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Creating infrastructure to accommodate decentralised finance in an era of economic insecurity in Sub-Saharan Africa

by Arshia
Tabatabaee,
Giovanna Zarrebini,
and Laurence Lai

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About the authors



Arshia Tabatabaee is a second year undergraduate Politics and International Studies student at the University of Warwick. Arshia has held a variety of research positions, including being a Foreign Policy analyst at the European Student Think Tank, and a former research intern at the Tony Blair Institute for Global Change. After graduation, he looks to work in research and advisory positions in geopolitics.

Arshia Tabatabaee



Giovanna Zarrebini is a first year undergraduate Politics and International Studies at the University of Warwick. As the co-founder of a non-profit organisation in Brazil, she has played an instrumental role in bridging educational divides by facilitating English learning in underserved communities and has held positions in non-profit organisations across the world such as Madagascar. Alongside her passion in humanitarian work, Giovanna is passionate about harnessing the power of data in the realm of international and national governance. She firmly believes in the potential of quantitative analysis to reshape the narrative of geopolitics. As she continues in her academic journey, she aspires to produce research in this domain, strengthening her commitment to innovation and global advancement.

Giovanna Zarrebini



Laurence Lai is a first year undergraduate Law student at the University of Warwick. He has gained valuable experience as an intern at The Written Revolution, an international student-led journalistic organisation. Within this role, he has contributed compelling political and current affairs opinion pieces, covering a wide range of topics, including the local political situation in Hong Kong and the intricacies of international relations. His passion lies in the intersection of law and technology, and he aspires to contribute to the development of legal frameworks that effectively adapt to the rapid pace of technological advancements upon his graduation.

Laurence Lai

Introduction

This report aims to develop an understanding of contemporary decentralised financial infrastructure available in the world; the position of cryptocurrency technologies as applicable currencies used for civilians within nations in Africa.

A report conducted by BNP Paribas has shown that the African continent has been most affected by inflationary pressures.¹ In 2022, the International Monetary Fund reported inflation as one of Sub-Saharan Africa’s most “urgent” challenges².

In an era of increasing financial proliferation, Sub-Saharan Africans are disproportionately affected by the lack of physical and social infrastructure to allow the usage of cryptocurrencies. Inflationary pressures have led to social and economic challenges to Africans. In 2023, South Africa experienced a dramatic inflation rise on foods and fuels above 4%³. Chatham House has described a potential for “civil strife” in African countries as a result of inflationary drives in fuel and foods.⁴ By creating the infrastructure necessary for daily life to continue, cryptocurrencies can support a long-term stabilisation of the most economically insecure African states.

This report will begin through the briefing, which aims to inform readers of issues around underdeveloped technological and financial infrastructure. The Insight section will approach fundamental and key ‘causal’ issues around this.

¹ BNP Paribas, 2023, [Inflation is hard to tame in Eastern and Southern Africa](#)

² IMF, 2022, [Africa’s Inflation Among Region’s Most Urgent Challenges](#)

³ Reuters, 2023, [South Africa’s inflation rises sharply on food and fuel prices](#)

⁴ Chatham House, 2023, [Africa in 2023: Continuing political and economic volatility](#)

Tech & Innovation briefing note

Overview

This briefing will approach the usage of cryptocurrencies through its potential application as ways of allowing the poorest in societies to avoid artificial financial difficulties. Within a variety of Sub-Saharan African states, inflation has seen noticeable increases in the post-Covid-19 era, and therefore has harmed the daily lives of many. This, in turn, has caused protests and the potential for civil violence in these states. By removing central banks from the equation, and using cryptocurrencies as a hedge against inflation, poverty can be alleviated in a variety of contexts in Sub-Saharan Africa.

It is important to work to create infrastructure that can allow for people in impoverished states to access and use cryptocurrencies. In this briefing, we will look at the physical, regulatory, and social infrastructure required to proliferate cryptocurrencies in states in Sub-Saharan Africa.

Section 1: Taking a regulatory and legal framework insight into issues around contemporary uses of cryptocurrency and blockchain systems, as to prevent a proliferation of cryptocurrencies being exploited by criminals, and promote regulatory certainty.

Section 2: Evaluating the social and economic disparities in existing cryptocurrency usage in Sub Saharan Africa.

Section 3: Understand existing constraints on physical infrastructure in Africa. This includes issues around electrification and limited educational facilities to make use of blockchain systems among Sub-Saharan Africans.

International Co-ordination and Regulatory Frameworks:

The limited international agreements on cryptocurrencies cause legal issues.

- According to a report by Thomson Reuters,⁵ there is a wide range of regulatory degrees implemented by different countries.
- The International Monetary Fund⁶ has pointed out that cryptocurrencies operate on decentralised networks, which means they may not have the same level of consumer protection mechanisms as traditional financial systems.
- As reported by Reuters,⁷ Cryptocurrencies are used in illicit finance due to their pseudonymous nature, allowing individuals to transact without revealing their identities. The decentralised nature of cryptocurrencies and the lack of centralised control make it challenging for authorities to regulate and track transactions effectively.

Cryptocurrencies are disproportionately used for illegal contexts.

- According to Transparency International,⁸ cryptocurrencies have become increasingly significant for organised crime groups due to their potential to facilitate undetected cross-border transfers of illicit funds.
- According to a report from the United States Committee on Homeland Security & Governmental Affairs⁹ and Kaspersky,¹⁰ ransomware has been leveraging cryptocurrency as a means to demand payments due to its anonymity. WannaCry ransomware infection has demanded its infectors to pay with Bitcoin.
- As per Investopedia,¹¹ darknet markets operate on the dark web and offer illicit goods and services. Cryptocurrencies like Bitcoin are used for anonymous transactions, ensuring privacy for both buyers and sellers.

⁵ Thomson Reuters, 2022, [Cryptocurrency regulations by country](#), p.2-3

⁶ International Monetary Fund, 2022, [Regulating Crypto](#)

⁷ Reuters, 2023, [Crypto's role in terrorist financing | Reuters](#)

⁸ Transparency International, 2023, [Cryptocurrencies, corruption and organised crime: Implications of the growing use of cryptocurrencies in enabling illicit finance and corruption](#), p.8

⁹ United States Senate Committee on Homeland Security & Governmental Affairs, 2023, [Use of Cryptocurrency in Ransomware Attacks, Available Data, and National Security](#), p.1-3

¹⁰ Kaspersky, 2023, [Ransomware WannaCry: All you need to know](#)

¹¹ Investopedia, 2023, [Darknet Market: Meaning, Products, Silk Road](#)

International relations could potentially hinder coordination between countries.

- According to a recent news report,¹² the relationship between the two great powers, namely China and the US has reached its lowest point, though it stabilised recently. It could potentially hinder China and the US reaching an agreement on international coordination matters.
- China and the United States have adopted contrasting approaches to cryptocurrency. While China has outrightly banned its usage,¹³ the United States has allowed cryptocurrency transactions with certain regulatory measures in place.¹⁴
- The conflicts around the world could hinder countries from reaching an agreement, such as the Russian Invasion of Ukraine¹⁵ and the Israeli-Palestinian Conflict.¹⁶

¹² Sky News, 2023, [Relations between the US and China have stabilised but much still divides them](#)

¹³ BBC, 2021, [China declares all crypto-currency transactions illegal](#)

¹⁴ Investopedia, 2023, [Countries Where Bitcoin Is Legal and Illegal](#)

¹⁵ Council on Foreign Relations, 2023, [Ukraine: Conflict at the Crossroads of Europe and Russia](#)

¹⁶ Council on Foreign Relations, 2023, [Israeli-Palestinian Conflict](#)

Social Inequality and Economic Outcomes:

Sub-Saharan Africa faces significant monetary and economic challenges in the new era.

- According to the IMF,¹⁷ Sub-Saharan Africa has been hit by a series of economic shocks following the pandemic and Russo-Ukraine conflict claiming that if fiscal policy does remain unchanged, the region's debt to GDP ratio will increase more than 10 percentage points over the next 5 years.
- An IRE Journal report illustrates African nations are suffering from brain drain such that individuals from various African nations are migrating to Western countries in search of better opportunities; leading to a depletion of 20,000 well-trained and highly skilled African personnel annually.¹⁸
- An IMF blog¹⁹ highlights that in 2023, interest rates in Sub-Saharan Africa were roughly double what they were in 2010. To add on, African states were less reliable to maintain healthy budget expenditures, with there being a roughly 45% frequency of debt ceiling breaches in Sub-Saharan African states between 2010-2019.

The Cryptocurrency divide enhances existing economic inequalities.

- A report by Chainalysis in 2023²⁰ indicated that Central Asia, South Asia, and Oceania dominate cryptocurrency transactions which regions of Africa and parts of Asia are excluded from due to lacking technological infrastructure.
- As the Brookings Institute²¹ recognises, the COVID-19 pandemic has led to a rise in internet usage, creating incentives for furthering digital accessibility. However, as of 2022, 2.7 billion people do not have access to the internet and 53% of the world do not have access to high-speed broadband.
- According to the International Telecommunication Union, as of 2021, 62% of the global male population were using the internet compared to 57% of females, extending the concern of inequality across gender as well as national lines.²²

¹⁷ IMF, 2023, [Navigating Fiscal Challenges in Sub-Saharan Africa](#)

¹⁸ IRE Journal, 2022, [The Challenges to Africa's Economic Development since the 1960s](#)

¹⁹ IMF, 2023, ["How to Avoid a Debt Crisis in Sub-Saharan Africa"](#)

²⁰ Chainalysis, 2023, [Is Central & Southern Asia the Future of Crypto? Here's What Drives Crypto Usage in the Region Leading the Way in Grassroots Adoption.](#)

²¹ Brookings, 2023, [Fixing the global digital divide and digital access gap](#)

²² International Telecommunication Union, 2021, [Measuring digital development: Facts and Figures](#)

The application of Blockchain and Cryptocurrency can promote resistance to macroeconomic challenges.

- Local reports suggested that Venezuela's hyperinflation rate hit 10 million % in 2019, yet the current application of cryptocurrencies such as Cryptobuyer's solution, has allowed for a more stable medium of exchange.²³
- Based on study²⁴ conducted at Yonsei University using a Vector Autoregression model, there is empirical evidence indicating a relationship between inflation, uncertainty, and the prices of Bitcoin and gold. The study reveals that Bitcoin's value increases in response to inflation, suggesting it possesses inflation-hedging properties.
- A study²⁵ in 2022 conducted 18 expert interviews with various actors across global food supplies, conducted by Maastricht University concluded that the opportunities of blockchain will lead to sustainability-oriented innovation that can ensure fairer supply chains, enhance food traceability and drive environmental sustainability.

²³ The New York Times, 2019, [Bitcoin Has Saved My Family](#)

²⁴ Choi Sangyup & Junhyeok Shin, Finance Research Letters, 2022, [Bitcoin: An inflation hedge but not a safe haven](#)

²⁵ Nicola Friedman & Jarrod Ormiston, 2022, [Blockchain as a sustainability-oriented innovation?: Opportunities for and resistance to Blockchain technology as a driver of sustainability in global food supply chains](#)

Lack of access to physical infrastructure in Sub-Saharan Africa:

Sub-Saharan Africans have the lowest access to electricity in the world.

- According to the Brookings Institute²⁶, one of the main constraints on readily available electricity usage is costs and financial burdens. Of the 44 states that the Brookings Institute recognised as Sub-Saharan African countries, only 14 countries have a majority of households with ready electricity access.
- In the same research, of 44 countries in Sub-Saharan Africa, in 16 countries, the price of powering a refrigerator for a full year would cost at least 10% of the country's GDP per capita.²⁷
- According to the International Energy Agency (IEA),²⁸ 2022 was the first ever year where access to electricity decreased. especially in Sub-Saharan Africa. Currently, Africans make up roughly 80% of all people in the world without electricity access.
- Africa's energy needs is expected to double over the next decades²⁹ as populations grow faster than electricity proliferation. Currently, around 600 million people lack electricity access in Africa, by 2050, it is expected that this figure will increase to 1.2 billion Africans.

There is not a significant push for renewable energies in African energy mixes.

- In 2010, Africa produced 3 times more oil and crude oil than it consumed, however the IEA³⁰ (Figure 2.25) forecasts that by 2050, Africa will have a higher demand for oil and crude oils than it produces.
- The same study (Figure 3.31) also shows that in a Sustainable Africa Scenario (SAS) forecast, low-carbon fuels will make up less than 10% of the overall African fuel supply by 2026-2030.

²⁶ The Brookings Institute, 2019, [Figure of the week: Electricity access in Africa](#)

²⁷ Ibid.

²⁸ International Energy Agency, 2023, [Access to electricity improves slightly in 2023, but still far from the pace needed to meet SDG7](#)

²⁹ McKinsey & Co, 2023, [Green energy in Africa presents significant investment opportunities](#)

³⁰ International Energy Agency, 2022, [Africa Energy Outlook 2022](#)

- In a study³¹ analysing foreign direct investment in the renewable electricity industry (FDIREI) in Sub-Saharan Africa, it is shown that the peak development of Renewable Energy occurred between 2012-16. At its all time high, FDIREI reached \$12 billion in 2015 in Solar Renewable Energies. In 2019, FDI returned to pre-2012 levels.

Digital Literacy Gap Contributes to Cryptocurrency Usage Disparities in South Africa.

- As per a survey by Triple A,³² in 2022, South Africa had one of the highest percentages of cryptocurrency ownership at 9.4%. However, most of these owners were from urban and semi-urban areas, leaving behind the rural populace.
- According to a World Bank blog³³ Sub-Saharan Africa has the highest education-exclusion rates in the world, with 20% of primary-age children, and 60% of 15-17 year olds, not in education.
- According to the Global Findex Database³⁴ in 2021, the ability of adults to access and use digital financial services in Sub-Saharan Africa rose from 43% in 2017 to 55 % in 2021; however, this is substantially lower than the global average of 76%, acting as a barrier to the understanding and implementation of cryptocurrencies.
- From the Thomas Reuters Foundation,³⁵ although internet access has risen exceptionally in South Africa, consistent load-shedding and lack of physical infrastructure has hampered digital inclusion and exacerbated the digital divide. This has led to severe economic consequences, costing the country \$232 million per day.

³¹ Ahmed Rashid, et al., 2022, [The nexus among foreign direct investment in renewable electricity industry, renewable electricity production, and economic growth in Africa](#)

³² Triple A, 2022, [Cryptocurrency adoption in South Africa in 2022](#)

³³ Klappermans and Vipin Panchamia, 2023, [The high price of education in Sub-Saharan Africa](#)

³⁴ The World Bank, 2021, [The Global Findex Database 2021](#)

³⁵ Thomas Reuters Foundation, 2023, [South Africa Power Cuts Widen Digital Divide and Wealth Gaps](#)

Insights

Overview

The first section understands modern barriers to decentralised financial systems from a point of international cooperation and regulatory issues. The section will aim to elucidate how the lack of these regulatory frameworks and networks of international support prevent the use of digital financial markets for positive impact.

The second section delves deeper into the causes for the underdevelopment in energy and electricity among sub-saharan African countries. The section will explore economic, social, and political issues contributing to this problem.

The third section will seek to understand failures in long-term economic planning in Sub-Saharan Africa as to create physical infrastructure at the same pace as other developing economic regions.



Lacking International and Regulatory Infrastructure.

The rapid growth of technology in the 20th century has indeed been astonishing, and its impact on various sectors, including the legal industry, has been transformative. The emergence of concepts like cryptocurrency would have been difficult to predict for some mere mortals from the early 1900s, as the technological advancements we have witnessed since then have been unparalleled.

One notable development that has contributed to the growth of technology is the widespread adoption of the internet. The internet has revolutionised the way people communicate, access information, and conduct business. According to statistics, the user base of the internet has increased dramatically from merely 0.1 per 100 people in the world in the 1960s to a staggering 59.6 in 2022.³⁶

The exponential growth of internet users has opened up new possibilities and challenges for the legal sector. With the rise of e-commerce and digital transactions, legal frameworks have had to adapt to address issues. The emergence of cryptocurrencies, like Bitcoin, Ethereum, and others, has added another layer of complexity to the legal sector.

One of the paramount concerns surrounding cryptocurrency is the issue of consumer protection, particularly in transactions conducted within the cryptocurrency realm. The fundamental purpose of traditional "money" is to serve as a medium of exchange, facilitating day-to-day transactions, and acting as a reliable store of value to preserve purchasing power over time.³⁷ However, the advent of cryptocurrency has presented a unique set of challenges, leaving existing legal frameworks outdated and ill-equipped to safeguard consumer rights.³⁸ An illustrative example of the vulnerabilities in the cryptocurrency market is the infamous case of Bitfinex, a Hong Kong-based cryptocurrency exchange platform.³⁹ In 2016, Bitfinex fell victim to a massive security breach, commonly referred to as a "superheist". During this incident, approximately 120,000 Bitcoins, equivalent to a staggering USD \$72 million at the time, were illicitly stolen.⁴⁰ This incident highlighted the inherent risks associated with cryptocurrency, including the vulnerability of digital wallets, the potential for hacking, and the lack of centralised oversight. Regulators and legal authorities have been caught off guard by the rapid rise of cryptocurrencies and their corresponding marketplaces. Navigating

³⁶ Our World in Data, 2023, [Technology Change](#)

³⁷ Corporate Finance Institute, [Functions of Money](#)

³⁸ LexisNexis, [Cryptoassets from a consumer protection perspective](#)

³⁹ CNBC, 2023, [Bitcoin launderer pleads guilty, admits to massive Bitfinex hack](#)

⁴⁰ Lucy Chambers, 2016, [The keepers of the keys: remedies and legal obligations following misappropriations of cryptocurrency](#)

in uncharted waters, they face the daunting task of establishing robust frameworks that can effectively protect consumer rights in this evolving landscape.

Indeed, one of the significant concerns surrounding cryptocurrencies is their potential use as a tool for illegal activities, enabling individuals to obscure the origins of funds acquired through criminal means. The utilisation of cryptographic addresses in cryptocurrency transactions presents a challenge in tracing the flow of funds and connecting them to their illicit sources.⁴¹ This lack of transparency creates an environment that can be exploited by criminals aiming to evade detection by law enforcement agencies. A notable example that underscores this concern is the WannaCry ransomware attack.⁴² In this infamous incident, numerous computers worldwide were infected with malicious software, encrypting users' data and demanding ransom payments in cryptocurrency to restore access. The perpetrators behind the attack utilised cryptocurrencies as a means of collecting ransom payments due to their pseudonymous nature, making it difficult to trace the flow of funds and identify the individuals involved.

These concerns gave rise to the idea of an international framework to regulate Cryptocurrency. However, countries hold different stances when it comes to cryptocurrency, leading to discussions about establishing an international framework for regulation. The United States acknowledges the potential benefits that cryptocurrency brings but also recognizes the importance of implementing regulations to protect consumers and prevent illegal activities.⁴³ In contrast, China has taken a different approach by implementing a ban on the use of cryptocurrency, driven by concerns over its inherent volatility.^{44, 45}

The ever-evolving geopolitics, notably the strained relationship between the United States and China,⁴⁶ along with conflicts such as the Ukraine⁴⁷ and the Israel-Arab conflict⁴⁸ have significantly impacted the cryptocurrency landscape. These geopolitical tensions have not only deepened the divide between nations but have also diverted attention and resources away from discussions surrounding cryptocurrency regulation. As a result, the collaboration between the United States and China, as two major global powers with contrasting stances on cryptocurrency,

⁴¹ CNET, 2022, [Are Cryptocurrency Transactions Actually Anonymous?](#)

⁴² Kaspersky, 2023, [Ransomware WannaCry: All you need to know](#)

⁴³ Investopedia, 2023, [Countries Where Bitcoin Is Legal and Illegal](#)

⁴⁴ National Development and Reform Commission (中華人民共和國國家發展和改革委員會), 2021, [中國全面禁止虚拟货币交易](#)

⁴⁵ BBC, 2021, [China declares all crypto-currency transactions illegal](#)

⁴⁶ Sky News, 2023, [Relations between the US and China have stabilised but much still divides them](#)

⁴⁷ Council on Foreign Relations, 2023, [Ukraine: Conflict at the Crossroads of Europe and Russia](#)

⁴⁸ Council on Foreign Relations, 2023, [Israeli-Palestinian Conflict](#)

becomes even more challenging, hindering the international community's ability to establish a cohesive approach to this issue.

Lacing Social and Economic Infrastructure.

In Sub-Saharan Africa, the economic landscape is marred by a multitude of challenges, many of which have been intensified by the lasting impacts of the COVID-19 pandemic and the far-reaching effects of international conflicts, notably the Russo-Ukraine war. According to the IMF and its regional economic outlook, the economy faces high borrowing costs, exchange rate pressures and political instability.⁴⁹ The International Monetary Fund has projected a concerning economic forecast for the region. Without thoughtful economic reforms and policy interventions, the debt-to-GDP ratio is on course to surge significantly within a five-year period. This alarming projection signals a pressing need for new strategies in economic management, encompassing a combination of policy adjustments and structural reforms, aimed at averting a looming financial crisis and ensuring fiscal stability.

The varying degrees of economic development and integration among Sub-Saharan African countries play a significant role in the region's overall economic landscape. Despite the potential benefits of regional trade agreements like the African Continental Free Trade Area (AfCFTA),⁵⁰ the actualisation of these benefits is hindered by disparities in infrastructural development, governance, and economic policies across different countries. These disparities result in uneven economic development, where some countries advance more rapidly than others, leading to a fragmented regional economy. This situation is compounded by challenges in harmonising trade policies, addressing infrastructural deficits, and ensuring equitable economic growth across the region. The lack of cohesive regional economic development underscores the complexities of integrating diverse economies with varying capacities and priorities.

One of the most striking economic issues in Sub-Saharan Africa is the pronounced brain drain. The African Union has estimated that 70,000 skilled professionals emigrate every year.⁵¹ Data from Ghana Registered Nurses and Midwives Association shows that nearly 4000 nurses left the country in 2022, while in Zimbabwe, more than 4000 health workers including 2,600 nurses left the country in 2021 and 2022 according to the Zambian government.⁵² This outflow of talent is symptomatic of broader issues in social inequality and serves as a stark indicator of a lack of opportunities within the region, compelling individuals to seek prospects abroad. The repercussions of this loss are manifold, impeding the region's ability to foster internal innovation and cultivate self-sustained growth.

⁴⁹ IMF, 2023, [Regional Economic Outlook: Sub-Saharan Africa](#)

⁵⁰ IMF, 2023, [Trade Integration in Africa: Unleashing the Continent's Potential in a Changing World](#)

⁵¹ African Union, 2021, [The revised migration policy framework for Africa](#)

⁵² Gavi 2023, [WHO red list fails to stem Africa health worker exodus](#)

The digital disparity in Sub-Saharan Africa extends beyond mere access to technology and into the realm of digital literacy and utilisation. According to a book titled *New Digital Work*, there is a significant gap in digital skills among the population, which is compounded by inadequate educational systems and limited opportunities for skill development.⁵³ This gap not only hinders individuals from engaging fully in the digital economy but also prevents businesses and governments from leveraging technology for development and governance. For instance, the lack of digital skills has been cited as a major impediment to the adoption of e-government services, which are crucial for efficient governance and transparency.⁵⁴ Moreover, the World Bank has emphasised the importance of integrating digital education into school curricula to prepare the future workforce for the demands of a digitalised global economy.⁵⁵ Without concerted efforts to bridge this digital skills gap, Sub-Saharan Africa risks falling further behind in the global digital race, exacerbating existing economic and social inequalities. Therefore, it is imperative for governments, international organisations, and the private sector to collaborate in developing comprehensive digital education programs and infrastructure, ensuring that the benefits of the digital revolution are accessible to all.

The convergence of these economic and technological factors paints a complex narrative of the current state of affairs in Sub-Saharan Africa. It underscores the need for a multi-faceted policy response that not only addresses the immediate financial risks but also embraces the long-term strategic investment in technological infrastructure. Such an approach should strive to shore up the region's economic resilience, bridge the digital gap, and harness the transformative power of new technologies to pave the way for sustainable and inclusive economic development.

⁵³ Springer, 2023, [Digital Work – Transforming the Higher Education Landscape in South Africa](#)

⁵⁴ Sage Journals, 2022, [Digital Competences for Improving Digital Inclusion in E-Government Services: A Mixed-Methods Systematic Review Protocol](#)

⁵⁵ World Bank, 2020, [Digital Skills: Frameworks and Programs](#)

Lacking Physical Infrastructure.

Sub-Saharan Africa is heavily underdeveloped. From general energy to electrification, and beyond that into educational deprivation, the foundational physical infrastructure necessary and required to develop a sustainable and inclusive society is lacking. This report is aimed at promoting solutions to long-term economic failures in Sub-Saharan Africa, and as a part of it, we must address the role and importance of physical infrastructure to accommodate long-term economic growth.

As mentioned in the briefing, Sub-Saharan Africans have the least amount of access to electricity in the world. The IEA⁵⁶ estimates that 600 million people in the world lack electricity access, of which most are Sub-Saharan Africans. This forms 43% of the human population and completely removes people from anywhere outside of their local communities.

In Zimbabwe, for example, 39.7% of people had electricity access in the year 2000⁵⁷; currently, this figure has steadily risen to 53.1% in 2022. For Zimbabweans, who have recently experienced 175% inflation rates, according to VOA News,⁵⁸ a lack of internet access limits their opportunities to trade, do business, or otherwise move capital to avoid the failures of national economies.

A big concern in long-term electrification in Africa is the accelerating population growth on the continent. As mentioned in the briefing, the number of people without access to electricity is likely to double by 2050⁵⁹ as population growth is forecasted to vastly outspeed electrification in the continent. Currently, it is projected that roughly 80% of all people without electricity access in the world are Africans. In a situation where the lack of electricity in Africa doubles over the next 30 years, political, social, and economic poverty on the African continent will inevitably rise and access to modern financial systems will decrease as a percentage of the population.

Electricity is only one form in which African energy is underutilised. Most financing of Renewable Energy Production (REP)⁶⁰ comes from African governments, development banks such as the World Bank, and African Development Bank, as well

⁵⁶ International Energy Agency, 2023, [Access to electricity improves slightly in 2023, but still far from the pace needed to meet SDG7](#)

⁵⁷ IEA, 2023, [Access to electricity](#)

⁵⁸ VOA News, 2023, [Zimbabwe Inflation Hits 175% as Currency Continues Crashing Against US Dollar](#)

⁵⁹ McKinsey & Co, 2023, [Green energy in Africa presents significant investment opportunities](#)

⁶⁰ Ahmed Rashid, et al., 2022, [The nexus among foreign direct investment in renewable electricity industry, renewable electricity production, and economic growth in Africa](#)

as governments in Europe, the USA, and Japan. A main issue in solving long-term financing of REPs come from the reluctance of private banks and organisations to support energy initiatives. Alongside this, most energy development in Sub-Saharan Africa is non-renewable. Across all the region, the peak of REP development occurred between 2012-17 and has since stagnated. A lack of willingness to invest in African infrastructure among private entities reflects an underlying view that national-level economic management in Sub-Saharan Africa is not always reliable to deliver financially positive results for private entities.

Technological disparity is another critical challenge. Reports, such as the one from Chainalysis in 2023, have pointed out a significant technological gap that leaves vast segments of the African population on the peripheries of the burgeoning digital economy, particularly in the sphere of cryptocurrency transactions. This is due, in large part, to infrastructural shortcomings. Internet connectivity is hampered by limited coverage access. GSMA data highlights the barriers to mobile internet adoption use include ‘access to networks, knowledge and skills, relevance of content, safety and security, and the affordability of devices and data’.⁶¹ Additionally, data from the International Telecommunication Union highlight a persistent gender gap in digital inclusion, with disparities in internet usage and access to high-speed broadband between men and women.⁶² This digital divide is creating barriers to economic participation in these areas, a problem felt worse by women in these communities.

Education is a key limitation on future digital literacy and the ability to access financial institutions. One of the biggest barriers to education in Africa is a lack of fee-free schools,⁶³ with 21% of all African students attending private schools, and 54% of all African adults being “very worried” about paying school fees. Furthermore, a literature review has shown that there is a positive correlation between education (and by extension, critical and operational skills) and digital literacy. According to a UNDP Special Advisor,⁶⁴ only 30-50% of secondary-school level pupils enter education.

In 2021, the World Bank⁶⁵ completed a policy research working paper on financial inclusion in Africa. The paper shows that less than 20% of Africans with elementary-level education have access to financial institutions. In comparison, 55% of people with tertiary education have formal accounts. One important section of this report

⁶¹ Carnegie Endowment For International Peace, 2022, [To Close Africa's Digital Divide, Policy Must Address the Usage Gap](#)

⁶² International Telecommunication Union, 2021, [Measuring digital development](#)

⁶³ Leora Klapper and Vipin Pancharia, 2023, [The high price of education in Sub-Saharan Africa](#)

⁶⁴ Zipporah Musau, 2017-18, [Africa grapples with huge disparities in education](#)

⁶⁵ World Bank, 2021, [Financial inclusion in Africa : an overview \(English\)](#)

outlines how limited financial access can reduce educational opportunities and create cycles of poverty:

“Without inclusive financial systems, poor people must rely on their limited savings to invest in their education or become entrepreneurs—and small enterprises must rely on their limited earnings to pursue promising growth opportunities. This can contribute to persistent income inequality and slower economic growth.”

Conclusion:

The factors discussed present a great barrier to the establishment of technological finance in Sub-Saharan Africa. As one of the most underdeveloped regions in the world the introduction of technological finance must overcome a series of major issues.

Firstly, this comes in the form of electrical infrastructure necessary to power a technological framework, without which any virtual finance infrastructure is impossible to construct.

Secondly, should this first requirement be met, it is also of great importance for the potential contributors to this finance network to be well educated in the matter. Without this crucial, and arguably the most important, step no amount of infrastructure modernisation would count for the project's ultimate goals.

Finally, it is also imperative that regulatory frameworks be erected to combat possible exploitative behaviors on the cryptocurrency networks, and to ensure users and international bodies are confident in the system's legitimacy.

Policy Recommendations

Overview

In this section we will propose 3 policies to help combat the issues identified in our research. We will focus on the building of energy infrastructure, as well as education for future generations to be able to make use of cryptocurrencies for the purpose of economic prosperity.

Lastly, we will start the conversation regarding the establishment of regulatory frameworks, ensuring that this infrastructure is controlled and productive for the people that seek to benefit.

Policy 1: Establishing the world's largest cross-border Solar Energy Initiative.

Policy 2: Introducing financial education programmes in South-Saharan Africa.

Policy 3: Proposing and International Regulatory Framework.

Action 1: One Sun Africa 2060 - Establishing the world's largest cross-border Solar Energy Initiative

Having seen the limitations of energy initiatives in Sub-Saharan Africa, it is clear that a sustainable and long-term solution for energy independence is needed for the continent. With organisations such as the African Green Infrastructure Investment Bank (AfGIIB) or International Solar Alliance (ISA) existing, and new ones, such as the African Energy Bank (AEB) being established shortly, the collective efforts of national, international, and private organisations must be unified under a single aim of creating the world's largest cross-border solar energy initiative.

There is rapidly increasing momentum paving the way for an energy independent Africa. With new Solar technology, it is vital to not only increase electricity access in rural and deprived areas, but also to do this at a rate which can catch up to the increasing population of the various countries in Africa. As a result, we propose the creation of the One Sun Africa 2060 (OSA60) Project.

The most successful solar energy program in the world occurred in India over the past 20 years. Through establishing National Electricity Plans every 5 years and incorporating a public-private approach to development with government subsidies, the solar energy industry in India has become "one of the fastest-growing industries in the country," according to climate change expert Suruchi Bhadwal in an interview with NPR. The main successes of the Indian project are as follows:

1. **Jawaharlal Nehru National Solar Mission (JNNSM):** Revised twice, the JNNSM is a foundational initiative developed by the National Government in conjunction with states, driving solar energy development in India. Initially, it set to develop 20 gigawatts of solar power by 2022, however following success of the project, this was increased to 100 by 2022.
2. **Solar Parks:** Using desert land in the states of Gujarat and Rajasthan, the public-private partnership is ran by utility companies which have fueled the modern solar energy grid system of India, being so successful that the system is now being incorporated into other types of energies such as offshore wind energy.
3. **Government Incentives and Policies:** In 2018, the International Institute for Sustainable Development (IISD) oversaw subsidies for renewable energies compared to coal, oil and gas. Within the 2016/17 year, the Government increased support for renewable energies by \$0.8b, while decreasing

OSA60 would be established through a collective of the African Union, the International Solar Alliance, and the World Bank, to lift the energy borders of all states

in Sub-Saharan Africa, creating one unified energy security policy on the continent, and achieving the highest production of solar energy for electricity use in the world by the year 2060. Currently, Africa is expected to have the highest 'solar potential' in the world, with the World Economic Forum⁶⁶ describing Africa's solar capacities as "untapped solar potential". By connecting the grids of all countries, it is possible to create an equitable system of energy, where all countries can develop their infrastructure grids, not just the richest such as Nigeria and South Africa.

While Indian solar energy was built off the back of advanced silicon solar cells, now described as "old gen" technology, new "tandem solar cells"⁶⁷ can increase energy efficiency by net 8% from the old technology. The best of the old gen systems have around a 26% efficiency – describing the amount of sun energy that was transformed into usable energy. New tandem cells which are under development currently can increase this to 34%. Comparing the development of solar energy in India⁶⁸ with a potential development in all of Sub-Saharan Africa, with assumptions that the OSA60 conditions are met, new solar technologies can see African energy rise ahead of current expectations by the IEA.

Through developing OSA60 in Africa, we can help alleviate a variety of infrastructural issues in Africa as to pave the way for the use of cryptocurrencies as has been mentioned throughout this report.

⁶⁶ World Economic Forum, 2022, [Africa is leading the way in solar power potential](#)

⁶⁷ The Conversation, 2023, [Solar panel technology is set to be turbo-charged – but first, a few big roadblocks have to be cleared](#)

⁶⁸ PV Tech, 2023, [EIA: India to lead global installed solar capacity by 2050](#)

Action 2: Establishment of Digital Currency Education and Community-Based Training Programs In Sub-Saharan Africa

This policy initiative aims to systematically deliver education on digital currencies to communities throughout Sub-Saharan Africa. It emphasises the technical aspects of blockchain technology, cryptocurrency transactions, and digital finance management. The objective is to enhance digital literacy in these communities, particularly in economically disadvantaged regions, by providing knowledge and skills necessary for navigating the digital currency landscape. This involves training in secure transaction processes, understanding of digital wallet management, and awareness of the regulatory environment surrounding digital currencies. By equipping these communities with such knowledge and tools, the initiative strives to promote financial inclusion, facilitating the adoption of digital currencies as a viable means for trade facilitation and improved economic stability. This strategic approach is designed to integrate these communities more effectively into the global digital economy, leveraging the potential of digital currencies to drive socioeconomic development.

The policy will be implemented through a series of structured training programs, workshops, and educational campaigns. These will be tailored to suit different regions and demographic groups, ensuring accessibility and relevance. Continuous evaluation and data-driven adjustments will be integral to the policy's success. The policy is also designed to be implemented at both national and local levels across Sub-Saharan Africa. It aims to establish a comprehensive framework for digital currency education and training, targeting a broad demographic, including individuals in both urban and rural settings.

The implementation of this policy will involve a collaborative effort between various entities. The Ministries of Education in respective countries will play a pivotal role in integrating digital currency curricula into existing educational structures. Private sector entities, particularly those in the fintech and digital currency domains, are envisioned to contribute expertise and resources. Non-Governmental Organisations (NGOs) will be crucial for outreach and program delivery, especially in regions with limited infrastructure.

The policy is structured to be rolled out over a period of 1 to 4 years. The initial year will focus on program development, stakeholder engagement, and pilot testing. Subsequent years will see the scaling of the program, with adjustments and enhancements based on feedback and data from the initial phase. Within the programmes' first years of rollout will be a focus on the fundamental skills necessary for understanding the information that the rest of the course will build on. This would include the fundamental education in numeracy for further development in the fields of finance.

The primary outcome will be a significant increase in digital literacy levels among the population, with a focus on understanding and utilising digital currencies. This includes knowledge of blockchain technology, cryptocurrency transactions, and digital asset management. By providing the necessary education and tools, the policy aims to drive higher rates of cryptocurrency adoption for various applications, including remittances, trade, and personal finance. This will be measured by the number of digital wallet activations and transaction volumes in digital currencies. The policy is expected to stimulate innovation by creating a more informed and skilled population capable of engaging in and contributing to the digital economy. This encompasses the development of local fintech solutions and startups, as well as participation in global digital currency markets. A significant reduction in the digital divide within Sub-Saharan Africa is anticipated. By equipping traditionally underserved communities with digital currency knowledge and skills, the policy aims to bridge gaps in digital access and financial inclusion.

Action 3: Establishing international Coordination and Regulatory Frameworks

The regulation inconsistency of cryptocurrency refers to the lack of standardised and consistent regulations governing cryptocurrencies across different jurisdictions.⁶⁹ This inconsistency creates challenges not only for businesses operating in the cryptocurrency space, as they have to navigate through a complex web of varied legal frameworks and compliance requirements⁷⁰, but also significantly impacts consumer protection.⁷¹ Hence, we propose that an international framework has to be established to maintain the overall coherence of cryptocurrency regulation.

The framework being developed will be based on the blueprint of the European Union's Markets in Crypto-Assets Regulation⁷², which has gained approval from the European Parliament and is being implemented in a phased manner.⁷³ This framework primarily focuses on the regulation of stablecoins, a popular form of cryptocurrency. One of the key aspects of this regulation is that cryptocurrency asset service providers operating within the jurisdiction of the framework will have a legal obligation to submit a white paper⁷⁴. The purpose of this white paper is to provide clear information about the investment product and its associated risks, ensuring that consumers have a comprehensive understanding of the investment before making any decisions.

Furthermore, the regulation places significant emphasis on maintaining the value of stablecoins by enforcing a mandatory 1:1 ratio between the liquid reserve and the fiat-backed stablecoins.^{75, 76} This requirement aims to enhance stability and diminish the risk of value fluctuations for these particular cryptocurrencies. Additionally, the penalties for non-compliance with the regulation are stringent, serving as a strong deterrent. Non-compliant crypto asset providers may find themselves on a "blacklist"⁷⁷, and face substantial financial penalties, potentially reaching as high as 12.5% of their turnover rate.⁷⁸

⁶⁹ Thomson Reuters, 2022, [Cryptocurrency regulations by country](#), p.2-3

⁷⁰ International Monetary Fund, 2022, [Regulating Crypto](#)

⁷¹ Ibid.

⁷² Official Journal of European Union, 2023, [REGULATION \(EU\) 2023/1114 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 31 May 2023 on markets in crypto-assets, and amending Regulations \(EU\) No 1093/2010 and \(EU\) No 1095/2010 and Directives 2013/36/EU and \(EU\) 2019/1937](#)

⁷³ European Securities and Market Authority, 2023, [Markets in Crypto-Assets Regulation \(MiCA\)](#)

⁷⁴ Official Journal of European Union, (n 4) (P.6 - 10)

⁷⁵ Ibid., p.11

⁷⁶ Council of the EU, 2022, [Digital finance: agreement reached on European crypto-assets regulation \(MiCA\)](#)

⁷⁷ Official Journal of European Union, (n 4) (P.118)

⁷⁸ Ibid., p.119

The proposed international framework for cryptocurrencies is envisioned to be similar to the Paris Agreement, where countries can voluntarily opt to participate. The expectation is that there will be a high level of participation in this international treaty, primarily driven by the keen interest of major powers in establishing a comprehensive global framework for cryptocurrencies. This interest was evident when the G7 2021, a group of influential economies, signed a communiqué reaffirming the significance of an international framework for cryptocurrency regulation and expressing their commitment towards regulating digital assets.⁷⁹

The support for this idea extends beyond the G7, as it has also gained backing from the International Organization of Security Commissions (IOSCO). IOSCO, which consists of securities regulators from around the world, recognizes the need for an international approach to effectively regulate the rapidly evolving cryptocurrency market.⁸⁰ Their endorsement further highlights the growing consensus among global regulatory bodies regarding the necessity of establishing unified guidelines and standards for cryptocurrencies.

The establishment of an international framework for cryptocurrencies would have a significant and influential impact, particularly in the current global bear market.⁸¹ During periods of market downturns and uncertainty, investors seek stability and reassurance to make informed decisions.⁸² The lack of clear regulations and standardised practices across jurisdictions adds to the existing market volatility and undermines investor confidence.

By implementing an international framework, countries can provide much-needed certainty and clarity to the cryptocurrency market. This certainty would stem from consistent regulations and guidelines that govern the various aspects of cryptocurrencies, including their issuance, trading, and usage.⁸³ Investors would have a clearer understanding of the legal and regulatory environment in which they operate, reducing the potential for misinformation, fraud, and market manipulation.⁸⁴

The increasing regulation of the cryptocurrency market has the potential to encourage countries that have been sceptical or cautious about cryptocurrencies, such as

⁷⁹ G7 UK, 2021, [G7 Finance Ministers and Central Bank Governors' Statement on Central Bank Digital Currencies \(CBDCs\) and Digital Payments – 13 October 2021](#)

⁸⁰ IOSCO, 2023, [IOSCO Sets the Standard for Global Crypto Regulation](#)

⁸¹ Morgan Stanley, 2023, [Bear Market Risks U.S. 2023 | Morgan Stanley](#)

⁸² Investopedia, 2023, [Where Investors Put Their Money in a Bear Market](#)

⁸³ Coin Desk, 2023, [What Is MiCA? The EU's Comprehensive New Crypto Regulation Explained](#)

⁸⁴ European Parliament, 2023, [Crypto-assets: green light to new rules for tracing transfers in the EU](#)

China⁸⁵, to reconsider their stance and potentially open up to this emerging technology. The establishment of robust and internationally recognized regulations can instil a sense of trust and legitimacy in the cryptocurrency market. The framework could address specific concerns that countries like China have expressed. For example, regulatory measures can focus on issues such as anti-money laundering (AML)⁸⁶ and know-your-customer (KYC) requirements⁸⁷, market manipulation⁸⁸.

⁸⁵ National Development and Reform Commission (中華人民共和國國家發展和改革委員會), 2021, [中國全面禁止虚拟货币交易](#)

⁸⁶ Council of the EU, 2022, [Digital finance: agreement reached on European crypto-assets regulation \(MiCA\)](#)

⁸⁷ GBG, [Know your crypto customer: Global regulation and the future of cryptocurrency](#)

⁸⁸ European Parliament (n 16)

Conclusion

The exploration of cryptocurrency in sub-Saharan Africa and the establishment of an international framework have yielded significant progress in addressing the regions and the world's financial challenges. These endeavours, in conjunction with the implementation of policies aimed at enhancing infrastructure and digital literacy, have set the stage for a future where cryptocurrency holds the potential to bolster financial stability and uplift the lives of individuals across African nations. As the prevalence of cryptocurrency continues to rise, it brings forth promising economic prospects and the promise of financial inclusion. By actively promoting the adoption of cryptocurrency, these policies will not only contribute to heightened financial stability but also facilitate improved access to essential financial services, thereby fostering sustainable development. The overarching impact of these policies and the comprehensive report is poised to be enduring, charting a course towards enhanced financial stability and empowerment throughout sub-Saharan Africa. By drawing inspiration from this report, future initiatives can leverage this knowledge to create a more equitable and prosperous global financial landscape.

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