

## **A Proposed Shariah Compliant Fintech Model as An Alternative Financing Product to Tackle Food Security Challenges in Malaysia**

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### **Abstract**

Ensuring food security becomes a significant issue in many countries, particularly during the coronavirus pandemic. Thus, the agriculture sector's development is critically essential to improving food availability. Despite several initiatives launched by the Malaysian authorities to support small farmers, this sector continues to suffer from accessing financial services. This paper objective is to develop a shariah based financing alternative model known as the Shariah-Compliant Fintech (SCF) Model. This model incorporates crowdfunding solutions and smart contracts into one platform to provide a seamless experience for the investors and fund seekers. This paper starts with the conceptual exploration of the literature in the areas of food security, financing challenges facing farmers, smart contract and Crowdfunding application. The sources of the literature cover secondary sources such as books, online resources and journal articles. This paper provides a conceptual framework of the shariah compliant fintech model that could be a viable solution for the global crowd investors to participate in the impactful investment opportunities. Second, the platform represents a marketplace for small farmers to seek financing from alternative sources of funds for their agricultural projects. This study offers a comprehensive shariah investment procedure and structures of the fintech industry, which can assist policymakers to create necessary policies that regulate Crowdfunding and smart contracts activities.

**Keywords:** Food Security, Fintech, Shariah Compliance, Crowdfunding, Smart Contracts

## 1. Introduction

With the growing population globally, food insecurity can become an issue that threatens the world's food supply. According to the World Bank report, 8,9% of the global population suffer from hunger, so, considerable funds have been committed by the Bank to continue feeding the increasing number of the world population (World Bank, 2020). Based on the report, the current level of food production is not sufficient. As many factors are correlated, this is a global issue that needs to be taken into account.

The global food security crisis threatens the lives of millions of people in developing economies, especially in developing countries, where the major issues of death and diseases such as diarrheal diseases, the majority of which are caused by food contaminated (Pinstrup-Andersen, 2001). The causes of food insecurity include unstable political and social environments, an imbalance macroeconomic in trade, the effects of war and civil strife, insufficient human resources, natural resource challenges, low educational and health system and natural disasters like floods and the lack of good governance (Mwaniki, 2006). All these factors contribute to the insufficient food supply or inadequate access to food by individuals and households.

The International Food Policy Research Institute 2020 world vision statement is: "to create a world where every person has economic and physical access to sufficient food to sustain a healthy and productive life, where malnutrition is absent, and where food originates from efficient, effective, and low-cost food and agricultural systems that are compatible with sustainable use and management of natural resources" (IFPRI, 2002). Pinstrup-Anderson and Pnadya-Lorch (1998) discussed the challenges faced while realizing this vision and the required conditions for its successfulness. The first one was on the increasing poverty rate and inadequate system to develop human capital. Second is the continuous population growth, particularly in urban areas which will substantially require more food. The third challenge is the low agricultural research and the lack of farming inputs such as fertilizer, water, energy, and technology, leading to low productivity in less-favoured areas. The degradation of natural resources, insufficient functioning markets, and domestic resource mobilization have significantly restrained the countries' economic growth and lead to food insecurity. The author provided remedies for the mentioned challenges and emphasized that all stakeholders must change their behaviour, priorities, and policies. The emphasis must be given to human capital development, focusing on the

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underprivileged population. Besides, agricultural productivity must be accelerated through practical and sound management of natural resources, strengthening governments' capability in developing countries to perform the appropriate actions.

The Covid19 pandemic was spreading worldwide, which is posing a severe threat to food security. There is no doubt that this disease will accelerate the increasing number of people under hunger threat and expose more of them to food insecurity. The Food and Agriculture Organization statistics (2020) indicate that up to 2 billion people suffer from food insecurity today, 1.03 billion are in Asia, followed by 675 million in Africa, 205 million in Latin America, 94 million in Europe and North America. The 2030 food security projection, according to FAO (2020) is full of challenges. The report stated that without considering the effects of Covid-19 pandemic, the current level of efforts made to minimize food insecurity is not enough to reach zero hunger in ten years from now. Asia was among the most vulnerable continent to food insecurity issues. The current pandemic situation worsens the conditions and raises a red flag for government bodies who need to plan and pay attention to the agriculture sector.

From another hand, the lack of funding was recognized as a critical issue for agricultural output, simply because this sector is not favourable to banks globally due to the high-risk practices, low profitability, and lack of collateral (Wenner, 2010).

Although agriculture tends to be a vital tool for sustainable development and poverty alleviation, financial constraints continue to prevail in the agricultural sector due to various natural threats, such as floods and droughts. Therefore, when it comes to offering financing services or investing in this market, financial providers are hesitant. Adams and Fitchett (1992) argued that financial institutions are reluctant to provide loan facilities to the agricultural entrepreneurs who do not have collaterals required for receiving the financing. Further, the additional reasons are the higher default risk and the high transaction costs associated with these types of small loans. Besides, Anderson and Ahmed, (2015) have listed several other reasons to explain why financial institutions are neglecting the smallholder businesses, according to the authors this is due to (1) uncertain income; (2) the large investments required; (3) finding it difficult to reduce the default risk.

Insufficient financial means encountered have pushed some of the smallholder farmers to request financing from a private lender. These lenders act as intermediaries in buying crops from the farmers and finally selling them in the market. As a return of this financial service, the lenders would request a discounted crop yield from farmers. (MasterCard Foundation, 2017).

Many crowdfunding platforms have been established to provide fund seekers with access to financial capital. Igrow Asia is a crowdfunding platform that provides farmers with an opportunity to create their agro-businesses campaigns and publish it for investor visitors who would like to invest and gain a return of 18% per year. Investing in the agricultural sector is crucial to eradicating poverty, requiring greater attention from decision-makers and government agencies. According to FAO (2017), agriculture investment can reduce poverty, especially among the poorest people, compared with the investments made in other sectors.

## **2. Literature Review**

### **a. Food security**

#### **i. Food security: Concept and Definition**

Food security is a situation in which humankind has sufficient food to live and is safe from hunger or starvation. This terminology has been spiralled since the 1970s when the food supply was a national and global concern. In the 1980s, national and international governments and organizations raised food access questions (Applanaidu, and Baharudin, 2014).

Food and Agriculture Organisation (2002) defined Food security as when people have physical, social, and economic access to sufficient, safe and nutritious food. The necessity of that the food must meet their food preferences for a healthy and active life. There have been several other definitions, but the best was discussed and explained in Akhir, Omar and Abd Hamid (2009) article. The authors have stated that food security is “about availability (adequacy in food production and food stability supplied), accessibility (both physical and economically) and the utilization of the food itself. They added that the safety and quality of food had been considered important food security elements. Diet quality and nutritious food are the two additional food security components that have been added to the recent definition of FAO report (2020), which stated that food security is “A

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situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". As per this definition, four dimensions have been identified: food availability, food utilization which determines the nutritional status of people, economic and physical access to food, and stability over time to ensure that households have enough food all the time.

**ii. Food security issues in Malaysia**

Malaysia still combatting food insecurity as food production is insufficient in many of the primary foods. The economic share of agriculture sector in the Malaysian Gross Domestic Product has experienced a dramatic decrease since 1970, which is caused by the economic shift towards industrialization (Akhir, Omar and Abd Hamid, 2009).

In Malaysia, the contribution of the agricultural sector to the economy has decreased in recent decades, which has negatively affected the production of rice as an essential commodity for the growing number of Malaysians, the quantity of rice produced has only been sufficient to meet 65 per cent of the local needs. Simultaneously, the rest is imported from neighbouring countries such as Thailand and Vietnam (Vengedasalam, Harris, and MacAulay, 2011).

According to the third national agriculture policy (NAP 3) available at Federal Agricultural Marketing Authority website, the maximization of agriculture's contribution to the GDP and the farmers' income was one of the main objectives aimed to be achieved. Nevertheless, the policy document has highlighted few challenges, so, besides the problems of low productivity, labour shortages and high demand, the total food imported to Malaysia is increasing continuously due to the instability and volatility of exchange rate, leading to imported inflations.

A study was performed to examine the relationship between health and nutritional, food insecurity status among 169 Indian palm-plantation households in Negeri Sembilan. The results revealed that most families (85%) faced food insecurity which has been found to have an indirect effect on poor health and nutritional status (Mohamadpour, Sharif and Keysami, 2012). Similarly, another study found that the total diet diversity and total expenditure are associated with household food insecurity. Inadequate dietary based on the study is usually linked to the low-income households, and It is generally seen to have direct or indirect consequences of food

insecurity based on the study conducted in a rural district of Kelantan Malaysia (Ihab, Rohana, Manan, Suriati, Zalilah, and Rusli, 2012). Besides poor health and lack of nutritious food, low income is one of the main factors that negatively impact Malaysia's food security.

Food insecurity has also affected the Orang Asli's (Original people) livelihood in Malaysia, the study conducted by Law, Norhasmah, Gan, Nur'Aysura (2018) showed that the traditional food system has been deteriorating due to the shift to modern food systems which has had a negative impact on food security. The failure in agriculture causes food insecurity, the ineffectiveness of traditional food-seeking, and water issues such as the water's cleanliness and the continuity of water supply. Hence, the researchers have called for government intervention to close the food shortage gap among Orang Aslis.

One of Malaysia's main challenges is the shortage of agricultural lands, which has decreased from 999,300 hectares in 2000 to 922.00 hectares in 2010. By 2020, the food production lands are expected to drop further to reach 841,000 hectares due to the palm oil plantation that is expanding and because of industrial and residential development (Reika Kua, 2013). These challenges and issues have caused an increased deficit between local production and domestic demand, threatening Malaysia's food security.

In the financing and incentives section of the Malaysian Third National Agriculture Policy (1998-2010), the Malaysian government promised to promote the development of agricultural information technology system and provide soft loans for the benefit of bumiputra. The government has also promised under this guideline, the formulation of agriculture foreign investment. Noting that, the agriculture technology system and the agriculture sector's financing are important tools for this field's successfulness. Financial technology such as Crowdfunding and smart contracts can play a vital role in providing the required systems needed to raise funds and enhance food production. Fintech can provide various solutions that can help small farmers to have access to funds, and to rack the food production chain.

#### **b. Crowdfunding: Concept and Definition**

Crowdfunding is an alternative form of financing in which small funds are collected from a large number of individuals to support large ventures to small, and medium-sized businesses. The investment is made through an

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internet-based network that links benefactors (investors/donors) with the beneficiaries (fund seekers). According to the Oxford dictionary, “Crowdfunding is the practice of funding a project or venture by raising many small amounts of money from a large number of people, typically via the Internet”.

The World Bank (2013) defined Crowdfunding as an online platform for businesses and organizations to raise funds from a group of individual investors or contributors. The funds raised should range between \$1,000 and \$1 million US dollar. Based on IOSCO (2015) definition, Crowdfunding is the raise of small sums of money from a large number of organizations or individuals, for a project, a personal loan, a commercial or other financial need. These activities are all done in an online-based platform. Examples of Crowdfunding are peer to peer lending that provides interest-based loans, and Equity crowdfunding that is another form of capital raised through shares' issuance.

The different types of Crowdfunding were introduced by the European Commission (2015) as illustrated below:

1. Donation-Based Crowdfunding: In this case, each person contributes towards a specific philanthropical campaign listed in the platform, in which no financials or profits are expected in return.
2. Peer to Peer financing: Fund seekers borrow money from the crowd lenders, with an expectation of a prepaid interest plus capital.
3. Reward-based Crowdfunding: This is almost similar to donation-based Crowdfunding. The difference exists when people donate to a particular project expecting to receive a reward in return.
4. Profit-Sharing/ Revenue-sharing: Profits and revenues are shared with the crowd in return for their investment in the listed projects.
5. Debt-Securities crowdfunding: Whenever Debt securities like bonds are issued, individual investors will be called to invest in bonds.
6. Hybrid models: These are models that combine more than one of the mentioned types of Crowdfunding.

**c. Islamic Crowdfunding**

Islamic Crowdfunding is an innovative solution that adheres to shariah principles, and that is invented to meet the Muslim investors' needs. The platform must be structured to accommodate different Islamic financial instruments like Musharakah, Mudarabah, Iisna, and Murabahah. The shariah compliance platform needs to abide by the shariah principles in all its operations and activities.

Understanding the differences between conventional and Islamic Crowdfunding is very important. Thus, Saiti, Musito and Yucel (2018) briefly introduced the main differences in the following table:

Table **Error! No text of specified style in document.**1: Conventional Crowdfunding vs Islamic Crowdfunding

Type	Conventional Crowdfunding	Islamic Crowdfunding
Reward-based Crowdfunding	Materialistic	Al-Falah concept is required together with the achievement of Materialism concept
Donation-Based Crowdfunding	Philanthropic	It has within it Sadaqah, Zakah, and Waqf concepts. The achievement of al-Falah is the ultimate objective.
Equity Crowdfunding	Venture Capitalist & Investors	Islamic equity crowdfunding must be based on Islamic finance instruments like Musharaqah and Mudarabah.
Debt Crowdfunding	P2P lending based on interest	It is mostly based on sale contracts such as Murabaha, Tawarruq and Ijarah.

Source: Saiti, Musito and Yucel (2018)

#### **d. Financial Constraints Facing SMEs Including Agriculture Entrepreneurs**

Small businesses and entrepreneurs are finding difficulties to benefit from the financial facilities provided by Islamic and conventional banks due to the high risk associated with their business activities. Setala (2017) argued that the new



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growing businesses encounter the financing gap that is believed to be too risky in the existing framework. Thus, this was a real obstacle, as banks are always seeking stable and profitable firms.

Many developing countries depend on boosting small and medium enterprises to achieve specific identified development goals. About 40% of the GDP and 60% of the employment rate is contributed through the sector of small and medium enterprises (World Bank, n.d.). The growing number of crowdfunding platforms could have solved the financing issues in this sector, especially for the SMEs in developing countries whose financial gap has reached 3.4 trillion USD (MSME Finance Gap, n.d.).

A research was conducted to explore the effect of crowdfunding platforms on SMEs' growth and found that about one-third of the businesses that raised funds through Crowdfunding platforms have encountered difficulties accessing other means of financing. 79% of them have attempted to request funding from banks before requesting it from the crowdfunding platforms, whereas only 22% have been granted the loans (UNDP, 2019). Therefore, the report results showed that most SMEs had not had the chance to benefit from banking services and facilities.

### **e. The Application Of Smart Contract**

Smart contracts on the blockchain have attracted the intention of global institutions. This technology has been used in various sectors such as Banking, healthcare, real estate and even supply chain. The smart contract is a user-defined program or a distributed database that runs on blockchain and records all transactions to allow the execution or the enforcement of an agreement between two or more parties in the network (Sadiku, Eze and Musa, 2018). Szabo (1997) describes the smart contract as follows: "Smart contracts combine protocols with user interfaces to formalize and secure relationships over computer networks. Objectives and principles for the design of these systems are derived from legal principles, economic theory, and theories of reliable and secure protocols. The following section discusses the previous literature contributions on smart contract and blockchain applications in different sectors.

### **Banking Industry**

Beside Scotland's Royal bank as one of the world's biggest banks, Bank of Australia and UBS are investing in blockchain technology. The RBS bank uses a blockchain solution called R3 Corda to send mortgage receipts to the financial

authorities (Magee, 2018). Further, and as cited in Hu et al. (2018), the application of smart contract in the mortgage is effective cost management solution as it could save up to 480-960 USD per loan for clients, in the meantime, banks are also able to save up to 11 billion USD of their annual cost. Similarly, Network (2018) claimed that mortgage procedure through blockchain technology could help cut down costs, besides this, it also can share access to electronic versions and verify legal documentations. The author highlighted the other benefits of smart contracts like facilitating the administrative approvals in case of trade settlements and then transferring funds automatically once the transaction is verified and approved via blockchain technology.

### **Healthcare System**

Other studies have discussed the prospective benefits of smart contract technology in enhancing the healthcare system. Khatoon (2020) proposed a decentralized healthcare management system. This innovative proposed solution will enable health centres to handle medical records, provide interoperability, auditability, accessibility, and would allow patients to exchange their medical records using smart contracts. In addition, to allow authorized users or devices to access data records, the multi-signature approvals can be featured between patients and service providers (Hu et al. 2018). Other benefits of onboarding healthcare processes on a blockchain and smart contract platform are facilitating data sharing, enabling personal health records, managing patient digital identity, tracking prescriptions, and expediting claims adjudication (Zhang, Schmidt, White and Lenz, 2018).

### **Real Estate**

As a form of real estate digital records, Dijkstra (2017) emphasizes the possible application of smart contract in the real estate investment sector. The real estate life cycle in all its details can be encoded to be on the blockchain. According to the author, a digitized system can be created for each estate that comprises all the information such as property registration with the new owners, the determination of sales prices, date of purchases and transactions, the lease contracts and even the properties and the building materials status. Deloitte company has been introduced in the same paper as an organization that works on a blockchain application to establish the lease agreement and the automation of all the required procedures. Different stages to accomplish this procedure were highlighted in the model as followed:

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- There will be a smart contract signing between contracting parties, while the rental value, the frequency of payment, tenant details and the ownership to be registered in the system.
- Based on the terms and conditions highlighted in the agreement, the smart contract begins to pay the landlord's rental dues.
- After deducting the costs of damage repairs, the smart contract to pay the deposited amount to the tenant upon the lease agreement's expiry date.

In addition, Karamitsos, Papadaki and Al-Barghuthi (2018 ) presented a real estate model of blockchain technology and divided the process into six essential functions: the rental contract signature process, the rental payment process, the termination rental contract process, state variables, events and transactions.

**Agriculture**

This part of the research will shed light on future agricultural opportunities to incorporate disruptive blockchain technology solutions. The incorporation of blockchain in agriculture can be a game-changer that can have a big effect on farmers, distributors, final customers, and the different stages of the supply chain process.

In the supply chain, major companies like Microsoft are implementing the blockchain. Through their collaboration with Mojix, based in Los Angeles, they launched the manifest project to leverage a blockchain-integrated internet of things platform to enable factories, retailers and distributors to track products using RFID devices, and this solution addresses robbery and loss issues (Del Castillo, 2017). Another example is the Origin Chain that replaces the central database with blockchain to restructure the service provider's current traceability mechanism. It is a distributed private blockchain consisting of transparent tamper-proof traceability data that automates regulatory enforcement testing, increases data availability, and produces smart contracts (Lu and Xu, 2017). Besides, through Blockchain technology, IBM and Wal-Mart are focusing on research to find out how to increase food security safety regulation in China, thus developing an efficient food traceability solution (IBM, 2016). This technology's advantages are summarized in ensuring traceability, preventing fraud, and minimizing system failures, thus establishing a long historical record of rice from production to sale. (Kumar and Lyengar, 2017).

Even though different researches have theoretically proved different advantages of blockchain technology applicability in the supply chain, what is

still lacking in this area is a scientific methodology. Dolgui, Ivanov, Potryasaev, Sokolov, Ivanova and Werner (2019) claimed that their study is considered the first to propose a control methodology through an established computational algorithm model for blockchain-oriented smart contract design in the supply chain. This model allows the trade-off between supply chain lead time and contract costs, facilitating multi-objective decision-making in designing a smart contract.

A weather immunity token agreement based on the Ethereum blockchain has been proposed, enabling farmers to collect payments for floods, droughts, or other weather crises that negatively impact their crops. Similarly, many other consumers, including biofuel agribusinesses, crop insurers, individual investors and ultimately institutional investors, can benefit from this solution (Jha, Andre and Jha, 2018).

Lu and Xu (2017) highlighted the main challenges faced while developing a blockchain system, such as the integration cost of blockchain into the existing system, the learning curve, and the business negotiation process that requires time. Other challenges are policies that encourage blockchain adoption and an appropriate regulatory framework (Kamilaris, Fonts and Prenafeta-Boldu, 2019). Smart contracts are conducted on a distributed ledger as software programs, ensuring that information cannot be changed unless it is approved. This could be a significant issue in the events where modifications need to be made to the agreement. As we know, the traditional agreement provisions can be amended and rectified. Therefore, the Ethereum Foundation should consider this and develop a system that will enable smart contracts amendments and ensure flexibility. (Network, 2018).

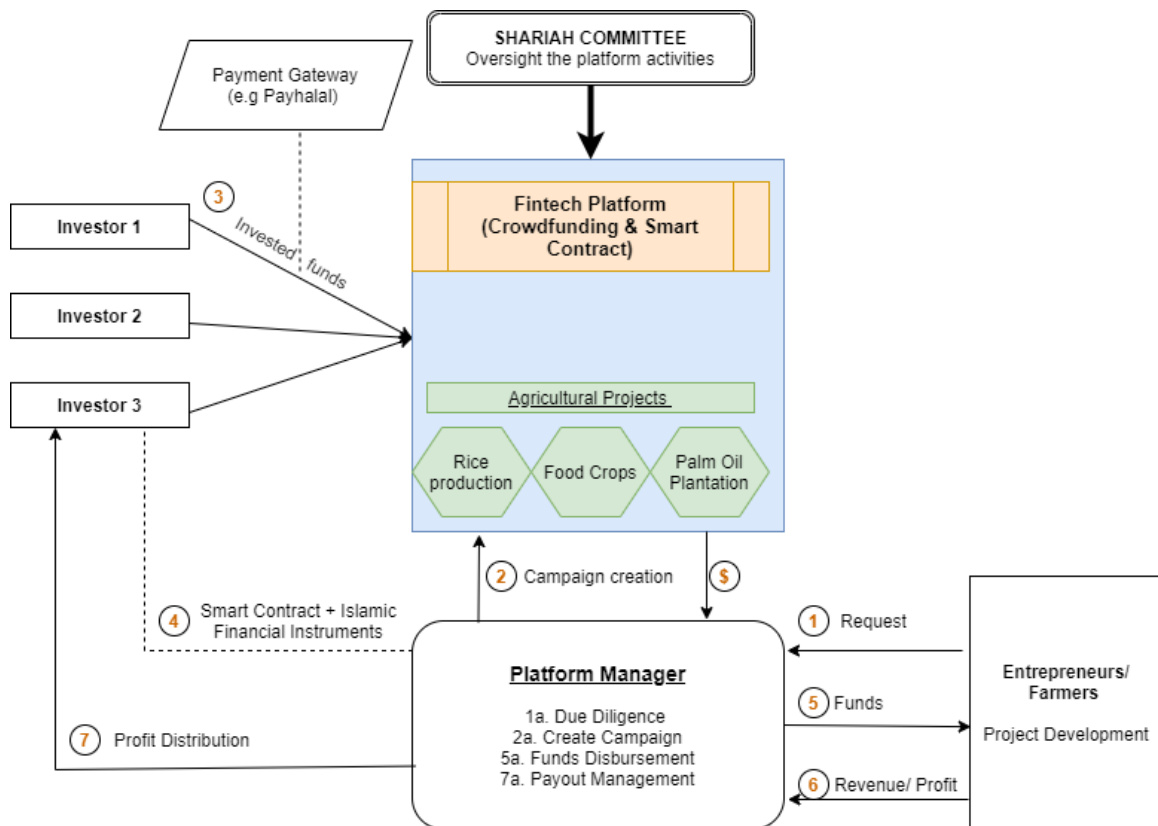
### **3. A Proposed Shariah Fintech Model for Small Entrepreneurs**

Researchers are developing various structures and instruments to address the needs of small entrepreneurs in many fields, including the agricultural sector, to give them a chance to enhance their small businesses and contribute to the world food and nutrition security initiatives. Most of these models are established to provide financial needs and improve the farmers' access to the financial services to make profitable investments that enhance their yields. Nevertheless, according to the literature, only a few entrepreneurs have access to financial loans as most of them lack collaterals. The agriculture field is also exposed to excessive rainfall and climate challenges that put them at higher risk investments.

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Therefore, given these challenges, a Shariah Compliant Fintech Model (SCFM) is proposed in this study to address the practical challenges of liquidity and financing problems faced by farmers, specifically in Malaysia. This model is composed of Crowdfunding and smart contracts together with shariah principles element that is taken into account to ensure that the business and platform activities are in line with the Islamic law. Its main objective is to address the food security issues problem and to empower small agricultural entrepreneurs. SCF model is expected to provide an effective solution for socio-economic development, and to achieve the sufficient food supply level for the sake of Malaysian low and medium-class communities in future. Effective integration of the different stakeholders in this platform, like the investors, entrepreneurs and the authorities could tackle the scarcity of capital and lack of financial resources. The Shariah Compliant Fintech (SCF) research model is illustrated in the figure below:

Figure 1: A Shariah Compliant Fintech (SCF) Model



### 3.1. The detailed explanation of the Shariah Compliant Fintech (SCF) Model:

1. The fintech platform will be available for the entrepreneurs/ farmers who would like to showcase their agricultural projects. All kinds of communications are done through the platform. The fund seeker will need to fill in the business information and project details in an online form. And to protect the investors' interests, the platform manager must conduct a due diligence procedure and make sure that the business plan of the project is well structured and organized to achieve its target.

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2. The platform manager to get project details (Content/ Images/ Videos/ Strategy) from the business owner (entrepreneurs/ farmers). The business owner must go through a due diligence process, and only businesses who successfully pass the due diligence will have the ability to create projects in the platform. The projects listed in the platform will be available for the crowd to view and invest.

3. The first step in this stage is to collect the required documents such as ID/Passport to conduct the necessary Know Your Customer (KYC) procedure. This is essential to comply with the Anti Money laundering (AML) laws and to avoid dirty money that would probably attract authorities to claim legal actions against the platform. Next, the investor who successfully passes the KYC will proceed with the investment and transfer the invested amount through a payment gateway available in the platform or via online banking transfer.

4. The smart contract can play various roles at this stage and provide a seamless experience to facilitate the recording of transactions. As has been highlighted in different precious studies, the integration of smart with Islamic financial instruments is viable. There are specific Islamic finance agreements Murabaha, Mudharaba, Musharaqah, and leasing (Ijarah), however, the most used ones in agriculture are, Muzara'a, Mugharasah, Musaqat and Salam agreements (Mamari, 2017). The second role of the smart contract in its usefulness as a token that reflects the amount invested in dollars. All information and investment details are going to be stored in a fully decentralized smart contract built on a blockchain database.

5. The platform manager receives funds from the investors and channels it to the project or business owner. Before this, some agreements need to be signed between the investors and the fund seekers. This is to highlight the rights and obligations of each party and protect the investors' rights.

6. The project owner invests the money and manages the project with full supervision on the operations. A periodic or one sum revenue plus capital will be transferred to the platform management bank account, while regular updates on the project development are shared with the investors. The last activity enhances the transparency feature between the parties and attracts more investors.

7. Finally, at the end of the project, the profit and capital to be distributed either in tranches or one lump sum to the investors, the participants to choose between reinvesting in other projects or exiting the investment.

The Shariah supervisory board is one of the most important governance mechanisms of the Shariah Compliant Fintech (SCF) platform. Thus, the platform

management must have an external and internal shariah committee and to provide them with the full access to transactions, records, Islamic contracts, and all information related to the business activities. The prominent roles of the shariah committee as per this model are as followed:

- The shariah committee to determine and create the relevant Islamic financial instruments or agreements based on the projects' nature (e.g. Muzara'a, Mugharasah, Istisna', Salam, and Mudharabah).
- To ensure the investment information received from entrepreneurs are accurate, and all the activities are in line with the shariah principles.
- To review the financial details to guarantee the full practice of shariah.
- To ensure all marketing materials are verified against any misinformed, misguided or misrepresented contents shared with the public.

### **3.2. The Significance of SCF Model On Different Stakeholders**

This paper introduces a Shariah Compliant Fintech model to tackle food security issues and develop agriculture in Malaysia. This model is mainly based on Crowdfunding as an alternative form of financing and smart contract on blockchain technology to facilitate transactions and records. As a result, the SFC model would significantly impact different stakeholders of the whole agriculture ecosystem.

### **3.3. The Model's Effect on Entrepreneurs/ Farmers**

This model is suggested to precisely inject cash into the different farming projects listed on the fintech platform. Project owners can easily create their projects in one single platform to be viewed by global investors interested in the green investment. Furthermore, the proposed model can reach out to small agro-businesses who are neglected by banks or find difficulties to access other financing services, due to the negative perception of banks towards their risky businesses. Through the equity-based financing like Mudarabah, Musharakah, as well as other traditional agreements like Muzara'a, ijarah, and Mugharasa', and via SCF solution, Farmers can have more chances to receive financing and to grow their small projects. The equity-based agreements are mostly just to both parties since the legal maxim al ghuḥnu bilghurmi (gain is justified with risk) is applied the contracting parties bear certain types of risks. In addition, this model is expected to bring great potentials of success, work efficiency and productivity. The supportive relationship developed between funders and entrepreneurs/ farmers can lead to new investment opportunities,



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mainly if the crowd investor thinks that the entrepreneur has fulfilled his business commitments and was transparent in all his dealings.

**3.4. The Model's effect on society**

In times of recession or economic downturn, small businesses are mostly in a vulnerable situation, which requires more attention to inject funds into this sector. Otherwise, the whole community will be at risk of food shortage or any related crisis. Hence, the proposed model provides one single platform that allows the investors to diversify their portfolios and support farmers in enhancing their projects. This model is also anticipated to provide seed capital to various farmers and project owners in Malaysia which most of them might probably be under B40's community.

This model's effect on the employment rate in Malaysia is expected to be significant, as more jobs will be created whenever the funding target for a specific project is successful. As a result, the poverty rate could be minimized to certain levels. At the same time, prosperity, wealth, and consumption could be achieved, which will directly impact the country's national economy.

**4. Conclusion**

Agriculture has made a significant contribution to many nations' growth as an economic activity and as a provider of environmental services, particularly for the population of rural areas who rely on it as a source of development and funding. Food insecurity is one the main challenges facing Malaysia and the globe, furthermore, liquidity issues together with Covid19 pandemic has been found to have a significant negative impact on the livelihood of farmers who are struggling to cover their basic needs. Most of the farmers fail to get the financings or loans because they are seen as risky segment compared with the other activities in the market.

The Shariah Compliant Fintech proposed model has introduced an innovative solution that could address farmers' financing issues, and hence enable different agriculture entrepreneurs to have an alternative source of financing. The fintech solution is composed of two solutions which are investment crowdfunding and smart contract on the blockchain. The former can attract global investors in one platform to inject their investments into different listed projects, while the latter found to be effective in verification and transaction records. This model is not expected to solve the economic and

financial problems only, but to become a source of information for the green investors looking for impactful investments.

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