Application of Takaful in Addressing the Green Agriculture Concept in Pakistan

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ABSTRACT:

The agriculture sector is considered to be the backbone of any economy. Unlike other developed or Muslim countries, conventional banks, Islamic banks, microfinance institutions, and the government are not providing suitable insurance facilities to the sector in Pakistan. This is the main reason farmers are poor and the agriculture sector is feeble. This study aims to provide a suitable Takaful framework that helps to improve the green (or organic) agriculture concept in Pakistan and is ultimately useful to preserve the environment and support the poor farmers. The current study uses the qualitative research approach and concludes the results based on previous empirical studies and semi-structured interviews. The interviews were conducted with 10 Pakpattan and Vehari farmers in Punjab province, Pakistan, who are cultivating a minimum of 5 acres of crops. The study findings concluded that farmers are interested in availing of the Takaful facility and agree to cultivate using an organic method. The farmers will be happy if the Shariah-compliant insurance (Takaful) framework using the Mudarabah model is offered in the market. However, there are some challenges, such as the machinery required to make organic fertilizer, cheap water, and availability of organic fertilizers and the need for educational programs. The first limitation of the study was that interviews were conducted only in two districts of the Punjab region. This study is fruitful for Takaful companies to enter this kind of project. This study will help academicians and scholars for further research and will be beneficial for the government and policymakers to develop more agricultural strategies.

Keywords: Takaful, Green Agriculture, Farmers, Punjab, Pakistan.

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1 Introduction

The growth and development of most countries somehow depend on their agricultural sector (McArthur & McCord, 2017). The agriculture sector is not only crucial for food security but also for rural development, poverty alleviation, and overall economic stability. It is a significant source of income and employment for a large portion of the population (Chand, 2019). It is fundamental to the country's economic stability, food security, and rural development (Nolte & Ostermeier, 2017).

The agriculture sector's importance in Pakistan cannot be overstated. The agriculture sector holds a pivotal role in Pakistan's economy and society. Agriculture is the primary source of livelihood for rural communities (Rusmayandi et al., 2023). It fosters rural development by creating employment opportunities, generating income, and improving living standards. The agriculture sector contributes 19.5 per cent to the Gross Domestic Product (GDP) and involves about 42.3 per cent of the workforce (Economic Survey of Pakistan, 2022, cited in Hussain, 2023). It is estimated that 65 per cent population of Pakistan is indirectly or directly related to agriculture (Rasheed et al., 2024).

The countries are trying to increase the available resources to meet the needs and necessities of their citizens. However, sometimes maximum utilization of resources only increases the profit or short-term advantages, which may have negative or adverse impacts in the long term (Tay & Diener, 2011). In the case of Pakistan, the major problem the government sees is short-term benefits and does not positively utilize the resources; thereby, the utilization of natural resources is uncontrolled (Mumtaz, Mitha & Tahira, 2013).

The purpose of highlighting the problem is backed by the concept of green farming with a green economy (Loiseau et al., 2016). According to the United Nations Environment Programme (UNEP) 2022, the green economy concept is an economic development model that seeks to balance economic growth with environmental sustainability and social equity. This concept emphasizes the importance of reducing environmental risks and ecological scarcities while promoting economic well-being and social inclusivity. In the context of agriculture, a green economy focuses on sustainable farming practices, resource efficiency, and environmental conservation to ensure long-term economic and ecological health (Mishra, 2017).

Ahmed et al. (2015) conducted a study regarding the potential of Takaful to become one of the financial tools supporting green agriculture initiatives. This study examines how Takaful could be fitted into the agricultural sector to curtail, or at least reduce, the financial risks faced by farmers for sustaining eco-friendly practices of farming. The findings reveal that the Takaful system can offer a viable alternative to conventional insurance in terms of complying with the ethical values of the Muslim farmers and sustainable agricultural farming practices. Further, with proper support and policy

framework, Takaful may act as a medium to further green agriculture, especially contributing towards environmental sustainability and economic resilience.

In Pakistan, farmer thinks if they use more inorganic pesticides and fertilizers on their farms, it will increase the production of yield and be more beneficial for crops and planting (Raheem, Rasul & Harun, 2020). This mindset or thinking style of farmers frequently uses inorganic fertilizers on land farms and ignores organic fertilizers. Siddique et al. (2014) ascertain that organic has many more advantages when compared to inorganic. The major advantage of organic farming is that it saves and preserves the environment, which is beneficial to agriculture and directly impacts human life and livestock. The other advantage of organic inputs increase in the quality of crops or goods output. According to Abdollahzadeh, Sharifzadeh and Damalas (2015), when the output or crops have high quality, it will increase their demand and farmers receive more money compared to inorganic agriculture.

Agriculture is a crucial sector in Pakistan, underpinning the economy and livelihoods of a significant portion of the population. Despite its importance, the sector faces numerous challenges, particularly in terms of insurance facilities. Conventional and Islamic banks, microfinance institutions, and government agencies have not provided adequate insurance services to support farmers, contributing to persistent poverty and sectoral weaknesses. This study proposes a Takaful framework to promote green (organic) agriculture, aiming to preserve the environment and support impoverished farmers.

1.1 Importance of the Study

The introduction of Takaful in the agricultural sector is vital for several reasons. Firstly, it is an insurance scheme that would go in tandem with the ethical and religious orientation of Muslim farmers and therefore would be more acceptable (Yusuf et al., 2022). According to Saleeh et al. (2023), encouraging green agriculture through Takaful can lead to sustainable farming practices for the environment and the public's health in the long term. Finally, Takaful for farmers can assist in enhancing the economic sustainability of farmers and further promote organic farming practices that will enhance productivity and resilience in the farm sector (Hussain et al., 2021).

This study is vital as it specifically links to the urge for a rigorous Takaful framework, made-to-measure for the agricultural sector in Pakistan. The study aims to provide much-needed financial protection and stability to farmers, who normally are left in a lurch due to the lack of appropriate insurance options, with special focus on green and organic farming. The research not only tends to support the agricultural sector—second to none in supporting the economy of Pakistan—but also benefits from environmental sustainability. Further, it can set the stage for empowering farmers with Shariah-compliant financial tools toward creating a more resilient, prosperous, and green agricultural landscape in Pakistan.

1.2 Problem Statement

The agricultural sector in Pakistan suffers from inadequate insurance coverage, which exacerbates the vulnerability of farmers to various risks (Fahad & Wang, 2018). Conventional insurance products often do not meet the specific needs and ethical considerations of Muslim farmers. Consequently, the sector remains underinsured, limiting farmers' ability to invest in sustainable and environmentally friendly practices. There is a need for an appropriate Takaful framework that can address these issues and promote the concept of green agriculture.

1.3 Research Aim

This study aims to provide a suitable Takaful framework that helps to improve the green (or organic) agriculture concept in Pakistan and is ultimately useful to preserve the environment and support the poor farmers.

1.4 Research Objectives

The study addresses the following objectives:

- To provide a conceptual Takaful framework that helps to improve the (organic) or green agriculture in Pakistan.
- To focus on Islamic banks and microfinance institutions to enter in agriculture sector and provide Islamic insurance.

2 Literature Review

The literature on Takaful, particularly in its application to the agricultural sector, is both evolving and gaining significance as researchers and practitioners explore its potential to provide sustainable financial solutions that align with Islamic principles (Rehman et al., 2023). Takaful is based on the principles of cooperation, mutual responsibility, and ethical investments, and encompasses a new concept of Islamic insurance within which a distinct framework for managing farmers' risks in countries with Muslim majorities can be designed (Cahyandari et al., 2023). This is particularly important in view of the inadequacies of conventional products to meet the ethical and practical requirements of farmers following Islam because a high risk is often associated with weather variability, pests, and market fluctuations (Saleh, 2016).

One of the primary works from this area is that of Ahmed (2016), which focuses on Takaful in managing the peril of agriculture. The study drew the conclusion that there has to be an Islamic option available to conventional insurance during times of unpredictable situations. In this contention, several Islamic-based scholars argue that Takaful is a Shariah-compliant alternative in contract-friendly insurance that many Muslim farmers take away from due to its inhibitory elements of riba and gharar. It lays out the

modification of Takaful structures, such as Mudarabah (profits-sharing) and Wakalah (agency) in devising insurance units that are not only Shariah-compliant but also suit the specific needs of the agricultural sector.

Elaborating further, Salman and Kawata (2020) provide general economic implications of Takaful in the context of agriculture. From their study, Takaful changes the level at which poor farmers access financial inclusion by providing affordable and available insurance services for everyone. It can stabilize farmers' income, build their confidence to invest in improved farming techniques, and reduce the economic impact of crop failure. The work also looks at the ability of Takaful and working hurdles to be able to operate in the rural domain; for instance, it includes adequate distribution channels, and finally, educating the farmer about the utility and its operations.

Sulaiman (2023) has researched the practical ability to integrate green agriculture initiatives with Takaful. The work accentuates the ecological and social advantages of resorting to Takaful with sustainable agricultural enterprises. They argue that Takaful can finance organic farming, conservation agriculture, and other eco-friendly farming methods by providing financial security against the inhospitable risks associated with these practices. Following up on such a premise, in this study, the researchers conducted semi-structured interviews with stakeholders, including farmers, policymakers, and Takaful providers, to assess the feasibility and impact of such integrations. This study found that farmers will certainly prefer such sustainable alternatives when they are provided with Takaful products that mitigate the risk of less financial loss while fostering environmental protection and agricultural productivity.

Furthermore, a comparative study of conventional insurance and Takaful in their applications regarding agriculture based on their benefits and salient weaknesses was carried out by Obaidullah (2015). The study found that traditional insurance companies have largely failed to penetrate the masses of Muslim farmers because their system was not accommodating to the religious values of the people who wish for an alternative. The study therefore observes that Takaful's mutual sharing of risks resonates well with the social and mutual structure of rural farming communities, bringing a sense of regard and shared accountability. However, it also identified the barriers to the growth of its operations among other problems encountered in scaling, such as regulatory impediments, the need for Shariah-compliant investment, and the devising of practical actuarial models aiming at agricultural risks.

In addition to empirical studies, theoretical research has derived implications that are highly effective in formulating the role that Takaful can play in agriculture. Iqbal and Molyneux (2005) study the underlying principles of Islamic finance theory and its application to other industries, including agriculture. They state the principles of risk-sharing and ethical investment as the basis of Takaful, making it most suitable in sectors such as agriculture, which are in their very nature risky and ethically bound for the

management of resources. Their work covers a comprehensive framework under which Takaful can be designed to support sustainable agricultural development, including the use of Islamic instruments of finance like Sukuk to finance large-scale agricultural projects.

More recently, research has started investigating technological innovations to improve the implementation of Takaful in agriculture. For example, Abd Rahman and Bakar (2019) point to the role of fintech in improving the operations of Takaful. They claim that the digital platforms can offer so much to simplify the distribution of Takaful products, increase their transparency, and hence reduce operational costs. For example, blockchain enhances trust and efficiency in Takaful transactions by implementing immutable records of all contributions and claims. Such technological integration becomes more significant in reaching the border farming communities that are underserved.

Hasim (2014) presents that Takaful can help in social poverty alleviation and social development. Takaful can enable farmers to invest in productivity-enhancing technologies and practices by providing them access to protective finance and credit. This, in turn, can lead to higher incomes, improved livelihoods, and greater food security. Another aspect that the study brings out is the role Takaful plays in developing social cohesion and trust among farming communities, given that the mutual nature of Takaful fits the cooperative ethos of most rural societies.

Ahmed (2019) examined the integration of Takaful with national agricultural policies to attain sustainable development goals. The authors argue that governments can play a major role in significantly encouraging the rise of Takaful through regulatory support, subsidies, and public awareness campaigns. The other proposal, which too has some potential, is the use of public-private partnerships directed at optimally using and exploiting the unique advantages of both the public and private sectors, thus enabling Takaful to expand into the agricultural domain.

2.1 Research Gap

The literature on Takaful and its applications in agriculture is relatively limited but growing. Studies have highlighted the potential of Takaful to provide ethical and Shari'ah-compliant insurance solutions for Muslim farmers. For instance, Ahmed (2019) found that Takaful could offer significant benefits in mitigating agricultural risks and supporting farmers' livelihoods. Additionally, research by Khan and Bashir (2018) suggested that Takaful could enhance farmers' financial inclusion and resilience. However, there is a gap in the literature regarding the specific application of Takaful in promoting green agriculture, particularly in the context of Pakistan.

3 Research Methodology

This is a qualitative research-based approach that drew upon the available empirical study findings and semi-structured interviews to derive the result of the present research. The interviews comprised 15 farmers from the districts of Pakpattan and Vehari in the Punjab province of Pakistan, with a holding of at least 5 acres under cultivation of crops. The qualitative data from the interviews explains the opinion of these farmers regarding Takaful and organic agriculture and the issues related to its implementation.

4 Findings and Discussion

Takaful is derived from the root Arabic word "Kafalah" which means "to guarantee each other" in respect (Habib & Shaukat, 2016). It is an Islamic insurance concept grounded on cooperation, whereby members pool money and contribute money that is held to offer a guarantee to each other and share in protecting people against loss or damage. On the other hand, the Mudarabah model is a profit-sharing partnership between the capital provider (Rab al-Mal) and the entrepreneur (Mudarib). Under this structure, the Takaful company is the Mudarib that invests in the funds contributed by the participants, who are the providers of capital.

The flowchart of a Takaful framework, using the Mudarabah structure for the delivery of farming contracts, elucidates a Shariah-compliant insurance model of supporting the farmers committed to using organic fertilizers and chemicals that are not harmful to the sustainability of life in society. This approach is geared towards improving the quality of agricultural products that are not in any way harmful to the environment. The system involves the already existing Mudarabah model that has already been introduced to the agricultural sectors in the likes of Brunei and Indonesia.

The framework suggests that farmers interested in the Takaful scheme contribute periodic instalments to the Takaful fund. These contributions are divided into two accounts: (a) Deposit Account (A/C), which holds the portion of the contribution that is invested to generate returns, and (b) Tabarru' Account (A/C), which holds the donation portion, which is used to support participants who suffer losses. The combined contributions from all participating farmers create the Total Fund Pool, which is managed by the Takaful company. The Takaful company, acting as the Mudarib, invests the funds in various Shari'ah-compliant ventures. The investment returns are then shared between the Takaful company and the participants based on a pre-agreed profit-sharing ratio (e.g., 70:30). Hence, the profit generated from investments is credited to the Deposit Account of the participants, while the Tabarru' fund is used to cover the losses of the participants. In the event of a loss, participants can claim compensation from this account. Further, a portion of the investment returns is allocated to cover the operational costs of the Takaful company.

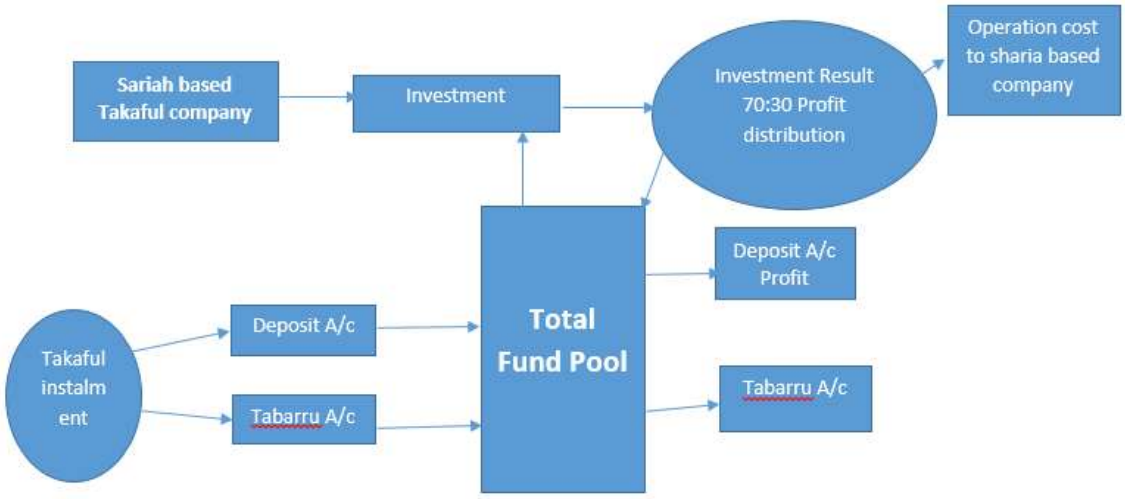

Fig 1. Takaful Framework using Mudarabah in Green Agriculture

Undoubtedly, the application of the Mudarabah model in Takaful for green agriculture has also generated very promising results in countries such as Brunei and Indonesia (Abd Rahman, Md Zabri & Ali, 2022). For instance, Brunei has a quite well-established Takaful industry that previously integrated the principles of Mudarabah. According to Ariffin, Ahmed and Jalil (2024), the implementation of Takaful in Brunei's agricultural sector has led to increased adoption of organic farming practices. The farmers have, in general, reported increased yields and quality, leading to improved incomes and livelihoods. Takaful's mutual support system has also afforded farmers greater financial stability by reducing the need to purchase expensive loans from conventional lending systems.

According to Nugraheni and Muhammad (2020), Takaful is applied to a great extent to support the agricultural sector in Indonesia. The use of the Mudarabah model in Takaful has encouraged more farmers to increase their investment in better farming practices. Because of the profit-sharing nature of this model, there is an interest alignment between the Takaful company and the participants, promoting transparency and trust. It found that farmers under Takaful schemes were more resilient to financial shocks caused by natural disasters, pests, and market fluctuations.

The adoption of Takaful in green agriculture has benefits not only for the farmers but also for the environment and society (Sulaiman, Bunu & Alkassim, 2023). Organic farming practices reduce the use of harmful chemicals and thus contribute to sustaining good soil health and biodiversity. Besides, organic fertilizers reduce the emission of greenhouse gases. According to Gomiero, Pimentel and Paoletti (2011), the wider community of those areas where high adoption of organic farming is practised demonstrated improved air and water quality. Takaful also provides small and marginal farmers with integrated financial coverage, which usually remains beyond the reach of conventional insurance

products (Ahmed, 2016). Through this scheme, farmers pool their resources to share the risks.

Although the framework of Takaful using Mudarabah in green agriculture turns out to be very positive, there are still problems that must be addressed. In the first place, farmers ought to be educated on the benefits and details of Takaful, so more people participate. In the second place, the government has to provide a supportable and conducive regulatory environment that drives the growth of Takaful in the agricultural sector. The Takaful firms should, lastly, innovate products to suit farmers' needs. There exist several other opportunities for further growth, basically through the use of technology to make Takaful services more efficient and accessible. Mobile applications and digital platforms could simplify the process of contribution and claims from the Takaful fund, increasing its convenience for farmers.

5 Conclusion

The implementation of a suitable Takaful framework could play a crucial role in transforming Pakistan's agriculture into a more resilient and environmentally friendly sector. The study underscores the potential of Takaful to support the adoption of green agriculture in Pakistan. Takaful can offer farmers financial protection and incentives to invest in sustainable farming practices by providing Shariah-compliant insurance. The findings indicate that farmers in Pakpattan and Vehari are keen to avail themselves of Takaful facilities and are open to adopting organic farming methods. The respondents expressed satisfaction with the idea of having an Islamic insurance option that supports their agricultural activities. However, several challenges were identified, including the need for machinery to produce organic fertilizer, affordable water sources, readily available organic fertilizers, and educational programs to enhance their understanding and skills in organic farming. These barriers must be addressed to make the transition to green agriculture viable. While the study's findings are promising, they are limited to two districts in Punjab, suggesting the need for broader research to generalize the results. The study's implications are significant for Takaful companies, policymakers, and academics, as they highlight the need for targeted strategies to develop the agricultural sector and promote environmental sustainability.

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