

# CHRISTOPHE POINSSOT

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## **Thierry de Montbrial, Founder and Executive Chairman of Ifri and the WPC**

Now I give the floor to Christophe Poinssot. Again, I do not know what you are about to say, but I guess it will be a little different because you are the assistant director and the scientific director of the French Geological and Mining Office. I think we are very interested in what you have to say.

### **Christophe Poinssot**

Thank you, Thierry. Thank you for your invitation and for these three days of fruitful discussions. You invited us to shed light on issues that may not have been completely addressed and that may have a fairly major impact on global geopolitics. As head of the French Geological Survey and president of the Geological Surveys of Europe, I wanted to bring two topics to the table that seem quite fundamental to me.

The first one is the issue of mineral resources and the part they play in current and future economies. I will get back to that shortly. The second is adaptation to climate change, which seems to me to be another quite important driver for the future.

Let's start with the issue of strategic metals, critical metals or mineral resources – the wording depends – which are becoming, if they are not already, a bottleneck for the progress of the energy transition as well as quite a significant diplomatic and geopolitical issue.

All of you know that low-carbon technologies to generate power for transportation, etc., consume huge amounts of materials called strategic metals, much more than traditional technologies do. It is important to recall that digital technology also uses up a lot of metals and mineral resources.

To give you an order of magnitude, an offshore wind turbine requires at least 15 times more strategic metals per kilowatt-hour produced than a coal-fired power plant, still the world's leading means of power generation. So in the most ambitious and shortest-term scenarios, switching to these new means of production will have a strong impact on the metals market in the broadest sense, raising the question of whether the mining industry will be able to keep pace with demand.

This also goes for mobility. Roughly speaking, it takes six times more strategic metals to make an electric vehicle than it does to make one that runs on an internal combustion. All this means that in the future we will need much more lithium, cobalt, nickel, graphite, copper, etc.

than we do today. There are too many to list, but the speed of ambitious decarbonization efforts has helped to put this issue front and center.

Experts – and for those who are interested, I refer you to the International Energy Agency – forecast that the speed of the transition will put the market under great strain, and it will not be able to meet demand for a number of metals. The most illustrative case is that of copper. Today we realize that copper, the metal that has been mined the longest, will run out, not in 20 years, but by the end of this decade. Copper production will fall because investment lags behind soaring demand. Copper is necessary to transport power. Depending on the scenario, the market may lack up to 20% of the copper needed despite aggressive, very substantial recycling. This means 80 to 200 large-scale copper mines must open worldwide, depending on the estimate. It takes an average of 17 years to open a new one. You can see the problem. The writing is on the wall. Copper will run out in 10 to 15 years. Today's investments will not impact the market until the end of the next decade, raising questions about our ability to carry out the transition.

Every country is launching initiatives in the race to secure supplies of copper, nickel, lithium, etc. It is becoming a diplomatic and geostrategic issue. Today there is talk about the diplomacy of mineral resources, a subject that, at least at the Ministry of Foreign Affairs and in France, had fallen off the radar in recent years, with a host of initiatives ranging from the Americans' Mineral Security Partnership to China's Belt and Road Initiative and various strategic partnerships launched by Europe. A multitude of initiatives is underway to try and forge long-term relationships and secure supplies that will help to secure the transition, our economies and our industries.

It is interesting to see how today's war zones and hot spots overlap with resource-rich areas, including Ukraine.

Strategic metals are becoming a political and geopolitical weapon. The best example is China, which has weaponized them for several years. Without going into the details, in August 2023 the Chinese began restricting exports of germanium gallium. In December 2023, they did the same with graphite. In January 2024, they limited exports of rare earths separation technology. In September 2024, they cut exports of antimony. In December 2024, they banned exports of germanium gallium antimony. I am sure this trend will continue, in particular within the framework of the US-China trade war, and that these decisions are just one step in a long-term process. I am sure this trend will continue, in particular within the framework of the US-China trade war, and that these decisions are just one step in a long-term process.

All these minerals are extremely useful in decarbonized, digital, defense and other technologies. You see, then, that the problem of securing supplies in metals, which we thought was relegated to the history of the Industrial Revolution, has come roaring back with a vengeance and that these metals are again essential for our economies, and, therefore, our public policies. They are becoming a major geopolitical and geostrategic issue. You all know that China is the world's leading producer of all these metals. Today, 100% of the rare earths I just talked about, especially those used to make magnets, come from China.

Lastly, we are witnessing the return of what Philippe would call commodities, metals, to the forefront of the diplomatic stage and the political agenda, which is revolutionizing diplomacy

and the manufacturing companies concerned. This is also a new point for the mining and extractive industries. Today end users, such as car makers, focus on where they will be able to secure their lithium supplies for their batteries, etc. This has never been seen before. Until now, they have focused on the virtues of free trade and world markets. Even they often had little idea of how that worked.

So they are being forced to reappropriate the whole value chain because the future of their industry and technologies is at stake. In this context, I think that supplies in mineral resources have become a key driver of global geopolitics and the successful energy transition. Clearly, it will not be like what is described in a number of scenarios today. It will be necessary to adapt, be pragmatic and develop a more global vision of issues in order to have feasible scenarios, which is not always the case today.

We are facing an issue that some want to thrust into the public debate, i.e. the finite nature of resources and, in the case of mineral resources, the fact that it takes time to access them. That is the first point that seems important to me. The second issue is adaptation to climate change. I think that is a major challenge. There is much talk about what can be done to cut our greenhouse gas emissions and mitigate the effects of climate change. That is obviously fundamental. We have discussed it several times in recent days. We all know that climate change is here and that the 1.5°C target will be largely surpassed. So we must prepare for climate change and increasingly violent events. In France, we have just experienced that in Mayotte.

All the infrastructure has been destroyed, from the airport to the port and all the buildings. I know what I am talking about because the geological survey has teams on the ground there. This is a good illustration of what to expect and of the need to start reorienting public policies, both in Europe and in many developing countries, to anticipate these events, which will take many forms. Sea levels are rising, eroding the coastline. In Gironde in France for example, the coastline is receding by 2.5 meters a year.

By the end of the century, this will amount to considerable distances. Plans must be made to move manufacturing, port activities and cities inland. There is also the impact of increasingly violent events on the environment and longer periods of drought. The management of water resources, which will become increasingly scarce, will be a critical issue. As you know, this is a major problem that has fueled social debates. Clay swelling and shrinkage, which cracks buildings, is a problem. In France, 55% of private buildings will fissure because of that. It is the leading insurance risk in France today.

So there is a financial dimension paired with all the other economic issues. All of these problems are starting to influence public policies. There must be a collective effort to look ahead. Otherwise, the cost will be even higher. In the years ahead, I think that this will also directly impact the positioning of several states on the international stage and, consequently, geopolitics.

In any case, as a national geological survey that works internationally, we are witnessing a rapid, radical change in the questions we are asked. They increasingly have to do with these issues because countries are starting to deal with them head on, and it is about time that they did.



These are the two subjects I wanted to bring to the table. To me they seem important, because they will impact the world's equilibrium and change the balance of power between different countries.