

# CHRISTOPHE POINSSOT

Deputy CEO and Scientific Director of the Bureau de Recherches Géologiques et Minières (BRGM)

**Friedbert Pflüger, Director of the European Cluster for Climate, Energy and Resource Security (EUCERS) at the University of Boun, Founding Partner of Strategic Minds Company GmbH**

I would like now to turn to Christophe Poinssot. Christophe is, in a way, the official French voice for critical raw materials. He is the Deputy Director General and the Scientific Director of the French Geological Survey, BRGM. He is in charge of defining and implementing the overall scientific strategy of that body in different fields and he is deeply involved in those issues.

For instance, he has been vital in launching OFREMI, the French observatory in charge of monitoring the CRM value chains. Therefore, another expert, but someone who really has the government position, and who perhaps also is able to convey the one or the other message to the French government of what could be extremely helpful.

Please, Christophe, over to you.

## **Christophe Poinssot**

Thank you very much for your introduction. It is my pleasure to be with you today and I am going to try to give you a few insights regarding the critical questions of the critical raw materials.

A lot has already been said regarding the theme of this issue, but I want to just add a few things to what has already been mentioned.

First, we mentioned a lot about the need for the energy transition. Certainly, it is particularly important to mitigate the global climate change. However, we must not forget that we also have to handle the digital transition at the same time, which is also requiring a very large amount of critical raw materials. For two thirds of them, they are the same as for the energy transition, so we may have a kind of trade-off between the two.

Also, we have the development of the emerging countries, which requires a significant amount of critical raw materials for developing their infrastructure.

Altogether, it leads to a very significant increase in demand. The numbers are huge and it is a real issue to assess whether we will be able to meet this demand.

I will just remind you of a few figures. For instance, the volume of lithium that will be required by 2040 to develop electric cars is 40 times higher than what we are using today. It is 20 times higher for nickel, cobalt and graphite. It is 10 times higher for rare earths. Therefore, it is a very huge number, particularly when you consider that, in fact, it requires, as has already been mentioned, between 15 and 20 years to open new mines.

Another point which is very important is a large number of these metals are not taken directly from the ground for themselves. They are by-products from other metals, which means that, in terms of dynamics of the market, they are not directly related to the demand. It means that we have some highly complex value chains and it is already a first challenge to be able to depict, describe and understand all of them.

Therefore, the value chains are very long with a large number of transformation steps, and many of them are dispersed in many countries. It is, once again, a factor of complexity that we need to be able to understand and to take into account.

It means that, in this situation, we have some long but weak value chains, which can be perturbed by any event that could occur and we had a large number of disruptions over the last years, regardless of the size of disruption.

Maybe two points which are important to keep in mind. First, the critical raw materials are dispersed all over the world. When it is mainly located in a single country, it is not because it is the only country where you find it. It is because this country has been specialized in this domain, has been exploring a lot and has been exploiting this resource. However, we will certainly find it elsewhere, even if it takes time.

Secondly, we need to also remember the key role of China, which is not only on the mining side, but also on the refining and transformation. For more than 10 elements right now, they are really dominating the market. I mean, more than 90% of the overall supply worldwide is coming from China.

It means that we are highly dependent on this country, and there is also a high risk of perturbation. It can be very valuable elements, not only rare earths but also graphite, gallium, germanium, tungsten and magnesium – a large number of elements with a high usage.

What can we do in order to recover part of our independence and sovereignty? First, we need to be able to understand quite well all these value chains. It is the domain of the mineral intelligence.

You mentioned in your introduction that we launched in France a dedicated observatory exactly one year ago. A similar structure exists in other countries and there is a need for increasing this work and for networking this type of activity. We are, for instance, collaborating very efficiently with DERA in Germany.

Secondly, we also need to ensure an optimized use of the natural resources. We need to cope with recycling activities with secondary resources available in urban mines. It is something quite important. It is also a very good way to develop a new extracting, purification and transformation industry.

However, we all have to keep in mind it will never meet demand because what you recycle right now is what has been produced roughly 20 years ago. The amount of critical raw materials was not the same at that time. The type of metals or critical raw materials was different. Therefore, it is very important to note that it will never meet all the demands we have.

The only way is to open new mines – that is very clear. As you mentioned very articulately, if we want to be pro-energy transition, we have to be pro-mine development – not only in emerging countries, but also in Europe and developed countries.

We still have a lot of resources underground. It is not known and it is not exploited right now, mainly for economic and social reasons. I will come back to that later on. We need to develop some new responsible mining activities and it is a huge challenge.

Last but not least, because it is still not enough, we will have to secure supply from third countries, thanks to long-term contracts and long-term strategic partnerships.

What is new in 2023 regarding these four lines? I will say that there has been a very significant mobilization of national governments with the creation of several mineral intelligent agencies, the development of investment funds and tools in many countries – for instance, France – a strong development of environmental, societal and governance criteria regulations, in particular at the European level in order to ensure that new mines will be responsible and environmentally-friendly mines.

There has also been development of ambitious policy – and I have to mention the Critical Raw Material Act which is still under discussion at European level and which is very ambitious regarding the rate of independence for the supply of critical materials coming either from primary resources or from recycling.

There has been the development of industrial partnerships with Europe, the United States and so on, which are the first steps in developing some long-term contracts.

However, at the same time, there is also something new. We had some restriction measures which had been taken by China regarding germanium and gallium in June, graphite two weeks ago. I am quite sure the list is not exhaustive. This means that we have to be prepared for potential, not disruption, but at least reduction of quotas or exportation of these minerals which are used in many applications, from defense to medicines, to energy and so on.

My third point, the number of new projects arriving on the market is very limited and it is not to scale compared to what we need. The main question of the discrepancy between the need of the future and what the market is going to be able to supply is huge and is increasing. Therefore, the questions arise of how we can ensure the energy transition if we do not have the resources.

My feeling right now is that we are not going to be able to meet some highly political objectives which have been proposed and voted for – for instance, the 2035 obligation of full electrical cars in Europe. From my perspective, I am not sure we will have the resources to do that by that time.

It is not a question of stockpiling natural resources in the ground. It is a question of how fast we can extract this resource to provide it to the market and be able to meet the demand. It is really a question of the dates by which we want to reach this target instead of the target by itself. It is something which is quite important, with many repercussions and consequences, in particular in terms of political policymaking and confidence in the global decision-making process.

I am quite sure that, at least at European level, many of the citizens may react regarding the change in this strong objective which has been put forward by the government.

Another important message is the fact that we need new mines. It seems that it is very clear, even in Europe, even in France. With the CRM Act, there is a new exploration program developing right now which is very important.

However, the main question on this will be how we are going to convince our citizens of the interest of building new mines potentially not far from their houses. It is a real debate that needs to be opened about the consequences on our way of life. How can we assume the consequences of this way of life? We need to start work now in order to increase the acceptability of this new type of activity. It is certainly embedded in highly ethical issues because, otherwise, it means that we are affecting our way of life detrimentally.

As a conclusion, I think, based on the question you asked, 'What is the main message from 2023?', we have some very positive mobilization from the national governments, which is really moving forward. The topic is back to the forefront of the geopolitics and it is very important. We can see, for instance, in France, that, in any official displacement for our President, the topic of critical raw materials is debated.

However, at the same time, we still have this perspective of a strong discrepancy between the political trajectory that we are trying to meet and the effect on industry capabilities to produce the materials.

For me, there is the potential for a new crisis, not only for the metals market but also in terms of confidence in the policymaking process.

Thank you very much.

**Friedbert Pflüger**

Thank you, Christophe. Once again, it was very interesting and important.