRC's gold has been smuggled out into Rwanda and Rwanda is selling it. In South Africa I recently met their Defence Secretary recently, who stated that Mozambique-based militias were coming across the border, stealing critical minerals and going back in.

How much of a conversation is taking place globally about the role of armed militias in critical minerals? Is this a missing part of the jigsaw? How much attention should we be giving to this?

Christopher Vandome: Non-state armed groups and their role in mining more generally have been on the agenda for quite some time. In the late 1990s and early 2000s, you had the creation of the Kimberley process for certification on diamonds. Since then, that has been seen as the go-to example of how you can create a certification scheme to ensure that the mining of a product is not fuelling conflict through the funding of non-state armed groups specifically.

There has been a lag in terms of how this affects critical minerals more generally, but there has been some discussion on this, particularly with companies taking their own initiatives. For example, Intel tried to set up a certification scheme that replicated the Kimberley process. It is much more difficult for mined products. For example, gemstones are singular and easier to trace. It is much more difficult to do for cobalt.

The other point to add around the relationship between minerals and conflict, particularly in the DRC, is that it is not necessarily a case of non-state armed groups fighting to get access and control of these minerals.

There has been some research done on this by the University of Antwerp. They have looked at the presence of mines and particularly the transition from alluvial mining into semi-industrial mining. When you have alluvial miners present in a community and then a company comes in—sometimes they are Chinese, particularly in DRC—that can cause tension between the company and the former alluvial mining community.

In that space, the conflict is shifting much more into one of tension between communities of former alluvial miners and companies. That is not to discount, as you point out, the role of non-state armed groups like M23 in eastern DRC, but it is a small part of a bigger problem around alluvial mining and the control of supply chains in that informal setting.

Q28 **Chair:** Before I come to you, Jeff, if you want to add anything, critical minerals are far more complex in terms of where you are going to send them and things like that. Is there much assessment of how many of those militias and armed groups are acting at the behest of states? Are they independently identifying this as an area of opportunity and then having to seek out suppliers?

Christopher Vandome: Your phrasing of "area of opportunity" is much more relevant. There are some studies trying to estimate the number of non-state armed groups in eastern DRC. They all come up with different figures and so, therefore, we know it is a case of roughly somewhere between 100 and 200.

It is overlain with a number of drivers of conflict in that particular region, including the fallout from the First and Second Congo Wars, the genocide in Rwanda, the presence of different power structures connected to national, provincial and local power structures, as well as competition over land and land access. It is a very complex situation, of which the mineral story is a part and of which the cobalt story is a part.

Q29 **Chair:** Jeff, did you want to add anything?

Jeff Townsend: That was excellent. What is happening in eastern DRC is of great concern. It is very difficult to say how many actors are out there that are not state actors. It could be 100 or 200. We do not know. What may be easier to track and what might be an interesting conversation is who is arming and who is funding these groups, and what is the reason as to why they are doing that.

Q30 **Henry Smith:** That anticipates my question. In terms of who is arming and who is funding, what evidence is there of nefarious Chinese involvement in that sort of activity?

Jeff Townsend: It is probably above my pay grade, but you only have to look at photos and images within the media and cross-reference that to the weapons that are being used. At least 80% of those images are containing Chinese-made weapons. That could be coming from Rwanda, who purchase those weapons; they do purchase Chinese weapons. It is a very good question.

Q31 **Henry Sanderson:** Mr Vandome, are you able to opine on that?

Christopher Vandome: It is very difficult to make an assessment of what is nefarious and what is not nefarious Chinese engagement on this. We heard in the previous panel the distinction between Chinese state-sponsored actors and Chinese companies that are not. Particularly in that copper belt region, there are the presence of Chinese companies that are there specifically because they are trying to get away from the burdening presence of Beijing.

Being able to distinguish between these is complicated and, having done some research there last year, in that region there are a lack of Chinese-speaking researchers going into that region. That is a problem in understanding the complications of this. There are a number of media articles, particularly over the last year, looking at particularly that and they are all coming to a similar conclusion but they are all largely western, English or French speakers.

Q32 **Chair:** Before we move on to state actors and if anyone else wants to come in on non-state actors, I am interested in the Wagner Group specifically. I have also been told about Arab-backed militias operating within Africa but, looking at the Wagner Group where there is slightly more evidence, I would be interested in your assessment about the way in which the Wagner Group is operating in terms of critical minerals. I do not mean so much your gold and your diamond and things like that, but can you give me an assessment as to what their priorities are, where they have been effective, how important critical minerals are to the Wagner strategy across Africa or other places in the world?

Christopher Vandome: The Wagner Group obviously has grabbed attention particularly in CAR, in the Sahel. They were employed in northern Mozambique as part of the state's response to the insurgency that they are dealing with there. They did not fare very well there. There is still a very small presence, or perhaps that has already even gone, that was retained as a token gesture.

The Wagner Group's presence is changing in response to its requirement to be in Ukraine and, where it has been deployed and part of a Russian engagement more broadly, its presence has been in one of collaborating with elites in countries where there has been a democratic backsliding. In terms of their connection to critical minerals, perhaps that is part of the story. I do not know if that is necessarily what they are targeting and it is not something that I have been made aware of.

Jeff Townsend: They are not directly targeting critical minerals for critical minerals' sake. It is more about what is available and what is financially worth engaging in.

Q33 **Drew Hendry:** Perhaps I could start with you, Jeff, and just ask about domestic factors. There are clearly more sectors in the UK that are increasingly requiring critical minerals. What sectors in the UK are most vulnerable to the consequence of China's dominant position in critical minerals and how is that changing?

Jeff Townsend: The phrasing of that question is quite interesting. The entire future of our manufacturing base is based on critical minerals. Everything that we want to build in the future, whether it is wind turbines, electric vehicles, space technology, advanced robotics or arms, is all based on critical minerals. To be dependent on another nation in that space makes us vulnerable.

Why does it make us vulnerable? To answer that, we have to look at what China is doing and why it is doing it. If you look at the five-year plans 11 and 12, it is very much about go-out strategy. It is about going out into the world and securing minerals and bringing them back to China.

If you look at the latest one, five-year plan 14, they set a couple of targets. The first is that they want to double their economy by 2032, which is a 5% growth in economy per annum. The reason for that is that is the financial value that the Government of China has put on the necessity of keeping the Chinese population happy and calm and everything else.

You cannot do that these days in the midstream. That has to take place in the downstream. China is going to increasingly go into that downstream, build more electric vehicles, solar panels—they cannot build many more; they are building most of them already—wind turbines and high-technology products.

What does that mean? We are seeing a massive disconnect between supply and demand. We see that China controls the midstream, anywhere from 60% to 99% of most of these critical minerals. We saw legislation in 2020 allowing the Chinese Government to stop the export of critical minerals to companies or countries that they see as competitive to China, which means that they want to build more domestically and there are less critical minerals available in the international market.

More things will stay in China, which means we have significantly less. The amount we have available is shrinking as part of that.

Q34 **Drew Hendry:** What you are saying is that all those sectors—renewables, aerospace, defence, electronics—are vulnerable. If that is the answer, how long have we known about this?

Jeff Townsend: We have known about this for a long time. I first started annoying the Government in 2012 about rare earths and critical minerals, and I have been banging my head against a brick wall ever since, hence the nose. In 2017 we had the Industrial Strategy, and it had four grand challenges: electric vehicles, renewable energy, advanced robotics and AI and the ageing economy. All four of those are dependent upon critical minerals. Critical minerals and the supply chain are not mentioned once in the Industrial Strategy.

We have a 10-point plan for a green economy. There is very limited knowledge and understanding of critical mineral supply chains and, when they are mentioned, the Government said, "We are going to build it using the circular economy". That shows a complete lack of understanding at the highest level. You have to build the stuff first before you can put it through a circular economy.

Q35 **Drew Hendry:** For both of you, given what you have said, how have industries that are dependent on critical minerals been able to take these issues into account in terms of how they are moving forward?

Jeff Townsend: There are a multitude of industries who want to stay in the UK and build their products or want to stay in the EU and they want to build their products here, but they are increasingly finding it more and more difficult for a number of reasons. Let us take the automotive sector. We know that we need lithium ion batteries to be built here in the EU, with the rules of origin, and we know that we need somewhere between 60 and 70 rare earth magnets in an electric vehicle to make the thing work.

We also know that we need copper, and more copper than we have ever needed. In the next 50 years, we need to mine and bring to the market the same amount of copper that we have over the last 5,000 years. That is the enormity of the situation we face. The automotive sector here is 800,000 jobs. That is what we are fighting for. To the previous panel you asked, “What are we fighting for?” We are fighting for the future and we are fighting for those jobs.

There are companies here building the supply chain. They are getting more aware of their supply chain. They are doing a lot of track and trace using blockchain and distributed ledger. They are taking that information into account but they, in my opinion, are not being supported as much as they should by Government and by the political system, and significantly not when compared to our friends, whether that be the US or the EU. They are much more progressive in the way they support.

Q36 **Drew Hendry:** Is that your view as well, Chris?

Christopher Vandome: The African producers’ view of the UK’s utilisation of critical minerals and the critical minerals strategy is one of, “A lot of this is purchasable on the market and we do not really know what the UK’s utilisation of this is at the moment”. These are people who are selling a lot, as we have heard before. The majority of the product is going to China.

Even chatting to people involved in the industry, who are financing and trading on the African continent from the UK, there is a lack of understanding or awareness of what the critical minerals strategy is trying to achieve in this case, to the question that was asked in the previous session, and where in the value chain is the UK seeking to make an intervention.

Q37 **Drew Hendry:** Given what you have said just now, because you talk as though this is in the present, what dialogue are the Government having with, for example, UK investors or extraction industries with companies seeking to establish midstream processing and green tech industries in the UK, where there are those most active vulnerabilities? Are they having them at all?

Jeff Townsend: Yes, they are, but it is predominantly done at a civil servant level. In 2020, the Leader of the House then stood up and said there was not a problem. Since then, in three years we now have two critical minerals strategies. We have the launch of the ATF.

Q38 **Drew Hendry:** Just to confirm what you said there, there has been very little, if any, ministerial engagement.

Jeff Townsend: It has been limited compared to other nations. I will put a question back, if I may: when was the last time you heard Rishi Sunak, the Prime Minister, mention critical minerals? When was the last time you heard Joe Biden, Justin Trudeau or Ursula von der Leyen mention critical minerals? It would have been in the last two weeks. That is the reality.

This is a global game. We have other leaders who understand that and are mentioning that on a daily basis, positioning their country on a daily basis. We are, at the highest level, still not demonstrating that leadership.

Q39 **Drew Hendry:** Do you agree with that, Christopher?

Christopher Vandome: Yes, I agree. There has been some engagement. I know one of the options for a visit for the Committee was South Africa. There is a strategic minerals partnership now with South Africa. There were eight partnerships signed at the state visit last year, on top of a number of existing partnerships. In terms of partnerships with South Africa, we are doing well.

In terms of the clarity on what it is that the UK is actually after, it is not doing very well and there is not a clear, coherent message of what the UK want, how it is seeking to get these and what it wants to do with them when it has bought them. It is not clear what the UK offer is as a buyer and utiliser of these, as opposed to sending them to China either as Chinese state-owned companies are mining and exporting them directly or through the open market. A lot of it is traded.

Q40 **Drew Hendry:** To put it simply, is the UK being left behind and is it quite far behind?

Jeff Townsend: I would say that, over the last three years, the UK has taken two steps forward in the release of its critical minerals strategy. You do have some very good civil servants who understand this. Unfortunately, the rest of the world has probably taken five steps forward and that is the problem. We are now further behind than we were before.

The critical minerals refresh that happened last week actually was a very decent piece of work. It set out actions. It set out directions of what we wanted to achieve and why we want to achieve it. It was not supported by the Treasury to deliver that. The Treasury is simply not providing enough finance to deliver the critical minerals strategy in an international market where we are in competition with China, yes, on one side, but also our friends who are after the same critical minerals.

Q41 **Chair:** I will put this question to the Government but, roughly, how many partnerships do you think we have on critical minerals? I know they signed one with Canada three weeks ago. Are we looking at five? Are we looking at 15? Are we looking at three?

Jeff Townsend: If you count our membership of the MSP, then there is some partnership there, but actually what the MSP is delivering is still yet to be defined. There is South Africa, Saudi Arabia, Canada and potentially Australia, and Kazakhstan was last week, so let us say five.

Q42 **Royston Smith:** Can we come to China again? They have a strong mining and financing presence in many African countries. How beneficial is that to the countries concerned and what are the disadvantages of that?

Christopher Vandome: The China narrative on Africa needs to be understood both in terms of, as it has been already discussed here today, China’s strategic outreach, but also in terms of those African leaders that did open the door. There is a lot of African agency on this. There are a lot of individual leaders in different countries who were looking for partners that were away from a global hegemon of the UK and US and were looking to be part of a push for an ideological, multi-polar world.

Then there are those who saw the opportunity for what Chinese financing would do for them, for their own electoral results and for their own patronage networks and clientelism and so on. The big recipients are places like Angola. Angola had the oil for infrastructure partnership. I had an interesting conversation with people recently about the origins of that. It came shortly after the civil war in Angola, when Angola was looking for international partners. The Chinese came forward when others did not and that was a lesson. There are these countries that quite often are not taken seriously, until it is too late and they are taken seriously for the wrong reasons.

We have been doing a lot of work in Zambia, for example, which has been held up as the example of so-called debt-trap diplomacy. There, in particular, it is the case that successive Presidents have used Chinese debt for infrastructure development that was essential but, as an aside, enrichment of an elite around them. Now we are at a point with the G20 Common Framework debt renegotiations on Zambia where it is becoming very difficult to get through a debt agreement.

A new Government have come in and have had some agency in pushing back, both on China and on western partners, to say everyone has to come to the table. The learning is that, for most of these countries, it is not a case of East or West. Yes, in some cases, it is, and in places such as Zimbabwe under the Mugabe regime it was very much a strategic look East, away from the West, and the enrichment that came with that.

For others, particularly to take the case of Zambia again, it is about partnerships and balancing those, particularly under the new Administration. They do not want to be seen to be too aligned with the West, but they also do not want to be seen to be too aligned with the East.

There is a lot of agency there. We have written a paper at Chatham House recently—it came out towards the end of last year—and the one country where we did find evidence of strategic debt-trap diplomacy was Djibouti, which is strategic for many countries because of military bases and location.

Jeff Townsend: I would add another level to this. Are China's actions in those nations beneficial to the country, the Government or the people? I would say there might be a slight difference between the benefit to the Government and the benefit to the people. We know a number of Chinese mines bring their own employees from China. I was born on a mine in South Africa. I grew up in mining communities around the world. I love the industry because that is my family background and, with that, I can say that it has been done wrong in the past. When it goes wrong, it goes horribly wrong.

Most companies now, especially the smaller players operating in the critical minerals space, are trying to do it as well as possible. When it is done right, there are very few industries out there that are better drivers of economic development. Look at the multiplier effect across Africa. In the UK, it is about nine jobs. For every one job you create in a mine, you create nine in the local community. In Africa, that goes up to around 16. Those are in areas that are further away from cities and towns and therefore are absolute huge drivers for developing nations when done well.

If you start bringing in your own population and if you start bringing in your own infrastructure, those benefits are not necessarily passed on to the local community. Therefore, you struggle to meet ESG compliance, which has got to be one of the key pillars we move forwards. If we are trying to build a better world, if we are trying to have renewable energy, we cannot do that if we accept irresponsibility today. That is the reality. What is the point of doing it otherwise?

Q43 **Royston Smith:** Are there any countries in Africa actively seeking alternative partnerships with countries such as the UK?

Christopher Vandome: To add on to the question around the benefits, there are other examples to point out. There has been some reporting from Cameroon, for example, on Chinese mining there and the use of local labour. It is not necessarily ESG-compliant in the way that companies here would have to be compliant, but for people on the ground it is a job. It is money and it is a move away from a predominantly agrarian, subsistence existence. It is part of a development story.

I would also point out the case of Zambia, which, in terms of the infrastructure investment, is an example of where the benefit of loans to an African country have been mostly accrued by Chinese companies. The Chinese Export-Import Bank has loaned a country money, but the reality is that Chinese workers and a Chinese company are sent over to build an infrastructure project—a bridge, a road—and the country has a bridge or a road, and has all of the debt. The debt is owed to China.

As far as the Chinese are concerned, they have done what they wanted to do, which was to create jobs and create an economic opportunity for a Chinese company. That debt now is something that they are saddled with but it is not important to them. The important thing for them has been done, which is the piece in the first place.

On the mining side, there is some evidence of Chinese companies learning as they go on improvements on the social licence to operate and on CSI. That is interesting, because there is an assumption that Chinese companies go in and have very low performance standards and are doing strip mining and just taking everything out. Actually, they are learning that, when they behave like that, communities push back. No matter who you are, when you do not have that community buy-in, if they start burning tyres at your access gate and stopping anyone from getting on site and really disrupting things, it becomes very difficult to operate. They are learning that the best way of doing it is actually to replicate some of the best practices from elsewhere.

In terms of actively seeking partnerships, a number of countries do want to have a partnership with the UK. The UK needs to be clear on what its specific offer it is. It needs to demonstrate how all of this fits together with wider British interests on the continent. We are talking about critical minerals, and a number of the countries that we have talked about have been places that have seen reductions in ODA spend in the last few years. On the one hand, we are saying, "We want what you have", and on the other hand, we are saying, "We are going to stop financing all of these other things that were beneficial for you."

Making a clear offer is an important part of that, because African countries do want to have partnerships with the UK, and not just those with old, Anglophone, Commonwealth, historical linkages. Actually, many of those countries get tired of the UK talking about how we have long-standing historical linkages because, for a lot of that history, it was very difficult for them and it was not a particularly pleasant time.

There are other countries who, again, as part of their triangulation of their own international relations, are keen to be having stronger partnerships with the UK. It is up to the UK to demonstrate that it is listening and also keen to engage.

Q44 **Royston Smith:** Do you have anything to add to that?

Jeff Townsend: No, that is very good. What are we offering? In the critical minerals refresh we talked about the accelerate to development, which comes from the Ayrton Fund. I am going to say it is £80 million, but it might be less than that. That is about building technological advances in critical minerals in developing nations. That pales into insignificance compared to what China is offering. You are absolutely right. We may feel like we have relationships with some of these nations, but they are not the same.

They are not reciprocated in the other way and we are treated very much like anyone else. When we are reducing our foreign aid or we are bringing more complex ways of accessing that aid, what do we bring to the table compared to China? China, on the face of it, are a bit more laissez-faire in the way they spend their money, how they want to spend their money and winning over those relationships. That is something that we have to win over. Soft power is key. We need to be better.

Q45 **Bob Seely:** It is very interesting to hear what you are saying. You are sort of pitching an aid-for-trade argument. Would you agree?

Jeff Townsend: No. I am saying that the world has shifted, even in the last five years, from where we were. Multiple people are now going to jurisdictions that were not looked at before or were passed over before, and they are trying to secure critical minerals because they understand that their future manufacturing sector is dependent on that. There are multiple ways that we can help nations and engage with nations. As I said, soft power is key.

In 2012, I broke down in the rainforest in Cameroon, on the road between Douala and Yaounde. We got stuck and it was huge rain, and we ended up being taken in by a very kind family, speaking French, and they knew three things about the Brits. They knew the Chelsea-Liverpool game was on and they all accepted that everyone hates Chelsea. Secondly, they knew the Queen and they were very supportive of the Queen. Thirdly, they knew that one of the local areas had a British flag flying over it and that is where their dad had a job, and so they were more than happy to help us. We have scaled back our soft power and we need to be better.

Q46 **Bob Seely:** When you are talking about soft power, you are talking about the use of aid funding to effectively make friends with people so we are more likely to be able to develop critical mineral relationships in—

Jeff Townsend: It is not necessarily aid funding. In a lot of these places the radio is still key and BBC radio is absolutely one of the go-to channels. We can provide that information and that link to the world in areas where that is not possible. That is not aid funding.

Q47 **Bob Seely:** It is a very coherent and respectable argument that fell out of favour in the 1990s. Would you like to see more of our aid linked to critical mineral relationships and other trading relationships? As you point out, a lot of our rivals, like the Chinese, are absolutely much more ruthless. Not only do they link it, but they almost treat it, as you say, like a drug that you are encouraging a form of really unattractive state dependency on China.

Jeff Townsend: No, I would not, personally. I advised on international development stuff in Parliament for a bit and I do not believe that it should be linked. I never have. We have to be better than that.

Christopher Vandome: On the question of aid-for-trade, we need to be better at not providing aid that is very overtly, "We are giving you this and you are expected to be our friends". There are many other tools that we have at our disposal that can help create commercial relationships that are beneficial for both sides, but are what they are looking for in terms of a relationship with the UK rather than one of an aid dependence, always feeling like the junior partner.

That would include British International Investment, the former CDC. It can include the creation of chambers of commerce providing companies access to markets. The big one, particularly on critical minerals, is supporting the development of mining industries more broadly through things like helping fund exploration and helping fund the creation and supporting the creation of functioning cadastre systems that can map out claims and who is doing what.

There is a role for things like the British Geological Society, for example, in supporting the creation of partnerships in that space, so that we are moving away from a model of aid that is, at worst, handouts and moving towards one that, though it might be funded through a development assistance budget, is actually supporting a commercial endeavour.

Q48 **Bob Seely:** You are arguing for, it seems to me, an enlightened self-interest, as Adam Smith might say. Would you say that the Chinese are being quite successful with a really crude transactional model, or are they only being successful in the short term? Is the crude and ugly transactional model that they have unrelated to their economic investment into the critical minerals sector?

Christopher Vandome: It depends country to country. Their relationships are variable across the continent. You only have to look at the case of South Africa. It does sit slightly differently to the rest of the continent, but it took a lot of diplomacy from the Chinese and the Communist Party to get Nelson Mandela to recognise China rather than Taiwan. The ANC previously was supporting Taipei, and it was only long after 1994 that that allegiance switched.

China and South Africa have this very curious relationship. It is hugely important as an investment conduit for the Chinese into the continent, and for the South Africans it is hugely important for alignment with BRIC and alignment with a non-western global hegemonic system. The relationship takes a lot of effort from both sides. It is not necessarily an easy one, and it is similar elsewhere. Again, I will use the example of Zambia, where China has been an important partner, but it is not a popular one, particularly amongst Zambian citizens.

Successive presidential campaigns have been fought on an anti-China rhetoric. Once the leaders have come to power, they have seen how important they are in terms of the macroeconomic figures and have had to soften their approach, but not in a particularly cosy way, perhaps apart from the immediate past President. It is not a case of one or the other, and there are not that many countries that have taken a one side or the other approach.

It is about African countries wanting to, as best as possible, balance their partnerships and not be dependent on anyone. These are young countries. Many of their leaders were part of the anti-colonial and liberation struggles. The idea of being dependent on any external actor is particularly unpalatable and not a vote winner.

Q49 **Liam Byrne:** When I look at the debt statistics for Africa compared to natural mineral resources, there is a pretty close relationship between the countries that China is lending to and those with an abundance of resources. Is it your view that China is not engaging in debt diplomacy when it comes to natural resources? Is it simply running that kind of strategy in Djibouti or is it any further afield than that?

Christopher Vandome: It is linked to the Belt and Road Initiative and to putting in infrastructure projects that give access to areas of natural resource, particularly the copper belt.

My point is that, within those countries the leaders themselves have a lot more agency than simply having China going into Africa as a unitary place. There are variances across but, ultimately, in terms of where China is entering, yes, it is driven by those interests. Belt and Road is particularly relevant down the east coast of Africa.

Q50 **Liam Byrne:** China is investing in the places where it has an interest in investing.

Christopher Vandome: It is investing where it has an interest in investing, yes.

Q51 **Liam Byrne:** Presumably it is getting its money back in case things go wrong.

Christopher Vandome: The ongoing debt negotiations have shown that it is not getting its money back but, again, for some of those countries it is as I said earlier: the benefit to China was giving projects to Chinese companies and using Chinese workers. It is not about particularly putting a country into debt to China in terms of being able to exert influence. It was about giving a Chinese company a project to do, so that all of the money went there but the debt is accrued in Africa. That will also come back to being part of the debt negotiations.

On the debt issue, one of the sticking points is that the way in which the western partners have been looking to deal with debt issues is through negotiating down the overall amount and taking a haircut on the debt. The Chinese way of doing debt negotiations is to kick the ball into the long grass. They go for extended repayment terms.

Q52 **Liam Byrne:** As you say, the G20 common process has gone almost nowhere so far.

Christopher Vandome: There have been some successes.

Liam Byrne: Or countries engaged in it.

Christopher Vandome: Yes. There has been some, albeit slow, progress in Zambia. These are also countries whose capacity for dealing with these types of negotiations is lower than the capacity of those they are negotiating with and putting around the table. It is almost inevitable that they are going to take a bit longer. They have been put in a very difficult position in terms of having the UK, US and China all sitting around a table talking about their debt. The power dynamics there are considerable.

Q53 **Liam Byrne:** China has gone in with a clear offer. You explained that the UK does not really have much of a clear offer, but you have countries here that presumably will be quite interested in moving up the value chain and operating high standards of mining. They will be interested in growing their tax base, because most of these countries that we are talking about here have tax bases down at 15% to 20% of GDP. They are quite small. What should the UK offer look like and where should we be taking that offer to market?

Jeff Townsend: It is a really tricky situation, because we have to do everything all at once. Pointing to one thing that we need to do first is slightly difficult. I would say that the first thing we need to look at is the way that we support our critical mineral companies that are operating abroad.

Q54 **Liam Byrne:** Is the implication that we are not doing that?

Jeff Townsend: We are not doing enough. I know of a company who are operating in southern Africa. They went to the UK Government. Though I am not sure where she is now, Sally Bevington, who was at DIT, is brilliant but, again, had a limited amount of finance to be able to support. The offer was, "Yes, if you come, you can hire our hall at the Embassy and you can put an event on", whereas other nations will sit with that company and introduce them to the Ministers and help them understand what may be available. They are a bit more proactive, instead of reactive, in the way that they support companies.

Remember, most critical mineral companies are not the big four. Although they are moving into this, most critical mineral companies are relatively small and, because we are still very much in the exploration phase in a lot of places, these are five-man or 10-man teams. Engaging politically is not their bread and butter; it is not what they do. We need to be better at supporting them.

Secondly, the international critical mineral great game, if you will—to use a David Livingstone phrase—is around the midstream. It is around that processing and refining. If we want to reduce carbon footprints, if we want to have a cleaner supply chain, we should do as much as we can closer to the mines, which means putting more of that refining process into the host nation where the mine is.

Australia wants to do this. It is very much their drive. Saudi Arabia has decided it wants to be the global player outside of China in the midstream. They are going hell for leather and they have $161 billion in profit from Aramco in one year. They have money to throw at this problem. We need to understand what nations are looking for in terms of that midstream and how that might apply to what we are trying to do in the UK.

Some of these minerals do not travel so well, and therefore you cannot have all of the midstream in one nation. Therefore, is there a way that we can say, "This is what we are trying to achieve. We are missing X, Y and Z. However, we can help you develop that in your nation, because that is going to be driver for the economy. It is going to create jobs, tax, et cetera".

Q55 **Liam Byrne:** Some of the evidence we have heard suggests that one piece of the puzzle that we could throw in is partnerships with our fantastic universities in this space. We can potentially supply or broker some of the knowledge capital that may be required to make that shift. Does that sound realistic?

Jeff Townsend: Yes, absolutely. The old adage used to be that at the bottom of every mine in the world there is a Cornishman. That was because of the Camborne School of Mines.

Liam Byrne: And a Boulton and Watt steam engine.

Jeff Townsend: It was well known that if you wanted to be a leading academic or geologist or mineral processor, the UK university structure was where to go and learn that. We still have that expertise. Although it is not used as much as it should, we could start to explore that. I do understand—perhaps I will be told I am wrong—that Camborne School of Mines has started to look at partnerships into Saudi Arabia, to build up their ability to look at this area.

Q56 **Liam Byrne:** If those two or three points are your offer, what are the top two or three countries that you would be telling Foreign Office Ministers to go and ship that to?

Jeff Townsend: There is not only two or three. If we are taking that aside, Canada and Australia need to be our primary focuses. They are a lot easier to operate in. You cannot move where the minerals are. That is determined by geology. Everything is going to be in different places. Zambia is minerally rich and has gone through that engagement with China. Whilst they are still engaged with China, the relationship is not as strong as it used to be. You have a number of projects there.

We have the relationship with South Africa that we have just built. They are equally as good at mining as we are, if not better, so I am not sure we would have anything to offer there. Then, you look at the free trade agreements that we are trying to build around the world. There are a number of countries that would be excellent, like Ghana in west Africa, that we could be looking at now. As a part of the overall amount and saying, "This free trade agreement has got us X many billions", it may only get you a fraction of that, but it is strategically important.

When we come to the operation of the Government and what they are trying to do internationally, what I would argue is actually we have to take commercial viability and commercial value and put that to one side, to look at strategic value. The two are very different. Industry is very good at doing what industry does, but the Government's role in this is to take that strategic approach and understand what is strategically of value, even if it is not necessarily commercially as valuable as it could be. For instance, JOGMEC financed Lynas, the Australian rear earth separation plant. It did it at a loss, but did it because it was necessary for Japan.

Q57 **Liam Byrne:** Christopher, do you have anything to add, either to the package of the offer or the market of the countries that you would select?

Christopher Vandome: This is something I put in the written evidence. The educational partnerships are a really big part of existing relationships across the continent—Tutu Fellows, the Chevening scholarships, the Newton Fund. These are already a backbone of British engagement in a number of places. Tailoring that towards not just critical minerals but the mining sectors in general would be a good thing.

Also, we must engage not just on the issue of critical minerals but, as I say, around sectors as a whole and what benefits the sector. In a number of these countries, the critical minerals part is a smaller part of a much bigger, diversified mining sector. You have things that are very much a part of the national consciousness: gold, platinum, coal. These are the things that built South Africa. You then have critical minerals that do not hit the radar. That is, for example, why you have things like a manganese mine in the Kalahari owned by a Russian oligarch and partly owned by the funding arm of the ruling party. That is why there is a limited amount of attention on these things until, suddenly, it becomes, "Manganese, this is funding the party."

Q58 **Liam Byrne:** Does that imply that there is anything we can do around regional supply chains or is that an overstretch for the UK?

Christopher Vandome: No. On top of the educational partnerships and on top of what I mentioned earlier around exploration and the combination of the two, the technocratic expertise that exists here can not only help in terms of building cadastre systems, doing exploration, but also train the trainers' programmes, so that you are actually teaching people in-country and supporting people in-country.

In my spare time, I am doing some research at the University of Witwatersrand, which grew out of being a school of mines. I do not know of any relationships now that it has with UK universities that are particularly around those issues. There is not much made of it. There are calls from within the sector there for greater engagement with places like the UK, Canada and Australia, in particular, for supporting capacity building within the sector.

On top of the educational partnerships, look at the Zambia-DRC partnership, or MOU, on creating a supply chain for electric vehicle batteries. When this was signed last year, the industry responded with, "That is a lovely aspiration but, in reality, how is that going to function?" These are two countries that do not necessarily have the ability to do this at the moment and traders were complaining that, again, it was a nice thought, but raw material was queuing at the border. There are other practical issues that need to be resolved before this can happen.

Then, when the USA threw its weight behind it at the African Leaders Summit towards the end of last year, all of a sudden that became a much more heightened prospect. That is something that the UK can think about: how to triangulate these partnerships and how to work with others. In other sectors, there are existing partnerships between the UK and Japan, for instance, including around green energy generation.

Q59 **Liam Byrne:** The Five Eyes plus connected partners to co-ordinate what is clearly an offer there that could actually keep more of the industry in-country, help build taxes and give us more resilient supply chains. That feels like where the win-win might be.

Christopher Vandome: Yes, exactly. With the development of an EV battery supply chain out of Zambia and DRC, when you then start to look at the new usage of hydrogen vehicles in mines in South Africa, for example, all of a sudden you also have a market as well as a production and it does not look like such a far-fetched idea. I am not saying it does not look like a far-fetched idea, but it does not look like such a far-fetched idea.

It is around these kind of initiatives that African Governments themselves will be looking for support; they want support for the things that they have already decided are their priority, rather than us coming in with our priorities and saying, "This is what we want to talk to you about".

Q60 **Chair:** In which case, the final point is to ask you, in terms of the critical mineral strategy that we have seen so far and the refresh that was slipped out last Sunday, are there any final comments you would make in terms of your main ask of the British Government when we look at critical minerals? That could be capabilities, understanding, priorities and particularly the international geopolitics of it. Essentially, we are asking for your last will and testament on it.

Jeff Townsend: There are a multitude of different angles and levels to this that we need to take into account. The first thing is about what the Government want to do. They release a 10-point plan and the previous Prime Minister by two says, "We want to become the Saudi Arabia of wind", which is great. We are excellent at installing offshore wind and that is absolutely necessary, but we do not build them here. Do we want to build them? That is number one: do we want to build electric vehicles in the UK?

Q61 **Bob Seely:** Sorry; we do build offshore wind.

Jeff Townsend: We do, but not to the extent that we deliver.

Q62 **Bob Seely:** We have a big blade factory on the Isle of Wight that builds them.

Jeff Townsend: Yes, we have parts, but we do not build them at the level at which we are installing them. We are predominantly buying them from abroad and installing them.

I truly believe we need to have electric vehicles. There are 800,000 jobs in the automotive sector, which is absolutely necessary, so how do we do that? The failure of Britishvolt was internationally not useful and the almost deafening silence by the Government in why they did not support Britishvolt was also not the right way to sell the UK as a destination for gigafactories.

There are a number of good reasons and, the more we learn, there are a number of good reasons as to why you would not have supported Britishvolt in its delivery, but we need to replace that and we need to be shouting. We need to proactively say, "We want to build electric vehicles in the UK. We want to build them with an ESG-compliant supply chain and this is how we are going to do it".

The new refresh is a good step forward, but this is, internationally, a new game. It is the new great game and you have to be on the pitch to win it. You need to spend your money to be on that pitch; otherwise you are going to be a bystander. We have to decide what we want to do and, if we want to be on that pitch and we want to be building advanced machinery, renewable energies, electric vehicles and satellites, then we have to have a critical mineral supply chain that is, in part, independent from China. That is how we have security and it also enables us to have an ESG compliance that is not there at the moment.

If I was asking the Government for one thing, I would ask that the Prime Minister be more vocal, like his counterparts internationally, and I would ask that the Treasury understand the reality of this and put money behind it. To highlight that—the lack of understanding may be causing some of this—last year we saw the red diesel rebate taken away from mining companies in the UK because we wanted to be closer towards net zero. At the same time, BEIS was releasing a £60 million competition to find an alternative to red diesel. You are asking people to shift from something that you are also trying to create, which does not exist.

What does that do? It makes UK companies less competitive in an international market. You are now buying those same minerals that you could do domestically from the international market, shipping them, which is a higher carbon footprint, and they are extracted predominantly using red diesel abroad. Actually, you are adding a lot of carbon to this net zero agenda when you said that the reason you took the action was to stop that. There is a lack of joined-up thinking and a lack of understanding in the actions that are taken.

Christopher Vandome: To build on what has been said, and specifically on the engagement with Africa and African Governments, be coherent on what the UK wants. In terms of our critical mineral strategy and resilience, is it about building a China plus one, where we are still buying processed materials or final goods from China, but we want someone else to be there just in case? Is it about building real diversity and diversification across a number of jurisdictions? Are we prepared for the complications that will entail?

Is Africa a geographic space where the UK really wants to be engaging? I would obviously recommend that it should be. From that, is it going to be supporting the junior players through support for exploration and a little bit of market development, through university partnerships and upskilling some workers, or do we want a broad regional strategy that links into other bits of UK Government strategy on Africa? How are we going to sell that offer?

For me, one of the lines in the strategy that was an issue was the phrasing of ESG as a competitive disadvantage. For the UK, that is the offer. That is our competitive advantage. What we are offering is the fact that our corporate behaviour is increasingly being pushed towards generating benefits for citizens and, off the back of that, it is our soft power around knowledge, our training and our institutions, the rules of the game by which we want our companies to operate. That includes EITI, the voluntary principles on security and human rights, both of which we were a pioneer of. It is selling that.

Chair: In which case, I will wrap us up there. Thank you all ever so much. It was really helpful. Hopefully, we will be able to go through your written evidence and you will hopefully find our report of interest. Thank you so much for taking the time.