**ADMINISTRATION OF TEMPORARY CASH WAQF ON BLOCKCHAIN IN KENYA**

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**Abstract**

Starting with the m-pesa, the rapid development of fintech in Kenya has enable a more advanced exploration of the efforts to improve financial inclusion through mobile technology. This paper aims to explore the mechanisms to enhance the potential of temporary cash waqf by anchoring its administration to the blockchain technology. We conduct an in-depth document analysis and adopt a descriptive method to study the use a vibrant alternative to the current inefficient waqf administration as a tool to enhance the efficiency of the administration for cash waqf and immovable waqf assets financing in Kenya. The paper re-affirms the legitimacy of temporary cash waqf based on juristic views. The blockchain technology is undoubtedly the missing impetus to the growth and efficiency of temporary cash waqf noting the high degree of accuracy, accountability and reliability it demands. Blockchain provides an incorruptible digital ledger connected to a network of computers, hence making it hack-proof or devoid of manipulation whilst being accessible to the public. The novelty of this paper rests with outlining how the administration of temporary cash waqf can be decentralised such that the funds advanced by the waqif (giver) will be spent on the beneficiaries or projects stipulated in the smart contract and upon maturity, a refund to the waqif is triggered seamlessly.

*Keywords*: temporary cash waqf, blockchain technology, smart contracts, poverty alleviation, financial inclusion,

**1. Introduction**

Despite the rapid growth of Islamic finance particularly in the post-2000 era, there still exists a misapprehension regarding the myriad of financially-related problems may either be solved by Islamic banking, takaful or capital market. Islamic finance offers more holistic solutions to these problems as there is an important role of the Islamic third sector or Islamic social finance in the Islamic financial system which include mandatory zakat, voluntary alms (sadaqah) and charitable waqf. These areas of Islamic social finance have become a subject of intense research due to their potentials of filling in the gap left by the mainstream Islamic banking, thus providing a more inclusive financial system.

Despite the high potentials, these institutions currently have insignificant contribution in the poverty alleviation of millions of Muslims. In particular, those living in countries whose waqf authorities or bodies are either led by inept top managers or are marred by misappropriation and embezzlement. However, all is not lost with the advent of disruptive technological advancements which ensure that these organisations are transparently and efficiently run with least human intervention. Various ingenious product structures are emerging in a bid to meet the intended objectives of the payers of Zakat, donors of alms and endowers in line with the precepts of Islam whilst greatly impacting on the lives of many.

Kenya is among the few countries with a waqf legislation albeit its retrogressive stipulations which soon will be repealed when the Waqf Bill of 2018 is enacted into law. The robust legal framework may propel the waqf institutions to attain its full potential if there is a tremendous improvement from the prevailing poor administration of the vast waqf assets in various forms, either cash, moveable and immovable properties. This study provides an analysis of the administration of temporary cash waqf anchored on blockchain as an effective tool in achieving the much-needed objectives and herald a pragmatic approach to all aspects of the waqf sector in Kenya.

**2. A REVIEW OF CASH WAQF: DEFINITION AND ITS LEGITIMACY**

**2.1 Definition of Cash Waqf**

Ahmed (2015 citing Al Tasuli 1998) avers that Al-Tasuli in his book “Tuhfat al-Hukkam”, defined cash waqf in line with the Maliki school of thought as “the process of dedicating cash as waqf for the purpose of lending it to those designated as the beneficiaries without interest” (Al-Tasuli, 1998, v.2, p:369). Zufar Ibn Al-Huzail (110AH-158AH) of the Hanafi school defined cash waqf as “the process of dedicating cash as waqf and investment of same so that the profits are used for the waqf’s stipulated charitable deeds” (Ibn Nujaym, n.d, v. 5, p: 219) and Ahmed (2015). It is also defined as “the confinement of an amount of money by a founder(s) and dedication of its usufruct in perpetuity to the welfare of the society” (Mohsin, 2013). This definition makes waqf conditional to perpetuity, a view shared by Lahsasna (2010), who looked at it from the crowdfunding perspective and defined it as “mobilization of funds from donors based on perpetuity and investing them in productive assets that provide either usufruct or revenues for future consumption by individuals or groups taking into account the policy and guideline provided by the donors”. Contrary to these definitions, both perpetual and temporary are acceptable as stated by Kahf (2000) who defines waqf as: “a perpetual or temporary holding of a Mal (asset or usufruct) that produces repeated services or products for an objective of general or private righteousness”.

In the same vein, the definition was refined to suit cash waqf by Kahf & Mohomed (2017). By stating that it is “a perpetual or temporary holding of endowed cash to produce repeated benefits or usufructs for an objective of general or private righteousness according to the founder’s stipulated conditions”. Some definitions refrained from the temporality nature of waqf for example, Çizakça (2004a) defined cash waqf as “charitable endowments established with cash capital” and he further coined a more detailed definition as a “Trust Fund established with money to support services to mankind in the name of God” (Çizakça, 2004b).

**2.2 Legitimacy of Cash Waqf**

Magda (2013) asserts that there is a consensus among most Muslim jurists regarding the legitimacy of cash waqf. Ahmed (2015) concurs and state that the use of cash as waqf is found in the writings of the four schools of thoughts, with Imam Malik Ibn Anas (93-179AH) being the first Imam to allow cash waqf in an unambiguous term as stated in “al-Mudawwanah” under the chapter explaining lending of gold dinar and silver coins (Imam Malik, n.d,v.4, p:452). Along the same line, it is narrated by Nafi’ “Hafsa (may Allah be pleased with her) one of the Prophet’s wives bought jewellery worth twenty thousand and endowed it to the women of Al Khatab family” (Ibn Qudama, n.d, v.8, p: 230). Ahmed (2015) argues that although these were pieces of jewellery and not cash, it is a sound authority to mark what evolved into cash waqf as in the era of the companions to the time of Imam Malik who first permitted cash waqf. Subsequently, the gold and silver were used then to make pieces of jewellery and currency i.e. dinar and dirham.

Kahf & Mohomed (2017 citing Kahf 2014) support the legitimacy of cash waqf by using Al-Bukhari’s sub-chapter on “Making a waqf out of domestic animals, personal weapons, goods and money” under which he reported from al Zuhri (Circa 125H), an incident of cash waqf given to a merchant to use for trade (on Mudarabah basis) and its profit to be used for charity.

Ahmed (2015) affirms that Zufar Ibn al-Huzail (110-158AH), one of the companions of Abu Hanifah and notable scholar of the Hanafi school of thought was the second jurist after Imam Malik to unequivocally permit cash waqf. In the same vein, Nawawi of the Shafie school also held that cash waqf is permissible (Nawawi, n.d.). In tandem, Ibn Taimiyyah of the Hanbali school quoted Muhammad ibn Abdullah Al Ansari in his legal opinion on the permissibility of cash waqf (Ibn Taimiyyah, n.d).

The contemporary scholars under the auspices of OIC Fiqh Academy have deliberated and resolved to permit cash waqf vide (Resolution No. 140-15/6) of 2004. Similarly, the AAOIFI in its Shariah standard 33 of 2008)[[1]](#footnote-2), permitted cash waqf on the basis that its permissibility was emphasised by Muhammad ibn Abdullah Al Ansari, the companion of Imam Zufar and supported by Ibn Taimiyyah. Sabit (2011) affirms that the contemporary jurists also justify the validity of the cash waqf because it is in the interest of the institution of waqf, its beneficiaries and the society. This assertion goes a long way in promoting the objectives of Shariah.

**2.3 Legitimacy of Temporary Waqf**

The debate on the legitimacy of temporary cash waqf usually ground their respective arguments on the hadith of Umar respecting his piece of land in Khaibar which he intended to endow[[2]](#footnote-3).

It was established herein-above that endowing cash is permissible and the same edict applies to temporary waqf according to the juristic views captured from the majority schools of thought. Ibn Humman in his book “Syarh Fathu al-Qadir” reports on the authority of Mohammed ibn Muqatil that Abu Yusuf of the Hanafi school stated that if someone endowed to a specific person who eventually dies, then the endowment reverts to the heirs of the endower. Ibn Humam emphasized that it was well known that Abu Yusuf permitted reversion of the endowment to the heirs and an endowment for twenty years as there is no difference between the two (Ibn Humam, n.d).

The Maliki school of thought has consistently permitted cash waqf as well as its temporality. This is unequivocally captured in their definition of waqf and in particular “….in an expression of specified period by the endower” (Dardir, 1995). The Maliki school based the permissibility on the irrefutable fact that prophetic traditions did not make perpetuity, a mandatory requirement for endowments (Al- Maghribi, 1978). Dardir in his commentary on Al-Kabir affirms that perpetuity is not a condition for the endowment as it is allowed on temporary and then it reverts to the endower. Al Kharashi (1899) clarifies that the expression that waqf “is not conditional on perpetuity” meaning eternity, but it is permissible to stipulate a specified time and thereafter it reverts to the endower. Al Mawaq (n.d) asserts that it was stated by Al Aqil in his book “fath aljalil” that validity of waqf is not conditional on perpetuity but a waqf for a specified time is permissible. Contemporary scholars Ibn Shas and Al Qarafi[[3]](#footnote-4) both permit temporary waqf. Imam Nawawi spearheads the various views permitting temporary waqf in the Shafie school of thought. Nawawi (1985) stated that the temporary waqf is valid, and it ends as stipulated and he also clarified that the waqf that does not require acceptance (qabul) is not invalidated by temporality like setting free a slave. Al Sharbini permitted temporary waqf on condition that the temporary waqf specifies the subsequent beneficiary i.e. “I endow this to Zaid and thereafter to the poor” (Al Sharbini, n.d). Al Mawardi (1999) avers that Malik permitted the endower, if the need arises, to sell or repossess his endowment or its benefits premised on the prophetic tradition stating that Muslims in a contract are bound by their contractual stipulations. Moreover, they base the permissibility on what was reported on Ali’s (R.A) endowment (Al Mawardi, 1999). Abu Abas ibn Sarij (n.d) opines that it is permissible to endow temporarily noting that when it was permissible for the endower to endow all his property or part thereof, it was also permissible for him to endow it perpetually or temporarily[[4]](#footnote-5).

Abd Rahman and Amanullah (2017) affirm that all the four major schools of thought have at least a juristic opinion permitting temporary waqf. In the Hanafi school, Abu Yusuf permits it, in Maliki school of thought it is permitted, Imam Nawawi of Shafie school of thought permits it, and Al Mardawi of the Hanbali school of thought concurs with its permissibility. Contemporary scholars under the auspices of AAOIFI’s in Shariah standard on waqf (33 of 2008)[[5]](#footnote-6) permitted temporary waqf in the same vein as they permitted cash waqf. It, therefore, follows that temporary cash waqf is valid whilst noting that it affords the endower the spiritual benefits he intended, while the beneficiaries enjoy the attendant benefits of the endowment. In addition, temporary cash waqf could positively impact on the number of the endowers and beneficiaries, thus achieving the much-needed Islamic social solidarity (Al Nujmy, 2006).

In sum, there are overwhelming juristic opinions from both classical and contemporary scholars supporting permissibility of temporary waqf as well as cash waqf. Therefore, the only grounded inference points to permissibility of temporary cash waqf and as such we conclude that a temporary cash waqf is as valid as any other form of waqf.

**3. BLOCKCHAIN: CONCEPT AND APPLICATIONS**

**3.1 Background**

Blockchain is a disruptive technology which was first conceptualised in 2008 by a person or group using a pseudo name Satoshi Nakamoto in the debut whitepapers entitled “Bitcoin: A Peer-to-Peer Electronic Cash System" (Evgenii, 2017). While initially the terminologies used were separate as “block” and “chain”, it was only in 2016 when the terms block and chain were merged into a single word," blockchain" which is now being viewed with great potential across different domains (Bhamrah & Oberoi, 2018).

The blockchain technology underpinning Bitcoin does not need to store information over currency. Any type of information that requires a third-party intermediary for verification can theoretically be stored in a blockchain thus making it independent of this intermediary (Allen, 2016). Blockchain is a system with distributed authority that enables nodes within it to trade digital assets (Nakamoto, 2008).

Blockchain technology offers an incorruptible decentralised public ledger where all verified and synced transaction are indelibly stored (Bjørnstad, Harkestad, & Krogh, 2017). The ledger affords its users (nodes) the requisite reliability noting that the protocol is hack-proof. Despite blockchain being a public ledger, it operates on an inherent trust. Voshmgir & Kalinov (2017) affirm that it provides an architecture for the so-called “trustless trust” which allows users to trust the outputs of the system without trusting the users therein. The other limb of trust is immutability whereby once a transaction has been inputted into the blockchain system and verified, the same cannot be reversed, edited or deleted (Bhamrah & Oberoi, 2018). With the numerous applications that demand decentralised administration like temporary cash waqf, blockchain guarantees the validity of a transaction by recording it not only on the main register but a connected distributed system of registers, all of which are connected through a secure validation mechanism[[6]](#footnote-7). Khan (n.d) avers that it is “a mechanism to bring everyone to the highest degree of accountability. No more missed transactions, human or machine errors, or even an exchange that was not done with the consent of the parties involved”.

**3.2 Definitions and Characteristics**

**3.2.1 Definitions**

Blockchain has been defined in an array of definitions. Voshmgir & Kalinov (2017) comprehensively defined it as “a shared, trusted, public ledger of transactions, that everyone can inspect but which no single user controls. It is a distributed database that maintains a continuously growing list of transaction data records, cryptographically secured from tampering and revision”. It was also defined as a publicly distributed database, which holds the encrypted ledger (Bhamrah & Oberoi, 2018). In this line, Bjørnstad, Harkestad, & Krogh (2017) defined it as “a distributed ledger technology that acts as a shared database, keeping all its copies synced and verified”. According to the Blockchain Association of Uganda, “Blockchain is an internet protocol and open source software platform for individuals, business, developers and enthusiasts. It is a platform which enables a digital and decentralized, distributed and public digital ledger that is used to record transactions across many computers so that the record cannot be altered retroactively without the alteration of all subsequent blocks and the collusion of the network”. This mechanism enables the nodes (users) to validate and audit transactions inexpensively thus managing the database autonomously.[[7]](#footnote-8)

**3.2.2 Characteristics**

From the definition salient characteristics of blockchain can be deduced. In addition, Bjørnstad, Harkestad, & Krogh (2017 citing Zhu and Zhou’s 2017) summarized the characterises of blockchain as in Table 1 below.

**Table 1:** Characteristics of Blockchain Technology

|  |  |
| --- | --- |
| **Characteristics** | **Explanation** |
| **Distributed ledger and transparency** | A shared public list of transactions (the exchange of data) allows every peer (node) in the network to have access to every transaction made, making the system transparent |
| **Decentralized data management** | Every peer in the system has the authority to add data to the ledger, in other words make transactions. Meaning no one user owns the system more than any other |
| **Data security, tamper-proof,**  **anti-forgery and data integrity** | Blockchain is architectured to store data such that it is immutable and tamper-proof. The decentralized nature of blockchain makes it overly challenging to take advantage of the system by ill-intentioned users. |
| **High efficiency** | Checking balances and completing transactions in a blockchain system can, in theory, be instantaneous. |
| **No risk of centralized failure** | The lack of a centralized storage system removes the risk of losing data and downtime due to problems with a centralized unit |
| **Flexible and reliable** | Blockchains programmable features increase flexibility and reliability in different application scenarios. |

Source: Bjørnstad, Harkestad, & Krogh (2017)

## In anchoring the blockchain technology with temporary cash waqf, there are several characteristics that would concern the endowers:

## Security and privacy: considering that blockchain technology is accessible to the public hence if one was to endow a colossal amount it will expose him to robbers and most likely after receipt of the refund noting that the endower’s financial status will be easily accessible to other nodes (users). Secondly, most endowers would like to shroud their endowments in secrecy to be among those whom Allah will shade on the day of judgement. These concerns are adequately addressed by the embedded encryption whereby the nodes use public and private keys to transact. A “public key” (a long, randomly generated string of numbers) is a “users’ address on the blockchain. Digital assets or transactions sent across the network gets recorded as belonging to that address. The “private key” is like a password that gives its owner access to their digital assets. Store your data on the blockchain and it is incorruptible. This is true, although protecting your digital assets will also require a safeguarding of your private key by printing it out, creating what’s referred to as a paper wallet.[[8]](#footnote-9)

## Immutability and incorruptible: both the endower and waqf commission in the event the latter acts as a guarantor would be concerned if either party can retroactively alter the data in the detriment of the other party or if the system fails and there’s no way of proving a claim or the actual amount of the claim. Once a transaction has been verified it cannot be edited or deleted hence guaranteeing the requisite comfort. Moreover, blockchain has no single point of failure as such it boasts of reliability thus it can be deemed as hack-proof (Bhamrah & Oberoi, 2018).

## Decentralization: to a temporary waqf endower efficiency is key and this might be a challenge if the administration of the ledger is manually updated as this might create inefficiencies, room for errors, delayed refunds and worst still loss of data. Blockchain attends to this concern with smart contracts incorporated on distributed ledger technology whereby any function is verified and simultaneously shared with all nodes on the network hence guaranteeing the eternal integrity of the data whilst the smart contract seamlessly effectuates the stipulations of the endower such as the beneficiary and the refund due date.

## Efficiency: the temporary cash waqf is time-bound and unlike in a sale transaction whereby payment may be effected for goods that don’t meet the specification. On the flipside, temporary cash waqf’s refund is automatically triggered when the tenure expires i.e. 4th December 2018.

## 3.2.3 How blockchain works



Source: Blockchain: Beyond Bitcoin (Crosby, Nachiappan, Pradan, Verma, & Kalyanaraman, 2016, p 10)

**3.2.4 Distributed ledger**

Administration of the temporary cash waqf will be anchored on distributed ledger technology (DLT) and smart contracts. According to the International Swaps and Derivatives Association (2017), a distributed ledger is defined as “a digital record that is shared instantaneously across a network of participants. It is distributed because the record is held by each of the users (or nodes) on the network and each copy is updated with new information simultaneously. DLT uses a consensus technique to ensure that every node agrees on the record, with different distributed ledger using different consensus methods. A key advantage of DLT is that there are not multiple competing sets of records that need to be reconciled but just one, albeit maintained on multiple nodes. This one record represents a “golden source of data”.

**3.2.5 Smart contracts**

Voshmgir & Kalinov (2017) affirm that the term “smart contract” proceeds blockchains and was first proposed by Nick Szabo in 1996. He defines a smart contract as “a set of promises, specified in the digital form, including protocols within which the parties perform on these promises”[[9]](#footnote-10). Taking cognizance of the absence of a global definition of smart contract, there is a concerted effort to shed light on the new phenomenon. Clack, Bakshi and Braine (2016, revised March 2017) define it as an automatable and enforceable agreement. In concurrence, Levy (2017) comprehensively defines smart contract as agreements premised on a distributed digital ledger across a network, that securely records transactions and obligations between parties which are automatically enforced upon satisfaction of the terms of contract or the passage of a set time, or upon the meeting of any other predetermined condition that can be instantiated in computer code. The main benefit of using smart contracts is that all transactions are traceable and irreversible.[[10]](#footnote-11)

Smart contract as elucidated is a contract’s code that is invoked whenever it receives a transactional message, either from a user or from another contract. While executing its code, the contract may read from or write to its storage. A contract can also receive money into its account balance and send money to other contracts or users.[[11]](#footnote-12)

Delmolino Mitchell, Kosba, Miller, Shi & Arnett (2015) avers that “conceptually, one can think of a contract which can define multiple entry points of execution as a special \trusted third party. However, this party is trusted only for correctness and availability but not for privacy. The auto enforceable code anatomy of the smart contract whether on the protocol level or on the application level standardizes transaction rules, thus reducing the transaction costs of entering into, formulating or enforcing an agreement”.[[12]](#footnote-13)

**Table 2. Salient features of a smart contract**

|  |  |
| --- | --- |
| **Characteristics** | **Explanation** |
| **Digital form** | it is in code form |
| **Embedded:** | contractual clauses (or equivalent functional outcomes) are embedded as code in hardware or software |
| **Performance mediated by technological means** | the release of payments and other actions are enabled by technology and rules based operations |
| **Irrevocable** | once initiated, the outcomes for which a smart contract is encoded to perform cannot typically be stopped (unless an outcome depends on an unmet condition). It performs automatically |

Source: Fulbright (2016, March). Smart Contracts: coding the fine print.

**3.2.7 Types of Smart Contracts**

1. **External Model**

In the external model, the form of a legal contract as we conventionally know it would remain in the same natural human language document, but, external to the legal contract, certain conditional logic elements of the legal contract would be coded but will not be part of the legal contract, so the required outputs happen automatically when the relevant conditions are satisfied. Essentially, it provides a mechanism for the auto-enforceability of a contract written in a natural human language as the code is not legally binding. Therefore, “it is not the contract itself that is ‘smart’, but rather the code building blocks that would accompany it and used to execute it”[[13]](#footnote-14).

1. **Internal Model**

On the other hand, the internal model, the form of the legal contract is rewritten in a more formal representation than the current natural human language form. A computer would then take that more formal representation and execute the conditional logic automatically. The internal model takes varied forms and shapes, for example, setting down the code or formal representation within the written contract itself or the written contract could refer to an identified piece of code stored elsewhere and could state that such code is to be given legal effect between the parties. [[14]](#footnote-15)

1. **INCORPORATING BLOCKCHAIN IN ADMINISTRATION OF TEMPORARY CASH WAQF**

**4.1 Historical perspective**

Çizakça (2004b) affirms the many instances of the establishment of cash waqfs were noted in the Bursa Court Registers in Turkey. He illustrated using the case of Mehmed Ali b. Hasan, a resident of the Karaca Muhiddin district of Bursa, who had appointed one Hasan Celebi b. Mehmed as a trustee of a cash waqf which was to be established with a rather modest capital of 50 Esedî Grus. This capital was to be loaned to borrowers having satisfactory collateral and sureties on a “ten to eleven percent per annum” basis.

The waqf trustee maintained a register for each endowment by recording key details of the Waqif, waqf capital, the location, time, trustee, ultimate borrower and amount advanced. The endowed capital was distributed as loans to several borrowers and the return from these investments were spent on religious and social purposes. “A cash waqf could invest its capital utilising any of these three methods: mudaraba, bida’a and muamele-iseriyye” (Çizakça (2004b). The return on these methods was based on *onu onbir uzere*, which can be translated as “eleven out of ten”, specified this profit share and meant that for every ten dirhams earned by the borrower or the entrepreneur, one dirham should be returned to the waqf. However, this raises Shariah concerns touching on guaranteed capital on Mudharabah and its inextricable relationship with interest. Çizakça (2004b) concludes that the cash waqf, though legal, were premised on economic interest which was lower than the market rate but not higher than the rate specified by the founder as such it was predominant in Istanbul for people to borrow from the Bursa cash waqf and lend it at the prevailing market rate to money exchangers (sarrafs) and bankers.

**4.2 Proposed Smart Contract Model**

The proposed model aims at enhancing the administration of waqf and as such, it is more suitable for sophisticated endowments like temporary cash waqf which necessitates a high level of accuracy, efficiency and reliability. The entire administration process, commencing with an initial recording of the endowment to the frictionless refund, will be fully anchored on the distributed ledger and the mechanism will adopt the usage of internal smart contracts. The endowments will be used to offer Qardh Hassan (interest-free loans) or Mudharabah (profit-sharing partnerships) to the “unbankables” and on charitable activities like construction of mosques, orphanages or develop waqf real-estates.

The endower will either credit the Waqf Commission’s designated bank account with a clear narration on the specific beneficiary and tenure in months or send the endowment via mobile money transfer platform, such as the Mpesa and clearly indicate the duration in months and beneficiary under “account name”, for example, Qardh Hassan 1 or Charitable activities 7, etc. Upon receipt of the electronic credit advice from either the bank or Mpesa, the distributed ledger will relay this information to a specific pool of trusted validators using (Proof of Authority) consensus algorithm, [[15]](#footnote-16) who will validate the transaction within seconds and then multiple smart contracts will be invoked between the principal parties and between the endower and guarantor. If the endower designated a Qardh Hassan, Waqf Commission will guarantee the repayment and the same applies to charitable activities. However, if the endower opted for Mudharabah then the ultimate beneficiary (entrepreneur) shall be guaranteed by an independent third party and Waqf commission as the last resort guarantor. Subsequently, the smart contract automatically disburses the funds to the intended beneficiaries.

At maturity, the smart contract which apply the funds in the beneficiary’s (Qardh Hassan or Mudharabah) wallet and settle the account. In the event of insufficient or lack of funds therein, it will enforce the guarantee and debit funds from the guarantor’s wallet. On the other hand, other nodes may use block explorer [[16]](#footnote-17)  to match the amount and commencement date of their endowment with a soon -to- mature endowment. Alternatively, the smart contract will pool the funds endowed for the charitable activities and automatically set off the matured temporary endowments with current endowments as the funds disbursed to charitable activities i.e. construction of mosques and orphanages will not be reimbursed. However, in the case of income-generating projects a staggered repayment will be anticipated by the Waqf Commission. By default, whenever there is inadequate fund, the smart contract will enforce the commission’s guarantee and seamlessly refund the endower.

It is important to note that under Mudharabah, the third-party guarantor will guarantee capital only while the profit generated, if any, is pooled to form a revolving fund which will over time take over the role of last resort guarantor from the waqf commission. The digital assets on the blockchain will be of equal value or rather, pegged on Kenya shillings for top-notch efficiency and convenience.

**Table 3:** Sample of a modified temporary cash waqf smart contract (Mudharabah)

|  |
| --- |
| 1 data Endower, Entrepreneur, third Party guarantor, Waqf Commission, Pool  2 data deadline  3 def determine\_outcome():  4 if block.timestamp ≥ deadline:  5 # Not shown: collect deposits from Entrepreneur  6 send capital (Endower, self.balance)  7 Send profit (Pool, self.balance)  8 If funds capital  9 else:  10 # Not shown: collect deficit from the third party guarantor in Mudharabah  11 send (Endower, self.balance)  12 If funds capital  13 else:  15 # Not shown: collect deficit from Waqf Commission or Pool  16 send(Endower, self.balance) |

1. **BENEFITS OF TEMPORARY CASH WAQF**
   1. **Poverty alleviation**

According to Unicef (2018), “Kenya is a country of many contrasts, from its landscape to demographics, and more so its social and economic inequalities. Kenya is one of the most unequal countries in the sub-region. Forty-two percent of its population of 44 million, live below the poverty line”[[17]](#footnote-18). This translates to 18.5 million of the total population. These people are in abject poverty to the extent that they cannot access basic needs like regular meals, decent housing, health care, education, clean water and sanitation. Large segments of the population, including the burgeoning urban poor, are highly vulnerable to climatic, economic and social shocks.[[18]](#footnote-19)

The institution of cash waqf can adequately address this challenge as the affluent in the society will endow to poor and needy in the society either in perpetuity or temporarily. Regarding temporary cash waqf, the money advanced to the poor and needy will be structured under Qardh Hassan which is an interest-free loan. The bulk of the so-called “unbankables” will be monetarily assisted to either start up meaningful economic activities or expand their already existing ones with the intention of improving their standards of living. The initial disbursement will be in line with the amount ordinarily disbursed for start-ups be it a small or micro- business. Financial literacy training and close monitoring will be done through other social channels. Noteworthy, at maturity of their financing they will retain the resultant profit but repay the principal which will be recouped by the Waqf commission in the event it had repaid the endower from its funds due to maturity mismatch between the temporary waqf and Qardh Hassan.

**5.2 Social Financial Inclusion**

Banking institutions shy away from customers who do not satisfy the requirements of creditworthiness or lack adequate collateral for their financing. This large segment of the society may greatly benefit from temporary cash waqf as their financial needs will be bridged through Mudharabah which is a profit-sharing partnership with a predetermined profit sharing ratio. The temporary cash endowers act as the investors and the “unbankable” individuals seeking finance will be the entrepreneurs. It is trite that the monetary loss is borne by the investor. However, Shariah permits a third party to guarantee the capital only and on this front, a third-party guarantor presented by the entrepreneur will undertake to pay in the event of default. Nonetheless and for sustainability, the waqf commission will act as a guarantor of last resort.The profit generated from such ventures will be utilised in future financing as well as being pooled with the intent of eventually taking over the role of the guarantor from the Waqf Commission.

1. **Conclusion**

This study has explored the potentials of offering temporary cash waqf on blockchain technology, using Kenya as the context setting. It is shown that the model is highly viable and could help in increasing the efficiency of the administration of cash waqf. Correct implementation of this model would definitely help to improve the waqf sector to be a vibrant sector that is effectively contributing to more inclusive finance and fairer income growth of the economic units.

The implementation of this model will greatly enhance efficiency in the administration of temporary cash waqf in Kenya which will result in an increase in the number of temporary endowers hence a steep increase in the resources available to the millions of poverty-stricken Muslims in Kenya. Additionally, the vast but dilapidated immovable assets owned by the waqf commission on behalf of Muslims will be renovated or better still, be replaced with far much better income-generating residential units as well as commercial buildings.

The benefits revert to the endowers who will have met the social obligations while attaining spiritual and heavenly rewards for ameliorating the suffering endured by the needy and poor. This according to this model will be done in a secure and encrypted manner which is in strict compliance with the pre-condition of the category whom will be under shade on judgement day. It is a timely model whose anticipated benefits pervades the entire Islamic eco-system.

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1. 3/4/3/2: Waqf is permissible in money. The income generated from utilization of the money is to be spent, while retaining the principal amount. Utilization may include, for instance, Shariah-based lending as well as permissible and safe investments like Mudarabah where the profit share owned by the Waqf goes to beneficiaries. [↑](#footnote-ref-2)
2. 2772: Narrated Ibn ‘Umar (R.A) When ‘Umar got a piece of land in Khaibar, he came to the Prophet saying, “I have got a piece of land better than which I have never got. So, what do you advise me regarding it?” The Prophet said, “If you wish you can keep it as an endowment to be used for charitable purposes.” So, ‘Umar gave the land in charity (i.e., as an endowment) on the condition that the land would neither be sold nor given as a present, nor bequeathed, (and its yield) would be used for the poor, the kinsmen, the emancipation of slaves, Jihãd, and for guests and travellers; and its administrator could eat in a reasonable just manner (according to his labour), and he also could feed his friends without intending to (store anything from it in order to) become wealthy by its means." Sahih Bukhari [↑](#footnote-ref-3)
3. Budiman, M. A. (2014) [↑](#footnote-ref-4)
4. Ibid [↑](#footnote-ref-5)
5. 3/1/4: In principle Waqf should be eternal. Nevertheless temporary Waqf is also permissible when the donor desires to get back his property after a specific period [↑](#footnote-ref-6)
6. Ian Khan, TEDx Speaker | Author | Technology Futurist [↑](#footnote-ref-7)
7. <https://www.baoug.com/> retrieved on 8th October 2018 [↑](#footnote-ref-8)
8. https://blockgeeks.com/guides/what-is-blockchain-technology/ [↑](#footnote-ref-9)
9. *Nick Szabo, Smart Contracts: Building Blocks for Digital Markets, 1996* [↑](#footnote-ref-10)
10. <https://acadgild.com/blog/blockchain-platforms-smart-contract-handbook> - [↑](#footnote-ref-11)
11. ibid [↑](#footnote-ref-12)
12. Voshmgir & Kalinov (2017) [↑](#footnote-ref-13)
13. ISDA [↑](#footnote-ref-14)
14. ibid [↑](#footnote-ref-15)
15. Consensus is achieved when all participants of the network agree on the validity of the transactions, ensuring that the ledgers are exact copies of each other. Retrieved from <https://blockgeeks.com/guides/blockchain-glossary-from-a-z/> on 8th October, 2018 [↑](#footnote-ref-16)
16. Block explorer is an online tool to view all transactions, past and current, on the blockchain. They provide useful information such as network hash rate and transaction growth. Retrieved from <https://blockgeeks.com/guides/blockchain-glossary-from-a-z/> on 8th October, 2018 [↑](#footnote-ref-17)
17. https://www.unicef.org/kenya/overview\_4616.html [↑](#footnote-ref-18)
18. ibid [↑](#footnote-ref-19)