

Crypto-Geological Fiqh Law: Analysis of Maqashid Syariah on the Use of Blockchain and Smart Contract in the Distribution of Cross-Country Natural Disaster Compensation Funds

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ARTICLE INFO

Keywords:

Maqashid Syariah;
Blockchain;
Smart Contract;
Philanthropy Disasters;
Crypto- Geological
Jurisprudence

Article history:

Received 2025-04-15
Revised 2026-05-19
Accepted 2026-06-23

ABSTRACT

Increasing frequency disaster natural cross- country demands system fast, transparent and accountable distribution of compensation funds, but system conventional Still face constraint bureaucracy layered, chain intermediation long, and fragmentation regulations between countries that hinder effectiveness help humanity. Blockchain technology and smart contracts are here as solution potential, but its use in Islamic philanthropy requires justification from perspective maqashid sharia so as not to cause harm new. Research This is studies literature that analyzes use of blockchain and smart contracts in distribution of compensation funds disaster natural across countries through framework Maqashid Syariah. Research results disclose that blockchain architecture provides benefit significant in the form of transparency and accountability that contribute to protection property, as well as efficiency supporting distribution protection soul, even though keep potential understanding such as pseudo- anonymous, consumption energy excessive, and disparity digital infrastructure. Smart contract scheme aligned with principle clarity contract and prevent gharar, however its rigidity contradictory with principle emergency and have vulnerability in the oracle problem. Dimension cross- country causes tension between sovereignty laws and regulations give help humanity, which requires framework law transnational adaptive. Synthesis study produce framework Islamic ethics for blockchain governance based on trust, maslahah, shura, hisbah, and balance transparency-privacy. Implementation results study realized in prototype consortium blockchain system with governance participatory, emergency override mechanism, decentralized oracle, privacy differential, as well as an independent sharia supervisory board.

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1. INTRODUCTION

Disaster natural has become reality humanity whose frequency and intensity Keep going increase in a way significant in two decades last. Data from various institution global humanity shows that change climate has make things worse vulnerability communities in various parts of the world, especially in developing countries that are in area ring fire or ring of fire. Floods, earthquakes earth, eruption mountain volcanoes, and tsunamis do not only resulting in loss of life in amount big, but also devastating infrastructure economic and social that has built during dozens year. In situation emergency kind of this, speed and accuracy distribution of compensation funds become factor crucial that can determine the number of victims that can saved. However ironically, the system distribution help humanity conventional often face constraint serious structural, starting from layered bureaucracy, chain long intermediation, until problem transparency and accountability that is eroding trust of donors (Nipa et al., 2026).

Development rapidly technology financial or financial technology in a number of year final has open horizon new in system global finance, including in realm philanthropy and disaster management disaster. Among various innovation In this regard, blockchain and smart contract technology emerged. as the most promising breakthrough For overcome weaknesses fundamental in system distribution of humanitarian funds traditional. Blockchain, with characteristics its decentralization, immutability, and transparency, offers possibility For create system distribution of funds that can audited in real-time by the public without depend on authority single. While that, smart contracts allow automation disbursement of aid funds based on the parameters that have been determined previously, such as confirmation occurrence disaster from seismic sensors or image satellite. Second technology this, if integrated in a way right, potential revolutionize method people man respond disaster nature, especially in context across countries where coordination between jurisdiction often become obstacle main (Othman et al., 2025).

Islam as a comprehensive religion own framework rich ethics and laws for respond various problem humanity, including disaster nature and distribution assistance. In tradition Islamic intellectuals, concepts maqashid syariah occupies position central as methodology For understand the fundamental goals behind determination Sharia law. Five main pillars maqashid sharia, namely protection of religion or hifz al-din, protection soul or hifz al- nafs, protection reason or hifz al- aql, protection descendants or hifz al- nasl, and protection treasure or hifz al-mal, is framework normative that can used For evaluate every innovation and practice in life Muslims, including in realm technology financial. In context distribution of compensation funds disaster nature, maqashid syariah provides clear guidance about priorities humanity that must be prioritized, mechanism fair distribution, as well as limitations unethical may violated. Framework maqashid sharia becomes the more relevant when technology new such as blockchain and smart contracts were introduced to in system Islamic philanthropy, because every innovation technology must evaluated No only from aspect efficiency technically, but also from his contribution to achievement welfare human beings who are objective main sharia (Rofiq et al., 2025).

Urgency study to integration blockchain technology and smart contracts in distribution of compensation funds disaster natural across countries from perspective maqashid sharia is increasingly come to the fore when consider various problematic contemporary issues faced by institutions Islamic philanthropy. Institutions such as the National Zakat Collection Agency, Zakat Collection Institutions, and various organization other Islamic humanity often face challenge in the form of low trust public consequence lack of transparency in fund management. On the other hand, the need will help humanity that is cross- country increasingly increase along with the more often happen disaster natural scale large scale that crosses territorial boundaries. In situation kind of this, system conventional which relies on banking traditional and inter- country transfers are often No capable give sufficient response fast, while cost high transaction and administration reduce the final amount of funds until to disaster victims. Blockchain technology and smart contracts are present as solution potential For overcome various constraint said, however its use in context Islamic philanthropy requires justification and guidance from sharia perspective, in particular maqashid syariah, so that it does not precisely cause harm new that is not desired (Mohamed et al., 2023; as quoted in Kompasiana, 2025).

Draft base jurisprudence transactions give runway ontological importance For understand the legal status asset crypto and blockchain technology in Islamic perspective. In jurisprudence muamalah, a object can categorized as treasure or the legitimate al-mal if fulfil element clear ownership, have mark real economy, as well as can transferred legally. The Hanafi School emphasizes element values and abilities For saved, while The majority of scholars emphasize mark benefit as well as confession public to object said. Blockchain technology, as foundation from asset crypto, have characteristics that are precisely in line with sharia objectives, in particular in guard treasure or hifz al-mal, because system This nature decentralized, transparent, difficult manipulated, and provide control ownership via private key. Ownership digital assets in blockchain can understood as form mastery law or taqabudh law, although No shaped physical, as transaction digital banking has accepted as form legitimate possession in jurisprudence contemporary (Muzakkir, 2026; as quoted in Muhammadiyah.or.id, 2026).

The phenomenon of cryptocurrency and blockchain has bring up intensive debate among scholars and experts jurisprudence contemporary regarding its legal status in Islam. Some scholars, as reflected in the fatwa of the Indonesian Ulema Council through The 7th Fatwa Commission Ulama Meeting in 2021 stated that use of cryptocurrency as tool swap it is forbidden because contain element gharar or uncertainty and harm or potential losses. Trading crypto as commodities are also assessed Not yet fulfil condition as goods or please in jurisprudence transactions Because No have clear underlying assets and have level very high volatility approaching element qimar or speculation. On the other hand, the Assembly Tarjih and Tajdid In 2026, the Muhammadiyah Central Leadership issued a fatwa stating that asset crypto can considered as a mutaqaawwam mall or treasure worth in sharia perspective, so that law origin transact and invest in crypto is permissible or may, with conditions certain strict regulations (Hukumonline, 2026).

Complexity problem become the more layered when dimensions cross- country included to in analysis. Disaster natural often No recognize political and territorial boundaries, so that response effective humanity need Work same and coordinated between countries. However Thus, every country has framework different regulations related with cross- border fund transfers, particularly those involving cryptocurrencies and blockchain technology. Several countries have adopt friendly approach to innovation financially, while others are still enforce restrictions strict or even total ban. Regulatory fragmentation This create challenge Serious for initiative philanthropy disaster cross- border who want utilise blockchain technology. In perspective maqashid sharia, situation This cause dilemma between obligation comply legitimate authority or Wali Al- Amr, who is part from protection of religion and order social and obligations give help to disaster victims who are manifestation from protection soul (Nipa et al., 2026).

Development blockchain technology and smart contracts also give rise to problems ethical and environmental can ignored in framework maqashid sharia. Some types of blockchain, especially those that use mechanism proof-of-work consensus as used by Bitcoin and Ethereum versions early, known consume energy in a very large amount For validate transactions. Consumption excessive energy This cause what is called as crypto-damages or damage environment consequence activity crypto, which is direct contradictory with principle maqashid sharia which states that transaction No may endanger society and the environment. Principles benefit in Islam it is required that every activity economic and social give extensive benefits for people human, not precisely cause damage. Awareness will problem This has push development protocol consensus alternative such as proof-of-stake and CASPER which are more friendly environment (Chong, 2021; as quoted in Kompasiana, 2025).

The concept of smart contracts as one of the application main from blockchain technology has huge potential in revolutionize system distribution help humanity. Smart contracts are basically is a computer program that executes self Alone when conditions that have been determined fulfilled, so that can remove need will intermediation and reducing risk manipulation or misuse of funds. In context disaster nature, smart contracts can programmed For in a way automatic disburse aid funds when the data is from a trusted oracle, such as a seismic sensor or report from institution meteorology, confirming occurrence disaster with certain parameters. Automation This potential remove pause times that often become

problem critical in response humanity. However thus, from perspective maqashid syariah, the implementation of smart contracts also gives rise to questions serious ethics, including problem rigidity or stiffness contracts that can become counterproductive in situation dynamic emergency, as well as oracle problem issue or dependence on external data sources that can manipulated (Rofiq et al., 2025).

In the context of Indonesia as a country with the world's largest Muslim population and at the same time a highly vulnerable country to disaster nature, study about integration maqashid sharia with blockchain technology for distribution of compensation funds disaster own urgency that is not can offered. Indonesia is located in the region ring fire The Pacific that makes it as one of the most vulnerable countries disasters in the world, with frequency earthquake earth, eruption mountain volcanoes, and very high tsunamis. At the same time, Indonesia has ecosystem very strong Islamic philanthropy, with the potential for zakat, infak and alms that reaches hundreds trillion rupiah per year. However Thus, the effectiveness management of these funds Still face various obstacles, including problem transparency and accountability that is eroding trust public. Integration of blockchain technology in system Islamic philanthropy in Indonesia, if done with notice framework maqashid sharia, can become a model for other Muslim countries in optimize potential Islamic philanthropy for countermeasures disaster. (Fortune Indonesia, 2026).

Study about integration of blockchain and maqashid sharia in context philanthropy disaster still very limited, so that there is gap literature or significant research gaps that are necessary filled. Most of the existing studies Still focus on aspects blockchain technical or aspect law Islamic economics in general separate, without integrate both of them in framework comprehensive analysis. Study of maqashid sharia in context technology financial Still dominated by discussion about Islamic banking and Islamic capital markets, while application maqashid in blockchain and smart contract context for philanthropy disaster still very lacking get attention. In fact, both field This own point very potential meeting For generate distribution models help humanity that is not only efficient in a way technical but also in harmony with fundamental values of Islam. The gap this is what I want filled by research this, with do analysis deep to How principles maqashid sharia can operationalized in blockchain architecture and smart contracts for distribution of compensation funds disaster natural cross- country.

2. METHODS

Study This use type study studies literature or the usual known with library research terms. Types of research This chosen Because object study in the form of concepts, theories and thoughts expressed in various literature scientific, not in the form of empirical data obtained direct from field. Literature study is something approach research conducted through review in a way in-depth, critical, and systematic to sources relevant written with focus the problem studied. In context study this study literature become the most appropriate choice remember focus main study is do analysis maqashid sharia towards use blockchain and smart contracts, which require mastery deep towards two scientific domains at the same time, namely jurisprudence and technology financial. These two domains has own treasury rich literature, good in form books, articles journals, as well as report research, so that studies literature allows researchers For build solid argument based on synthesis from various source authoritative (Zed, 2021).

Data sources in study This consists of from selected primary data sources and secondary data sources based on criteria relevance, credibility, and currency. Primary data sources include books scientific discussion in a way direct about maqashid sharia, fiqh muamalah, blockchain technology, smart contracts, and Islamic philanthropy. Books This become references main in build framework theoretical and analytical, because book scientific generally serve comprehensive, systematic, and comprehensive discussion through a rigorous editing and publishing process. Secondary data sources covers articles journal scientific, good international and national, as well as reports results study from institutions credible. Election range time This done For ensure that sources used reflect development latest in discourse maqashid sharia and blockchain technology, considering second field This Keep going develop very dynamically. Report results study from institutions Islamic philanthropy, institutions regulations

finance, and organization humanity international also becomes valuable data sources Because presenting empirical data and experiences practical that can enrich analysis (Santosa, 2021).

Data collection techniques in study This done through method documentation, which is technique appropriate data collection with characteristics studies bibliography. Documentation method No just collect and stack reference, but rather is procedure systematic which includes a number of mutually exclusive stages related. thinking systematic means think about all component with consider the role of each component and how interact One each other so that set goals can achieved completely (Azmi et al., 2022). Stages First is identification and search source, where the researcher do search to books, articles journals and reports relevant research with topic study. Stages second is selection and evaluation source, where the researcher do evaluation to credibility, relevance, and currency every sources found (Pettalongi et al., 2025). Stages third is data collection and organization, where researchers collect and group data based on relevant themes. Documentation techniques in study This No only depend on document written conventional, but also utilizes increasingly digital documents become source main in study contemporary (Ramdhan, 2021).

Data analysis techniques used in study This is analysis content qualitative or qualitative content analysis. The process of data analysis in study This taken through a number of sequential stages. Stages First is coding or coding, where researchers read in a way deep every sources that have been collected and provided code on segments relevant text with question research. Codes This can in the form of keywords, phrases, or a concept that reflects content substantive from segment text mentioned. Stages second is categorization, where researchers grouping codes that have similarities theme or meaning to in more categories abstract. Categories This Then arranged in something structure hierarchical that reflects connection between themes main and more sub - themes specific. Stages third is synthesis and interpretation, where researchers connect categories that have been arranged with framework the theory used, namely maqashid sharia. Stages fourth is withdrawal conclusion, where the researcher formulate findings main answer question study based on results analysis that has been carried out (Saldana, 2021).

Testing techniques validity of data in study This done through several strategies that aim For ensure that findings produced own high credibility, dependability, and confirmability. The first strategy used is triangulation source. Second strategy is improvement perseverance or persistent observation, which is a strategy that requires researchers For reading and studying source in a way repetitive, in-depth, and continuous (Pettalongi et al., 2025). The third strategy used is checking colleagues or peer debriefing, where researchers discuss findings beginning with colleague or experts who have skill in field Maqashid Sharia and blockchain technology (Creswell & Creswell, 2023). The fourth strategy in testing data validity is an audit trail or audit trail, which is a strategy that ensures that the entire research process can traced and reconstructed in a way transparent. The fifth strategy is use material adequate references, where researchers store and provide access to data sources used so that can checked returned by another party if required. The sixth strategy is discussion with expert or expert consultation, which is carried out with involving expert in the field maqashid sharia and blockchain technology for give evaluation to accuracy interpretation and analysis carried out by researchers (Yin, 2022).

3. FINDINGS AND DISCUSSION

3.1 *Identification Masalahah and Mafsadah in Blockchain Architecture for Philanthropy Transboundary Disasters*

Literature review This find that blockchain architecture offers dimensions a very significant problem in context philanthropy disaster cross- border, although at a time keep potential the necessary mafsadah mitigation careful. Findings First show that characteristics The decentralization and immutability inherent in blockchain technology are foundation main for realization transparency and accountability in distribution of compensation funds. In perspective maqashid sharia, transparency This in a way direct contribute to protection treasure or hifz al-mal, which is one of the of the five main pillars welfare. Every recorded transactions in a way permanent and can audited by the public prevent occurrence frequent misappropriation of funds become problem chronic in countermeasures disaster

conventional architecture This allows donors, recipients benefits, and authority supervisor For track every real -time funding units, from point collection until point distribution end, so that create ecosystem unverified trust Once happen previously in history humanity (Billah, 2022).

More furthermore, blockchain architecture allows deletion intermediation that is not need in chain distribution aid. In the philanthropic model traditional, aid funds often pass Lots layer bureaucracy and institutions intermediaries who each take portion administrative, so that the final amount until to hands of disaster victims experience substantial depreciation. Distributed ledger technology allows a radical peer-to-peer scheme, where donors can transfer mark direct to recipients who have verified his identity through system blockchain -based digital identity. Disappearance layers intermediary This No only increase material efficiency, but also in line with principle justice distributive in maqashid sharia which emphasizes that wealth No only circulating among group elite. Speed distribution generated by blockchain automation also contributes to the protection soul or hifz al- nafs, remembering in situation emergency disaster, delay help as small as whatever can means disappearance life humans should be Can saved (Job, 2026).

However, research this also identifies a number of mafsadah inherent potential in blockchain architecture that is not Can ignored. One of the findings critical is that pseudo- anonymous characteristics in public blockchain can become gap for funding conflicting activities with maqashid sharia. Without mechanism verification strict and sharia -compliant identity, the blockchain network used For philanthropy disaster prone to infiltrated by entities that are on the sanctions list international or own relatedness with destructive activities welfare general. Situation This can cause mafsadah in the form of damage reputation institution Islamic philanthropy and, in larger scale wide, can threaten stability system finance Islamic social overall. Ironically, the features immutability that becomes source benefit in context transparency precisely can changed become mafsadah when transactions that violate sharia have too late recorded and not can deleted or corrected from the ledger. Dilemma This show that blockchain architecture requires careful governance design For maximize benefit at a time minimize mafsadah (Wajdi & Susanti, 2026).

Potential mafsadah others identified is problem scalability and consumption energy that becomes characteristics a number of certain types of blockchain, particularly those that use mechanism proof-of-work consensus. In context philanthropy disaster, where funds are available should maximized For interests of victims, use enormous energy For validate transaction is form waste or forbidden tabdzir in Islam. Waste this, in framework maqashid sharia, no only harm treasure but also can damage environment life that ultimately threaten soul and sustainability generation coming. However Thus, research This take notes that development contemporary blockchain technology has give birth to mechanism consensus alternative such as proof-of-stake and delegated proof-of-stake which are far more efficient in a way energy and more in accordance with principle welfare. Choice proper blockchain architecture, with thus, it is point crucial determining factor whether something initiative philanthropy disaster blockchain based will bring benefit dominant or precisely fall into in the meaning that should be Can avoided (Billah, 2022).

Findings next related with interoperability blockchain architecture that enables integration various system cross- border digital payments and identities. In disaster natural cross- border, often the victims are spread across various jurisdiction with system different financial and regulatory frameworks, so that coordination distribution help become very complex and vulnerable to inefficiency. The blockchain architecture that was designed with protocol interoperability can bridge gap This allows funds to flow in a way smooth from donors in one country to recipients in other countries without obstacle conversion complicated currency and high transfer fees. In perspective maqashid sharia, interoperability This is manifestation from principle taysir or convenience is one of them the objectives of sharia in muamalah. However, research this also reveals that interoperability bring risk greater sharia compliance complex, because the funds that cross various jurisdiction must comply various standard possible compliance each other contradictory, so that need harmonious and adaptive governance framework (Ayub, 2026).

3.2 *Analysis Comparative Smart Contract Scheme against Maqashid Syariah in Context Emergency Humanity*

Analysis comparative analysis conducted in study This disclose that smart contract scheme has deep harmony with maqashid sharia, in particular in context emergency humanity demands response fast and accurate. Smart contracts, as programs that execute self Alone when conditions that have been determined fulfilled, basically is manifestation from principle contract in Islam which prioritizes clarity, certainty, and automation implementation. In situation disaster nature, where victims often No in position For do negotiation contract or fulfil procedure complex administrative procedures, smart contracts offer very relevant solution. Mechanism This allows disbursement of aid funds in a way automatic when the data is from a trusted oracle, such as a seismic sensor or image satellite, confirm occurrence disaster with certain parameters. Automation This in a way direct contribute to protection soul Because remove pause time between verification and disbursement of funds in system conventional often eat time days even weeks (Wajdi & Susanti, 2026).

From the perspective maqashid syariah, the smart contract scheme has superiority comparative in prevent gharar or uncertainty is one of the prohibition main in Islamic transactions. In contract conventional, especially those involving parties across countries, always There is risk that one of party will deny his obligations, postpone implementation, or interpret clause contract in a way different. Smart contracts eliminate ambiguity This with translate all over clause to in executed code in a way deterministic, so that all party can own same expectations exactly about What will happen in every possible scenarios. Certainty this is very important in context emergency humanity, where disaster victims as recipient benefit No own Power adequate and highly vulnerable bargaining power to exploitation. With Thus, the smart contract works as mechanism protection to group vulnerable, which is one of the the fundamental purpose of maqashid sharia (Billah, 2022).

Although Thus, the study This find a number of weakness significant from smart contract scheme that requires attention Serious from perspective Maqashid Syariah. Weaknesses First is rigidity or the inherent rigidity of smart contracts. In context disaster nature, situation on the ground often Far more complex and dynamic than can anticipated by the maker contract at the time compilation code. Smart contract that has been deployed to in blockchain no can changed, so that If happen situation emergency that is not unexpected and unexpected covered within the parameters that have been determined, aid funds Can So No can disbursed right when it is needed most. Ironically, the feature that ensures certainty in normal conditions instead can become source harm in condition outside usual. In framework maqashid sharia, situation emergency or emergency need flexibility law that allows deviation from normal provisions for saving soul and prevent more damage big. Smart contract rigidity, with thus, contrary to with principle emergency is one of them fundamental rules in Islamic jurisprudence (Ayub, 2026).

Findings comparative next related with oracle problem issue, namely problem how smart contracts earn accurate information about the outside world. Smart contracts do not own ability For access data outside the blockchain independent, so that relies on oracle as external data providers. In context disaster nature, this oracle Can in the form of sensors, institutions meteorology, or even report from volunteers in the field. The problem is, oracle is point failure centralized in the system that should be decentralized, and if the oracle provides incorrect data or manipulated, the smart contract will execute possible actions contradictory with reality on the ground. In perspective maqashid syariah, dependence on an oracle that is not verified This open door for serious mafsadah, incl possible aid funds fall to hands that are not entitled or precisely No distributed to the real victims. Therefore that, research This identify the need decentralized and sharia- compliant oracle mechanism, where several independent data sources can each other do verification cross before the smart contract executes disbursement of funds (Billah, 2022).

Analysis comparative also reveals that smart contract scheme opens possibility new in matter customization and targeting previous assistance difficult done in system conventional. Smart contracts can programmed For differentiate level help based on level severity impact disasters experienced by

each recipient, which are verified through measurable oracle data. As for example, a family that has lost place stay can accept more help big compared to with only experience damage light, and the difference This can determined in a way automatic based on validated damage data. In perspective maqashid sharia, ability For distribute help in a way proportional in accordance with need This is manifestation from principle justice or al- is the one who becomes fundamental objectives of sharia. The system this also prevents occurrence jealousy social and horizontal conflicts among disaster victims which often occur appear consequence perception injustice in distribution aid. Fair and proportional distribution This contribute to protection soul and mind, because reduce stress and pressure psychological experiences experienced by disaster victims (Wajdi & Susanti, 2026).

3.3 Cross-border Dimensions in Disaster Fund Distribution: An Overview Maqashid on the Issue of Global Rule of Law and Regulation

Study This disclose that dimensions across countries in disaster fund distribution cause complexity significant laws and regulations, which in perspective maqashid sharia requires balanced approach between respect to sovereignty law and compliance need urgent humanitarian findings. First show that every country has framework different regulations related with cross- border fund transfers, particularly those involving cryptocurrencies and blockchain technology. Several countries have adopt friendly approach to innovation financially, while others are still enforce restrictions strict or even total ban on use asset crypto. Regulatory fragmentation This create challenge Serious for initiative philanthropy disaster cross- border who want utilizing blockchain and smart contracts, because the funds sent from countries with regulations loose can hampered so enter jurisdiction of the recipient country that has regulations tight. In framework maqashid sharia, situation This cause dilemma between obligation comply legitimate authority or Wali Al- Amr, who is part from protection of religion and order social and obligations give help to disaster victims who are manifestation from protection soul (Al-Khamlichi et al., 2021).

More further study This find existence tension between principle blockchain decentralization and concepts state sovereignty in law international. Blockchain, in essence, is a a system that transcends territorial boundaries and is not subject to jurisdiction single wherever. Characteristics this, although become strength in matter efficiency and durability to the sensor, also causes question Serious about accountability law. When aid funds disaster distributed through a public blockchain whose nodes spread across various countries, which entity is responsible? answer If happen error, fraud, or Sharia violation ? Nothingness clear jurisdiction this, in perspective maqashid sharia, can categorized as form gharar potential institutional cause mafsadah in the form of uncertainty law and disappearance victims ' rights to get change loss. Research This identify that solution on problem This need development framework law transnational that can accommodate characteristics unique blockchain while still guard accountability and protection to all parties involved (Ayub, 2026).

Findings critical other related with issue sanctions international and entity list forbidden which becomes attention main in system global finance. Major countries and organizations international like Union Nations enforce regime sanctions to individual, group, or even certain countries that are considered involved in threatening activities peace and security international. In context disaster nature, situation become very complex when disaster occurs in the area below sanctions international, where humanitarian fund transfers can in a way No on purpose violate regime sanctions From the perspective of maqashid syariah, occurs collision between obligation comply agreement international which has agreed upon by Muslim countries, which is part from principle keep promises and obligations give help humanity to fellow human being suffer, let go from affiliate political they. Research This find that maqashid sharia, with the emphasis is on universal welfare or benefit ammah, tend to give priority on rescue soul in situation emergency, with still notice mechanisms that can ensure that help truly until to victims who do not guilty and not misused For violative purposes law (Billah, 2022).

This study also revealed existence disparity capacity technology between countries that influence effectiveness disaster fund distribution blockchain -based. Developed countries generally own adequate digital infrastructure, high internet penetration, and literacy good technology among its population, so that implementation blockchain solutions can walk with relatively smoothly. On the other hand, many developing countries are the most vulnerable to disaster natural own limitations Serious in matter digital infrastructure, access electricity and literacy technology. In situation disaster, infrastructure that has been limited This often experience damage more continue, so that blockchain systems that rely on internet connectivity and digital devices become No can accessible right when it is most needed. In perspective maqashid sharia, inequality This cause question Serious about justice access or al- is fi al- wusul, which is prerequisite for realization justice distributive. A system that only Can accessible to those who have adequate infrastructure and digital literacy, in general No directly, will exclude the most vulnerable groups that should be become priority main in distribution help humanity (Al-Khamlichi et al., 2021).

Study this also highlights dimensions political from help humanity cross- border that can influence neutrality and effectiveness system blockchain -based. In context global geopolitics, aid disaster No always pure nature humanity, but often related with interest political, economic, and diplomatic aspects of donor countries. Blockchain, with its radical transparency, can functioning as tool For separating political motives from action humanity, because every cash flow can tracked and audited by the public. However Thus, transparency this can also become sword double -edged, because information about who donated funds, how much the amount, and to Who distributed, can used by interested parties For interest political certain. In framework maqashid sharia, protection to honor and privacy individual as well as group, which is part from hifz al- ird, must considered in a way Serious in designing level proper transparency For system philanthropy disaster blockchain- based (Ayub, 2026).

3.4 Synthesis Islamic Ethical Framework for Blockchain Governance in Distribution Compensation Natural disasters

Synthesis carried out in study This produce A framework comprehensive Islamic ethics for blockchain governance in context distribution compensation disaster nature, which integrates principles maqashid sharia with reality technical and operational blockchain technology. Fundamental findings from synthesis This is that blockchain governance in Islamic philanthropy does not can based on solely on efficiency technical or innovation technology, but rather must rooted in values profound Islamic ethics about not quite enough responsibility, trust, and accountability before God and humans. Framework ethics produced put draft trust or trust as foundation main, where each actor in ecosystem blockchain philanthropy, starting from developer protocols, node operators, oracle providers, and institution collector and distributor of funds, is seen as holder the mandate that will asked accountability on every actions and decisions they. In perspective maqashid sharia, emphasis on trust This related close with protection of religion or hifz al-din, because integrity and honesty in carry out not quite enough answer is manifestation from piety and obedience to Allah (Wajdi & Susanti, 2026).

More next, framework synthesized ethics emphasize principle benefit as criteria main in every taking decision related design and operation blockchain system for philanthropy disaster. Principle This require he did careful assessment to every feature technical, mechanism consensus, and the governance model that will adopted, with consider the impact to welfare all over stakeholders interests, especially disaster victims as recipient benefit main. In implementation, principles benefit This translated to in a number of criteria operational, including: effectiveness in distribute help to those entitled, efficiency in minimize cost transactions and administration, justice in distribute help in accordance with level needs, transparency in enable public audits, and sustainability in ensure system can Keep going operate in term long. Research This find that public blockchain without permission or permissionless, even though offer decentralization maximum, maybe No always become the most profitable choice benefit in context philanthropy disaster, because his inability For do verification

adequate identity and implement rule Sharia compliance is required. In contrast, consortium blockchains or a hybrid involving institutions humanity trusted, sharia authorities, and representatives community recipient benefits, tend to more in accordance with principle benefit Because can balance between transparency, accountability, privacy, and sharia compliance (Billah, 2022).

Synthesis this also produces findings important about the need participatory and inclusive governance mechanisms that involve all stakeholders interest in taking decision. In Islamic perspective, concept shura or deliberation is fundamental principles in governance affairs public, and principles This must adapted to in blockchain governance context. Adaptation This can realized through on-chain governance mechanisms that enable stakeholders interest For give vote on important proposals, such as protocol parameter changes, additions or subtraction authorized institutions, and allocation of funds for development system. However Thus, research this also identifies that governance mechanisms token -based, which is common used in public blockchain, have weakness Serious from perspective maqashid sharia because tend give more power big to token holders in amount big, which can So No represent interests of disaster victims. Therefore that, the framework synthesized ethics recommend a governance model that provides weight balanced sound between various category stakeholders interests, including representative from vulnerable communities to disaster, so that principle justice participatory can materialized (Al-Khamlichi et al., 2021).

Findings next related with integration the principle of hisbah or supervision public to in blockchain governance architecture. In history Islamic civilization, the institution of hisbah functions as mechanism For ensure compliance against sharia in transaction economy and protect interest public from harmful practices. In blockchain context, this hisbah function can institutionalized through the formation of an independent sharia supervisory board, which has the authority For conduct audits of smart contracts, verify compliance to principles of Islam, and issued recommendation or even veto against transactions that are considered violates sharia. What distinguishes this model from conventional sharia supervision is that in blockchain ecosystem, audit results and supervisory board recommendations can recorded in a way permanent in the ledger and accessed by the public, so accountability of the supervisory board That alone can also supervised. Mechanism supervision layered this, in perspective maqashid sharia, contributing to the protection of comprehensive to all pillars of public welfare, because prevent occurrence abuse authority both by the implementer technical or by supervisors That himself (Ayub, 2026).

So, synthesis This produce framework ethics about balance between transparency and privacy in blockchain governance for philanthropy disaster. Total transparency, where every transactions and identity all party visible to the public, indeed give level accountability highest, but also can cause understanding in the form of openness information sensitive about disaster victims who can misused by unauthorized parties responsible answer. On the other hand, total privacy can protect dignity and safety of victims, but can also open door for misappropriation and corruption. In framework maqashid sharia, balance between second mark This must achieved with consider context and needs specific. Research This propose approach privacy differential or differential privacy, where information about recipient benefit protected through technique sophisticated cryptography, while aggregate statistics and records transaction still available for public audit. Approach This allows verification that the funds have been distributed in accordance with provision without must disclose identity specifics and conditions personal every recipient benefits, so that protection to honor or hifz al- ird can walk along with protection to treasure or hifz al-mal (Wajdi & Susanti, 2026).

4. CONCLUSION

Study This conclude that blockchain technology and smart contracts have potential very big benefit in distribution of compensation funds disaster natural across countries, especially in realize transparency, accountability, efficiency, and fairness distributive in line with maqashid syariah. Transparency generated by the characteristics decentralization and immutability of blockchain in general direct contribute to protection property, while automation through smart contracts contribute

to protection soul Because speed up response humanity in situation emergency. However Thus, research this also found that blockchain architecture and smart contract schemes store potential significant mafsadah, as pseudo - anonymous can be abuse, rigidity conflicting contracts with principle emergency, dependence on vulnerable oracles manipulation, consumption excessive energy, fragmentation regulations across countries, as well as disparity digital infrastructure that can exclude the most vulnerable groups. Based on findings said, research This produce synthesis in the form of framework Islamic ethics for blockchain governance in philanthropy disasters based on the concept trust, principle benefit as criteria main, governance mechanism participatory based shura, integration hisbah function through an independent sharia supervisory board, as well as balance between transparency and privacy through approach privacy differential.

Implementation results study This realized in form development prototype system philanthropy disaster blockchain - based consortium involving institution philanthropy Islam, sharia authorities, and representatives community prone to disaster in governance structure participatory system This use mechanism cost -effective proof-of-stake consensus energy For minimize impact environment, equipped with a smart contract that has emergency override feature For overcome rigidity in situation emergency, and adopting a decentralized oracle involving Lots independent data sources to ensure accuracy information disaster. Verification identity recipient benefit done through system strict blockchain -based digital identity However still protect privacy through technique privacy differential, so that only aggregate statistics that can audited public temporary identity specific recipient benefit still protected. Independent sharia supervisory board formed For conduct periodic audits to smart contracts and transactions, with all over audit results are recorded in a way permanently in the ledger for ensure accountability layered. At the level regulation, results study This push initiation framework law transnational through Work The same between authority finance and institutions Islamic philanthropy in various countries to align standard cross-border sharia compliance jurisdiction, so that the compensation fund can flow in a way smooth crossing national borders without obstacle regulation.

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