Towards a Cryptocurrency Solidarity Levy

By the International Expert Commission on Crypto Asset Levies for Climate & Development

Table of Contents

1. Introduction

The Global Solidarity Levies Task Force (GSLTF) is a group established at COP28 in 2023, co-chaired by the governments of France, Kenya, and Barbados. Its main objective is to identify and build political support for new, innovative sources of financing for climate and development. These sources, referred to as "solidarity levies," are designed as fair contributions from sectors or activities that generate significant externalities or have benefited disproportionately from globalization. Such levies are intended to be applied only where appropriate and necessary, with a focus on aligning costs with broader social and environmental responsibilities.

Crypto assets have been identified one of these sectors considered to be under-regulated, and with minimal to no contribution of the sector to the global commons. To address these issues, the Global Solidarity Levy Task Force set up an *International Expert Commission on Crypto Asset Levies for Climate & Development* (expert commission). The question which the GSLTF has set out to explore through this expert group is whether a levy imposed on the crypto ecosystem could be devised with the purpose of promoting climate, fiscal justice, and/or development.

The aim of the expert commission is to explore the complex issue of taxation of crypto assets and the prospects for international cooperation while meeting two priority objectives: (1) to enable governments to mobilize resources through the design of fiscal policies targeted towards the crypto asset sector, and (2) ensure that the fiscal measures disincentivize the most energy-intensive and climate-impacting crypto assets. The result of these deliberations will be converted into a set of recommendations to be endorsed by a coalition of countries.

The expert commission is composed of nine members acting in independent expert capacity. The members were selected to reflect equitable geographical distribution, representing views of the global north and the global south, spanning from academia, not-for-profit organizations, intergovernmental organizations, and business.

Below are the Members of the Expert Commission:

- Tatiana Falcão (coordinator)
- Bob Michel (consultant)
- Katia Lukicheva (Decoland)
- Max Bernt (TaxBit)
- Mona Barake (Skatteforsk Center for Tax Research)
- Noam Noked (Faculty of Law, The Chinese University of Hong Kong)
- Pierre-Charles Pradier (Université Paris 1 Panthéon-Sorbonne)

- Reuven S.Avi-Yonah (University of Michigan Law School)
- Sunita Grote (Innovation expert)

This discussion paper explores ideas for the development of a solidarity levy imposed on or in relation to crypto assets, which can be explored further by the Task Force for the design of a 'crypto levy'. These include:

1. A crypto ownership levy, which targets the crypto-owner as the taxable subject. Suggestions are made on how the levy can take the form of a tax on income/capital gains or a wealth tax/capital tax levy on stocks of crypto assets by ownership.
2. A crypto asset transactions levy, similar to a traditional financial transaction tax but with the scope limited to crypto transactions.
3. A crypto services levy, which would be similar to a digital services tax applied on the turn-over by non-resident digital service providers. A crypto services levy would do the same, but its scope would be limited to CASPs and the volume of crypto assets and transactions they undertake in a certain market jurisdiction.
4. A carbon crypto levy. Such a levy focuses solely on crypto assets with high carbon footprint, which are the so-called proof-of-work crypto assets like Bitcoin. An environmentally-related carbon crypto levy could take the form of a tax on crypto mining or an excess crypto mining profit tax. The draft proposal also explores the option of a crypto carbon tax which would be a crypto transaction tax applied solely on high carbon footprint crypto transactions.

Prior to entering into the context and policy design of a potential crypto asset levy, the expert commission drew attention to the following preliminary considerations:

- The imposition of a crypto levy should not eliminate the industry. The levy therefore should not be prohibitive of business.
- The crypto levy should not hinder the development of market innovations: crypto assets and the protocols that represent them have the power to transform the financial industry but also the cloud computing industry, artificial intelligence, and many other technology driven industries. It is important to allow these industries to fulfill their innovation potential in a sustainable way, not by prohibiting them, but by allowing them to also contribute to the common good.
- The tax levied on crypto assets should be equivalent or proportionate to other similar taxes on transactions occurring in the financial market, and in decentralized financing (Defi) transactions that use the blockchain. This paper does not address tax issues associated with financial transactions and Defi transactions. The interoperability of the levy across instruments and markets would have to be the object of a different analysis.

- Most of the experts were of the opinion that a crypto asset levy would be best handled using a cooperative approach, or a multilateral instrument. This paper does not go into issues of multilateralism, although it indicates when multilateralism and cooperative frameworks could work to the advantage of a policy design. The analysis is restricted to discussing the tax policy measures that countries could employ unilaterally, at domestic level, assessing gaps and limitations.

The paper is subdivided into six parts. Part two sets the context of the discussion, highlighting the main difficulties encountered by governments when targeting the taxation of crypto assets.

Part three explores the different policy design options, depending on whether countries wish to (i) tax the income associated with the gains arising from crypto asset transactions; (ii) impose a levy on crypto transactions; (iii) tax the service provided by the crypto asset service providers (CASPs) i; or (iv) address the environmental externality associated with the mining, energy use or transacting of crypto assets. This is the main section of the report, providing a comprehensive overview of all the policy design options available to governments willing to introduce a crypto levy.

Part four matches the tax types discussed in part three, to the different policy objectives intended at the macro levy. It does so through a policy matrix intended to instruct what could be the “optimal” policy design at the domestic level (depending on the intended objective of the country in question).

Part five explores some examples where crypto assets have been known to be used for philanthropic purposes, or to channel private financing towards projects that derive broader social and environmental gains. These examples are noted as potential crypto asset uses that should be kept outside of the levy incidence. The framework for broader crypto asset regulation should in fact facilitate the use of crypto for such purposes.

Part 6 provides a benchmark recommendation on the combination of policy approaches that would be capable of both raising revenues and addressing the environmental and criminal externalities associated with the broad use of crypto assets.

2. Context

As of early August 2025, the total capitalization of the global crypto asset market is in the range of USD 3.7 to USD 4 trillion. Since their inception in 2008, crypto assets have evolved from a niche concept to a significant financial and technological force.

The two most prominent uses of crypto assets are to ‘store value,’ and as a ‘means of payment.

Crypto Assets used to store value:

Crypto assets are most prominently used to ‘store value’. People buy crypto assets like *Bitcoin* and *Ethereum* hoping their value will increase over time. Long-term proponent and ‘early adopters’ of crypto assets typically bank on the long-term gains associated with the volatile but steady increase in value of most crypto assets. It is important, however, to distinguish the different uses they purport:

- Payment tokens such as Bitcoin are often seen as a store of value, purchased in the hope that their price will rise over time. Early adopters and long-term holders tend to focus on potential long-term gains, despite the volatility of these assets.
- Utility tokens provide access to specific services or applications, functioning less as investments and more as keys to ecosystems.
- Tokenized financial assets (e.g., tokenized securities) represent ownership rights or claims on underlying assets, bringing traditional financial instruments onto blockchain rails.

Crypto assets used as means of payment

On the other hand, crypto assets also serve as a ‘means of payment’. Especially in lesser developed countries, crypto assets can be used as a proxy for the local fiat currency, to purchase goods and pay for services. Furthermore, it is known to be widely used as a means to undertake remittances or cross-border payments at low cost and fast pace. In countries with high inflation and devaluation of the local fiat currency, crypto assets serve as a popular asset to hedge against the risks associated with a sudden loss in value of the national currency.

The asset typically employed in these transactions is a stablecoin. Stablecoins have effectively become global payment systems. Unlike speculative tokens, their value is tied to underlying fiat reserves. They are closer to electronic money and, when meeting the requirements of Specified Electronic Money Products (SEMPs) under the OECD’s Crypto-Asset Reporting Framework (CARF), fall into a distinct regulatory and compliance category.

This differentiation between tokens and stablecoins is critical. For example, whereas payment tokens like Bitcoin derives value primarily from scarcity and market demand, stablecoins are increasingly used for everyday payments, cross-border transfers, and

settlement. Their rise blurs the line between crypto assets and traditional money, creating a new set of regulatory and supervisory challenges.

The rise to prominence of crypto assets, and its many uses, has provided regulators and policy makers with many regulatory challenges. It requires striking a balance between opposing interests, like enabling innovation, securing monetary and financial stability, countering crypto-related crime and ensuring consumer/investor protection.

Furthermore, there are growing calls for regulation to address the externalities associated with the use of certain types of crypto assets. In this sense, two types of externalities can be distinguished: the environmental externality, and the financial crime externality.

The Environmental Externality

Crypto assets like *Bitcoin* that rely on a blockchain that runs a 'proof-of-work' validation protocol present regulators with environmental and energy infrastructure challenges due to the high use of electricity. The problem is two-fold. It concerns (i) the mining of the crypto asset; and (ii) the use of sparse renewable energy resources for crypto transactions, potentially displacing other – sometimes more legitimate – uses of green energy.

Within the expert group, some were of the opinion that the solution to address the overuse of energy resources in mining was not to tax it, but to convert the energy used into renewable energy sources. It was argued that an increasing share of mining now relies on renewable energy or otherwise wasted resources, such as flared natural gas, geothermal heat from volcanoes, or surplus solar energy. These "clean mining" methods help reduce the environmental footprint of crypto. This led to the counterargument that perhaps these resources should be employed for purposes other than crypto asset use.

The Financial crime externality

Some crypto assets play a decisive role in the commission of crimes: this is particularly the case for decentralized open-source crypto assets (like Monero) that restrict the traceability of the transaction by anonymizing the sender, receiver and transaction amount data.[1] It is also the case for Bitcoin, which is a means of payment chosen by most ransomware.

A levy whose premise is to address this "financial criminal" externality would therefore also help finance the government to create the appropriate regulatory and digital tools needed to survey the network, and eliminate criminal uses of crypto assets.

[1] In the European Union, for example, Monero is prohibited by Article 79 of Regulation (EU) 2024/1624 (AMLR), as are all anonymization devices.

Regulatory Challenges

For tax policy makers and tax authorities, the challenges have been two-fold: First, the different types of use and ownership of crypto assets by taxpayers - whether speculative tokens, tokenized securities, or stablecoins - have to be encompassed in the existing tax system. Guidance and analysis of the main issues have been provided by the OECD (2020) and the IMF (2023). The most challenging aspect in the design of a crypto tax policy regards its potential dual nature as a 'store of value' and 'means of payment', as tax rules that apply to investment assets usually differ from the rules applicable to the use of recognized fiat currencies. Ultimately, the design and implementation of a country's rules on the taxation of crypto assets is a matter of sovereign national tax policy.

Second, there are challenges associated with transparency concerning ownership and the transfer of crypto assets. Due to the quasi-anonymity of crypto assets, tax compliance essentially depends on self-declaration by the taxpayer, which is problematic as it provides scope for tax evasion. The issue is to some extent mitigated because many owners of crypto-assets rely on intermediaries – the so-called crypto asset service providers (CASPs) – to own and transact crypto assets. Obtaining third-party information on resident taxpayers' crypto assets is feasible if the CASP are domestic companies. However, it becomes significantly more challenging for governments to charge a tax when the intermediary CASPs are located abroad. Without an international agreement, foreign information holders cannot be compelled to provide information.

Significant progress has been made in this regard through the adoption of the OECD/Global Forum's Crypto Asset Reporting Framework (CARF). The CARF is an international standard[2] for the automatic exchange of information on crypto assets. Under the CARF, information on crypto assets will be exchanged between the country of the information holder (the CASP) and the country where the taxpayer who owns the crypto asset is a resident. CASPs are expected to start reporting on transactions occurring from 1 January 2026, with the first data exchanges expected to take place in 2027. Sixty-seven jurisdictions have committed to implementing CARF. It is expected that the most relevant crypto exchange activities and transfers will be caught by this

[2] The crypto asset reporting framework (CARF) is the international standard for the automatic exchange of information regarding crypto assets. The standard was developed by the OECD in 2022. Countries have implemented the CARF by transposing the standard into domestic law. The adoption of the CARF occurs through a multilateral competent authority agreement (CARF-MCAA). For the text of the CARF-MCAA,
see: https://www.oecd.org/content/dam/oecd/en/topics/policy-issues/tax-transparency-and-international-co-operation/text-carf-mcaa.pdf.

regime, thereby drastically improving tax transparency and compliance in relation to crypto asset ownership.

It is noteworthy that the current United States Government (a key player in the crypto asset market) is not averse to adopting the new international automatic exchange rules for crypto assets. This was made clear in a recent White House report with 'priority guidance' in which the IRS and Treasury are urged to issue regulations to implement the CARF. It is as of yet still unclear whether the United States can implement CARF within the existing statutory framework.

However, there are clear gaps associated with the CARF framework currently, in that (i) it is not capable of attaching a reporting obligation on large crypto asset owners transacting crypto assets independently, without resorting to a CASP intermediary (peer to peer transactions); (ii) it presents a tax planning opportunity for crypto asset owners and traders to move to decentralized financing structures[3] (Defi) which are not yet captured by the CARF; and (iii) it does not provide a framework to identify which individuals and/or entities in practice are the beneficial owners and "controllers" of the platform. Beneficial ownership information is particularly important when the level of operations performed by specific individuals or entities are significant enough to manipulate the crypto asset market profitability.

This paper does not purport to resolve these issues, but where necessary, to identify the regulatory gaps, discussing how these gaps would influence and potentially hamper the imposition of a crypto asset levy.

3. Policy options and proposals

This discussion draft formulates a number of options that can be explored further by the Task Force for the design of a 'crypto levy'.

In a first scenario, the levy is proposed to target the crypto-owner as the taxable subject. Suggestions are made on how the levy can take the form of a tax on income/capital gains or a wealth tax/capital tax levy on stocks of crypto assets by ownership.

A second scenario focuses on crypto asset transactions, proposing a levy similar to a traditional financial transaction tax but with the scope limited to crypto transactions.

[3] Decentralized finance (DeFi) replicates traditional financial functions using blockchains, smart contracts, automation, and disintermediation, operating without the direct involvement of centralized financial intermediaries. These escape the scope of the present report. However, the use of a Defi structure falls into the same issues concerning the reporting of information by large crypto asset owners.

A third scenario explores the idea of a crypto services levy, which would be similar to a digital services tax applied on the turn-over by non-resident digital service providers. A crypto services levy would do the same, but its scope would be limited to CASPs and the volume of crypto assets and transactions they undertake in a certain market jurisdiction.

Finally, in a fourth scenario, a number of options are explored for the creation of an environmentally related crypto levy. Such a levy focuses solely on crypto assets with high carbon footprint, which are the so-called proof-of-work crypto assets like Bitcoin. An environmentally related crypto levy could take the form of a tax on crypto mining or an excess crypto mining profit tax. The draft proposal also explores the option of a crypto carbon tax which would be a crypto transaction tax applied solely on high carbon footprint crypto transactions.

For all scenarios, some considerations on enforceability and administration are added.

The next section discusses each of these options in detail. For all the options provided, there are issues concerning the creation of a regulatory framework, governance structure and enforcement (through or by relying on components of exchange of information networks like the CARF) that would have to be overcome to make the taxing option viable. These gaps are identified throughout the document.

3.1. A levy on crypto assets and income/gains: the income/capital gains tax approach

Description and state of play

Most countries across the world subject income and capital gains derived from crypto assets to tax by attempting to fit crypto assets into their existing tax regimes. Because these national systems are not harmonized and differ, this also implies the taxation of crypto assets and income varies across countries.

Whether countries subject crypto assets to wealth tax, either through a general net wealth tax or a specific capital asset tax, depends on countries' stance towards wealth taxes. Few countries have adopted net wealth taxes, and those that have done include crypto assets in the taxable base. As far as is known, no country has adopted a specific crypto asset wealth tax.

Possibilities for International Cooperation

Given the huge variety of approaches to the taxation of income and gains from crypto assets, it is possible to consider a universal levy on this type of income and/or gain, which would be applied on top of the existing national tax system.

Given the lack of capital taxes on wealth comprised of crypto assets, it would also be possible for one to also consider proposing a self-standing international levy on crypto wealth.

Proceeds of both levies could go do a dedicated international fund. The proceeds of such fund would be allocated to a solidarity cause, as defined by the expert group.

Scenario 1a – Levy on crypto wealth

A levy on crypto wealth would be a recurrent annual tax on the stock of in-scope crypto assets owned by resident individuals and companies. As such, the levy could be considered a wealth tax applied solely on crypto assets. The levy could be imposed on the market value of the in-scope assets at the end of the tax year and the base would be reduced by any connected liabilities. A *de minimis* baseline could be used to exempt from tax stocks of crypto assets valued below a certain threshold. This would not only alleviate the administrative burdens in cases where the cost of administration outweighs the revenue gain, it would also allow to tax more heavily the wealthiest crypto owners, including the so-called 'crypto whales'.

Crypto whales are individuals or entities that hold vast amounts of crypto assets like *Bitcoin* and have the power to influence market trends, create price volatility, and impact the market sentiment. A crypto wealth levy would therefore also forestall crypto wealth accumulation and, in this way, alleviate this type of systemic risk. It could be justified on a tax justice rationale, that the manipulation of crypto markets is done at the expense of retail investors.

Taxes on specific types of capital assets are rare but not uncommon. Several countries have introduced annual capital taxes on immovable property assets. Chile has, at times, levied an annual tax on the ownership of certain luxury goods like yachts and helicopters. Belgium has an annual tax on securities accounts, levied at a rate of 0.15% on accounts with an average value exceeding EUR 1 million.

There are, as of yet, no reports of countries adopting a specific capital asset tax on crypto assets, or a designated tax towards crypto whales.

Scenario 1b – Crypto income/gains levy

A levy on crypto income and capital gains would take the form of an annual tax on income and capital gains derived from in-scope crypto transactions.

Income and capital gains may be derived in two ways. Crypto assets can be obtained either through origination events like initial coin or token offerings, chain splits or forks, or other fortuitous issuances and receipts of crypto assets like airdrops. Once 'originated', crypto assets can be used for a variety of purposes, like the exchange for fiat currency or other crypto assets or to pay services, be gifted, donated or used for lending. All these events can potentially trigger crypto-related income or gains and thus be subjected to a levy.

Core transactions are the so-called 'off ramping' of crypto assets (the exchange of crypto assets for fiat currency) and the exchange of crypto assets for another crypto asset. A crypto income/gains levy would introduce a flat rate tax at a low percentage on income and gains derived from those two core transactions. In doing so, the country could choose any one of two incidence options: (i) to impose a levy that is independent from national income tax rules; or (ii) fit the levy within the existing income tax framework. If applied as an independent levy, it would be imposed without loss utilization. However, if designed to fit into the existing income tax structure, countries could decide to make the levy creditable against national income/gains tax due, if countries find that necessary to ensure 'neutrality'. Allowing the tax to be credited against the income or capital gains tax due, could be a strategy to keep the overall tax burden of the taxpayer unaltered while part of the tax revenue is earmarked to the GSL fund.

Compliance and enforceability

The levy would be imposed on individuals and companies owning crypto-assets and deriving crypto asset related income and gains. The levy would be based on self-reporting unless an intermediary (CASP) is involved. If so, the intermediary may serve as the levy's withholding agent: CASPs through which taxable income or gains are derived can be made liable to withhold the tax.

The literature portrays two cases of success in the enforcement of more stringent transparency measures on centralized platforms: Denmark and Norway. Denmark and Norway have succeeded in getting access to crypto transaction data, and to link such data to the investor's identity. These initiatives were centred around domestic crypto activity for the taxation of gains and losses associated with crypto activity. Barake and Boas (2025) documents that Danish investors shift their investment to foreign platforms not covered by the reporting requierement. These findings suggest that domestic reporting is not enough and such initiatives need to be multilateral.

If the relevant intermediary is located abroad, countries could, in theory, rely on the OECD's CARF to ensure withholding. The CARF is an international standard for automatic exchange of information on crypto assets between CASP countries and taxpayer countries. 67 jurisdictions have committed to implementing the CARF.

The CARF employs a transaction-based reporting system: its rules require CASPs to report exchanges between crypto assets and fiat currency and between one or more crypto assets. A crypto income/gains levy could be designed on the same terms as the CARF. A crypto levy on assets may be more difficult to align with the CARF as it does not report on transactions and not on crypto-asset holdings.

3.2. A levy on crypto transactions: the transactions tax approach

Description and state of play

A transaction tax is a levy imposed on specific financial or economic transactions. The term can broadly apply to any tax on a transaction, but it most commonly refers to a Financial Transaction Tax (FTT). A FTT is a tax on the buying and selling of financial assets, such as stocks, bonds, derivatives, mutual funds, and exchange-traded funds (ETFs).

A crypto transaction levy (CTL) would be a levy similar to a FTT but focused narrowly on transactions involving crypto assets. As of yet, no country has introduced a dedicated CTL but certain countries did introduce withholding taxes on crypto payments or have introduced a FTT which also include certain crypto transactions.

One example of the first type is the Indian Tax Deductible at Source (TDS) of 1% on crypto transactions. The tax was introduced by the Finance Act of 2022 and figures in

Section 194S in the Indian Income Tax Act (1961) (and Explanatory Notes). The TDS needs to be deducted and remitted by the buyer of crypto assets. It applies both to crypto-to-fiat transactions and crypto-to-crypto transactions. In the latter case, the TDS is due by both acquirees of crypto. When it is transacted through an Indian CASP, the CASP is liable to deduct and remit the TDS. The tax is only due on transactions with a value above approximately USD 115. Like a typical transaction tax, the TDS is levied on the value of transactions and not on income. But unlike a transaction tax, the total TDS paid is creditable against income tax due on worldwide income.

An example of the second type is the Brazilian IOF ("*Imposto sobre Operações Financeiras*") (as amended in May 2025). This is an example of a true financial transaction tax, that is not creditable against income tax, and that applies to certain but not all transactions involving crypto. The IOF applies, *inter alia*, to foreign exchange transactions. As such, the IOF of 3.5% is charged on the sending of funds to or the undertaking of fiat-to-crypto transactions with foreign CASPs. Crypto transactions conducted with domestic CASPs and settled in Brazilian Reais are generally not subject to the IOF as these are not considered foreign exchange transactions.

Scenario 2 – Crypto Transaction Tax

The adoption of a CTL would involve a creation of a multilateral agreement that involves CASP countries and crypto asset owner countries.

The core elements of the agreement would include the determination of the taxable transactions, the tax rate, the responsible withholding agent (the CASPs) and the mechanism for collecting and distributing the revenues withheld by the CASPs to different jurisdictions.

This option could contemplate for a CASP in one country to withhold and remit to the domestic tax authority the tax die on transactions involving taxpayers in a different country. However, this approach would require a multilateral convention, or some level of coordination.[4]

Compliance and enforceability

In theory, the CTL should also apply to transactions involving both CASP hosted wallets and self-hosted wallets.

[4] A similar discussion occurred a little more than a decade approach when options were being considered for the taxation of offshore financial accounts, before the development of the new standard for automatic exchange of information.

In the case of CASP-hosted wallets, the liable withholding agent would be the CASP. The scope of the CTL could be aligned with the regulations on due diligence and reporting requirements under the OECD/Global Forum's CARF.

In the case of transactions involving self-hosted wallets, crypto asset owners would be expected to pay taxes through self-reporting. This could be proven not to be very effective and difficult to administer.

Alternatively, countries could consider imposing stringent penalties on individuals failing to report the crypto funds held in self-hosted wallets.

3.3. A levy on crypto asset service providers (CASPs): the services tax approach

Description and state of play

Many countries across the world have adopted Digital Services Taxes (DSTs) to ensure that large tech companies pay a 'fair share' of taxes in the countries in which they have a significant user base and generate substantial revenue but do not have a taxable presence for income tax purposes under the traditional rules. A Crypto Services Levy (CSL) would set out to achieve the same purpose in relation to foreign CASPs.

DSTs tend to focus on online advertising services, multi-sided digital platform services and services involving the transmission of user data. Many DSTs exclude online payment services and/or regulated financial services. Therefore, crypto-asset services are usually not explicitly included or excluded from the scope of a DST.

However, in certain countries, CASPs may be subject to the DST to the extent that they can be considered providing a multi-sided digital platform that allows for inter-CASP trading of crypto assets. This may occur when the crypto asset is not qualified as a financial instrument for domestic tax purposes. In those cases, the crypto asset is not subject to the DST exemption for online financial marketplaces. This is, for instance, the situation in the United Kingdom.

A CSL could therefore be conceived as an expansion or a complement of the existing DSTs.

Possibilities for International Cooperation

International cooperation provides the opportunity to introduce a uniform CSL that creates a level playing field among CASPs. Furthermore, to streamline international regulations, a CSL could be construed with elements that make up the CARF.

On that basis, the Task Force could consider the following scenario.

Scenario 3 – Crypto Services Levy (CSL)

A CSL levy could be introduced which applies to the (biggest) 'Reporting CASPs' as regulated by the CARF. The CSL could be levied as a fraction of the overall aggregate value of reportable transactions by reportable crypto-asset users under the CARF. The aggregate value of reportable transactions would serve as a proxy of CASP profits or turnover.

Compliance and enforceability

Like in the case of a crypto transaction levy (CTL), a levy on crypto services (CSL) could, in theory be aligned with the regulations on due diligence and reporting requirements under the CARF.

Some conclusive thoughts

Because a CTL is essentially a subset of a digital services tax (DST) or an equalisation levy with the aim to tax the provision of crypto-services by non-resident service providers, a proposal for a CTL would be exposed to the same (political) criticism faced by DSTs as being in violation of tax treaties and/or being of discriminatory and extra-territorial in nature.

On the other hand, unlike DSTs, the proceeds of a CTL would be used not to enrich the market jurisdictions treasuries but to serve global causes, which may be a mitigating factor.

3.4 Environmentally related levies on crypto assets

Description and state of play

The rise of Bitcoin and other crypto assets has been associated with a massive demand for electricity, thereby potentially contributing to climate change . This demand for electricity is mostly generated by crypto miners validating blockchain transactions of crypto assets function based on a proof-of-work (PoW) consensus mechanism. PoW crypto assets include *Bitcoin* and a small share of Bitcoin modifications and derivatives. PoW crypto currencies account for about 65% of the global market capitalization of crypto assets .

The IMF estimates that total PoW crypto mining in 2021 demanded almost as much electricity as Australia or Spain, and crypto related carbon emissions comprised 0.33% of global CO_2 emissions (about120 million tons of CO_2), taking into account renewable sources of electricity.

Given the energy-hungry nature of the PoW protocols, some countries have considered a corrective tax on PoW crypto mining to address the associated externality. However, there is to date, no known record of implementation of such a tax at country level. In the past, countries like China have introduced bans on crypto mining but these (often temporary) measures were driven by electricity infrastructure concerns, rather than environmental concerns.

In considering a tax on crypto mining, it is also important to distinguish between the different types of processes inbuilt into crypto asset systems for the creation of crypto assets. While the PoW mechanism relies on mining techniques to generate crypto assets, there are also other types of crypto assets that use a different type of validation process, known as Proof-of-stake (PoS).

The validation process of Proof-of-stake (PoS) crypto assets, also known as ‘staking’, is estimated to consume 99.95% less energy than PoW networks. PoS crypto assets include *Ethereum*, which switched from PoW to PoS in 2022, and a long list of smaller crypto assets. This switch by *Ethereum*, which was seven years in the making, is believed to have prevented an increase of global CO_2 emissions by 0.12%.

One of the reasons governments may nevertheless hesitate- to introduce a tax on crypto mining of PoW crypto assets, is that it will affect the trade-off between scalability, security and decentralization of the crypto ecosystem. Although the mining of PoW crypto assets are known to be more energy intensive than PoS crypto assets, PoW crypto assets like *Bitcoin* are generally considered to have a validator system that is more secure because it is more decentralized. *Bitcoin* is therefore more immune to a

‘51% attack’[5]. However, PoW crypto assets are not very scalable, and more difficult to censor, even if certain US mining pools (which are entities that aggregate and reward individual miners ‘hashing power’[6]) are reported to have complied to OFAC censoring[7].

A tax on crypto mining, as proposed, would be centred on a charge on the mining of PoW crypto assets. This being a mining charge (see discussion on policy options for the charge below), it would not apply to PoS crypto assets whose carbon footprint is known to be lower.

The exclusion of PoS crypto assets from the charge would provide an indirect incentive for the proliferation of PoS crypto assets. PoS crypto assets are said to be more scalable than PoW. Furthermore, PoS crypto assets have in recent years also showed opening to government supervision, for instance in the case of the US OFAC censoring the staking of Ethereum in relation to certain blacklisted addresses. Therefore, there could be a case to support that PoS crypto assets are in the long term, more sustainable from an environmental perspective, and more susceptible to regulation and hence less prone to criminal and illicit activity.

(Rebuttable) arguments against the introduction of a tax on PoW mining for environmental purposes may include the fact that crypto mining is acceptable if it relies on renewable energy sources and is also extremely flexible (see below), meaning that it can be used to deal with energy overproduction like the use flaring gas, decommissioned fossil fuel electricity plants or excess energy from renewable sources. However, it is doubtful whether these arguments delegitimize a tax on the mining process.

While the use of spare or overproduced energy capacity may be a more sustainable practice, it also reduces the incentive to create new technologies capable of storing the excess energy produced through the combustion of fossil energy resources, or the use of renewable resources. It also reduces the incentive for companies to switch from the use of carbon intensive fuel resources to low carbon fuel or renewable products,

[5] A 51% attack (also known as a majority attack) in the context of crypto assets is a theoretical, but in some cases, proven attack where a single entity or group gains control of more than 50% of a blockchain network's computational power (hashing power in PoW networks) or staked coins (in PoS networks).

[6] Hashing power (also known as hash rate) refers to the computational power that a computer or specialized hardware uses to solve complex mathematical problems. In PoW crypto assets, ‘miners’ compete to solve a computational puzzle. Hashing power is the rate at which a mining device can perform these hashing computations.

[7] OFAC censoring in crypto assets refers to actions taken by the Office of Foreign Assets Control (OFAC), an agency of the U.S. Department of the Treasury, to enforce economic sanctions laws using digital assets. OFAC actively identifies and adds crypto asset addresses (wallet addresses) to its Specially Designated Nationals (SDN) List. When an address is on the SDN list, it means that any property or interests in property (i.e., the crypto asset) associated with that address must be "blocked" (frozen) if it comes into the possession or control of a U.S. person. The enforcement and technical feasibility of "censorship" is arguably more effective on Ethereum than on Bitcoin, particularly since Ethereum's transition to PoS.

because it provides the carbon intensive business with a novel business model (crypto mining) from which to profit from. Furthermore, the expectation on the medium to long term is that countries would be less prone to overproduction of carbon intensive energy resources, as they move towards a low or no carbon scenario. The rationale for the development of novel, sustainable fiscal policies should be consistent with that vision for the future.

Possibilities for International Cooperation

The introduction of a successful tax on crypto mining depends on the global take-up of such a measure. More than other physical types of businesses, the geography of crypto mining is dynamic and fluctuates with diverse patterns, according to economic and regulatory changes. Crypto miners tend to continuously seek a sweet spot location where 1) energy is abundant, cheap and reliable; 2) the climate is cool and/or cheap data park cooling solutions are available; 3) robust infrastructure (internet connection and data centre facilities) is available; and 4) the country in question has a favourable regulatory environment. A tax on crypto mining would largely erode the last factor and may trigger mining operations to move to jurisdictions without the tax.

International cooperation should entail a double national commitment:

1) Compulsory registration of private party crypto mining activities taking place in the country in a global crypto mining registry; and
2) Imposition of a crypto mining levy (see scenarios below) on registered mining activities.

Russia is an example of a country that has recently introduced a national crypto mining register. The global register can also serve as the institutional entity to collect the levy and disperse the proceeds of the levy. Obtaining a license to mine crypto would then be subject to registration and liability to pay the levy.

Outside the crypto mining segment, another useful practical example concerning business registration requirements is that applicable by the EU in the Markets in crypto-Assets Regulation (MiCA regulation).[8] MiCA requires regulatory authorization and presence in the EU as a condition for market access. Under MiCA, a person must obtain regulatory authorization to provide crypto-asset services within the EU. The service provider must have a registered office in the EU where it should carry out at least part of the services. The service provider's place of effective management must be in the EU, and it must have at least one director who is a resident of an EU Member State.

[8] The Markets in Crypto Assets Regulation (MiCA) first package entered into force in June 2023, providing uniformity in EU market rules for crypto assets. There are ongoing consultations for the developments of packages two and three.

However, MiCA has an important carve-out that could undermine this regulation's effectiveness in the context of potential taxation of crypto. MiCA requirements do not apply where an EU client initiates at its own exclusive initiative the provision of a crypto-asset service or activity by a third-country firm. This means CASPs outside the EU need not comply with the EU framework when clients approach them independently. If there were to be a tax, crypto-users would therefore be able to interact with non-EU CASPs not subject to the crypto asset tax. The Task Force could consider three scenarios with regard to the environmental levy.

Scenario 4a – A Crypto Mining Levy

The tax on mining could take the form of an excise tax on (part of) the electricity cost incurred by crypto miners, as a flat excise tax. For example, under the Digital Asset Mining Energy (DAME) Excise Tax proposed by the previous US Government (but not adopted), any firm using computing resources, whether owned by the firm or leased from others, to mine digital assets would be subject to an excise tax equal to 30 percent of the costs of electricity used in digital asset mining.

The crypto mining levy could furthermore take the form of a carbon tax on electricity use, where the electricity stands as a proxy for the amount of fossil fuel consumed to produce the required amount of electricity to mine the crypto asset. This would be a levy on 100% of the electricity used, where the tax base would be the carbon intensity of the fuel giving rise to the electricity. This option would bring the levy closer to the environmental nature of the charge and automatically provide an incentive for the mining of crypto assets requiring less energy power for the mining of crypto assets.

Alternative excise taxes on crypto mining could involve the taxing of imports, sales/purchases and leasing of crypto mining equipment.

Scenario 4b - Excess Crypto Profits Levy

The activity of crypto mining could also be taxed by means of an excess profits tax on proceeds from crypto mining. Such a tax could be imposed on top of or in addition of national corporate income tax. The excess crypto profits tax could be levied at a certain percentage on a simplified tax base consisting of average year market value of the mined crypto assets increased by the fees from transaction validation during the tax year minus the electricity costs incurred.

Scenario 4c – Carbon tax on downstream crypto users

In the world of *bitcoin*, the remuneration received by miners is composed of two distinct components: the minted bitcoin, called the block subsidy, and transaction fees which is the amount of *bitcoin* users pay to get their transactions included in a block to be validated by the miners.

A downstream crypto carbon tax could be imposed on crypto users when they undertake transactions involving PoW crypto exchanges, as an additional transaction fee to internalize the negative externality of the blockchain carbon footprint.

This type of *Bitcoin* carbon tax can also be incorporated in a general Crypto Transaction Levy by increasing the transaction levy rate on transactions that involved PoW crypto assets.

4. Scoping matrix with policy considerations.

Various policy considerations may influence the choice of the type of crypto levy a country may wish to adopt. Some of the main policy considerations brought forward in the context section are discussed below. These considerations are then applied to the individual levy proposals discussed in section 3, in a table. The matching of the policy considerations to the levy proposal will be determinant in defining the type of levy to be employed at country level.

Principle of neutrality. This derives from the precept that a proposed levy should *not aim to hinder the crypto industry*. The proposed levy should respect the principle of neutrality (cfr. the Ottawa Tax Framework for e-commerce taxation).

Privileging the principle of neutrality makes it difficult to support a levy in the form of a specific tax on crypto income or gains, or business profits derived from crypto activities (CASP services, mining activities)

A general tax on crypto transactions could be supported if it comes with a recommendation to adopt it in conjunction with a financial transaction tax.

- **Unique negative externalities of crypto.** While a crypto levy should respect the principle of neutrality if designed as a general revenue raiser, a levy on specific crypto activities can be justified if its aim is to seek compensation for the unique negative externalities associated with the crypto ecosystem.

The question then is what the crypto ecosystem's unique negative externalities are:

> The **environmental externality** only applies in relation to proof-of-work protocol blockchains (e.g. *Bitcoin*). Studies show the carbon footprint of *Bitcoin* is exponentially rising, even if region-weighted carbon intensities are taken into account. A levy can be a compensation for the impact of the carbon footprint.
>
> This makes it feasible to single out activities and transactions associated with PoW blockchains, like a tax on miners, a transaction tax on *Bitcoin* transactions.
>
> Contra: *Bitcoin* mining is highly mobile and miners may use surplus energy; it also provides demand for the development of renewable energy sources.

Contra: This is not a unique externality. A tax on crypto would ideally be extended to other like services, such as Artificial Intelligence datacenters, Defi, etc.

The **crime externality** essentially asserts that new types of crime (like the use of ransomware) and spikes in certain types of crime are associated with the rise of crypto assets and that the levy is justified to pay for the costs associated with addressing these crimes (potentially extending also towards fighting tax evasion).

This rationale could potentially make it feasible to justify a tax on the crypto ecosystem as a whole. One would have to balance the principle of technology/sector neutrality.

However, not all crypto users are involved in criminal activities. While the justification for the tax would be the potential criminal use of crypto, this tax would not function as a targeted corrective tax. It would work as a 'contribution fee' to fund enforcement and other activities to keep the crypto ecosystem 'clean'.

Contra: At the practical level, the criminal activity associated with crypto is not larger than that that is known to happen with cash or TradeFi. Crypto's pseudo-anonymity and public ledgers potentially make criminal enforcement more feasible, at least in theory.

- **Coalition building approach.** A crypto levy can be proposed as a domestic policy measure that is championed by a group of early adopters simply because they individually agree on the beneficial effects of it, regardless of cross-border spillovers (e.g. domestic income tax measures) and based on the assumption that spillovers can be neutralized with the expansion of the group of adopting countries. This argument could be used to support an income tax surcharge on crypto.

- **Coordination incentive approach.** To increase the willingness for countries to adopt the levy, it could also be designed to exploit incentives for adoption by targeting outcomes that can only be achieved through cross-border cooperation.

Coordination type policies only achieve their objectives in function of the increasing number of states joining.

> Environmental objectives are examples of outcomes that can only be achieved through international coordination. An environmentally related crypto levy provides the strongest incentive for coordination.

- **The issue of nexus and enforceability.** The geography of economic actors in the crypto ecosystem is complex and highly mobile. For example, a levy on proof-of-work miners makes little sense if most of the 'hashing power' is situated in countries without much interest in global solidarity. Similarly, the enforceability of a levy on crypto asset owners will most likely depend on withholding through CASPs but many CASPs are offshore. A levy on local CASPs raises the question of CASP nexus to a jurisdiction (cfr the CARF). Targeting CASPs also heightens the CEX v DEX qualification issue and arbitrage behaviour.

- **An alternative approach: a voluntary levy.** A proposed levy could also attempt to tap into the philosophy of decentralized governance which underpins the crypto ecosystem. The absence of centralized governance does not pre-empt the need for global solidarity, which may then take the form of 'decentralized solidarity': the levy is paid (in native form, without conversion into fiat) into a global crypto fund (similar to UNICEF's CryptoFund (see section 5)). The fund is managed centrally but the transparent nature of the public blockchain should make it possible for payors to track spending by the fund. The levy could be connected to a voluntary disclosure campaign by which past tax liabilities are collected and enforced in the form of fund contribution

	Neutrality/internalize externality	Nexus	Enforceability	Coalition/ Coordination	Alternative Approach
Crypto levy on income or wealth	Problematic (tax on income/gains from specific type of activity) (no specific externalities targeted, except if the general crime externality is accepted)	Not problematic (only income/wealth by resident taxpayers)	Problematic (self-assessment might not be effective; requires reliance on CASPs as the withholding agents, including foreign ones; may not be feasible without a multilateral agreement)	Coalition/coordination (followed if agreed it is best practice)	Yes (voluntary levy, direct payment into fund)
Crypto services levy	Problematic (tax on specific type of business activity, distorts economic behaviour) (no specific externalities targeted, except if general crime externality is accepted)	Less problematic (May apply to resident CASPs; If structured like a DST, may apply to foreign CASPs providing services)	Less problematic (relies on self-assessment ; comparable to DST enforcement)	Coalition (cfr. DST policy: countries adopt because they identify it as best practice)	/
Crypto transaction levy	Less problematic	Not problematic	Problematic	Coalition/Coordination	/

	(if suggested together with financial transaction tax) (important design questions: tax on buyer, seller or both, tax on on/off ramping, DeFi transactions?)	(tax on in-scope transactions by resident taxpayers)	(self-assessment by withholding agent; implementation may be ineffective without the participation of foreign CASPs?)	(can be pursued by individual countries, but only really works if major CASP states participate?)	
Environmentally related crypto levy on mining	Less problematic because targets specific negative externality (carbon footprint of PoW)	Not problematic (only domestic miners)	Not problematic	Coordination (problematic, because it only works if the main mining jurisdictions participate, which is unlikely given the location of most mining activities)	/
Environmentally related crypto levy on transactions	Less problematic because targets specific negative externality (carbon footprint of PoW)	Not problematic (tax on PoW transactions by resident taxpayers)	Problematic (self-assessment by withholding agent; implementation may be ineffective without the participation of the foreign CASPs)	Coordination (goal of mitigation achieved in function of more countries joining)	/

5. Philanthropic Use of Crypto Assets

It is important to note that the employment of a crypto asset tax should not in any way inhibit the philanthropic use of crypto, and its ability to:

(i) connect private investors with social, environmental and other philanthropic causes, by allowing private investors and donors to channel funds to specific causes either directly, or through an intergovernmental organization;
(ii) cater for the unbanked providing financial inclusion towards the most marginalized groups, and
(iii) allow rapid transfer and deployment of aid in conflict regions where the traditional financial services are not present.

Examples of such uses are appearing on a rolling basis. Perhaps the most novel crypto asset use has been that which is geared towards philanthropic activity. Philanthropic use of crypto has surfaced both as a tool to raise private and donor financing towards projects executed by intergovernmental agencies, and as a form of voluntary giving by crypto asset users interested in pooling resources towards a particular cause.

At the intergovernmental level, UNICEF has become the first UN agency to launch the CryptoFund, a new financial vehicle allowing UNICEF to receive, hold, and disburse cryptocurrency.

The CryptoFund is a pooled fund of bitcoin and ether and is a part of UNICEF's Venture Innovation Fund. The investments made through the CryptoFund are denominated in crypto, which leverages the full potential of crypto to create visibility for the donor and the public. Through its operations since 2019, the CryptoFund has been able to engage with new donors - such as the fund's founding donor the Ethereum Foundation - and secure resources through new methods such as NFT sales. The CryptoFund has demonstrated improved speed and transparency of transfers, with less than 1% of value spent on transaction fees (not counting staff time), and benefits to innovators in developing and emerging markets in their operations (such as attracting and ruminating global talent). This is an important use of crypto asset-based funding that could come to redefine the relationship between private investors and solidarity based causes that benefit the global commons.

Outside the intergovernmental landscape, crypto uses have also enabled spontaneous donations by blockchain users. Over USD $1 billion in cryptocurrency donations were made in 2024, the highest annual total record, and the average crypto donation was $10,978. Over 70% of Forbes' top 100 charities now accept cryptocurrency donations, the education sector receiving the largest share, followed by health, and children.

Crypto donors tend to be younger, wealthier, and highly philanthropic, often holding long-term crypto investments. This sector is rapidly evolving with the latest developments in AI-led crypto donations, signaling the potential for automated, data-driven philanthropic strategies.

These strategies have been successful on account of their enhanced accountability by strengthening donor confidence through the provision of on-chain proofs/audit trails and ensuring that anyone can verify that aid reaches the intended recipients through end-to-end visibility, real-time reconciliation, and robust anti-diversion measures.

These are important uses of the crypto asset landscape that should be promoted by any system envisaging a levy on crypto transactions. As a consequence, increased transparency in crypto asset ownership structures could be to the benefit of such philanthropic schemes, providing clarity on the use of the crypto asset and allowing the development of a system of incentives and exemptions that cater for these philanthropic uses. Increased transparency rules could be centered around:

- more stringent disclosure requirements on crypto asset deployment (for example, through standardized CASP registration requirements discussed in section 3.1.),
- mandatory disclosure rules to enhance detection, enable intelligence gathering and deter avoidance schemes, and
- voluntary disclosure rules that would indicate when the crypto asset is deployed for a philanthropic purpose.

6. Recommendations and Conclusion

The aim of this paper was to provide a high level description of the key policy options available to countries when envisioning the taxation of crypto currency assets, the transactions to which they are subjected and the financial services rendered in connection with their ownership.

It thus explores the different policy approaches countries could employ when devising a crypto asset levy strategy, and to reflect the state of art of discussions on each of those fronts. Therefore, any combination of one or more policies described in section 3 would be suitable, depending on the criteria privileged by the country in question.

The scoping matrix reproduced in section 4, provides an instructive overview of the options and their intrinsic limitations, guiding countries on their domestic policy decisions, if they want to be the first movers in attaching a tax to crypto transactions.

As an industry that is as of yet largely deregulated, and constantly and rapidly evolving, there are many gaps that would have to be overcome in the assessment of a crypto currency levy under any of the modalities described above. The two main challenges being the creation of a governance/regulatory framework to provide greater government oversight over crypto currency asset transactions, and the expansion of the CARF.

From the four stated policy options: whether to tax the income/capital gains, the transaction, services or mining, perhaps the option which would be most aligned with the initiative of the Global Solidarity Levies Taskforce would be the combination of a financial transaction tax, with an environmental justification.

The combination of these two policies would be conducive towards (i) increased revenue generation; and (ii) addressing the environmental and criminal externalities associated with the use of the crypto asset ecosystem. This would in practice imply in a combination of scenario 2 with either scenario 4(a), scenario 4(c), or both, as further explained below.

Combining a financial transaction tax with certain environmental criteria:

When discussing the design of a financial transaction tax, there was majority support among the experts of the commission that this should be a tax applied at a low rate on crypto transactions. The expert commission did not reach an agreement on the tax rate, but in 2023, the IMF suggested that a rate as low as 0,1% would be enough to produce significant revenues.[9]

An environmental designation could be conferred to the tax, by attaching a higher rate to PoW crypto assets, and a lower rate towards PoS crypto assets, thus stimulating the proliferation of PoS crypto assets in the long-term.

This approach could be combined with a crypto carbon tax (focusing on the energy intensity of the blockchain) or with a crypto mining levy (and reporting obligation). A carbon tax could reward energy-efficient blockchains without broadly penalizing all crypto activity.

The experts recognized that a mining tax could be difficult to enforce without a cooperative or multilateral agreement, given the location of most mining activities, and seeing as mining operations are extremely mobile and seek low-cost, low-regulation energy hubs. As a result, absent broad international adoption or a global mining registry, major mining hubs might not participate and miners could relocate to countries that do

[9] According to this IMF report, a tax applied on transactions involving crypto at the rate of 0.1 percent, would produce revenues of around USD 15.8 billion. IMF, Taxing Cryptocurrencies (auhors: Katherine Baer, Ruud de Mooij, Shafik Hebous, and Michael Keen), WP/23/144, July 2023, available at: https://www.imf.org/en/Publications/WP/Issues/2023/06/30/Taxing-Cryptocurrencies-535510.

not impose the levy, eroding both climate and revenue objectives. Effective enforcement would require mandatory registration or licensing of mining facilities and cooperation with electricity suppliers or grid operators. For this reason, this could be an add-on tax to the CTL, for the jurisdictions that wish to add an environmental component to the taxation matrix without increasing the complexity of the CTL through tax rate differentiation.

For all the options, the main limitation lies with the assessment and enforcement of the tax. Because of the many limitations attributable to self-reporting as an enforcement strategy, third party reporting and exchange of information held with third parties (many times in a foreign jurisdiction) is a key component of a successful crypto levy. While all the options work well when the transactions occur through the intermediation of a CASP, and it is possible to centre obligations around a central reporting entity, taxation becomes more difficult when employed towards large crypto holders, holding crypto assets in private wallets.

Bibliography

Bob Michel and Tatiana Falcao, “The Rise of Cryptocurrencies In the Developing World Highlights Need for Tax Guidance.” *Tax Notes International*, 2022, 801.

Bob Michel, "Are FTX and the Other ‘Bad Apples’ Spoiling the Low-Hanging Fruit Approach of the OECD’s Crypto-Asset Reporting Framework (CARF)?" IBFD Talking Points, 2023, available at: https://ssrn.com/abstract=4328576 or http://dx.doi.org/10.2139/ssrn.4328576.

Bob Michel, “Everybody’s Got Something to Hide except Me and My NFT Monkey: Analysis of the European Commission’s DAC8 Proposal on Automatic Exchange of Crypto-Asset Information.”, IBFD Bulletin for International Taxation 2023 (Volume 77), No. 2.

Brazilian Government, Decreto 6,306, of 14 December 2007, available at: https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2007/Decreto/D6306.htm.

Exec. Order No. 14178, Strengthening American Leadership in Digital Financial Technology, 90 Fed. Reg. 8647 §§ 1, 4 (Jan. 31, 2025). Executive Order excerpted for brevity

Federal Reserve Bank of New York, “Regulating Decentralized Systems: Evidence from Sanctions on Tornado Cash” authors: Anders Brownworth, Jon Durfee, Michael Junho Lee, and Antoine Martin, Staff Reports, no. 1112 August 2024 https://doi.org/10.59576/sr.1112

Government of India, Section 194S in The Income Tax Act, 1961, available at: https://indiankanoon.org/doc/179182470/.

HM Revenue & Customs, “Cryptoassets Manual,” HMRC internal manual, 30 March 2021, updated: 6 May 2025, available at: https://www.gov.uk/hmrc-internal-manuals/cryptoassets-manual/crypto48000.

Investing.com, Russia mandates crypto mining equipment registry, sets tax rules, published 2 March 2025, available at: https://www.investing.com/news/cryptocurrency-news/russia-mandates-crypto-mining-equipment-registry-sets-tax-rules-93CH-3845397

IMF, Taxing Cryptocurrencies (auhors: Katherine Baer, Ruud de Mooij, Shafik Hebous, and Michael Keen), WP/23/144, July 2023, available at: https://www.imf.org/en/Publications/WP/Issues/2023/06/30/Taxing-Cryptocurrencies-535510

Mona Barake, Boas, H. F. (2025). “Enforcing taxes on cryptocurrencies.” EU Tax Observatory Working Paper No. 29.

Mona Barake, Le Pouhaer, E., & Økland, A. (2025). “Who Owns Cryptocurrency?” Skatteforsk Working Paper No. 17b.

Noam Noked, “Ending the Crypto Tax Haven,” 15 Harvard Business Law Review 171-216 (2025), available here: https://journals.law.harvard.edu/hblr/wp-content/uploads/sites/87/2025/03/04_HLB_15_1_Noked171-216.pdf

OECD, “Multilateral Competent Authority Agreement On Automatic Exchange Of Information Pursuant To The Crypto-Asset Reporting Framework” available at: https://www.oecd.org/content/dam/oecd/en/topics/policy-issues/tax-transparency-and-international-co-operation/text-carf-mcaa.pdf.

Reuven S. Avi-Yonah and Mohanad Salaimi. "A new Framework for Taxing Cryptocurrencies." The Tax Lawyer 77, no. 1 (2023): 3-76. (Originally published under the same title in Tax Notes Int'l, 106 (2022))

Reuven S. Avi-Yonah, **“**Now You Have It, Now You Don’t: Taxing Crypto, Part 1,” Tax Notes International, Volume 114, June 3, 2024

Reuven S. Avi-Yonah, “Now You Have It, Now You Don’t: Taxing Crypto, Part 2,” Tax Notes International, Volume 114, June 10, 2024

Shafik Hebous and Nate Vernon, "Cryptocarbon: How Much Is the Corrective Tax?", IMF Working Papers 2023, 194 (2023), accessed October 22, 2025, https://doi.org/10.5089/9798400256080.001

Tatiana Falcão and Bob Michel, “Cryptoization Through Currency Substitution: Tax Policy Options for Low-Income Countries.” Tax Notes International, 2022, 973.

Tatiana Falcao and Bob Michel, “Taxation of Cryptocurrencies.”, *Inter-American Center of Tax Administrations - Manual for the Control of International Tax Planning*, 2022, available at: https://www.ciat.org/5-7-taxation-of-cryptocurrencies/?lang=en.

Tatiana Falcao and Bob Michel, “Towards a Comprehensive Cryptocurrency Income Tax Policy for Countries in Africa.”, 2023, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4658850

The Giving Block, 2025 Annual report on Crypto Philanthropy, available at: https://thegivingblock.com/annual-report/.

UNICEF Venture Fund, Annual Report 2023, available at: https://www.unicefventurefund.org/sites/default/files/2024-05/VF%20Annual%20Report%202023_External.pdf.

UNICEF, “DAOs (Decentralized Autonomous Organizations): Do they make sense for UNICEF?” Team Insight, May 13, 2025 available at: https://www.unicefventurefund.org/story/daos-decentralized-autonomous-organizations-do-they-make-sense-unicef.

UNICEF, “The UNICEF CryptoFund: What is it all about?” (Christina Lomazzo, Blockchain Lead & Mehran Hydary, Product Manager), 23 december 2020, available at: https://www.unicef.org/innovation/stories/unicef-cryptofund.

UNICEF, “UNICEF Venture Fund Joins Lido Impact Staking With Support From GSR Foundation: The collaboration marks significant milestone for institutional philanthropy in Web3 and sustainable funding for social innovation,” 2 June 2025, available at: https://www.unicef.org/innovation/stories/unicef-venture-fund-joins-lido-impact-staking-support-gsr-foundation.

United States Department of Treasury, General Explanations of the Administration’s Fiscal Year 2024: Revenue Proposals, “Impose Digital Asset Mining Energy Excise Tax”, March 9, 2023, pg. 71, available at: https://home.treasury.gov/system/files/131/General-Explanations-FY2024.pdf#page=78.