COMMON MISTAKES IN COMBATING ILLEGAL CRYPTO MINING

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Abstract

The explosive rise of cryptocurrencies price have escalated interest on this class of digital asset, resulting in an increased number of illegal crypto mining. The Cambridge Center for Alternative Finance (CCAF) estimates that Malaysia is responsible for around 3.5% of all world's bitcoin miners, placing Malaysia in the top ten destinations in the world for crypto mining. There has been consistent increase in reported cases of police raids on illegal premises committing electricity theft, and other unlicensed activities which causes million ringgits losses to the government and to Malaysia's energy provider like Tenaga Nasional Berhad (TNB). The crypto crackdowns by Malaysian authorities on illegal miners that actively siphoned electricity have made regular headlines in Malaysian newspapers. Despite the series of crackdowns, the number of person prosecuted have been very low, unrealistic and failed to prevent others from committing these crimes. This study aims to highlight the legal and regulatory defects in the current framework and the common mistakes in combating illegal crypto mining. A series of possible solutions for these costly problems is also included.

INTRODUCTION

Illegal crypto mining is a serious problem in many countries including Malaysia. The biggest electricity utility in Malaysia, Tenaga Nasional Berhad (TNB) has detected 1,359 cases between January 2021 to June 2021 alone.[1] In year 2020, at least 2,465 cases of illegal crypto mining were detected by TNB, a major increase compared to only 610 cases detected in 2018.[2]

Cryptocurrencies like Bitcoin are created through a digital process called mining. During this process, new cryptocurrency is created and is awarded to individuals that lend their computing processing power to solve complex mathematical equations. In simple term, crypto mining refers to the digital mining process needed to create new crypto token. The miners are basically paid auditors, verifying the legitimacy of the blockchain and its recorded cryptocurrency transactions using their computer's computing power, while allowing new unit of the digital asset into the system.[3] The miners are rewarded with new cryptocurrency generated by the system.

Crypto mining can be a lucrative business, estimated to have generated at least $1.7 billion in April 2021 alone. As China banned crypto mining in virtually overnight in 2021, the Chinese government authorities practically banish half the world's competitors, as China was

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[1] Dzof Azmi, 'Bitcoin mining: China's loss is Malaysia's gain (and TNB's loss)' (*Digital News Asia* 27 July 2021) via https://www.digitalnewsasia.com/business/bitcoin-mining-chinas-loss-malaysias-gain-and-tnbs-loss

[2] Dzof Azmi, 'Bitcoin mining: China's loss is Malaysia's gain (and TNB's loss)' (*Digital News Asia* 27 July 2021) via https://www.digitalnewsasia.com/business/bitcoin-mining-chinas-loss-malaysias-gain-and-tnbs-loss

[3] Charlie Campbell, 'Why China Is Cracking Down on Bitcoin Mining and What It Could Mean for Other Countries' (*TIME* 2 June 2021) via https://time.com/6051991/why-china-is-cracking-down-on-bitcoin-mining-and-what-it-could-mean-for-other-countries/

the main centre for crypto mining for many years. The crypto miners in Quebec, Texas, Kazakhstan, and Malaysia suddenly harvests a giant windfall.[4]

However, the mining process is very power-hungry, involving heavy computer calculations and electricity to verify these transactions. For example, Bitcoin mining requires massive energy for hashing and strong processing power to build the blockchain. Due to the heavy consumption of electricity, many crypto miners steal electricity from various sources, causing blackouts and harm to the public at large. In addition, the noise produced from the mining rigs are usually very loud, annoying and cause disturbance to neighbouring areas.

A research conducted by the Cambridge Centre for Alternative Finance (CCAF) estimated that Malaysia is the sixth top country for Bitcoin hashing, making Malaysia one of top countries for Bitcoin mining, albeit illegally.[5]

There are more than 10,000 different cryptocurrencies being traded in the market. Each cryptocurrency has different mining technique. However, for the purpose of this paper, focus is more on Bitcoin mining. This study highlights the legal and regulatory defects in the current framework on crypto mining of cryptocurrency like Bitcoin, and the common mistakes in combating illegal crypto mining. A series of possible solutions for these costly problems is also included.

HOW IT OPERATES

To understand how crypto mining occurs, it is necessary to understand the mechanism behind the blockchain technology. Governments are traditionally entrusted to manage monetary policy and the printing of banknotes. These important duties are often delegated to the Central Banks, being the main regulators responsible to ensure financial stability and smooth operation of the financial system of a country. The collapse of numerous established financial institutions and countries during the previous Global Recession 2008 resulted in the loss of trust of many people in modern monetary system which was controlled and regulated by governments and central banks.

A new alternative monetary system based on reliance on peer-to-peer blockchain technology instead of third parties like governments and central banks was introduced in 2008 by one mysterious Satoshi Nakamoto, the founder of Bitcoin. Under the proposed alternative monetary system, reliance will be on the peer-to-peer blockchain technology which is the foundation of the new system. The blockchain network can be joined by anyone with internet access. The blockchain network generates new Bitcoins every 10 minutes and these new Bitcoins will be distributed to the Bitcoin miners. In its simplest term, Bitcoin miners refers to those who installed the Bitcoin software, lend their computer's computing power and become part of the peer-to-peer Bitcoin blockchain network. The mining process requires computing power and electricity. Those who lent their computers' computing power for the mining process will be rewarded with the newly created Bitcoin.

The algorithm behinds the blockchain network allows for the creation of 50 new Bitcoins every 10 minutes, to be distributed to the miners. The distribution depends on luck,

[4] Shawn Tully, 'Bitcoin mining is suddenly one of the most profitable businesses on the planet' (*Fortune* 6 August 2021) via https://fortune.com/2021/08/05/bitcoin-mining-is-suddenly-one-of-the-most-profitable-businesses-on-the-planet/

[5] Dzof Azmi, 'Bitcoin mining: China's loss is Malaysia's gain (and TNB's loss)' (*Digital News Asia* 27 July 2021) via https://www.digitalnewsasia.com/business/bitcoin-mining-chinas-loss-malaysias-gain-and-tnbs-loss

computing power and electricity. The algorithm also slash the number of newly created Bitcoin to half every four years in a process known as halving, in order to take inflation into consideration. In simple word, four years after the introduction of Bitcoin, the number of Bitcoin produced every 10 minutes will be reduced from 50 Bitcoins per 10 minute to just 25 bitcoins per 10 minutes. The system was also designated to produce a maximum total number of 21 millions Bitcoin only. After the creation of 21 million Bitcoin, the system will not produce new Bitcoin anymore.

Bitcoin can be divided into two component; the public key and the private key. The public key is open for inspection and everyone can see the public keys in the blockchain. In a way, it is similar to email address where others can know the email address. However, access to the block requires the private key, akin a password to an email. Without the password, access to the block cannot be made. Access to a block enables control over the bitcoins in the block. It can be said that in the crypto world, the private key, usually a combination of 64 numbers and alphabets is everything. If a new technology, capable of breaking the private keys emerge, that might be the end of cryptocurrency in its current form. Such technology might be possible with the creation of a really strong quantum computer.[6]

During the first few years of Bitcoin, Bitcoin mining could be performed using any home computer with a relatively powerful CPU. As the network grew, the computational processes required became increasingly complex. This resulted in miners needing more powerful GPUs in order to keep up with the processing demand.

In relation to crypto mining, it should be understood that the computing power required will change based on the difficulty level set up by the system. The blockchain system for cryptocurrency like Bitcoin was designed to increase when more mining rigs were included. In September 2021, the Bitcoin network posted another mining difficulty adjustment, rising 3.2% to hit a difficulty rate of nearly 19 trillion.[7]

In the past, the difficulty level required for crypto mining of cryptocurrency like Bitcoins was not so high. As a result, many syndicates used malware to hack other's computer for crypto mining purposes. Security experts revealed that in 2014, advertisements in Yahoo!'s hompage were infected with malware designed for illegal crypto mining.[8] Security firm Light Cyber said the malware was intended to create a huge network of Bitcoin mining machines while experts estimate that as many as two million European users could have been hit.[9]

However, as the difficulty level arises, most syndicate also operates by stealing electricity from various sources including rented shop lots, malls and any potential source of electricity. For example, it was reported that in February 2018, arrests were made on several scientists at a top-secret Russian nuclear warhead facility for illegal Bitcoin mining using the facility's supercomputers.[10] The supercomputers should not be connected to the internet due to

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[6] See also Roger Huang, 'Here's Why Quantum Computing Will Not Break Cryptocurrencies' (*Forbes* 21 December 2020) via https://www.forbes.com/sites/rogerhuang/2020/12/21/heres-why-quantum-computing-will-not-break-cryptocurrencies/?sh=4c0741a4167b

[7] Helen Partz, 'Bitcoin mining difficulty surges 31% since July' (Cointelegraph 22 September 2021) via https://cointelegraph.com/news/bitcoin-mining-difficulty-surges-31-since-july

[8] Jane Wakefield, 'Yahoo malware enslaves PCs to Bitcoin mining' (BBC News 8 January 2014) via https://www.bbc.com/news/technology-25653664

[9] Zhaoin Feng, 'Why China's bitcoin miners are moving to Texas' (*BBC News* 4 September 2021) via https://www.bbc.com/news/world-us-canada-58414555

[10] 'Chinese headmaster fired over secret coin mining at school' (BBC News 9 November 2018) via https://www.bbc.com/news/technology-46150107

obvious reason. In November 2018, a Chinese headmaster was fired due to illegal crypto mining activities using school's electricity.[11]

Many problems were associated with crypto mining. Crypto mining has resulted in global chip shortage. Nowadays, to mine cryptocurrency like Bitcoins, a specially designed equipment is often used. Highly specialised chips called Application-specific Integrated Circuits (ASICs) are used to mine Bitcoin but these ASICs are built for specific use i.e. mining Bitcoins, once they become obsolete they cannot be repurpose or refurbished for another task.

As of 2020, popular ASICs for Bitcoin mining includes Bitmain AntMiner S5, Bitmain AntMiner S7, Bitmain AntMiner S9, AntMiner T9, AvalonMiner 741, Bitmain AntMiner L3+, Bitmain AntMiner D3, Dragonmint T1, WhatsMiner M3X, and Avalon6. A second-hand crypto mining machine usually range from RM300 to RM4000 in Malaysia.

These mining rigs have a short lifespan, expected to be just around one year. These machines are also very loud, consumes a lot of electricity and require proper cooling system as they become hot easily.

Mining cryptocurrency like Bitcoins produces a lot of electronic waste. Alex de Vries and Christian Stoll estimate that miners of Bitcoin each year produce 30,700 tonnes of e-waste.[12]

Most of the mining activities was done in China but the trend is changing. The research by the Cambridge Centre for Alternative Finance (CCAF) suggested that crypto mining in China dropped from 75.5% in September 2019 to 46% in April 2021.[13]Researchers have revealed that the miners in China are highly mobile with some miners packing shipping containers with mining rigs, turning them into mobile computer data centres.[14] The crackdown has resulted in crypto miners in China moving elsewhere.[15] Some companies including North American mining establishments took the opportunity to expand their share of the market by purchasing additional rigs for their facilities.[16]

MODUS OPERANDI IN MALAYSIA

In Malaysia, the Royal Malaysian Police (the police force) often cooperates with the Energy Commission (EC), the local councils, the Tenaga National Berhad's Special Engagement Against Losses (SEAL), better known as TNB Seal Team, to identify and raid syndicates involved in illegal bitcoins mining, using stolen electricity. Sometimes, the National Water

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[11] 'Chinese headmaster fired over secret coin mining at school' (BBC News 9 November 2018) via https://www.bbc.com/news/technology-46150107

[12] 'Bitcoin mining producing tonnes of waste' (BBC News 22 September 2021) via https://www.bbc.com/news/technology-58572385

[13] 'Cambridge data shows Bitcoin mining on the move' (BBC News 15 July 2021) via https://www.bbc.com/news/technology-57811959

[14] 'Cambridge data shows Bitcoin mining on the move' (BBC News 15 July 2021) via https://www.bbc.com/news/technology-57811959

[15] Zhaoin Feng, 'Why China's bitcoin miners are moving to Texas' (*BBC News* 4 September 2021) via https://www.bbc.com/news/world-us-canada-58414555

[16] Osato Avan-Namayo, 'Ohio to host BIT Mining's new 85 MW Bitcoin mining facility' *(Cointelegraph* 22 September 2021) via https://cointelegraph.com/news/ohio-to-host-bit-mining-s-new-85-mw-bitcoin-mining-facility

Services Commission (SPAN) and the Malaysian Communications and Multimedia Commission also took part in the raid.

Normally, a stakeout by the police of few days and surveillance are done before the police force raids the suspicious premises.[17] In many cases, a raid on many premises is done simultaneously. Investigations are often done following public tip-off by concerned members of the public that were annoyed with the loud noises from such premises. A follow up inspection by TNB will discover illegal electricity connection to bitcoins machines, which are also known as bitcot. To produce one bitcoin, each bitcot had to operate for an estimate of six months.[18]

Most criminal syndicates involved in crypto mining in Malaysia steal electricity from TNB by inserting and modifying illegal electricity connection.

This practice is different from the practice in some other countries in this region. For example, malicious cryptocurrency malware used in crypto mining is being used by cybercriminals to use hardware they don't own such as smartphones, computers, tablets, and servers of others.[19] These criminal syndicates harness the processing power of these devices to mine for cryptocurrencies.[20] In the region, most of the monitored crypto mining attempts prevented by Kaspersky were observed in Indonesia and Vietnam for two consecutive years, accounting for almost 71 per cent in 2020 and 80 per cent in 2019 of all attempted incidents in SEA.[21]

COMMON MISTAKES IN COMBATING ILLEGAL CRYPTOCURRENCIES MINING

1. LACK OF CLEAR DIRECTION

The biggest common mistake in combating illegal crypto mining is the failure on most government to have a clear direction, approach, and strategy when it comes to cryptocurrency and crypto mining. Although some countries like Malaysia regulates cryptocurrency trading by requiring licenses and by subjecting digital asset exchanges to anti-money laundering legal framework, there is still a lack of clear direction when it comes to crypto mining. Will the benefit of crypto mining overcome the problems and challenges associated with it? Is it allowed in Malaysia? Is there a requirement for specific license before one embarks in crypto mining?

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[17] Kalbana Perimbanayagam, 'Serdang cops bust syndicate mining bitcoin using stolen electricity' (*New Straits Times* 5 February 2021) via https://www.nst.com.my/news/crime-courts/2021/02/663235/serdang-cops-bust-syndicate-mining-bitcoin-using-stolen-electricity

[18] Kalbana Perimbanayagam, 'Serdang cops bust syndicate mining bitcoin using stolen electricity' (*New Straits Times* 5 February 2021) via https://www.nst.com.my/news/crime-courts/2021/02/663235/serdang-cops-bust-syndicate-mining-bitcoin-using-stolen-electricity

[19] '#TECH: Almost 9 million cryptominers prevented in Southeast Asia's SMBs in 2020' (*New Straits Times* 23 June 2021) via https://www.nst.com.my/lifestyle/bots/2021/06/701380/tech-almost-9-million-cryptominers-prevented-southeast-asias-smbs-2020

[20] '#TECH: Almost 9 million cryptominers prevented in Southeast Asia's SMBs in 2020' (*New Straits Times* 23 June 2021) via https://www.nst.com.my/lifestyle/bots/2021/06/701380/tech-almost-9-million-cryptominers-prevented-southeast-asias-smbs-2020

[21] '#TECH: Almost 9 million cryptominers prevented in Southeast Asia's SMBs in 2020' (*New Straits Times* 23 June 2021) via https://www.nst.com.my/lifestyle/bots/2021/06/701380/tech-almost-9-million-cryptominers-prevented-southeast-asias-smbs-2020

How many licenses will be issued if the government decided to proceed with a licensing regime? Will there be a specific zone for crypto mining? What about the environmental impacts of crypto mining as almost all mining rigs are specifically built for crypto mining can cannot be refurbished or re-purpose for another use? All these issues need to be addressed.

2. FAILURE TO ARREST

In many cases, raid on illegal cryptocurrencies mines only resulted in confiscation of machines, without any arrests made. This will tip off the masterminds and the syndicate members. In some cases, those arrested are low-level equipment maintenance workers and not the mastermind. For example, during a raid in George Town Penang in June 2021, four men were detained. All claimed that they were carrying out maintenance works of the Bitcoin machines and were paid RM3,000 each by a man who employed them.[22]

In order to ensure efficient action against illegal miners, it is essential to arrest the masterminds and to seize all assets and income generated via these unlawful activities. Anti-money laundering law like AMLATFPUA should be used simultaneously. The message given to the public must be one that shows that crime doesn't pay.

At the very least, key players in the illegal crypto mining must be arrested. This can be done. The police force has arrested masterminds and top admins for illegal crypto mining. For example, in March 2021, it was reported that the police has detained the siblings of the main mastermind of an illegal crypto mining syndicate that caused RM9 million loss to TNB, both of whom operated as accountant and manager of the bitcoin mining activities.[23]

3. FAILURE TO REWARD

To cripple syndicates operating illegal crypto mining, the cooperation of its members and the members of the public is necessary. Proper reward system should be introduced to members of the public who managed to give important information leading to the arrest of those involved. The monetary reward is actually small compared to the benefits that the government and public obtained in the eradication of this costly and harmful crime.

In addition, proper witness protection system should be introduced to ensure the safety of whistleblowers and informants.

4. FAILURE TO PROVIDE PREVENTIVE LEGAL FRAMEWORK

Even if arrests were made, illegal crypto mining activities will continue to happen if a preventive legal framework is not put in place. Illegal crypto mining cases are often investigated for theft under Section 427/379 of the Penal Code and Section 37 of the Electricity Supply Act 1990. The Penal Code provides as follow:

Section 379 of the Penal Code. **Punishment for theft**

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[22] Audrey Dermawan, 'More Bitcoin mining operations busted in Penang' (*New Straits Times* 12 June 2021) via https://www.nst.com.my/news/crime-courts/2021/06/698124/more-bitcoin-mining-operations-busted-penang

[23] 'Hunt on for Bitcoin mining culprit behind TNB's RM9mil losses' (*Bernama* 26 March 2021) via https://www.nst.com.my/news/crime-courts/2021/03/677296/hunt-bitcoin-mining-culprit-behind-tnbs-rm9mil-losses

> Whoever commits theft shall be punished with imprisonment for a term which may extend to seven years or with fine or with both, and for a second or subsequent offence shall be punished with imprisonment and shall also be liable to fine or to whipping.

> Section 427 of the Penal Code. **Committing mischief and thereby causing damage to the amount of twenty-five ringgit**
>
> Whoever commits mischief and thereby causes loss or damage to the amount of twenty-five ringgit or upwards, shall be punished with imprisonment for a term **of not less than one year and not more than five years or with fine or with both.

The practicality of using the Penal Code provision on theft is questionable. Section 378 of the Penal Code explain that the committing of theft refer to the action of 'whoever, intending to take dishonestly any movable property out of the possession of any person without that person's consent, moves that property in order to such taking.'

Section 37 of the Electricity Supply Act 1990 provides for a lengthy provision but even on conviction, the punishments are still arguably very low. The relevant sections are Section 37(1), section 37(2) and Section 37 (14). Section 37(1) provides as follow:

> Section 37. (1) Any person who tampers with or adjusts any installation or part thereof or manufactures or imports or sells any equipment so as to cause or to be likely to cause danger to human life or limb or injury to any equipment or other property shall be guilty of an offence and for each such offence shall, on conviction, be liable to a fine not exceeding one hundred thousand ringgit or to imprisonment for a term not exceeding five years or to both.

The maximum fine allocated under this subsection for the offense is only RM100,000. The punishment provided under different section like Section 37(3) for dishonestly uses electricity or for altering the index of the meter is also very low; 'a fine not exceeding one hundred thousand ringgit or to imprisonment for a term not exceeding three years or to both.' Section 37 (14) of the Electricity Supply Act 1990 provides as follow:

> 'Any person who damages any meter or other instrument used on or in connection with any licensed installation, for recording the output or consumption of electricity shall be guilty of an offence and shall, on conviction, be liable to a fine not exceeding five thousand ringgit or to imprisonment for a term not exceeding two years or to both.'

These amounts are all mockery compared to the obscene amount of money obtained by the syndicate. These outdated laws will not prevent illegal miners and are not punitive in nature. In addition, these low punishment is not reflective of the seriousness of the crimes.

A penalty of RM100,000 will not do. It was previously reported that the police estimated that even a single syndicate managed by one Datuk managed to rake in at least RM52mil in profits through its illegal activities.[24]

It must be noted that crypto mining is a very energy-intensive activity. Comparison can be made to other countries. In 2018, it was reported that the electricity use at Bitcoin mining

[24] Austin Camoens, 'Datuk, wife expected to be charged on Friday (Sept 17) over online gambling' (The Star 16 September 2021) via https://www.thestar.com.my/news/nation/2021/09/16/datuk-wife-expected-to-be-charged-on-friday-sept-17-over-online-gambling

data centres in Iceland is likely to exceed that of all Iceland's homes.[25] It can be argued that Iceland has a small population, an estimate of 340,000 people and nearly 100% of the energy comes from renewable sources.[26] However, by February 2021, it was reported that Bitcoin globally uses more electricity annually than the whole of Argentina, according to an analysis by Cambridge University.[27] The Cambridge researchers say it consumes around 121.36 terawatt-hours (TWh) a year, making electricity consumption for Bitcoin higher than Argentina (121 TWh), the Netherlands (108.8 TWh) and the United Arab Emirates (113.20 TWh).[28]

The CCAF's Cambridge Bitcoin Electricity Consumption Index suggested that at as of July 2021, cryptocurrency like Bitcoin 'consumed almost as much electricity annually as Colombia'.[29] According to the China government, the problem with crypto mining was the high consumption of electricity.[30]

It must be noted that illegal crypto mining is not a harmless crime and those in the judiciary must be given proper training and guidelines, so that the punishment meted be proportionate to the crime. The losses are very significant. For example, Johor TNB estimates that the amount of losses suffered to be around RM90 million in 2020 alone due to illegal bitcoin mining activities while Melaka police uncovered a bitcoin currency mining syndicate responsible for RM9 million worth of losses since February 2019.[31]

There are reported cases where illegal cryptocurrency miners steal electricity and had been paying just RM7 monthly for the service charges, when their actual monthly usage was around RM38,000 per premises.[32]

According to Selangor police chief Datuk Arjunaidi Mohamed, an investigation in one case revealed that the suspect was engaged in illegal activities such as online gambling, Bitcoin mining and illegal money lending business since 2014 and the syndicate was able to 'earn profit of up to RM6 million a year from gambling activities, RM800,000 a month from Bitcoin

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[25] Chris Baraniuk, 'Bitcoin energy use in Iceland set to overtake homes, says local firm' (BBC News 12 February 2018) via https://www.bbc.com/news/technology-43030677

[26] Chris Baraniuk, 'Bitcoin energy use in Iceland set to overtake homes, says local firm' (BBC News 12 February 2018) via https://www.bbc.com/news/technology-43030677

[27] Christina Criddle, 'Bitcoin consumes 'more electricity than Argentina' (BBC News 10 February 2021) via https://www.bbc.com/news/technology-56012952

[28] Christina Criddle, 'Bitcoin consumes 'more electricity than Argentina' (BBC News 10 February 2021) via https://www.bbc.com/news/technology-56012952

[29] 'Cambridge data shows Bitcoin mining on the move' (BBC News 15 July 2021) via https://www.bbc.com/news/technology-57811959

[30] Elena Perez, 'Finding a new home: Bitcoin miners settling down after China exodus' (Cointelegraph 12 September 2021) via https://cointelegraph.com/news/finding-a-new-home-bitcoin-miners-settling-down-after-china-exodus

[31] Dzof Azmi, 'Bitcoin mining: China's loss is Malaysia's gain (and TNB's loss)' (*Digital News Asia* 27 July 2021) via https://www.digitalnewsasia.com/business/bitcoin-mining-chinas-loss-malaysias-gain-and-tnbs-loss

[32] Kalbana Perimbanayagam, 'Serdang cops bust syndicate mining bitcoin using stolen electricity' (New Straits Times 5 February 2021) via https://www.nst.com.my/news/crime-courts/2021/02/663235/serdang-cops-bust-syndicate-mining-bitcoin-using-stolen-electricity

mining and RM2 million from money lending activities by charging interest of 8 per cent to 10 per cent on borrowers'.[33]

5. ISSUING CRYPTO LICENSE

It is essential to have proper legal framework on crypto mining. Whether a government decides to ban or to allow crypto mining, the position must be clear and must be adequately reflected in the legal framework. This will avoid confusion on the part of investors, public at large and law enforcement agencies.

Governments around the world have adopted different approach to cryptocurrency and crypto mining. In the past, China hosts around 75% of the world's bitcoin mining capacity. However, in late May 2021, China's State Council signalled a crackdown on crypto mining with the Chinese Vice Premier Liu He telling a group of finance officials that the government would "clamp down on bitcoin mining and trading activity" to ensure financial stability, causing bitcoin's price to plummet by 30%.[34] The China government has decided to ban all cryptocurrency-related matters including cryptocurrency exchanges and mining. For better or worse, this position has at least clarify the China government's firm position on the matter and provides much clarity to all.

As comparison, in Russia, Anatoly Aksakov, chairman of the Russian State Duma Committee on Financial Markets, suggested that Russia is considering recognizing the crypto mining industry:

> "As this [crypto mining] is a type of entrepreneurial activity, it is obviously necessary to include it into the state register, to regulate it as a type of entrepreneurship under an appropriate code, and impose relevant taxation".[35]

As countries adopts diverse approach on cryptocurrency and crypto mining, it is necessary for country like Malaysia to consider many factors in deciding the correct approach on crypto mining. Should it be banned? Should it be regulated via license like Iran? Should Malaysia aims to establish itself as a good mining centre?

In deciding, Malaysia should consider things like the Environmental Performance Index (EPI) and relevant determinants including energy price, how this energy is generated, temperature, legal constraints, human capital, and R&D. Currently, countries like Venezuela, Libya, Iran, and Malaysia ranks poorly in this Index.[36]

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[33] Rahmat Khairulrijal, 'Businessman, wife charged with operating illegal gambling den' (New Strait Times 17 September 2021) via https://www.nst.com.my/news/crime-courts/2021/09/728069/businessman-wife-charged-operating-illegal-gambling-den

[34] Charlie Campbell, 'Why China Is Cracking Down on Bitcoin Mining and What It Could Mean for Other Countries' (TIME 2 June 2021) via https://time.com/6051991/why-china-is-cracking-down-on-bitcoin-mining-and-what-it-could-mean-for-other-countries/

[35] Helen Partz, 'Russian Duma wants to regulate crypto mining as business' (Cointelegraph 9 September 2021) via https://cointelegraph.com/news/russian-duma-wants-to-regulate-crypto-mining-as-business

[36] Sergio Luis Náñez Alonso, Javier Jorge-Vázquez, Miguel Ángel Echarte Fernández and Ricardo Francisco Reier Forradellas, 'Crypto mining from an Economic and Environmental Perspective. Analysis of the Most and Least Sustainable Countries' (2021), Energies,Vol. 14,4254.

More importantly, it is important to learn the lessons from Iran. Although Iran attempt to regulate crypto mining in Iran by issuing licenses, this failed to deter illegal miners from operating. Iranian authorities officially recognised crypto mining in 2019 and established a licensing regime.[37] As of September 2021, Iran's Ministry of Industry, Mine and Trade has authorized 56 mining farms that collectively consume 400 megawatts, according to estimate.[38] However, unlicensed facilities continues and were reportedly using between six and seven times more power. President Rouhani finally banned all cryptocurrency activities temporarily until 22 September 2021. [39] Tavanir, a leading power company In Iran claimed to have shut down operations for over 5,000 illegal mining farms in addition to confiscating 213,000 unauthorized mining hardware that was capable of consuming 850 megawatts. [40] The leading power company in Iran, Tavanir blamed illegal cryptocurrency miners for the ongoing power shortages in the country with the Tavanir spokesperson Rajabi Mashhadi saying:

> "Unauthorized miners are the main culprits behind the power outages in recent months. We would have had 80% less blackouts if miners had halted their activities."[41]

However, the ministry's director of investment and planning said disputed the figures announced by Tavanir as it "seem to be highly exaggerated" and questioned Tavanir's claims that illegal mining activities consume 2,000 megawatts of power as "this amount would equal power used by 3 million pieces of hardware'.[42]

If Malaysia decide to give license to crypto mining, a carbon tax on cryptocurrencies could be introduced to balance out some of the negative consumption.[43] In September 2020, the Environment and Water Ministry (KASA) secretary-general Datuk Seri Zaini Ujang announced that 'Malaysia is considering to impose carbon tax on future investments to support the sustainability agenda in a bid to tackle climate change'.[44]

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[37] 'Iran bans crypto mining for four months after blackouts' (BBC News 26 May 2021) via https://www.bbc.com/news/world-middle-east-57260829

[38] Arijit Sarkar, 'Illegal crypto mining not the cause of power shortages in Iran, ministry says' (Cointelegraph 2 September 2021) via https://cointelegraph.com/news/illegal-crypto-mining-not-cause-of-power-shortages-in-iran-ministry-says

[39] 'Iran bans crypto mining for four months after blackouts' (BBC News 26 May 2021) via https://www.bbc.com/news/world-middle-east-57260829

[40] Arijit Sarkar, 'Illegal crypto mining not the cause of power shortages in Iran, ministry says' (Cointelegraph 2 September 2021) via https://cointelegraph.com/news/illegal-crypto-mining-not-cause-of-power-shortages-in-iran-ministry-says

[41] Arijit Sarkar, 'Illegal crypto mining not the cause of power shortages in Iran, ministry says' (Cointelegraph 2 September 2021) via https://cointelegraph.com/news/illegal-crypto-mining-not-cause-of-power-shortages-in-iran-ministry-says

[42] Arijit Sarkar, 'Illegal crypto mining not the cause of power shortages in Iran, ministry says' (Cointelegraph 2 September 2021) via https://cointelegraph.com/news/illegal-crypto-mining-not-cause-of-power-shortages-in-iran-ministry-says

[43] Christina Criddle, 'Bitcoin consumes 'more electricity than Argentina' (BBC News 10 February 2021) via https://www.bbc.com/news/technology-56012952

[44] 'Malaysia mulls imposing carbon tax on future investments' (MIDA 23 September 2020) via https://www.mida.gov.my/mida-news/malaysia-mulls-imposing-carbon-tax-on-future-investments/

6. LACK OF CLEAR GUIDELINES ON CONFISCATED ASSETS

Many related items and equipment were seized by the police force during raid on illegal crypto mines which typically includes mining machines, laptops, electrical cables and vehicles.[45] In an integrated raid on 30 premises on 21 September 2021, the Selangor police busted a syndicate stealing electricity to carry out illegal bitcoin mining activities around the state, which resulted in the biggest seizure of bitcoin mining rigs.[46] In the raid, police seized 2,137 mining machines worth RM1.2828 million, 10 laptops, five sets of computers, and six units of ethereum mining graphics card.[47]

There are also cases where the syndicate mastermind was involved in numerous criminal activities the time of arrest. This can result in the confiscation of more assets and equipment. In one case involving a syndicate mastermind that was engaged in illegal activities such as online gambling, Bitcoin mining and illegal money lending business since 2014, the police managed to seal 14 luxury cars, including a Lamborghini Huracan, BMW 8i, Nissan GTR and Porsche Cayman, 14 bungalows and three shophouses, in addition to the seizure of cash and the freezing of 71 bank accounts, all worth nearly RM33 million.

In July 2021, 1,069 mining machines were laid out in a car park of a police station in Miri and crushed with a steamroller.[48] The machines, worth an estimated 5.3 million ringgit ($1.25 million), were discovered by the authorities in crackdowns between February and April 2021. A senior police official in the city of Miri, where the devices were seized justifies the action by arguing that 'the crypto-miners stole electricity' and "their actions are dangerous for life and property, as they can cause power outages.'[49] The same fate probably awaits another 44 crypto mining machines confiscated the previous month there. [50]

It should be noted that the mining rigs can be sold at the market instead to compensate victims. For example, it was reported that as of July 2021, 'TNB has filed at least civil suits against 268 premises involved in power theft, and 142 individuals have been apprehended in the process'.[51] If confiscated items are all destroyed, this will make it even more difficult for TNB to recover its loss.

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[45] Sharifah Mahsinah Abdullah, 'Trio nabbed on suspicion of stealing electricity for Bitcoin mining [NSTTV]' (New Straits Times 8 March 2021) via https://www.nst.com.my/news/crime-courts/2021/03/672048/trio-nabbed-suspicion-stealing-electricity-bitcoin-mining-nsttv

[46] 'Cops bust bitcoin mining syndicate, seize 2,137 machines worth RM1.2mil' (BERNAMA 23 September 2021) via https://www.nst.com.my/news/crime-courts/2021/09/730024/cops-bust-bitcoin-mining-syndicate-seize-2137-machines-worth

[47] 'Cops bust bitcoin mining syndicate, seize 2,137 machines worth RM1.2mil' (BERNAMA 23 September 2021) via https://www.nst.com.my/news/crime-courts/2021/09/730024/cops-bust-bitcoin-mining-syndicate-seize-2137-machines-worth

[48] 'Crypto crackdown: Police steamroll bitcoin machines' (AFP 23 July 2021) via https://www.nst.com.my/news/nation/2021/07/710929/crypto-crackdown-police-steamroll-bitcoin-machines

[49] 'Crypto crackdown: Police steamroll bitcoin machines' (AFP 23 July 2021) via https://www.nst.com.my/news/nation/2021/07/710929/crypto-crackdown-police-steamroll-bitcoin-machines

[50] Dzof Azmi, 'Bitcoin mining: China's loss is Malaysia's gain (and TNB's loss)' (*Digital News Asia* 27 July 2021) via https://www.digitalnewsasia.com/business/bitcoin-mining-chinas-loss-malaysias-gain-and-tnbs-loss

[51] Dzof Azmi, 'Bitcoin mining: China's loss is Malaysia's gain (and TNB's loss)' (*Digital News Asia* 27 July 2021) via https://www.digitalnewsasia.com/business/bitcoin-mining-chinas-loss-malaysias-gain-and-tnbs-loss

CONCLUSION

Despite the strong effort to combat illegal crypto mining from the Royal Malaysian Police (the police force), the Energy Commission (EC), the local councils, the TNB Seal Team, the National Water Services Commission (SPAN) and the Malaysian Communications and Multimedia Commission, the consistent increase of illegal crypto mining cases is a testament that a better legal framework is required. It is time for the legislature and politicians in Malaysia to stop their incessant political bickering and to focus on the protection of public interest by drafting a comprehensive legal framework in relation to cryptocurrency and crypto mining. This must be superseded by a clear government policy on digital assets like cryptocurrency and crypto mining. The direction taken must be clear. The legal framework must reflect the strategy and aims of the government in relation to cryptocurrency and digital assets in Malaysia.