

Ευρώπη στον Κόσμο
Γεωστρατηγικές και Γεωοικονομικές Διαστάσεις
(Ευρωπαϊκές Σπουδές)

Ευρώπη-Αφρική Δυναμικές, Προκλήσεις και Προοπτικές

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Africa's FDIs resource-rich and resource-poor 2000-2014



Source: The Economist, 8/01/2015. The twilight of the resource curse?
Africa's growth is being powered by things other than commodities.
London: The Economist

Geopolitics of Green Transition – Africa's importance

Resource	African Importance
Cobalt	DRC dominant
Platinum	South Africa
Graphite	Mozambique/Madagascar
Hydrogen potential	Namibia/Angola
Solar potential	Sahara/Southern Africa

From resource curse to green extractivism - Development or a new form of extraction?

Opportunity	Risk
green investment	land dispossession
infrastructure	external dependency
energy transition	sovereignty tensions
climate finance	unequal value chains

Who benefits?

Actor	Gains
EU	Supply security
China	Processing dominance
African states	Export revenues
Local communities	Often uncertain

Critical Minerals and Resources

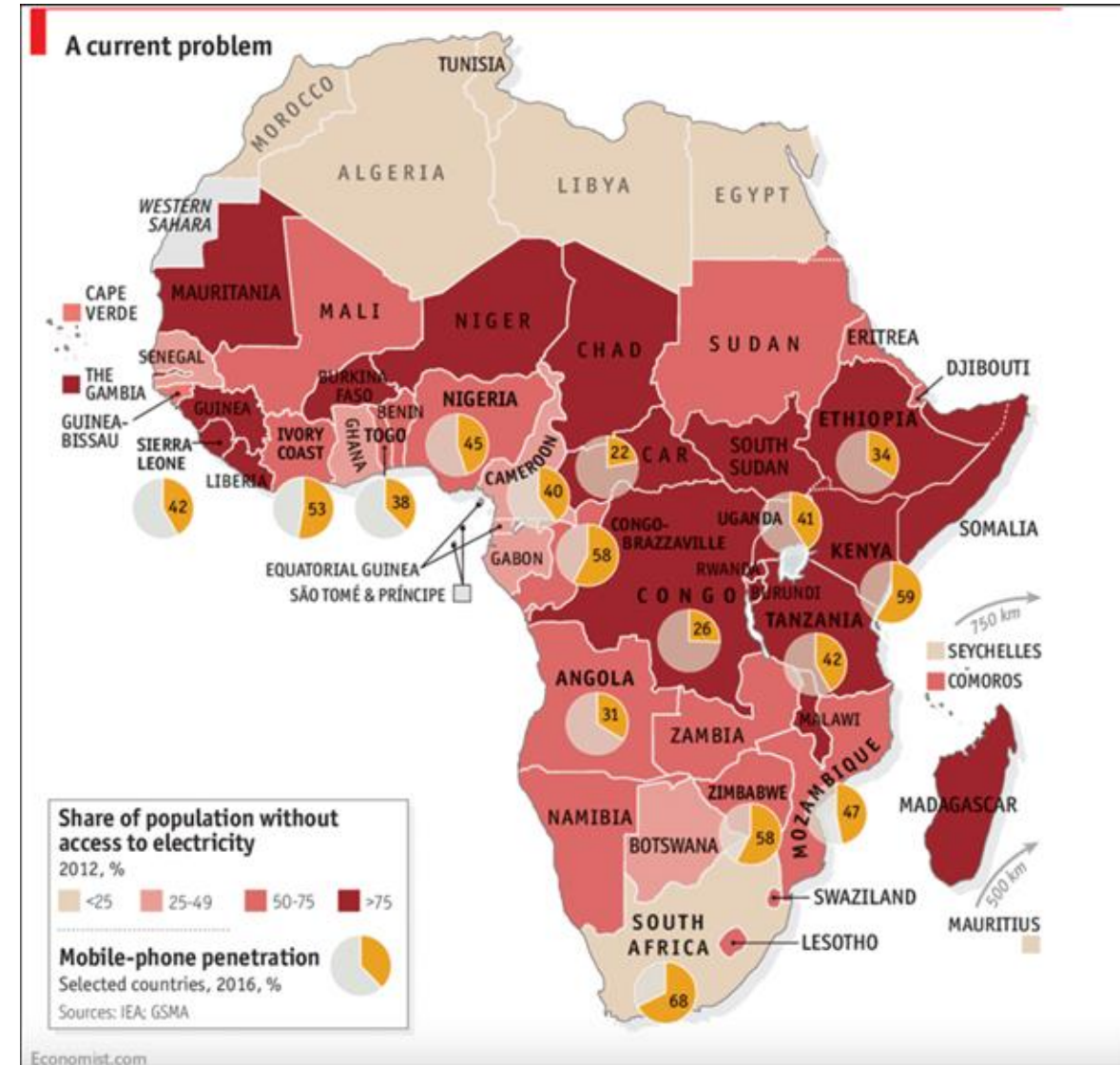
- **70% of global cobalt production** comes from the **Democratic Republic of the Congo (DRC)** [1]
- Over **80% of the world's known platinum and manganese resources** are in **South Africa and Zimbabwe**
- **Uranium's 18% of global production** is found in SSA with **Niger, South Africa and Namibia** containing the largest amounts.
- **Green hydrogen** will need vast amounts of water and land without, of course, depriving local communities of these resources or resulting in rising water costs [2]

Sources:

[1] [The African Climate Foundation, 2022. Geopolitics of critical minerals in renewable energy supply chains. South Africa: The African Climate Foundation, 4.](#)

[2] [Hass, J., Truttenbach, L., July 2022. Green hydrogen – hype or beacon of hope? Opportunities, risks and strategies for green hydrogen production in the global South. Berlin: Heinrich Böll Foundation, Brot für die Welt](#)

Share of population without access to electricity
in Sub-Saharan Africa



Source: The Economist, 08/11/2017. In much of Sub-Saharan Africa, mobile phones are more common than access to electricity.

Energy resources, critical minerals and other resources (food) in Sub-Saharan Africa					
	Zambia	copper		South Africa	chromium, vanadium, vermiculite, ilmenite, palladium, rutile, zirconium
	Uganda			Zimbabwe, South Africa	platinum
	DRC	cobalt		Guinea	iron, gold, phosphate
	Cameroon			Ghana	manganese, bauxite
	DRC			Guinea	
	Angola	oil		Cameroon	nickel
	Nigeria			Burundi	
	Guinea			Cameroon	manganese
	Cameroon			South Africa	
	Gabon			Tanzania	gold
	Ghana			South Africa	
	Kenya			Djibouti	
	South Sudan			Burkina Faso	
	Sudan			Benin	
	Mozambique			Liberia	timber
	Chad			Madagascar	graphite
	DRC			Mauritania	iron ore
	Eritrea			Guinea	aluminium, gas
	Côte d'Ivoire			Mozambique	
	Ghana	cocoa		Uganda	coffee
	Cameroon			Ethiopia	
	Botswana			South Africa	nuclear power
	Angola	diamonds		Ghana	
	Ghana			Nigeria	
	Guinea			Namibia	uranium

Energy Resources, Critical Minerals and other Resources (food) in Sub-Saharan Africa

Africa's Baseload Power Plants

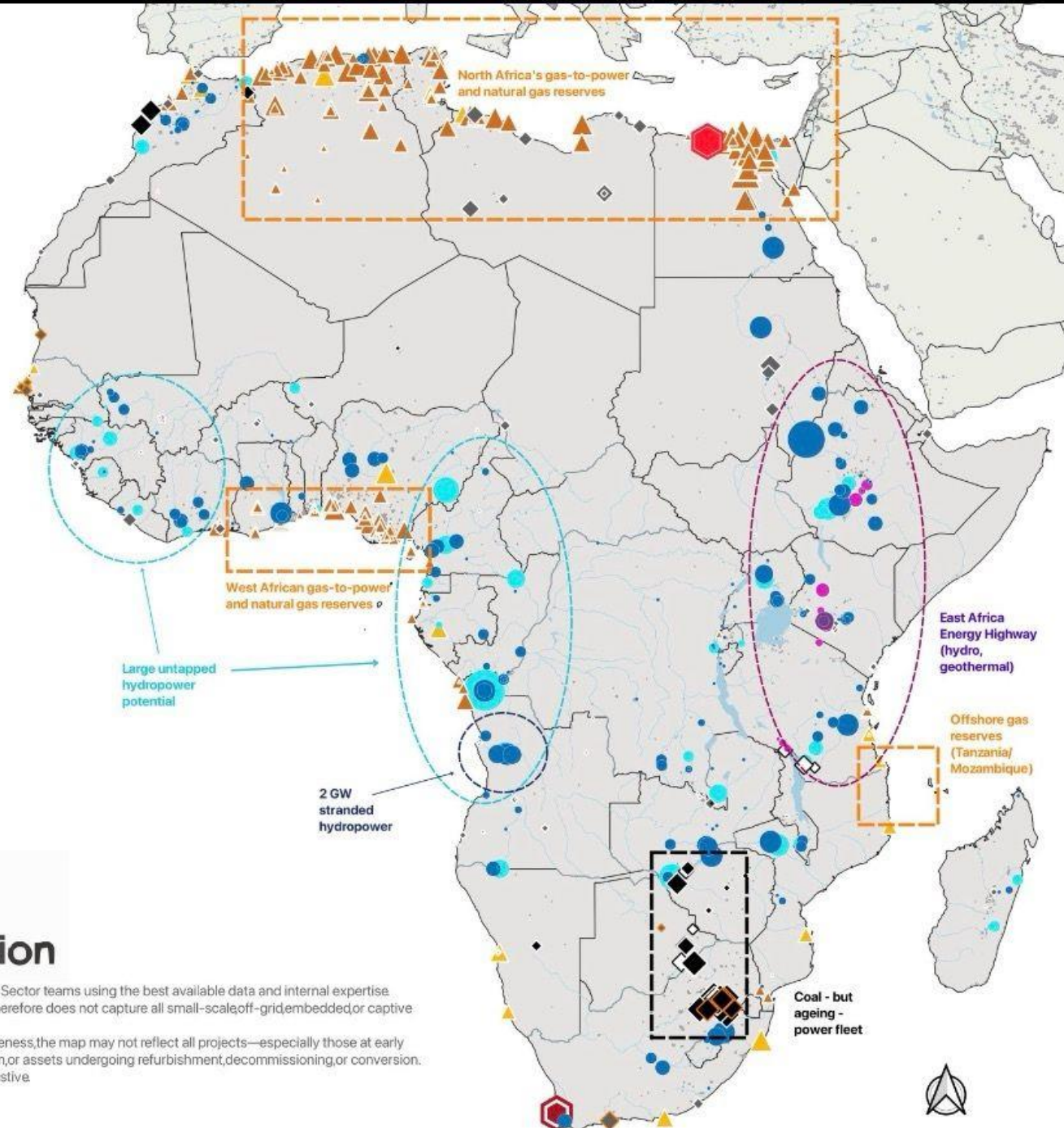
This map provides a consolidated view of Africa's baseload power generation landscape, covering coal, diesel/HFO, natural gas, hydropower, geothermal and nuclear assets across the continent. It includes both operational plants and future projects—those under construction or formally planned—offering a single, integrated picture of the infrastructure that underpins Africa's energy security. By bringing together diverse technologies and sources, the map helps understand the distribution of firm generation capacity, identify regional disparities, and appreciate the strategic assets that anchor national and cross-border power systems.

Legend

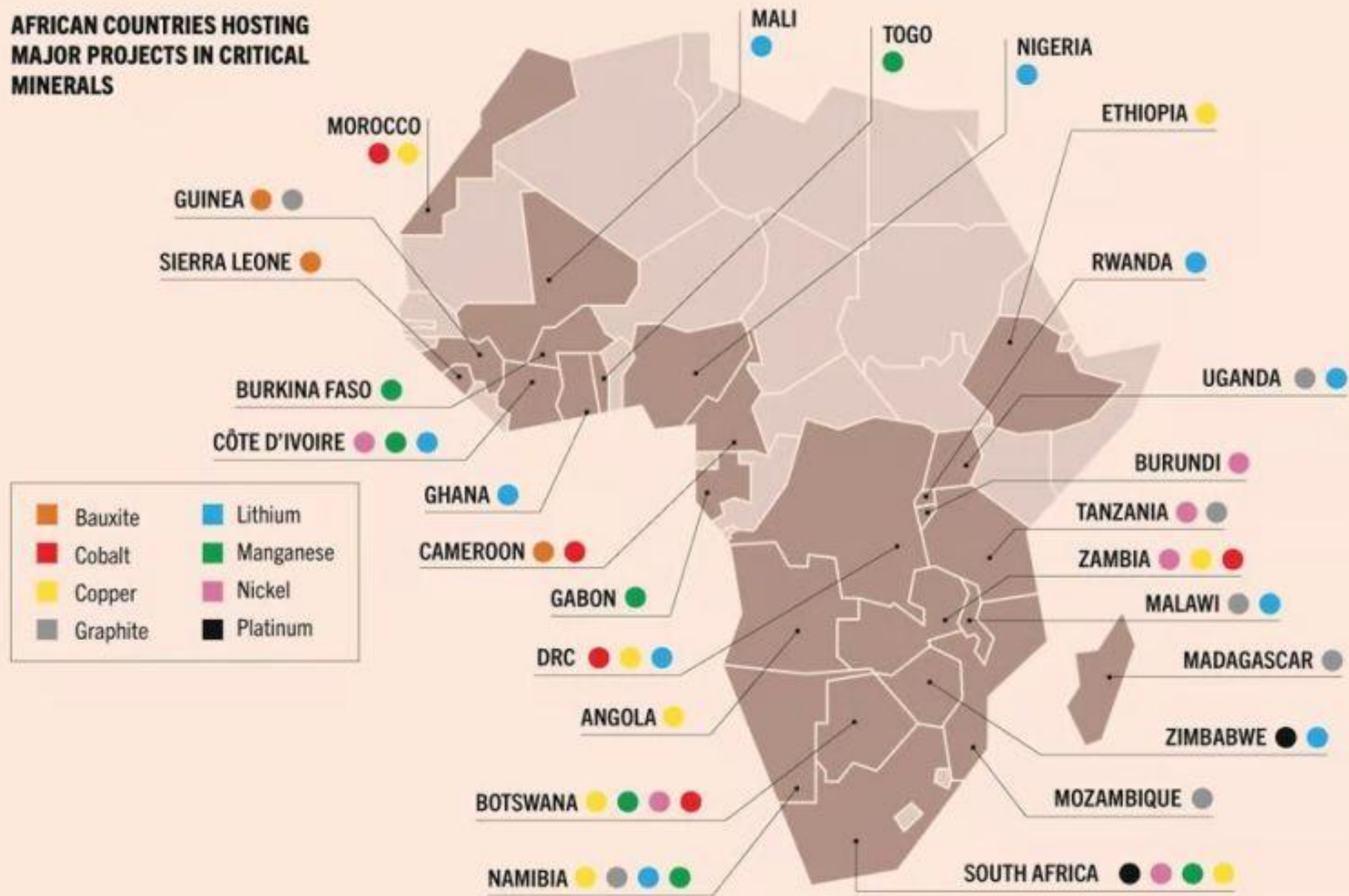
- ▲ Thermal gas/dual-fuel
- ▲ Thermal gas (upcoming/planned)
- ◆ Thermal diesel/HFO
- ◆ Thermal diesel/HFO (possible conversion to gas)
- ◆ Coal
- ◆ Coal (possible conversion to gas)
- ◇ Coal (upcoming/planned)
- Hydropower
- Hydropower (upcoming/planned)
- Geothermal
- Geothermal (upcoming/planned)
- ⬢ Nuclear
- ⬢ Nuclear (upcoming)



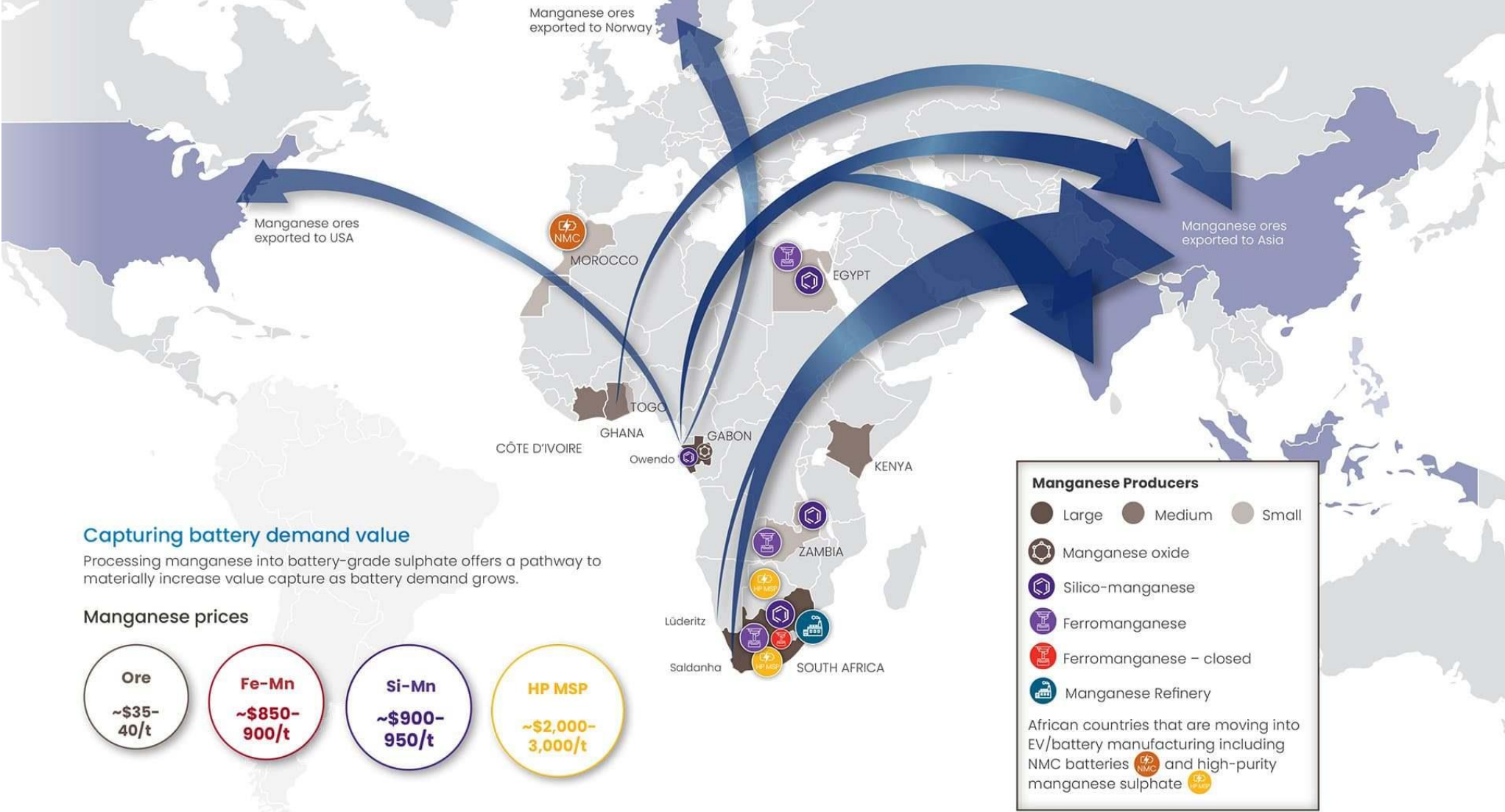
This map has been developed by AFC's Research and Power Sector teams using the best available data and internal expertise. It focuses primarily on grid-connected baseload plants and therefore does not capture all small-scale, off-grid, embedded, or captive generation assets across the continent. While every effort was made to ensure accuracy and completeness, the map may not reflect all projects—especially those at early conceptual stages, those lacking publicly verifiable information, or assets undergoing refurbishment, decommissioning, or conversion. It should therefore be considered indicative rather than exhaustive.



AFRICAN COUNTRIES HOSTING MAJOR PROJECTS IN CRITICAL MINERALS



Africa's manganese is produced at scale but exported largely raw, leaving the value chain highly exposed to Asian steel demand.



Capturing battery demand value

Processing manganese into battery-grade sulphate offers a pathway to materially increase value capture as battery demand grows.

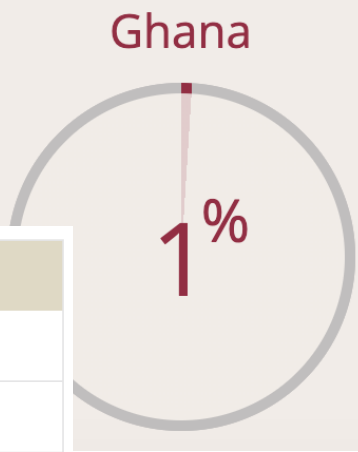
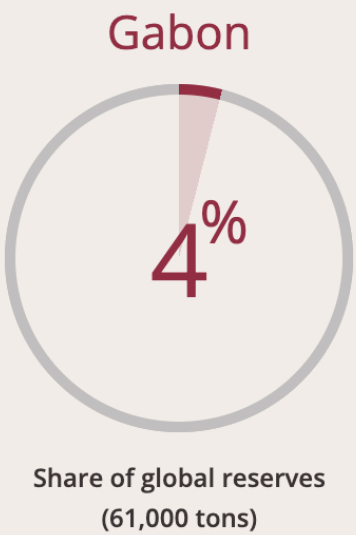
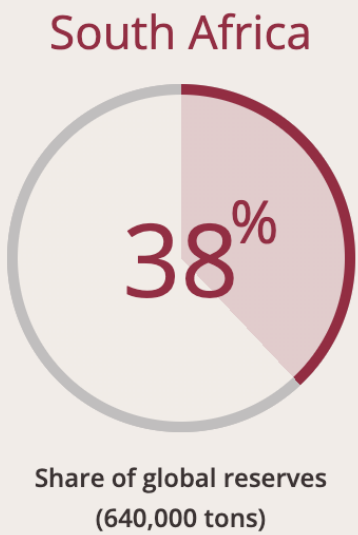
Manganese prices



Manganese reserves : Major use in steel, Batteries, Electric vehicles

South Africa is the largest producer of manganese in the world and together with Gabon, Ghana, and Côte d'Ivoire are the major countries in Africa's manganese production. These countries have a combined total of **714,000** metric tons in manganese reserves, which constitutes **43%** of total global manganese reserves.

- South Africa has reserves of **640,000** metric tons (**38%** of global total).
- Gabon has reserves of **61,000** metric tons (**4%** of global total).
- Ghana has reserves of **13,000** metric tons (**1%** of global total).
- The **top five countries** with the largest manganese reserves globally are South Africa (38%); Australia (16%); Brazil (16%); China (16%) and Ukraine (8%).

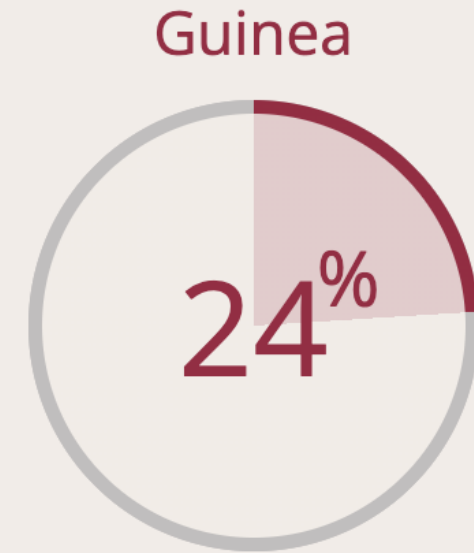


 South Africa exports in 2020	 Gabon exports in 2020	 Ghana exports in 2020
China (\$1.67 billion)	China (\$769 million)	China (\$164 million)
India (\$214 million)	India (\$148 million)	Ukraine (\$59.7 million)
Russia (\$135 million)	Norway (\$102 million)	-
Norway (\$111 million)	United States (\$54.4 million)	-
Malaysia (\$90.5 million)	Russia (\$36.2 million)	-

Bauxite reserves : Major use in aluminum

Guinea, Ghana, Sierra Leone and Mozambique are the top four bauxite exporting countries in Africa, together accounting for at least one-third of the world's proven bauxite reserves.

Guinea is the leading African countries involved in bauxite production. Guinea accounted for **7.4 million** metric tons of bauxite reserves in 2021, which represented **24%** of total global bauxite reserves.

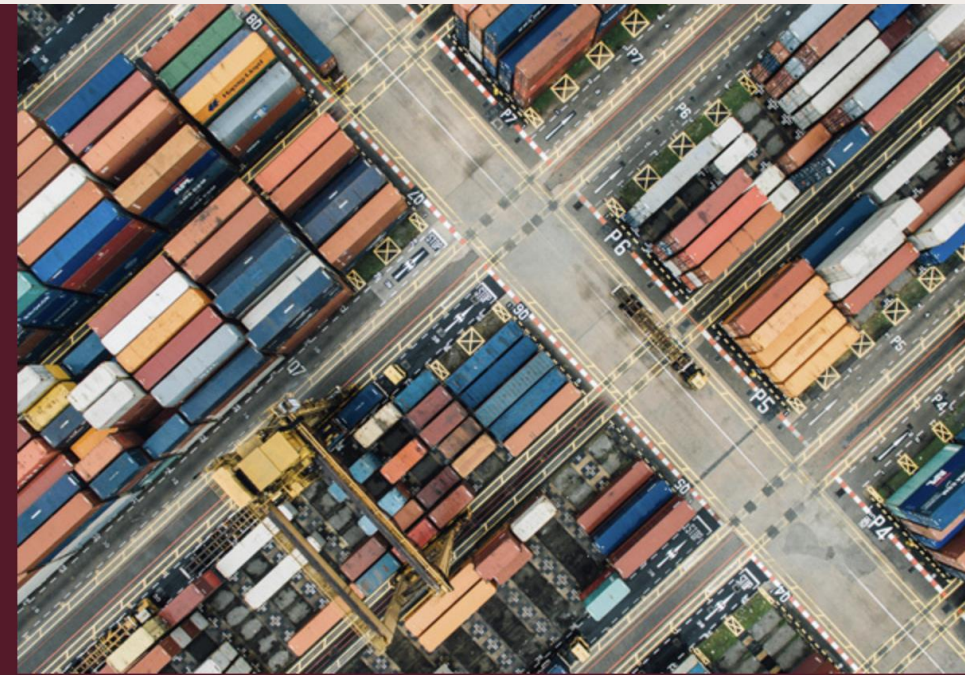


Share of global reserves
(7,400,000 metric tons)

Main export destinations

In 2020, Guinea contributed to 55% of the total global exports of bauxite, with **China** being the primary recipient.

Source: African Union, African Minerals Development Center
Available: <https://www.africangreenminerals.com/minerals>



Cobalt reserves : Major use in rechargeable batteries, Electric vehicles

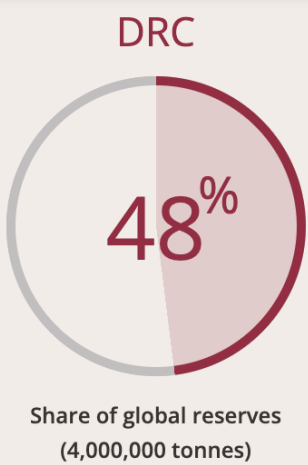
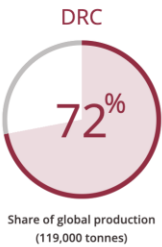
The DRC, Madagascar and Morocco account for **4,113,000 tonnes** of cobalt reserves, representing **49%** of the world’s total cobalt reserves.

The countries with the largest share of global cobalt reserves are the Democratic Republic of Congo (DRC) (48%); Australia (18%); Indonesia (7%); Cuba (6%); along with the Philippines, Madagascar, Canada and Russia.

- Global cobalt production is dominated by the Democratic Republic of Congo (DRC) which has cobalt reserves amounting to **4,000,000 tonnes**, constituting 48% of global reserves.
- Madagascar has the second largest reserves in Africa, with cobalt reserves amounting to **100,000 tonnes**, and **1.2%** of global reserves.

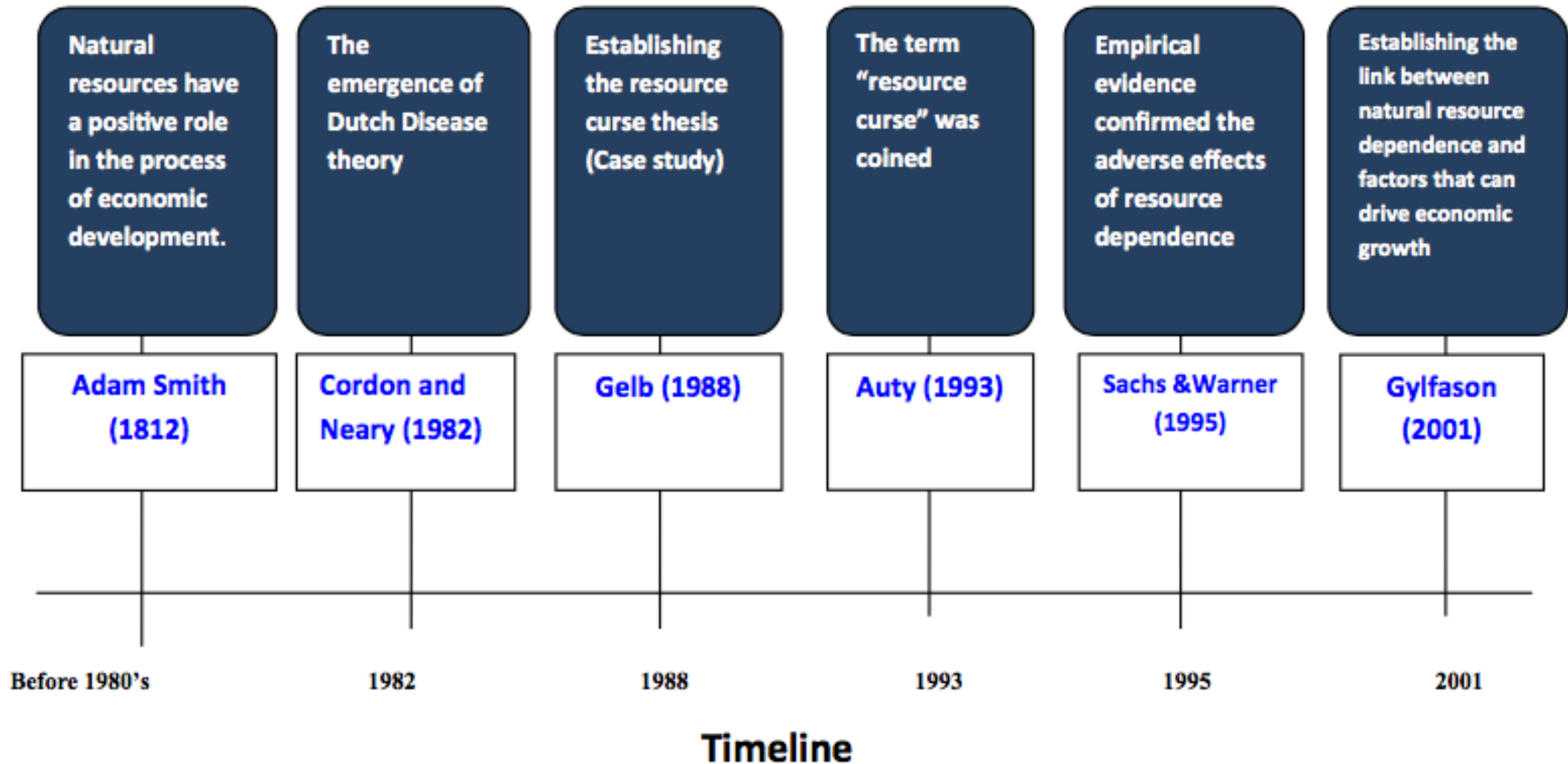
Cobalt production

- The DRC accounted for **72%** of global cobalt production in 2021.
- Madagascar was the eighth largest producer of cobalt globally in 2021, with production of **2,800 tonnes** (1.7% of global production).
- Morocco was the eleventh largest producer of cobalt globally in 2021, with production of **2,300 tonnes** (1.4% of global production).



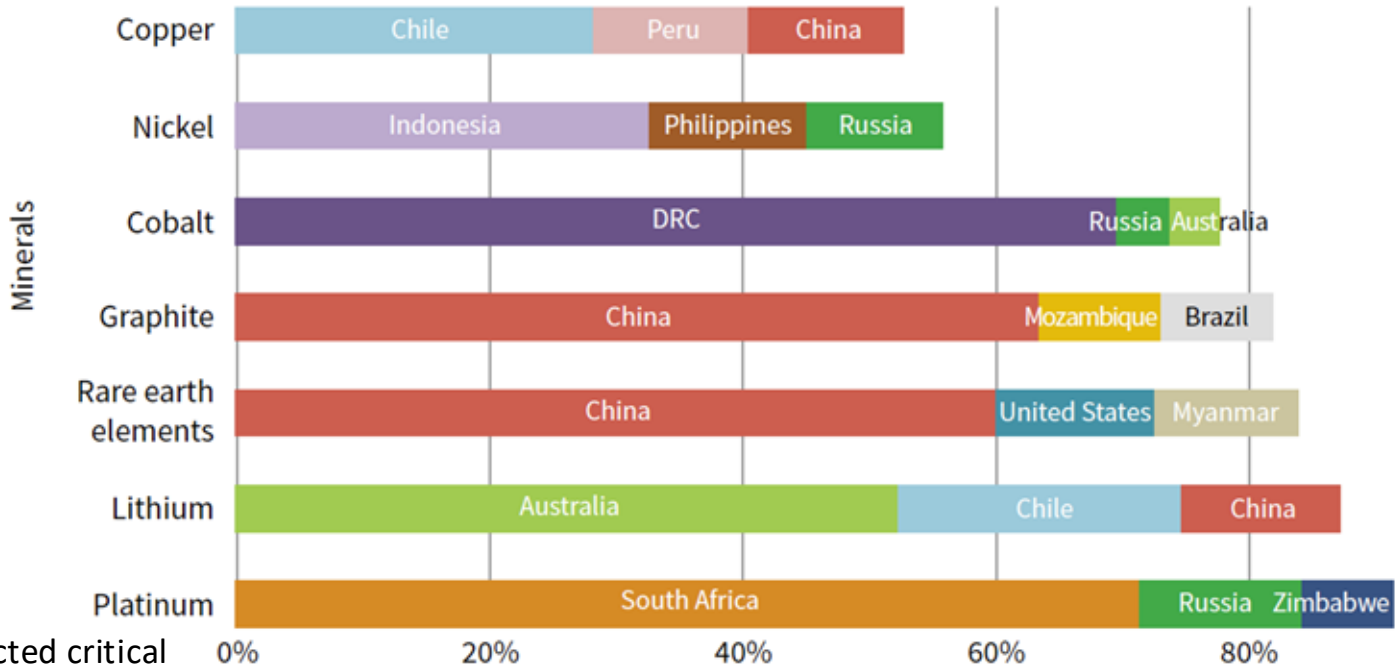
 DRC exports in 2020	 Madagascar exports in 2020	 Morocco exports in 2020
China (\$2.17 billion)	Netherlands (\$10.8 million)	Netherlands (\$41.6 million)
Singapore (\$148 million)	United States of America (\$9.32 million)	Japan (\$13.4 million)
South Korea (\$15.1 million)	Japan (\$5.24 million)	China (\$9.17 million)
Belgium (\$12.9 million)	South Africa (\$4.19 million)	United States of America (\$9.23 million)
Malaysia (\$12.1 million)	Canada (\$3.88 million)	Chinese Taipei (\$3.94 million)

Resource curse timeline, 1980-2001

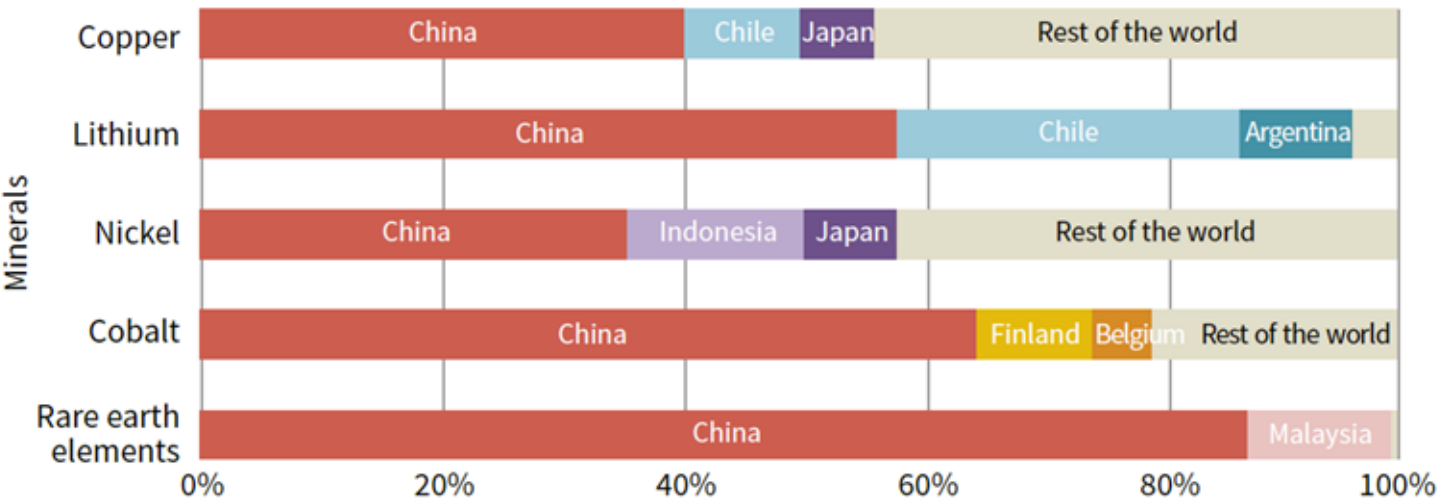


Critical minerals: % of production/country

Share of processing volume by country for selected critical minerals, 2019



Share of top three producing countries in total production for selected critical minerals, 2019



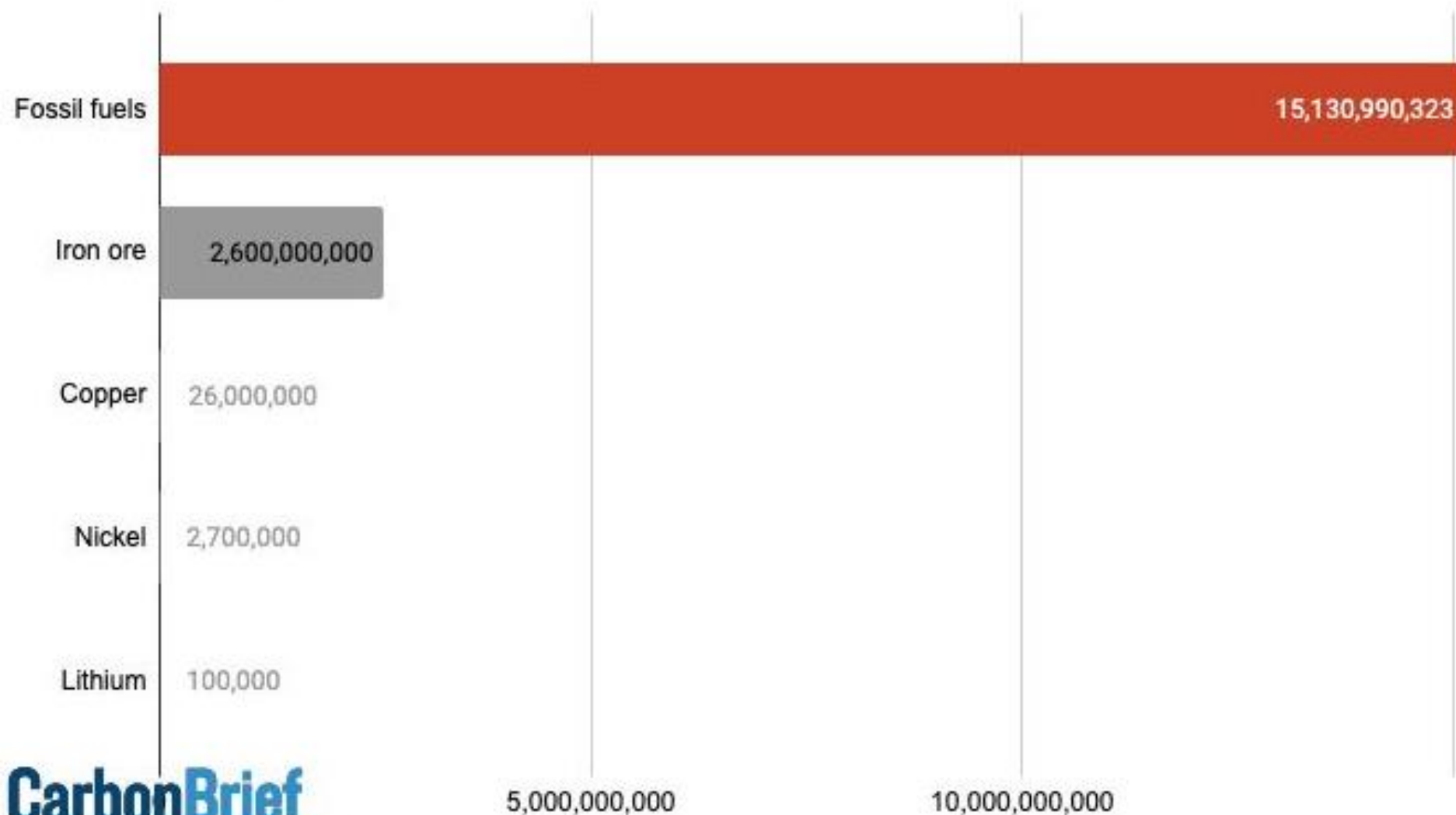
Source: The African Climate Foundation, 2022. Geopolitics of critical minerals in renewable energy supply chains. South Africa: The African Climate Foundation, 3.

European Commission on Critical Raw Materials: Ensuring secure and sustainable supply chains for EU's green and digital future

- Demand for critical raw materials is projected to increase dramatically
- Secure, diversified, affordable and sustainable supply of critical raw materials
- Enhance the resilience of EU critical raw material supply chains
- Critical raw materials are indispensable for the net zero industry, the digital industry, aerospace, and defence sectors.
- Regulation and Communication to be forwarded by the EU

The world mines far (far) more fossil fuels than it does transition metals

Tonnes produced globally in 2021. Source: BP, USGS, Carbon Brief.



CASE STUDY 1: Impact of large-scale green-energy projects on pastoralists in Kenya

Green-energy projects	Year	Notes on changes
Lake Turkana Wind Power (LTWP)		• 310 MW of electricity, the biggest private investment in Kenya's history • Ancestral ownership to Turkana, Samburu, Rendille and El Molo
Kipeto Wind Power	2021	100 MW
Kinangop Wind Park (KWP)	2004	• Identified local landowners were to be compensated for the use of their land, and additional CSR funds were earmarked for community development. • Demonstrations by local people escalated to a point where a turbine was destroyed;

CASE STUDY 1: Green-energy projects & relevance for pastoral systems

Project name	Country	Area	Land use	Issues relevant for pastoral systems
Lake Turkana Wind Power	Kenya	60,703 ha; wind farm on only ca 16,000 ha; 365 turbines	Communal land used by nomadic pastoralists	• Limited consultation • Land ownership takeover from community without any compensation • Community went to court, which declared land acquisition illegal
Kipeto Wind Power	Kenya	7,000 ha, 60 turbines	Semi-nomadic pastoralists but land privatised to family ownership	• Lengthy community consultation • Equity for community, with agreement on share of revenue
Kinangop Wind Park	Kenya	38 turbines planned	Smallholder crop and dairy farming	• Community trust fund set up • Community protested on lack of consultation and compensation • Project not completed

Source: Waters-Bayer, A., Tadicha Wario, H., 2022. Pastoralism and large-scale Renewable energy and green hydrogen projects. Potential & threats. Heinrich Böll Stiftung, Brot für die Welt.

SAMUEL HALL.

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- The map illustrates the EACOP pipeline route, which starts at Lake Albert in the north and travels south through Murchison Falls National Park, crossing the border into Tanzania to reach Tanga. Key geographical features include Lake Albert, Lake Victoria, and the cities of Kampala and Nairobi. The pipeline is marked with a red line, and the park area is highlighted in green. An inset map shows the location of Uganda within the African continent.

Source: Tagespiegel, May 2022. Oil in the national park. [What Total's oil production means for the people of Uganda.](#)

CASE STUDY 2: East African Crude Oil Pipeline (EACOP)

Kyakaboga Resettlement

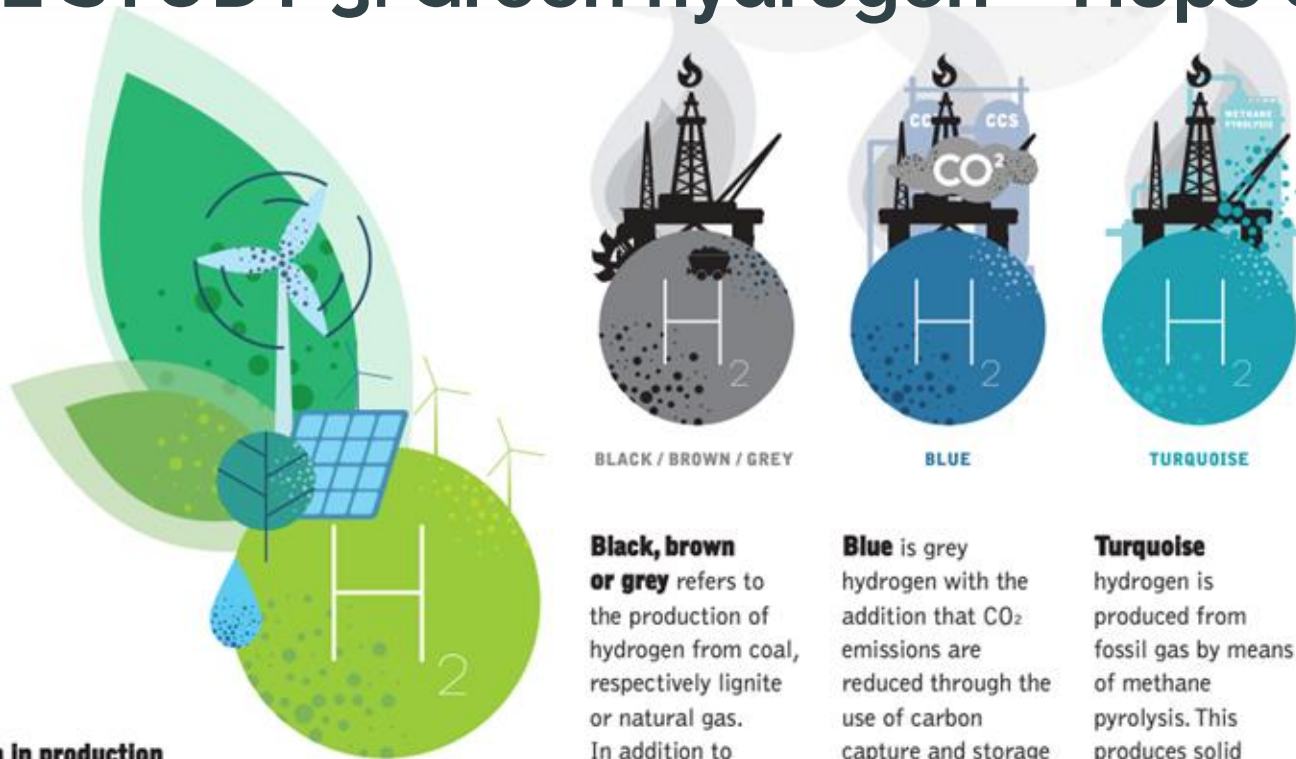


Oil producing region named Kingfisher owned by Chinese oil company CNOOC in Lake Arbert



Source: Tagespiegel, May 2022. Oil in the national park. [What Total's oil production means for the people of Uganda.](#)

CASE STUDY 3: Green hydrogen – Hope or fallacy?



The distinction in production methods is usually made through the following colour scheme:

GREEN

Green denotes production with water as the feedstock and electrical energy from renewable sources.

Black, brown or grey refers to the production of hydrogen from coal, respectively lignite or natural gas. In addition to hydrogen, carbon dioxide is usually generated during the fossil fuel production process. The greenhouse gas emissions from fossil-based hydrogen are considerable.

Blue is grey hydrogen with the addition that CO_2 emissions are reduced through the use of carbon capture and storage (CCS) technology. While blue hydrogen is often described as climate-neutral, it is in fact problematic. The long-term consequences of CO_2 storage remain unknown, leakage can lead to emissions, and the use of natural gas should generally be avoided.

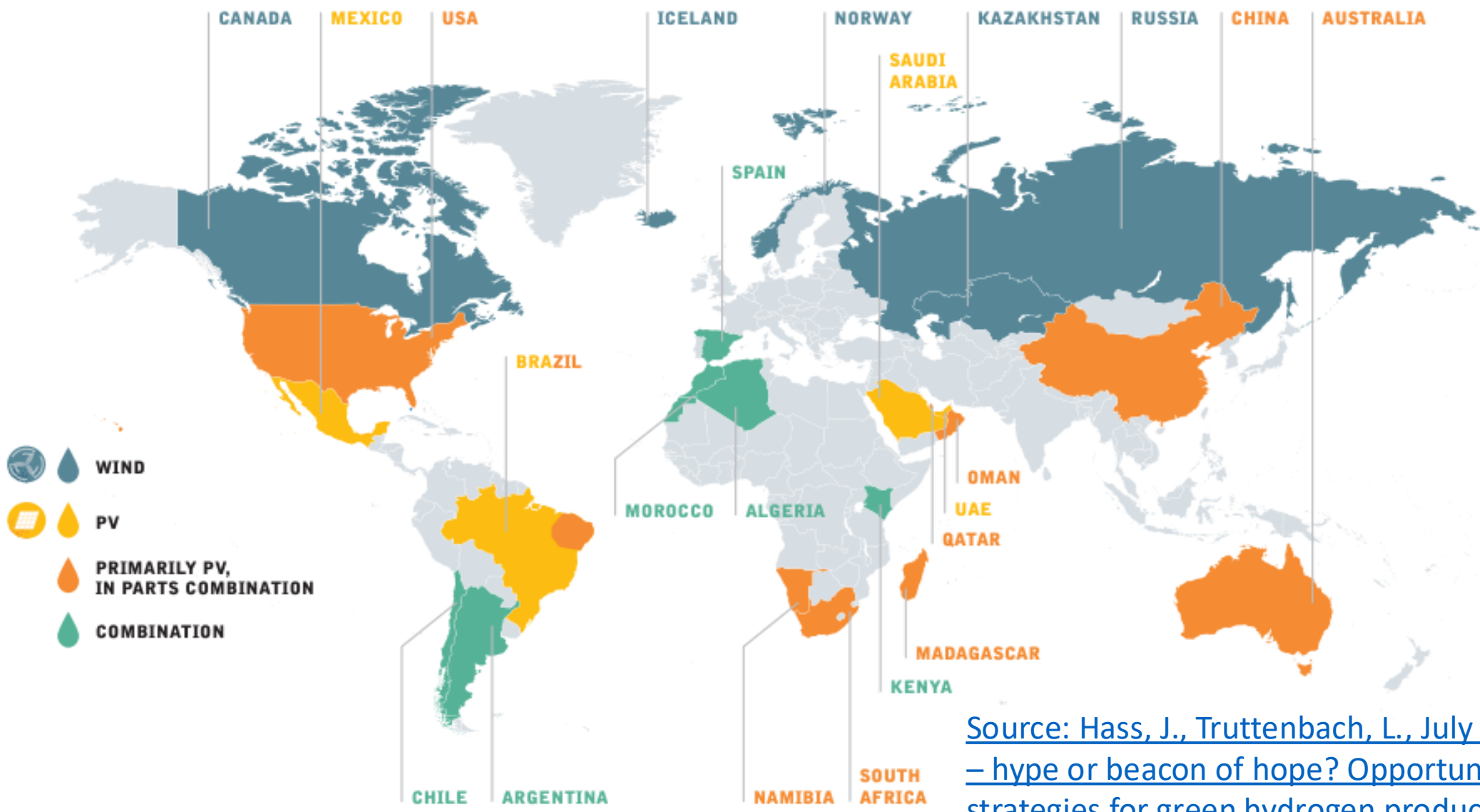
Turquoise hydrogen is produced from fossil gas by means of methane pyrolysis. This produces solid carbon instead of CO_2 . Nevertheless, climate neutrality is likewise hardly possible, since emissions are produced during the extraction and transport of the starting material, which is fossil gas.

Hydrogen can be produced from diverse resources with the potential for near-zero greenhouse gas emissions

The big difference between green and other hydrogen.

Source: Hass, J., Truttenbach, L., July 2022. Green hydrogen – hype or beacon of hope? Opportunities, risks and strategies for green hydrogen production in the global South. Berlin: Heinrich Böll Foundation, Brot für die Welt

CASE STUDY 3: Examples of high potential hydrogen producing countries



Source: [Hass, J., Truttenbach, L., July 2022. Green hydrogen – hype or beacon of hope? Opportunities, risks and strategies for green hydrogen production in the global South](#). Berlin: Heinrich Böll Foundation. Brot für die Welt