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Revitalizing Agricultural Waqf for Sustainable Food Security: A Comparative Study of Indonesia and Turkey

Abdul Muizz Wadud[1], Salina Kassim[2], Nazrul Hazizi Noordin[3]
[1]Syekh Nurjati Cyber State Islamic University of Cirebon, Indonesia
[2,3]Institute of Islamic Banking and Finance, Islamic International University of Malaysia, Malaysia
Email: [1]amzie2u@uinssc.ac.id, [2]ksalina@iium.edu.my, [3]hazizi@iium.edu.my

Abstract

Agricultural waqf represents a strategic instrument of Islamic social finance with the potential to support sustainable food security through asset-based and risk-sharing mechanisms. This study aims to analyze and compare agricultural waqf models in Indonesia and Türkiye, focusing on institutional governance, integration with Islamic finance, and their implications for food security outcomes. Using a qualitative comparative case-study approach, the research draws on document analysis, regulatory review, and semi-structured interviews with waqf stakeholders in both countries. The findings reveal that the effectiveness and scalability of agricultural waqf are determined less by land availability than by institutional quality, particularly nazhir professionalism, regulatory coherence, and state–market coordination. Indonesia's agricultural waqf remains fragmented, characterized by weak documentation, limited financial integration, and reliance on voluntary management, while Türkiye demonstrates a more standardized and centralized governance legacy rooted in Ottoman waqf institutions. The study further finds that productive agricultural waqf requires a full-cycle financing architecture, in which zakat provides initial de-risking support, waqf functions as an asset-based risk absorber, and Islamic commercial finance supplies profit-sharing working capital through Shariah-compliant contracts such as muzāra'ah and ijārah. Evaluated through the lens of maqāṣid al-sharī'ah, particularly ḥifẓ al-nafs and ḥifẓ al-māl, agricultural waqf can contribute to sustainable food security when embedded within integrated value chains and outcome-oriented governance frameworks aligned with SDG 2.

Keywords: agricultural waqf; sustainable food security; Islamic social finance; maqāṣid al-sharī'ah; Indonesia–Türkiye comparison

Abstrak

Wakaf pertanian merupakan instrumen strategis keuangan sosial Islam yang berpotensi mendukung ketahanan pangan berkelanjutan melalui mekanisme berbasis aset dan bagi hasil. Penelitian ini bertujuan menganalisis dan membandingkan model wakaf pertanian di Indonesia dan Türkiye dengan menitikberatkan pada tata kelola kelembagaan, integrasi dengan keuangan syariah, serta implikasinya terhadap ketahanan pangan. Penelitian ini menggunakan pendekatan kualitatif komparatif melalui analisis dokumen, telaah regulasi, dan wawancara semi-terstruktur dengan para pemangku kepentingan wakaf di kedua negara. Hasil penelitian menunjukkan bahwa efektivitas dan skalabilitas wakaf pertanian lebih ditentukan oleh kualitas kelembagaan—terutama profesionalisme nazhir, koherensi regulasi, dan koordinasi negara–pasar—daripada ketersediaan lahan semata. Wakaf pertanian di Indonesia masih bersifat terfragmentasi, ditandai oleh lemahnya dokumentasi, minimnya integrasi pembiayaan, dan dominasi pengelolaan sukarela, sementara Türkiye menunjukkan tata kelola yang lebih

terstandar dan terpusat yang berakar pada tradisi wakaf Ottoman. Penelitian ini juga menemukan bahwa wakaf pertanian produktif memerlukan arsitektur pembiayaan siklus penuh, di mana zakat berperan sebagai instrumen de-risking awal, wakaf sebagai penyerap risiko berbasis aset, dan keuangan syariah komersial sebagai penyedia modal kerja berbasis akad bagi hasil seperti muzāra'ah dan ijārah. Ditinjau dari perspektif maqāṣid al-sharī'ah—khususnya ḥifẓ al-nafs dan ḥifẓ al-māl—wakaf pertanian berpotensi berkontribusi signifikan terhadap ketahanan pangan berkelanjutan apabila terintegrasi dalam rantai nilai dan kerangka evaluasi berbasis hasil yang selaras dengan SDGs, khususnya SDG 2.
Kata kunci: *wakaf pertanian; ketahanan pangan berkelanjutan; keuangan sosial Islam; maqāṣid al-sharī'ah; perbandingan Indonesia–Türkiye*

Introduction

Food security is widely recognized as a multidimensional policy domain that extends beyond production and prices to include access, stability, resilience, and political economy considerations (Clapp et al., 2022). Recent literature on global food systems emphasizes that climate change, demographic pressure, urbanization, and supply-chain shocks have increased the frequency of systemic risks, making agricultural transformation and smallholder resilience central to national development agendas (Chao, 2024; Mekonnen et al., 2024). Yet in many developing economies, agricultural finance remains constrained by high perceived risk, collateral limitations, and thin rural financial infrastructure (conditions that disproportionately exclude smallholder farmers and weaken the sustainability of food systems) (Khan et al., 2024).

Within development finance debates, Islamic social finance has been increasingly discussed as a complementary instrument to bridge inclusion gaps through risk-sharing and social objectives (Dirie et al., 2024). However, existing scholarship and policy discussions tend to focus on zakat and Islamic microfinance, while waqf is often examined in relatively generic terms (e.g., governance, legal reform, digitization) rather than as a sector-specific productive asset that can be engineered for food-system outcomes. This creates a clear research gap: despite the expanding global discourse on innovative financing for sustainable agriculture and the Sustainable Development Goals (SDGs), comparative evidence remains limited on how agricultural waqf can be institutionalized, scaled, and integrated into wider financial and state systems to address concrete constraints in agricultural development, including land access, irrigation, input financing, aggregation, storage, and market linkages.

This study addresses the problem of institutional under-specification of agricultural waqf within Islamic development finance. Indonesia and Türkiye offer a particularly instructive comparative setting to examine this problem. Historically, Ottoman-era waqf arrangements in Türkiye supported agrarian infrastructure and rural services, reflecting a legacy of institutional design, managerial professionalization, and state integration that remains relevant to contemporary agricultural transformation (Ercan, 2024; Özer et al., 2016). Indonesia, by contrast, has only recently promoted agricultural waqf through pilot initiatives led by philanthropic and waqf institutions, while the sector continues to operate in a fragmented and small-scale manner (Sukmana et al., 2024). This divergence is not merely historical, but institutional, reflecting contrasting trajectories of state–waqf relations, regulatory coherence, nazhir professionalization, and integration with formal Islamic finance—factors widely recognized in global waqf governance debates as critical preconditions for scalability, accountability, and development impact.

Despite its potential, agricultural waqf in Indonesia remains underutilized due to weak integration with financial intermediaries and agricultural value chains, limited nazhir managerial capacity, discontinuous policy support, and low community waqf literacy (Hafizd, 2022; Pane, 2025; Supriyadi & Hasanuddin, 2025). In contrast, Türkiye's contemporary waqf administration—rooted in standardized governance and professional management inherited from Ottoman institutional legacies—demonstrates how coordination with state systems can sustain waqf operations and public legitimacy (Altay & Bulut, 2025; Cizakca & Draft, 2000). However, existing studies rarely translate these institutional differences into an actionable architecture for agricultural waqf that simultaneously meets Sharia requirements, achieves financial viability, and delivers measurable food-security and farmer-welfare outcomes.

Responding to this gap, this study comparatively examines agricultural waqf in Indonesia and Türkiye to analyze how governance arrangements—particularly state–waqf relations, regulatory coherence, nazhir professionalism, and accountability mechanisms—shape operational performance and scalability. It further investigates how agricultural waqf can be integrated with Islamic financial institutions and agricultural value chains (input provision, aggregation, storage, and distribution) so that waqf functions not merely as charity but as sustainable productive capital for smallholder farmers. In addition, the study develops an evaluative framework linking agricultural waqf interventions to multidimensional food security and SDG-aligned outcomes.

The study contributes to the Islamic social finance literature by moving beyond sector-agnostic governance discussions and localized productive-waqf cases toward a comparative, institutionally grounded, and integration-oriented analysis. Drawing on governance and development finance scholarship (Çizakça, 2011; Kahf, 2003), it demonstrates that the effectiveness of agricultural waqf depends on institutional design, financial integration, and value-chain alignment. By proposing an SDG-aligned evaluative framework—particularly relevant to SDG 2 on sustainable agriculture and food security—this study provides a policy-relevant foundation for designing scalable and sustainable agricultural waqf ecosystems.

Methods

This study adopts a qualitative comparative case-study design with an exploratory orientation (Bartlett & Vavrus, 2016; Bernard et al., 2016) to examine how agricultural waqf is organized and practiced in two national contexts—Indonesia and Türkiye—and to derive contextually relevant revitalization strategies. Indonesia represents an emerging landscape of agricultural waqf initiatives, while Türkiye reflects a longer historical and institutional legacy rooted in Ottoman-era waqf practices. Following established multiple-case study logic, each case is first analyzed in depth and subsequently synthesized through cross-case comparison to identify convergent and divergent institutional mechanisms. The comparative approach is not intended to rank the two countries, but to clarify which governance and operational arrangements enable or constrain scalability and performance under specific contextual conditions.

Data are drawn from a combination of primary interviews and secondary documentary sources. Primary data consist of in-depth, semi-structured interviews with key waqf stakeholders, including practitioners, institutional actors, and nazhir/managers in Indonesia (e.g., Dompet Dhuafa, BWI, Trubus Iman Foundation), as well as academics, waqf researchers, and practitioners in Türkiye. Secondary data include *vakfiye* and selected Ottoman archival materials, institutional reports, governance documents, academic publications, and relevant national regulations. Analysis is conducted iteratively using content-analytic coding across shared analytic domains—such as governance and accountability, financing and operations, value-chain linkages, risk management, and performance reporting—and synthesized through a case-by-dimension matrix. Trustworthiness is ensured through triangulation across data sources, member checking, expert review, and the examination of contradictory evidence through negative case analysis.

Conceptual Framework

Waqf is one of the most important institutions in building the economic foundation of the Muslim community. The practice of waqf has existed since the early period of Islam, with the Prophet Muhammad (peace be upon him) being the first to implement it. The Prophet purchased a plot of land belonging to an orphan and endowed it for the construction of the Prophet's Mosque (Masjid Nabawi). Subsequently, the Companion Umar ibn al-Khattab (may Allah be pleased with him) endowed a highly fertile piece of land in Khaybar, following the Prophet's instruction to preserve the principal asset (the land) while distributing its yields. Likewise, Uthman ibn Affan (may Allah be pleased with him) purchased a well upon the Prophet's recommendation and made its water freely accessible to the public (Hafizd, 2021).

Revitalizing agricultural waqf refers to the institutional and operational transformation of waqf assets—particularly land, water resources, and agricultural infrastructure—from passive endowments into productive, professionally managed agricultural capital (Ali Azizan et al., 2022). As an asset-based instrument embedded in long production cycles characterized by agronomic risk, seasonal cash flows, and value-chain dependencies, agricultural waqf requires specific governance arrangements, standardized legal documentation, risk-sharing contracts, and managerial capacity distinct from other waqf sectors (Roslan & Muhamad, 2024). Through strengthened governance, enhanced nazhir professionalism, and integration with modern agricultural and financial systems, revitalized agricultural waqf can function as development-oriented capital that absorbs asset risk, facilitates long-term investment, supports smallholder farmers, and stabilizes incomes, thereby linking Islamic social finance directly to real-sector agricultural development beyond isolated pilot initiatives.

Sustainable food security encompasses not only the availability of food, but also stable access, affordability, and resilience of food systems over time (Béné, 2020; Noort et al., 2022). In the context of agricultural waqf, food security is understood as a multidimensional outcome that includes productivity growth, income stability for farmers, and the capacity of agricultural systems to withstand economic and environmental shocks (Gundogdu, 2023). Sustainability further implies that food security outcomes are achieved without degrading institutional trust, financial viability, or natural resources (Olarewaju et al., 2025). By aligning agricultural waqf with sustainable food security objectives, the analysis shifts evaluation away from short-term outputs toward long-term welfare impacts, resilience, and intergenerational benefits, consistent with development frameworks such as the Sustainable Development Goals and the objectives of Islamic law (*maqāṣid al-sharīʻah*).

This study employs a conceptual framework integrating institutional, financial, and operational dimensions to analyze agricultural waqf as productive capital for sustainable food security. By linking governance, Islamic finance integration, and value-chain mechanisms to food security and maqāṣid al-sharīʻah objectives, the framework guides the comparative analysis of Indonesia and Türkiye in alignment with SDG 2.

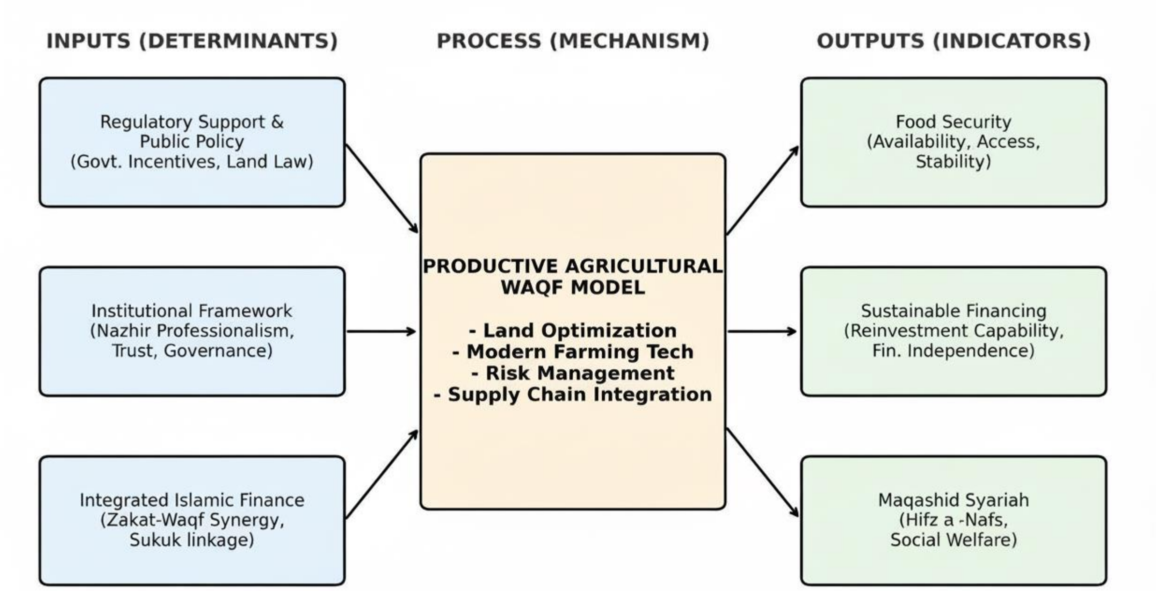

Figure 1. Conceptual Framework of Productive Agricultural Waqf for Sustainable Food Security

This study adopts a conceptual framework that integrates Islamic social finance with agricultural development through the waqf mechanism to advance food security and sustainable financing objectives. Agricultural waqf is conceptualized not merely as a charitable instrument, but as a productive development-finance architecture in which institutional design, financial integration, and value-chain mechanisms jointly determine performance and scalability. The framework is structured around three interrelated input dimensions: regulatory support and public policy, which provide legal protection, incentives, and recognition of waqf as a development instrument; an institutional framework**,** encompassing nazhir professionalism, governance quality, and accountability mechanisms that ensure effective asset management; and integrated Islamic finance, which combines zakat–waqf synergies with Islamic financial instruments to mobilize capital, mitigate risk, and maintain Sharia compliance. These inputs operate through four core mechanisms—land optimization, modern farming technology, risk management, and supply-chain integration—to translate endowed assets into productive agricultural activities with secure market access and value addition. The framework produces three interrelated outcomes: food security, defined by availability, access, and stability; sustainable financing, reflected in operational viability, surplus generation, and reinvestment capacity; and maqāṣid al-sharīʻah alignment, particularly the preservation of life (ḥifẓ al-nafs) and the promotion of social welfare. A capital reinvestment cycle links outcomes back to inputs, reinforcing institutional capacity and financial integration over time. This cyclical structure differentiates the framework from transaction-based charity models and positions agricultural waqf as a sustainable and scalable instrument for development-oriented food-system transformation in Muslim-majority contexts.

Institutional Architecture and Governance of Agricultural Waqf

Archival research on Ottoman-era waqf documents (*vakfiye* records from the sixteenth to eighteenth centuries) and related historical literature reveals a structurally sophisticated model of agricultural waqf characterized by an integrated development agenda, in which waqf resources financed irrigation infrastructure, farm roads, and market facilities to directly support agricultural productivity (Altay & Bulut, 2025; Demirhan et al., 2012). This model was supported by merit-based appointment of mutawalli, prioritizing technical competence in agricultural management, and by accountability mechanisms embedded in vakfiye deeds that required regular inspection and transparent reporting. Historical records indicate that such institutional arrangements sustained waqf operations over long periods through reinvestment and capital-preservation practices, enabling gradual capital growth and the expansion of beneficiaries across generations, as illustrated by documented Ottoman agricultural waqf cases, including those in Bursa during the seventeenth century (Altay & Bulut, 2025).

Recent policy documents and official reports from the Vakıflar Genel Müdürlüğü indicate a renewed emphasis on agricultural waqf in Türkiye since the 2010s, increasingly framed within economic development and social welfare agendas rather than purely religious imperatives (Çizakça, 2011). Contemporary studies increasingly position agricultural waqf as a development-oriented instrument to address structural challenges such as land fragmentation, low productivity, and rural sustainability. The literature emphasizes legal and governance reforms to protect waqf land from fragmentation, alongside institutional innovations—such as cooperative and shareholding models—that enable land consolidation, mechanization, and improved market access. These approaches frame waqf not merely as a religious endowment, but as a flexible institutional mechanism supporting food security, environmental conservation, and long-term agricultural development (Al-Tulaibawi et al., 2024).

Comparative field documentation and institutional records reveal distinct governance architectures between the two contexts. In Indonesia, agricultural waqf management operates through a fragmented institutional model characterized by: (1) dispersed authority among multiple NGOs and local initiatives; (2) voluntary management by nazhir without formal coordination mechanisms; and (3) absence of centralized oversight or standardization protocols (Jannah et al., 2024; Malahayati & Anggraeni, 2025). In Turkey, by contrast, historical documentation from the Ottoman era and contemporary administrative records of the

Directorate General of Foundations (Vakiflar Genel Müdürlüğü) demonstrate a centralized and consolidated model featuring: (1) hierarchical authority structures established during the Ottoman period and maintained through the republican era; (2) formalized appointment mechanisms for mutawalli based on professional competence; and (3) systematic documentation requirements through vakfiye (standardized waqf deeds) (Altay & Bulut, 2025; Hussin et al., 2018).

The empirical distinction is summarized in Table 1 below, which integrates institutional documentation, regulatory records, and field observations:

Table 1. Comparative Institutional and Governance Features of Agricultural Waqf in Indonesia and Türkiye

Aspect	Indonesia	Turkey (Historical & Contemporary)
Institutional Model	Fragmented; managed by NGOs and local initiatives	Centralized and consolidated since Ottoman era
State Role	Weak supervisory capacity; normative regulation only	Strong executor and supervisor roles
Legal Framework	Law No. 41 of 2004; MUI fatwas (non-binding)	Ottoman Sharia law → General Directorate (binding)
Documentation	Informal; non-standardized	Vakfiye system (legally standardized)
Farmer Role	Business partners/direct managers (profit-sharing)	Direct beneficiaries (centralized distribution)
Islamic Finance Integration	Siloed; limited institutional connection	Integrated into fiscal and economic systems

Sources: (Altay & Bulut, 2025; Babacan, 2011; Cizakca & Draft, 2000; Demirhan et al., 2012; Fauzi, 2025; Iqbal, 2024; Law, 2004b; Malahayati & Anggraeni, 2025; Ningsih, 2025)

Documentary analysis of legal instruments reveals significant differences in state capacity in waqf governance. In Indonesia, the regulatory framework—primarily Law No. 41 of 2004 on Waqf and fatwas issued by the Indonesian Ulema Council (MUI)—establishes normative and facilitative guidelines but does not position the state as a direct operator of waqf assets, with supervision largely dependent on the institutional capacity and compliance of nazhir (Peraturan Badan Wakaf Indonesia Nomor 1 Tahun 2021 Tentang Organisasi Dan Tata Kerja Badan Wakaf Indonesia, 2021; Government of Indonesia, 2006; Law, 2004a; Majelis Ulama Indonesia, 2002). In contrast, Türkiye's institutional evolution from Ottoman-era Sharia governance to the modern Directorate General of Foundations reflects a consolidation of waqf administration within the state apparatus, whereby the government not only regulates but also directly manages thousands of waqf assets, supported by statutory authority to appoint, supervise, and audit waqf managers (Babacan, 2011; Kızılkaya, 2025).

Comparative review of waqf documentation practices reveals significant differences in legal standardization. In Indonesia, field documentation shows that agricultural waqf land titles, property records, and management agreements exist in various informal formats without standardized templates. Many waqf deeds lack specific provisions regarding land use restrictions, beneficiary definitions, or succession arrangements. In Turkey, historical vakfiye records (dating to the Ottoman period) and contemporary administrative archives demonstrate mandatory documentation requirements specifying: (1) precise asset descriptions; (2) defined beneficiary categories; (3) detailed management responsibilities; and (4) regular inspection schedules. This standardization created legal certainty and reduced disputes.

Institutional Constraints, Integration Failures, and Emerging Models of Agricultural Waqf in Indonesia

Qualitative interviews with nazhir (n=15) and institutional reviews reveal a critical gap in professional agricultural management. Primary data shows: (1) approximately 70% of nazhir operate on voluntary basis without formal compensation; (2) fewer than 20% have formal training in agribusiness, agricultural technology, or modern farm management; (3) turnover rates are high, averaging 3-4 years per manager; (4) technical decision-making often defers to tradition rather than evidence-based practices. This directly constrains agricultural productivity. For instance, Dompet Dhuafa's ten-hectare model achieved significantly higher yields after introducing trained managers and modern crop rotation practices—demonstrating the productivity gains available through professionalization.

Institutional mapping of zakat, waqf, and Islamic finance organizations in Indonesia reveals structural separation rather than integration. Primary findings include: (1) zakat institutions (BAZNAS, LAZ) operate independently focused on short-term poverty alleviation; (2) waqf institutions (BWI, local nazhir) manage long-term asset endowment without capital mobilization; and (3) Islamic finance institutions (Islamic banks, fintech) operate commercial models disconnected from development objectives. Interviews with institutional heads (n=8) confirm absence of formal coordination mechanisms, joint planning, or cross-institutional resource pooling. This fragmentation prevents the creation of a comprehensive value chain: zakat cannot fund working capital for waqf enterprises; waqf cannot access financing for technology upgrades; Islamic banks remain disconnected from development objectives. Quantitative analysis of land-use patterns in Subang, West Java (a primary research site), reveals alarming conversion trends:

1. Pre-2010: Agricultural land = 87% of available territory
2. 2010-2015: Industrial conversion began (Rebana Port project); agricultural land = 82%
3. 2015-2020: Accelerated conversion (Patimban Port); agricultural land = 74%

4. 2020-present: Ongoing conversion; agricultural land ≈ 68%

Field interviews with local nazhir (n=5) and farmers (n=12) confirm that waqf agricultural land in Subang faces direct threat from industrial development. Current data indicates 3-4 hectares of waqf land in the region faces imminent conversion, with no protective regulatory mechanisms in place.

Survey data from four regencies (Subang, Bogor, Ciamis, Tasikmalaya; n=420 respondents) reveals public understanding of waqf:

1. 78% associate waqf exclusively with religious infrastructure (mosques, schools);
2. only 12% recognize waqf potential for agricultural development;
3. 89% lack awareness of profit-sharing mechanisms (muzara'ah, salam);
4. 76% perceive waqf as charity rather than investment.

This perception gap constrains community participation and policy support for productive waqf initiatives. Documentary analysis and field visits identify promising models:

1. Dompet Dhuafa model: Centralized management of ten hectares combining agricultural production, livestock, and organic processing; financial data shows operational sustainability achieved by year 3, with annual surpluses reinvested in land acquisition (currently expanded to 25 hectares);
2. Islamic boarding school (pesantren) model: Gontor and Daarunnajah integrate agricultural waqf with curriculum, combining educational value with production; preliminary data suggests youth retention (85%) and skill transfer exceeding conventional agricultural extension;
3. Financial innovation: Early adoption of salam (forward contracts) and muzara'ah (sharecropping) contracts in farmer collaborations, particularly in Bogor regency, demonstrating movement toward sophisticated Islamic financing.

The comparative analysis can be further deepened through maqashid al-shariah development framework (Siddiqi, 2014; Chapra, 2000), which articulates Islamic legal objectives as the normative foundation for development policy:

Tble 2. Comparative Maqāṣid al-Sharīʻah Assessment of Agricultural Waqf in Indonesia and Türkiye

Maqashid Objective	Indonesia Status	Turkey Status	Required Development Path
Preservation of Life (Hifz al-Nafs)	Partially achieved; food security improvements limited to ~3,000 beneficiaries	Historically embedded; contemporary disconnection from religious imperative	Reconnect agricultural waqf to food security as explicit maqashid objective

Preservation of Wealth (Hifz al-Mal)	Constrained by capital loss through mismanagement and land conversion; limited reinvestment	Historical excellence through sophisticated reinvestment; contemporary decline	Institutional mechanisms (certification, documentation, integrated finance) to protect waqf wealth
Preservation of Knowledge (Hifz al-Aql)	Emerging through pesantren integration; limited scientific methodology	Historical emphasis on expertise; contemporary bureaucratization	Professionalize knowledge transmission through structured training and technology transfer
Social Justice (Adalah)	Limited; farmer participation mainly as laborers	Historically strong; contemporary state-centered approaches reduce equity	Enhance farmer agency through profit-sharing mechanisms and participatory governance

Sources: (Alami & Mohammad, 2024; Altay & Bulut, 2025; Ercan, 2024; Isman et al., 2023; Sukmana et al., 2024; Wahyudi et al., 2024)

The empirical contrast between Indonesia's limited-scale initiatives and Turkey's historical large-scale systems suggests a fundamental lesson: governance structure precedes and enables productivity increases. Improvements in land technology or farmer training will remain marginal without parallel institutional strengthening. In the Indonesian context, the lack of such strengthening is evident in the fragmentation between zakat, waqf, and finance. This is not merely an administrative inconvenience but creates cascading failures that interact multiplicatively: (1) working capital unavailability forces reliance on exploitative moneylenders; (2) technology improvements cannot scale without institutional knowledge systems; and (3) investor confidence remains low due to governance risks.

Addressing institutional failures in agricultural waqf requires professionalization and legal standardization. Evidence from Indonesian cases, such as productivity improvements achieved under salaried and trained management in NGO-led initiatives, demonstrates that managerial competence is a necessary condition for agricultural performance, challenging the assumption that spiritual commitment alone ensures effective governance (Faujiah & Hamidiyah, 2022; Zainal, 2016). Comparative insights from Türkiye further show that standardized *vakfiye* documentation and formal contractual clarity enhance capital mobilization by increasing confidence among Islamic financial institutions, a pattern widely documented in studies of Ottoman and modern waqf administration (Altay & Bulut, 2025; Demirhan et al., 2012). From a maqāṣid al-sharīʿah perspective (al-Ghazali, n.d.), Indonesia's emerging models—particularly those integrating pesantren partnerships and profit-sharing with farmers—align with social justice (*ʿadālah*) and knowledge preservation (*ḥifẓ al-ʿaql*), yet remain constrained by governance and financing gaps, while Türkiye's historically integrated maqāṣid model has experienced a partial erosion of normative Islamic legitimacy despite continued social effectiveness.

The figure below visualizes how fragmentation across zakat, waqf, and Islamic finance institutions cascades into governance weaknesses and, ultimately, results in a broken agricultural waqf ecosystem.

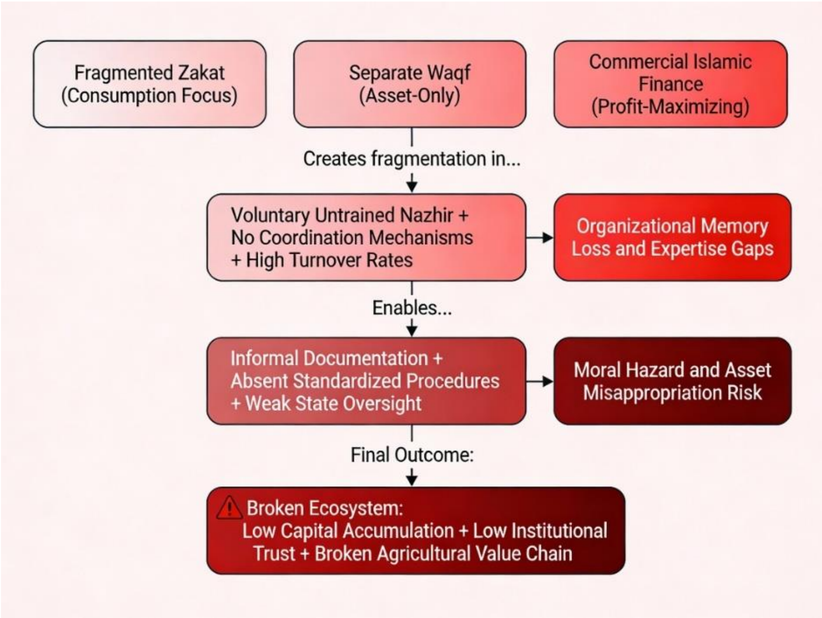

Figure 2. Causal Pathways of Institutional Fragmentation in Indonesia's Agricultural Waqf Ecosystem

The figure depicts the systemic problems of Islamic social finance as a cascading causal chain linking structural, organizational, and governance failures. At the structural level, fragmentation among zakat (consumption-oriented), waqf (asset-bound and disconnected from economic cycles), and Islamic commercial finance (profit-maximizing and weakly aligned with social objectives) creates siloed financing that cannot support long-cycle sectors such as agriculture. This fragmentation generates organizational weaknesses, including reliance on voluntary and untrained *nazhir*, the absence of coordination mechanisms, and high managerial turnover, resulting in institutional memory loss and persistent expertise gaps. These organizational deficiencies then translate into governance and trust failures, as weak documentation, non-standardized procedures, and limited state oversight increase moral hazard and asset misappropriation risks, ultimately eroding institutional trust, constraining capital accumulation, and producing a broken agricultural waqf ecosystem.

Outcome of Institutional Fragmentation and Strategic Design Pathways for Agricultural Waqf (SWOT–TOWS–EFAS–IFAS Analysis)

All three problem levels converge to create a fundamentally broken ecosystem: capital fails to flow in support of long-term agricultural production, the institutional trust necessary for mobilizing social resources diminishes critically, and the agricultural value chain remains fragmented without integrated financing support. Based on the explanation above, the authors provide the following summary in the table below:

Table 3. Summary of Result on SWOT Analysis

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Integrated Model Potential - Covers full production cycle	Fragmented Design (L1) - Separate zakat, waqf, commercial finance	Digital Integration - Blockchain, mobile monitoring for transparency	Farmer Capital Flight - Return to informal/conventional finance
Religious Legitimacy - Strong farmer buy-in for Islamic financing	No Working Capital Solution (L1) - Breaks production cycle continuity	Extension-Finance Hybrid - Joint technical + financial support	Credibility Collapse - Reputation damage from mismanagement
Asset-Based Financing - Land collateral without debt burden	Weak Nazhir Capacity (L2) - Lack agricultural finance expertise	Nazhir Professionalization - Training in agricultural lending	Debt Spiral Risk - Wrong borrower segments create defaults
Profit-Sharing Model - Aligns with farmer seasonality	No Knowledge Management (L2) - Repeated failures due to staff turnover	Farmer Cooperatives - Risk aggregation and standardization	Bank Competition - Conventional banks displace Islamic finance
Community Networks - Embedded in rural areas, low transaction costs	Informal Documentation (L3) - No farmer credit history building	Bundled Products - Zakat + Waqf + Islamic finance for full cycle	Sector Consolidation - Agribusiness bypasses smallholders
	No Underwriting Standards (L3) - Inconsistent farmer assessment	Digital Land Registry - Enable collateral-based financing	Policy Mismatch - Over-regulation makes Islamic finance uncompetitive
	Weak State Coordination (L3) - No agricultural extension integration	Farmer Data Systems - Build credit scoring and institutional memory	Climate Crisis - Extreme weather overwhelms disaster funds
	Low Farmer Trust (L3) - Skepticism from previous failed schemes	Government Policy - Regulatory recognition and subsidy integration	Knowledge Loss - Turnover erodes agricultural expertise

Based on the SWOT analysis above, this study employs a TOWS matrix to translate diagnostic findings into strategic pathways. The TOWS framework systematically combines internal strengths and weaknesses with external opportunities and threats to formulate actionable strategies, enabling the analysis to move from problem identification toward institutional design and policy-relevant recommendations for productive agricultural waqf.

Table 4. Strength–Opportunity (SO) Strategies for Agricultural Waqf Development

Strength	Opportunity	SO Strategy	Framework Component
Integrated Model Potential	Digital Integration + Farmer Cooperatives	Bundled Digital Platform: Single application (app/web) integrating Zakat + Waqf + Islamic Finance + Farmer Data for complete production cycle	Inputs: Integrated Islamic Finance + Institutional Framework (Tech Infrastructure)

Religious Legitimacy + Community Networks	Nazhir Professionalization + Farmer Cooperatives	Community-Led Certification Program: Leverage religious trust for nazhir training programs supported by local cooperatives (pesantren + NGO partnership)	Process: Modern Farming Technology + Risk Management (through trained personnel)
Asset-Based Financing + Profit-Sharing Model	Digital Land Registry + Farmer Data Systems	Collateral-Free Islamic Financing Mechanism: Utilize digital land registry to provide farmer capital access without conventional debt, based on historical credit scoring (Islamic-style)	Inputs: Integrated Islamic Finance; Process: Supply Chain Integration

Building on the TOWS analysis, the Weakness–Opportunity (WO) strategies focus on addressing internal institutional and governance weaknesses by leveraging available external opportunities. These strategies are designed to reduce structural fragmentation, strengthen nazhir capacity, improve legal and administrative standardization, and restore farmer trust by aligning institutional reform with policy support, technological innovation, and cooperative-based approaches.

Table 5. Weakness–Opportunity (WO) Strategies

Weakness	**Opportunity**	**WO Strategy**	**Framework Component**
Fragmented Design (L1) + No Working Capital Solution (L1)	Bundled Products + Extension-Finance Hybrid	Integrated Value Chain Consortium: Establish formal alliance among Zakat Institutions → Waqf Manager → Islamic Bank → Agricultural Extension with unified contracts for each production stage	Inputs: Regulatory Support (government recognition of consortium); Process: Supply Chain Integration
Weak Nazhir Capacity (L2) + No Knowledge Management (L2)	Nazhir Professionalization + Farmer Data Systems	Institutionalized Learning System: Create knowledge management portal (digital + offline), best practice database, and mentoring system to prevent expertise loss through staff turnover	Inputs: Institutional Framework (Nazhir Academy); Process: Land Optimization + Technology Transfer
Informal Documentation (L3) + No Underwriting Standards (L3)	Digital Land Registry + Farmer Data Systems	Standardized Waqf-Agriculture Contract Template: Develop standardized documentation (Indonesian vakfiye equivalent) covering asset definition, farmer assessment criteria, output sharing, succession planning	Inputs: Regulatory Support (Law standardization); Institutional Framework (Certification protocol)
Low Farmer Trust (L3)	Government Policy + Farmer Cooperatives	Government-Backed Guarantee Scheme: Leverage policy opportunities to establish government guarantee scheme (similar to JAMKLU/subsidy) for waqf agricultural yield insurance, restoring farmer confidence	Inputs: Regulatory Support + Integrated Islamic Finance

The Strength–Threat (ST) strategies leverage existing institutional strengths to mitigate external risks, focusing on community-based finance, faith-driven resilience mechanisms, and policy advocacy to counter market competition, climate shocks, and regulatory mismatches.

Table 6. Strength–Threat (ST) Strategies for Agricultural Waqf Development

Strength	Threat	ST Strategy	Framework Component
Community Networks + Profit-Sharing Model	Bank Competition + Sector Consolidation	Hyper-Local Islamic Finance Network: Leverage community network depth to build finance micro-ecosystems at village/district level unattractive to conventional banks, focusing on smallholders without competing with mainstream finance	Process: Supply Chain Integration (Local); Outputs: Social Welfare (Maqashid)
Religious Legitimacy + Asset-Based Financing	Climate Crisis + Credibility Collapse	Faith-Based Disaster Recovery Fund: Utilize religious legitimacy to establish dedicated disaster recovery waqf (agricultural insurance based on waqf + emergency zakat), building resilience while restoring credibility	Inputs: Integrated Islamic Finance (Disaster-specific); Outputs: Food Security + Maqashid
Integrated Model Potential	Policy Mismatch	Policy Advocacy Coalition: Leverage integrated model as empirical evidence for regulatory reform advocacy (Turkish model inspiration: request government to recognize waqf as development instrument, not merely charity)	Inputs: Regulatory Support (Policy Reform)

The Weakness–Threat (WT) strategies emphasize defensive and corrective interventions to minimize institutional vulnerabilities and prevent systemic collapse by strengthening coordination, restoring credibility, mitigating risk, and retaining farmer participation amid adverse policy and market pressures.

Table 7. Weakness–Threat (WT) Strategies for Agricultural Waqf Development

Weakness	Threat	WT Strategy	Framework Component
Weak State Coordination (L3) + Fragmented Design (L1)	Policy Mismatch + Farmer Capital Flight	Establish Agricultural Waqf Directorate (AWD): Create national coordination body (similar to Turkey model) linking agriculture, finance, religious affairs, and local government ministries toward unified vision—preventing fragmentation that drives farmer defection to conventional systems	Inputs: Regulatory Support (Institutional mandate)
No Underwriting Standards (L3) + Low Farmer Trust (L3)	Credibility Collapse + Bank Competition	Third-Party Certification & Auditing System: Leverage digital audit + transparency opportunities to establish third-party certification for nazhir performance and waqf sustainability (Fairtrade-style model for agricultural waqf)	Inputs: Institutional Framework (Third-party oversight)
Weak Nazhir Capacity (L2) + Knowledge Loss	Debt Spiral Risk + Credibility Collapse	Mandatory Nazhir Insurance & Performance Bond: Implement requirement for every nazhir to carry liability insurance and performance bond. If mismanagement occurs, insurance protects farmers—preventing credibility collapse and debt spirals	Inputs: Institutional Framework (Risk Management)
No Working Capital Solution (L1)	Farmer Capital Flight	Waqf-Linked Revolving Microcredit Fund: Deploy surpluses from successful waqf units to establish microcredit fund with minimal interest for waqf farmers requiring working capital, preventing defection to moneylenders charging 5% monthly rates	Inputs: Integrated Islamic Finance (Internal capital recycling)

The EFAS matrix summarizes key external opportunities and threats affecting agricultural waqf by weighting their relative importance and evaluating current institutional responses, providing an aggregate measure of external vulnerability and strategic positioning.

Table 8. External Factor Analysis Summary (EFAS) Matrix of Agricultural Waqf

Key External Factors	Weight	Rating	Weighted Score	Comments / Justification
Opportunities (O)				
O1. Digital Integration (Blockchain, mobile monitoring)	0.15	2	0.30	High importance, but current system's response is weak. Only a few initiatives use it.
O2. Government Policy (Regulatory recognition, subsidy)	0.12	2	0.24	Important, but current synergy with government is below average.
O3. Nazhir Professionalization (Training in agri-lending)	0.10	2	0.20	Key opportunity, but current nazhir development programs are rare and small-scale.
O4. Farmer Cooperatives (Risk aggregation, standardization)	0.08	3	0.24	Some pesantren/NGO models are using cooperatives well (good response).
O5. Bundled Products (Zakat + Waqf + Islamic finance)	0.08	1	0.08	Opportunity exists, but current system fails to bundle products (poor response).
Threats (T)				
T1. Policy Mismatch & Bank Competition	0.15	1	0.15	Critical threat. Current system is highly vulnerable and uncompetitive (poor response).
T2. Farmer Capital Flight (Return to informal/conventional finance)	0.12	1	0.12	High threat. Current system cannot prevent this due to lack of working capital (poor response).
T3. Climate Crisis (Extreme weather overwhelms funds)	0.08	1	0.08	Major threat, but no waqf models have climate resilience mechanisms (poor response).
T4. Sector Consolidation (Agribusiness bypasses smallholders)	0.07	2	0.14	Threat is growing, and current fragmented models have a weak response to compete.
T5. Credibility Collapse (Reputation damage from mismanagement)	0.05	2	0.10	A real threat, but some strong players (Dompet Dhuafa) help maintain credibility (below avg. response).
TOTAL	**1.00**		**1.65**	

According to EFAS table above, the total score of 1.65 (falling significantly below the threshold of 2.50) indicates that Indonesia’s current agricultural waqf system is highly vulnerable to external pressures. The system has largely failed to capitalize on critical opportunities, such as digitalization, and remains fundamentally ill-equipped to withstand primary threats, including competitive pressure from commercial banking and the attrition of agricultural labor.

The IFAS matrix evaluates internal strengths and weaknesses of agricultural waqf by weighting institutional capacities and constraints, revealing whether existing strengths can offset structural and organizational deficiencies affecting system performance.

Table 9. Internal Factor Analysis Summary (IFAS) Matrix of Agricultural Waqf

Key Internal Factors	Weight	Rating	Weighted Score	Comments / Justification
Strengths (S)				
S1. Religious Legitimacy (Strong farmer buy-in)	0.15	4	0.60	A major, inherent strength that is well-leveraged at the community level.
S2. Profit-Sharing Model (Aligns with farmer seasonality)	0.10	3	0.30	A minor strength, applied well in some cases but not universally.
S3. Community Networks (Embedded, low transaction costs)	0.08	4	0.32	A major strength, especially in pesantren-based models.
S4. Asset-Based Financing (Land collateral without debt burden)	0.07	3	0.21	A minor strength, as it provides a philosophical advantage over debt.
Weaknesses (W)				
W1. Fragmented Design & No Working Capital Solution (L1)	0.20	1	0.20	The most critical weakness, with no effective solution currently in place.
W2. Weak Nazhir Capacity & No Knowledge Management (L2)	0.15	1	0.15	A major weakness across the board, leading to repeated failures.
W3. Informal Documentation & No Underwriting Standards (L3)	0.10	1	0.10	A major weakness that prevents scalability and institutional trust.
W4. Low Farmer Trust (from previous failed schemes) (L3)	0.08	2	0.16	A minor weakness, as some successful models are slowly rebuilding trust.
W5. Weak State Coordination (L3)	0.07	1	0.07	A major weakness, with almost no integration between waqf and state agricultural programs.
TOTAL	**1.00**		**2.11**	

According to IFAS table above, the total score of 2.11 (remaining below the 2.50 threshold) indicates that severe internal weaknesses currently override existing strengths. While religious legitimacy and community networks remain robust, unresolved structural (L1) and organizational (L2) deficiencies render the overall system functionally ineffective.

Based on the EFAS and IFAS findings, this study proposes an integrated three-layer framework—input, process, and output—to address the structural, organizational, and governance weaknesses of agricultural waqf. The Input Layer serves as an institutional blueprint by establishing regulatory support and public policy that recognize waqf as a development instrument, provide subsidy and guarantee schemes, and enable national coordination. This layer is complemented by institutional strengthening through nazhir certification, standardized contracts, third-party audits, and performance bonds, alongside integrated Islamic finance mechanisms that bundle zakat, waqf, and Islamic financial instruments to ensure capitalization and risk-sharing.

The Process Layer operationalizes this blueprint by transforming institutional readiness into productive agricultural activity. It emphasizes land optimization supported by knowledge management and certified mentorship, the application of modern farming technology through extension–finance hybrid teams and farmer data platforms, and embedded risk management via disaster funds and performance insurance. Supply chain integration further ensures sustainability by linking production to aggregation, cooperatives, and market off-takers across the full agricultural cycle.

The Output Layer evaluates performance through indicators aligned with maqāṣid al-sharī‘ah. Food security outcomes correspond to the preservation of life (*ḥifẓ al-nafs*) through improved productivity, access, and yield stability; sustainable financing reflects the preservation of wealth (*ḥifẓ al-māl*) by ensuring reinvestment capacity and long-term solvency; and social justice outcomes support intergenerational welfare through farmer skill development and community participation. Together, these layers position agricultural waqf as a coherent and sustainable development instrument rather than a fragmented charitable practice.

Building on the empirical findings, this study proposes three pragmatic recommendations to strengthen the proposed framework. First, greater clarity in contract architecture is needed by explicitly defining the Shariah contracts that structure agricultural waqf operations—such as *ijārah* for land-use arrangements, *muzāra‘ah* for farmer–nazhir crop-sharing, and *kafālah* for performance guarantees. Clear contractual specification not only reduces ambiguity in roles and risk allocation, but also helps rebuild institutional trust by translating ethical commitments into enforceable agreements. Second, the framework should incorporate a realistic exit pathway for beneficiaries by introducing a “farmer graduation rate” as an output indicator. Tracking the transition of farmers from *mustahiq* to economically independent producers (and eventually *muzakki*) ensures that agricultural waqf operates as a temporary development catalyst rather than a system of long-term dependency. Third, the model would benefit from being communicated and implemented as a cyclical ecosystem rather than a linear process. Visualizing feedback loops—such as surplus reinvestment into risk mitigation and recovery funds—makes the regenerative logic of waqf-based agricultural finance more transparent to practitioners and policymakers, while reinforcing its long-term sustainability and scalability.

Conclusions

This study demonstrates that the scalability and effectiveness of agricultural waqf in Indonesia and Türkiye are shaped less by physical land availability than by institutional quality, particularly nazhir professionalism, regulatory coherence, and state–market coordination. The findings show that voluntary nazhir models lacking standardized agricultural competencies—when combined with informal documentation practices and weak alignment with public agricultural policies—produce organizational memory loss, elevate moral hazard, and perpetuate a persistent trust deficit that constrains capital mobilization and farmer participation. Comparative analysis further reveals that the productive transformation of waqf depends on the establishment of a full-cycle financing architecture capable of repairing the fragmented agricultural value chain, in which zakat provides initial de-risking support, waqf functions as an asset-based risk absorber, and Islamic commercial finance supplies profit-sharing working capital. Within this integrated configuration, waqf emerges as a strategic anchor that enables financial inclusion in sectors traditionally regarded as non-bankable, while an outcome-oriented evaluative framework aligned with food security dimensions and SDG targets shifts performance assessment away from short-term disbursement toward sustained farmer welfare and resilience.

Despite these contributions, this study has several limitations. First, its qualitative comparative design prioritizes institutional mechanisms and governance dynamics, which limits the direct generalizability of findings across heterogeneous agrarian systems, crop types, and ecological conditions. Second, empirical evidence on long-term nutritional outcomes, income mobility, and intergenerational effects remains constrained by the availability and comparability of standardized cross-country datasets. Future research should therefore adopt longitudinal and mixed-methods approaches to empirically test the causal pathways identified here, particularly the effects of bundled Islamic finance instruments on farmer graduation, climate-shock resilience, and long-term welfare outcomes. Further inquiry is also needed to examine the role of digital governance innovations—such as land registries, performance bonds, and data-driven underwriting—and to extend comparative analysis to other Muslim-majority contexts, thereby refining policy-relevant models for scalable, accountable, and sustainable agricultural waqf ecosystems.

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