

## **TECHNOLOGY AND NATURAL RESOURCES IN GEOPOLITICS**

**Rosendo Fraga**

**Director of CARI's Foreign Relations and Armed Forces Committee**

Chips, or semiconductors, are at the center of the global struggle for military dominance and are a battleground between the United States and China. The Biden Administration has suspended the relationship between the two countries on this matter, seeking to prevent the Asian power from advancing with the military use of this key input for the electronics industry. The Taiwanese company TSMC (Taiwan Semiconductor Manufacturing Company) manufactures most of those used today in the world (56%). It has a stock market value of half a billion dollars and is the 10<sup>th</sup> largest listed company in the world. This company was founded in the 90s. For its part, Taiwan made chips into a sort of “country brand”. The quality of its plants has not been surpassed by either the United States or China. In a recent book by American historian Chris Miller, titled "Chip War," he warns that a single Chinese missile against TSMC's most advanced factory could cause huge economic losses and disrupt the supply of chips around the world. The Taiwanese company is building a factory in Arizona and plans another in Saxony, Germany. The South Korean company Samsung, with a value of three hundred and seventy billion dollars, occupies the twenty-first position in the ranking of companies and is the second largest producer of chips. The third is the American Nvidia, whose value exceeds one trillion dollars and is the sixth company in the world by value after Apple, Microsoft, Saudi Aramco, Alphabet and Amazon. ASML is the most important European company in the sector, but it produces only 8% of the world's chips. These components are today the key element in the development of the advanced military industry. There are those who think that the conflict over Taiwan is relevant for this reason.

But the global struggle is also taking place over access to and control of key mineral resources. The Democratic Republic of the Congo is the world's largest producer of cobalt. The Chinese company CMOC is bidding for control of the mineral in this country, which is conducting a comprehensive review of all its mining companies together. In the case of nickel, the three main producing countries are Indonesia, the Philippines and Russia, which have two thirds of its production. As for lithium, a key input for electric car batteries, the most important are Australia, Chile and China, which represent 90% of global

production. Supply chains are getting involved in rising tensions between the West and China, which dominates the processing capacity for lithium, cobalt and rare earths - a key input for the electronics industry - and is considering restricting exports in retaliation against the United States due to the increasing protectionism towards Beijing. Western governments, from Washington to Brussels to Tokyo, are seeking alternative sources of supply to those dominated by China. Peripheral countries that are exporters of these minerals have gained importance. In the last twelve months alone, Namibia and Zimbabwe have banned the export of crude lithium; Chile increased state control over the extraction of this resource; Mexico launched the review of its mining operating licenses; and Indonesia increased control of bauxite exports (key for aluminum).

The crisis that broke out in Niger, in the region of Africa known as the Sahel, shows how the global struggle for control of natural resources can lead to military conflicts. The country's military commanders deposed the president and have kept him detained. He is considered an ally of Western countries, and especially France, the former colonial power in the region. The population that supported the coup waved Russian flags as a demonstration of rejection of the West. Fifteen hundred men from the French Armed Forces and one thousand Americans are stationed in the country to prevent the advance of Al Qaeda and ISIS in the region. Wagner Group mercenaries supported the coup. In recent months, these paramilitaries supported a coup in Mali, a country in which the military left the French orbit, and accentuated its presence in the Central African Republic. Western countries promoted the decision of a dozen countries of the Economic Community of West African States, led by Nigeria, to initiate a multinational military intervention against the *de facto* government of Niger. Until last year, France obtained 70% of the uranium consumed by its military nuclear plan and electricity supply from Mali. The pro-Russian coup in Mali led France to transfer its uranium supply to Niger, which produces 7% of this mineral worldwide. Russia has thus opened a new front to the West in central Africa, where control of a key natural resource for the nuclear industry is at stake.

But the war in Ukraine has reassessed the global importance of two basic resources: energy and food. Both have become scarce resources and have increased in value. Russia and Ukraine produce a third of the cereals that are exported globally. The militarization of the Black Sea generated by the war, the

reduction of Ukrainian exports and the trade restrictions imposed by the West on Russia, have reduced the trade of cereals and an increase in their price that has increased the hunger of vulnerable populations. The agreement established through Turkey and the United Nations to allow the export of Ukrainian grain has not been renewed by Russia, in retaliation for the attack by Ukrainian forces against a bridge linking Crimea with this country. This has again increased the price of cereals and increased the population that suffers from hunger in the world, underfunding assistance programs. Gas has also become a theater of war operations. NATO countries and their allies suspended imports of Russian gas, which along with oil is the country's main export. China, Russia and most countries in Asia, Africa and Latin America did not join the sanctions. Europe complied with them, but having done so is one of the reasons why this year it will grow less than 1%. The blowing up of the Nord-Stream 2 gas pipeline, recently built to transport Russian gas to Germany, shows the involvement of gas in concrete military actions.

In conclusion: chips are a key input for the electronics industry and weapons systems, and Taiwan, the center of the bid between Washington and Beijing, is the largest producer of them; natural resources in general, and mining in particular, are also the area of contention between the West and China, as is the case with cobalt, lithium, nickel, aluminum, copper and “rare earths”; the military coup in Niger is an example of the geopolitical struggle for control of natural resources, which in this case is uranium, key to the nuclear industry, and which pits Russia against the West. Lastly, the war in Ukraine has shown the geopolitical influence on the production and trade of two key resources: food and energy.