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Central Bank Digital Currencies: risks, challenges and opportunities for climate justice

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Western Banks in Eastern Europe: New Geographies of Financialisation

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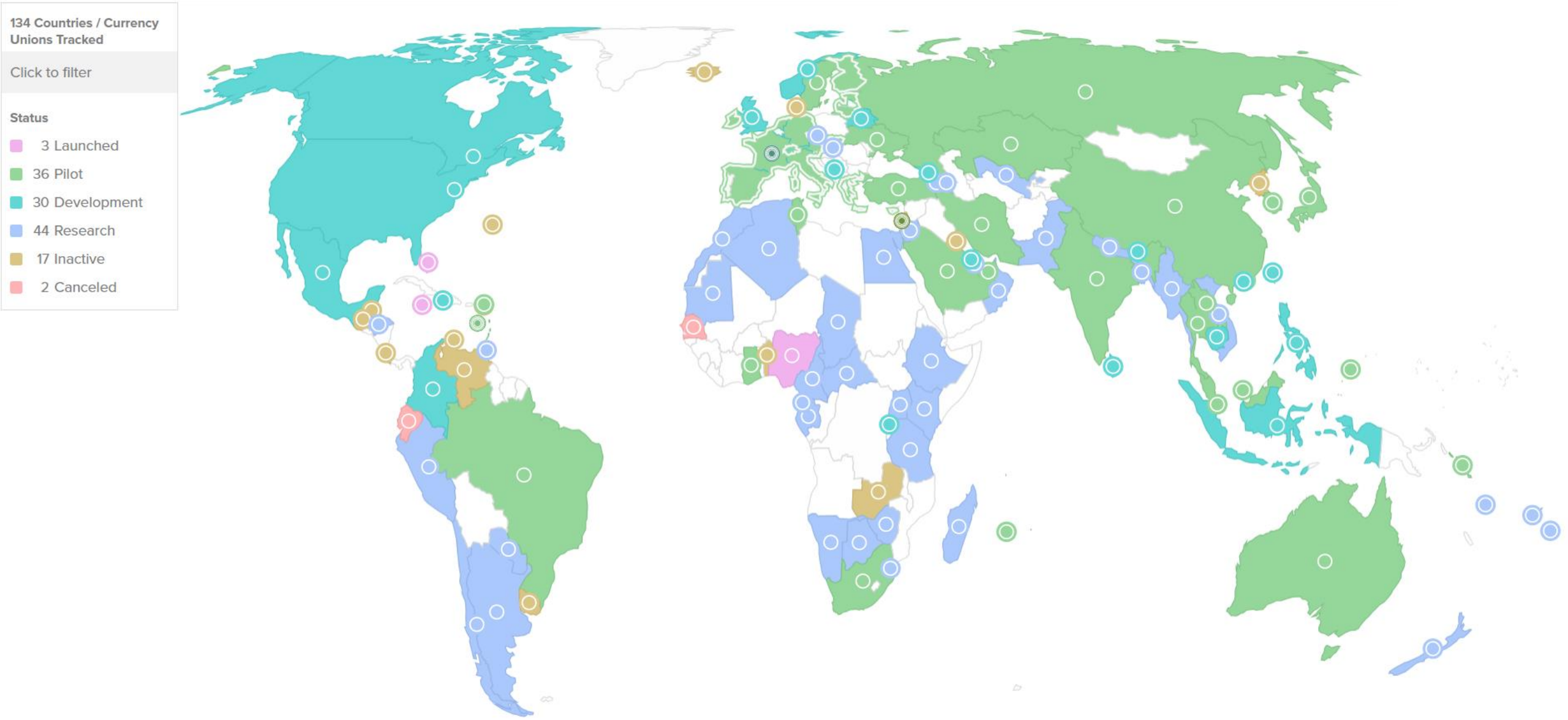
- A **Central Bank Digital Currency (CBDC)** is the digital form of a country's fiat currency that is also a claim on the central bank.
- Instead of printing money, the central bank issues electronic coins or accounts backed by the full faith and credit of the government.

- CBDC vs Cryptocurrencies, stablecoins, etc.
- CBDC vs existing CB money

- Currently, 134 countries & currency unions, representing 98% of global GDP, are exploring a CBDC
- 19 of the Group of 20 (G20) countries are now in the advanced stages of CBDC development.
- 3 countries have fully launched a CBDC—the Bahamas, Jamaica and Nigeria
- There are 36 ongoing pilots, including those of China, Brazil, Russia, India, the Euro area and Australia.

CBDCs around the world



Source: https://www.atlanticcouncil.org/cbdctracker/

Environmental risks

- Energy consumption
- CO2 and methane emissions
- Water footprint
- E-waste

Some key environmental facts about Bitcoin

- In 2020–2021, 67% of the **electricity consumed** for Bitcoin mining was produced from fossil energy sources. Coal provided 45% of the overall electricity used for Bitcoin mining globally (UNU 2023).
- In 2022, Bitcoin alone was estimated to consume **127 terawatt-hours** (TWh), more than **Norway** (Forbes 2022).
- In 2023, the average energy consumed for **one Bitcoin transaction** is **851.77 kWh**, equivalent to about a month of electricity for the average US household (Crypto.com n/d).
- Bitcoin mining emitted over 85.89 Mt of CO2 during the 2020–2021 period (UNU 2023). This is 0.22% of the global CO2 emissions, almost as much as Belgium.
- The **water footprint** of Bitcoin in 2021 increased by 166% compared with 2020, from 591.2 to 1,573.7 GL. **The water footprint per transaction** for those years amounted to 5,231 and 16,279 L, respectively (de Vries 2024).

Challenges

- Overcoming environmental risks
- Universality
- Governance and regulatory mandates
- Big Tech dominance
- Breaking the international monetary hierarchy

Opportunities

- More sustainable energy consumption
- More effective and spatial monetary policy
- New policy tools to fight inequality and fund the green transition

Estimate of electricity consumption per transaction in 2020

Type	Blockchain		Cash	Credit/Debit cards
	Bitcoin	Ethereum		
Electricity consumption per transaction (kWh)	700	30	0.044	0.0007

Source: Lee and Park (2020)

Conclusions

- Emerging geographies of Asian leadership
- Design options: radical change or more of the same?
  - *“Anything we can actually do, we can afford”*
- Geographies of CBDC

THANKS FOR YOUR ATTENTION!

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