



What are the Challenges Encountered in Initiating Green Takaful Products as a Potential Climate Finance Tool in Sri Lanka?

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Abstract

Takaful as a risk-mitigating tool plays a significant role in the modern Islamic finance landscape, since it has experienced substantial growth and expanded globally in the field of economics. The alignment of the Islamic financial sector with conventional financial market trends, while adhering to Shariah law, has contributed to the growth of Islamic finance and Economics. To attain sustainable development goals, several countries have already introduced green insurance products, and the takaful market in various countries has competitively initiated green takaful products under the climate finance concept. This study aims to explore the challenges to initiating green takaful products as a climate financial tool. The study adopts a qualitative and inductive approach, utilising interview data as the primary source of information. Thematic analysis was employed to analyse the collected data for the study. The findings indicate numerous challenges, such as regulation, risk, cultural, and learning and development challenges in implementing green takaful in the Sri Lankan takaful market. This research holds a significant contribution to the takaful sector in terms of initiating green takaful products in the insurance market in Sri Lanka. Furthermore, each challenge discussed in this study and the ways to overcome them can be a major focus in future studies. Hence, it provides valuable insights for policymakers, regulatory authorities, product creators, practitioners and coming researchers in climate finance and green takaful schemes.

Keywords: Green Takaful, Climate Finance, Sri Lanka, Challenges, Insurance

1. Introduction

United Nations member countries should strive for the Sustainable Development Goals (SDGs) to achieve a sustainable future and livelihood in 2030 (Johan, 2021). Financial services also support the SDGs by promoting economic, environmental, and social harmony, whether conventional (credit facility) or Islamic financing (Budiasa, 2020). Currently, one of the financial sectors with the fastest global growth is Islamic finance, including microfinance, with a favourable competitiveness (Senghore, 2023). Islamic economics serves as the foundation for Islamic financing, and it is different from conventional economics for a variety of reasons (Muslehuddin,



1974). Financing with shariah principles is a better solution across the world, and the Islamic capital market plays a fabulous contribution to reaching the SDGs (Arvian, 2018; Johan, 2022). Eleven of the seventeen SDGs have a direct relationship with Islamic finance (Gundogdu, 2018). Islamic economics considers numerous distinctive aspects, such as sustainability, responsibility and social welfare, including education, health, and environmental conditions, which is opposed to conventional economics' focus on profit maximisation (Olaide & Abdul Kareem, 2021). Islamic finance has three key elements: Islamic banking, Islamic insurance (takaful), and Islamic capital market (Aziz, 2022). Accordingly, Islamic insurance that complies with Islamic law is known as takaful, which consists of a larger level of support for economic development and poverty alleviation towards establishing a better community (Rifas & Jahan, 2021; Mirza, 2023). Islamic social financial tools such as takaful, waqf and microfinance contribute to poverty alleviation (Jimoh et al., 2024).

The term takaful, which is derived from the Arabic term '*kafala*', denoting "mutual guarantee", is synonymous with insurance, albeit sanctioned by Islamic jurisprudence or shariah principles (Ansari, 2022). Takaful scheme is a guaranteeing mechanism with unity, brotherhood and mutual assistance (Rifas, Rahman & Buang, 2023), and is now witnessing tremendous growth globally (Alam, 2023). It embodies the notion of insurance founded upon cooperation and solidarity, wherein individuals partake in a takaful scheme (Howdon, 2019). The global takaful market is worth around 73 billion US dollars (Abdusamat, Sodikov & Batirova, 2021). Takaful is an essential approach that provides confidence and ethical guidelines for protecting assets, and it considers shariah principles and applies the same principles of insurance for its operation, even though insurance consists of some prohibited elements in Islam (Rifas et al., 2023).

Green takaful, which is mainly related to the general takaful scheme, is a sustainable insurance sector that aids in attaining climate-related financial goals (Jaffer, 2017). As climate change is one of the most significant issues in the world, greening the financial sector is another solution to address climate change issues (Silva et al., 2017). According to the United Nations Framework Convention on Climate Change (2019), climate finance refers to local, national, or transnational financing drawn from public, private, and alternative funding sources that seek to support mitigation and adaptation actions that will address climate change. The Securities Commission of Malaysia (2019) explains that by embracing global trends, the financial sector, which is expanding following Islamic economic principles, continues to advance without departing from the Islamic framework. This is occasionally revived by combining it with Islamic thought. Takaful can be a reliable solution for such risks since it can tackle global climatic issues, including environmental degradation (Mirza, 2023). Therefore, the contemporary takaful industry in Malaysia contributes to managing the risks posed by climate change (Islamic Sustainable Finance and Investment, 2023). In this way, the takaful industry undergoes a green reform to operate climate financing, one component of the industry's upgrading in the modern period. Green takaful operations are helping to achieve the emission reduction target (Noor, 2022).

The financial sector has prioritised this when implementing numerous adjustments in several industries to combat climate change (Federica, 2022). As a result, Islamic finance also focuses on climate finance when examining the global financial system (The Islamic Foundation for Ecology and Environmental Sciences, 2021). Islamic finance immediately partnered with climate finance because of the connection between promoting sustainability and Islamic principles (Islamic Relief, 2022). Moreover, it has become the need of the age, so they have to deal with it. This new aspect expands along with three main elements of Islamic finance: Islamic banking, Islamic capital markets, and takaful (Mustafa & Ab Rahman, 2023). According to Atlas Magazine (2017), in consequence, the Middle East, Southeast Asia, and Europe presently have the most advanced Islamic insurance with its pioneer products and services for their participants.

The Takaful system has been convenient and more beneficial in the light of Shariah since its establishment in Sudan in 1979 (Husin & Rahman, 2016). Despite many obstacles, the takaful scheme has seen significant growth today (Mazahir, Rahman & Ramzy, 2017), and it is expected to reach 13 per cent with \$40 billion in 2023 (IFSB, 2018). The takaful sector is growing rapidly, with 324 fully pledged operators, plus subsidiaries and takaful windows in 47 countries globally, and the market value was \$ US\$46 billion (IMARC Group, 2020; Sopian and Azmin, 2021). Furthermore, the takaful sector significantly contributes to economic development, which leads to poverty alleviation (Cupri & Cortelezzi, 2025). The takaful market is relatively new as it was introduced in 1999 with the establishment of Amana Takaful Ltd, and comparable with conventional insurance, has a small market penetration in Sri Lanka. Although it has been twenty-six years since Islamic finance started in Sri Lanka, it has been 18 years since it was legally adopted in the Sri Lankan banking and financial industry (Hilmy et al., 2022). Amana takaful PLC was the first takaful company, followed by Ceylinco takaful, Al Falah takaful and HNB takaful assurance under the supervision and regulation of the Insurance Board of Sri Lanka (Presently re-named as Insurance Regulatory Commission of Sri Lanka (IRCSL) with the Insurance

Industrial Act No. 43 of 2000. Amana Takaful PLC is a fully-fledged bank and the market leader in the Sri Lankan market among other takaful operators (Mazahir, Rahman & Ramzy, 2017). Although the Sri Lankan takaful market is comparatively small compared to other countries like Sudan, Malaysia, Pakistan, Saudi Arabia, and Turkey, to compete with the global trend in climate financing and achieve sustainable development goals (SDGs), the insurance sector must undergo a green transformation (McKinsey, 2022). Interestingly, various kinds of policies are offered under general takaful, and some of the products of takaful companies in Sri Lanka are listed in Table 1 below. Nevertheless, ensuring how far those takaful products adhere to green takaful and how they support the Sustainable Development Goals for a sustainable world is difficult. The following table includes the major takaful product areas in the general takaful scheme (Rifas et al., 2023).

Table 1. Summary of General Takaful Products Offered in Sri Lanka

No	Takaful Products	Nature of Policy
01	Takaful Fire Cover	Covers fire and lightning for all assets, including buildings. The fire should be accidental.
02	Takaful Easy Marine	Damage to the vessel and the loss of cargo during import and export.
03	Kiri Govi Sathkara	For agriculture and cattle.
04	TUK TUK FULL, SRC, Takaful Total Drive	Designed for both property and three-wheelers.
05	Takaful Travel Pal	Designed for travellers, covering their property, inconvenient situations, and travellers' illnesses.
06	Takaful Business Cover and Business Interruption Cover	Provide stability for business with all covers included in one business cover. Business interruption cover allows a business to rebuild without any inconvenience.
07	Takaful Navodhaya, Takaful myHome	These cover small portions of insurance, micro insurance and buildings.
08	Engineering Takaful	During the contract period, all steps from commencement to completion of a project are covered.
09	Medical, Employee-related Takaful	Employees' welfare and their medical expenses

Source: Websites of the Takaful Companies in Sri Lanka

Although the takaful operators offer several products, green takaful should be introduced or inserted gradually into the products. These practices would be beneficial to make the takaful industry in Sri Lanka prominent, yet there are many obstacles to the implementation of such concepts. According to the best knowledge of researchers, no studies have been conducted in the field of takaful or takaful products related to green finance and takaful in Sri Lanka. Therefore, this study explores the challenges of introducing green takaful products as a potential climate finance tool in Sri Lanka.

Regarding significance, as conventional insurance supervision regulates the takaful industry in Sri Lanka, takaful market players are automatically forced to comply with all rules of the Sri Lanka Insurance Regulatory Commission. Takaful should have considered the society's well-being and harmless development as well. The research location, Sri Lanka, is not perfectly involved in introducing the zero carbon techniques for several reasons related to the operations. Thus, the research analyses the challenges and hardships in introducing green takaful products rather than the regular takaful policies. The findings of the study will firmly establish fundamental barriers and issues which support the market players. Therefore, the conclusions will disclose the challenges that could be identified in the takaful operation in the Sri Lankan market.

2. Literature review

Climate change refers to the enduring alteration in average weather patterns worldwide. It has been observed that since the mid-1800s, human activities have been responsible for the emission of carbon dioxide and other greenhouse gases into the atmosphere (Pachauri, 2015). This phenomenon has led to a rise in global temperatures,



which has consequently caused long-term modifications to the climate. The Intergovernmental Panel on Climate Change (IPCC) is the United Nations organisation that is tasked with evaluating the scientific aspects of climate change (IPCC, 2022). Sri Lanka, like numerous other countries, experiences the ramifications of global climate change (Chandrapala et al., 2010). The geographical positioning of Sri Lanka, coupled with its extensive array of ecosystems, renders it exceptionally susceptible to the adverse effects of climate change (Khaniya, Gunathilake & Rathnayake, 2021). Several notable aspects through which Sri Lanka is impacted by climate change encompass rising sea levels, extreme weather events, droughts and water scarcity, agricultural impacts, biodiversity loss, health risks, infrastructure vulnerability, etc. The Sri Lankan economy has been most affected by these disasters (Samarasinha, 2020).

The teachings on climate consciousness that can be derived from the Holy Quran and Hadith are of great significance (Köhren, 2021). The Holy Quran, as the central religious text of Islam, provides guidance on various aspects of life, including the environment (Gueye & Mohamed, 2023). It emphasises the concept of stewardship, highlighting the responsibility of humans to care for and protect the Earth. The Holy Quran teaches that the Earth and its resources are a trust from God, and humans are accountable for their actions towards the environment (Wahyudi, 2012). Shabir (2018) explains that in the Holy Quran, it is mentioned that human activities are affected by the Earth's and climate changes.

ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُمْ بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ يَرْجِعُونَ ٤١

"Corruption doth appear on land and sea because of (the evil) which men's hands have done, that He may make them taste a part of that which they have done, so that they may return" (Al Quran 30:41)
(Translation: Muhammad Taqi-ud-Din Al-Hilali & Muhammad Muhsin Khan).

In addition to the Holy Quran, the Hadith are the reported sayings of Prophet Muhammad (PBUH), and offer insights into environmental conservation (Noorhidayati, 2022). The Hadith emphasises the importance of preserving natural resources, avoiding wastefulness, and promoting sustainable practices (Zafar, 2023). They encourage believers to be mindful of their consumption patterns and avoid excessively exploiting the Earth's resources.

Climate finance provides funding at the national or international level, sourced from public, private, and alternative channels, intending to support mitigation and adaptation measures that aim to combat climate change (Liska, 2014; Negreiros, 2021). While there is no singular definition of climate finance, the UNFCCC standing committee on finance offers the most authoritative interpretation: "Climate finance endeavors to diminish emissions and improve the absorption of greenhouse gases, whilst also striving to reduce the susceptibility of human and ecological systems to adverse impacts of climate change, whilst maintaining and augmenting their resilience" (UNFCCC, 2019).

According to the European Insurance and Occupational Pensions Authority (2023), every sector of the economy conveys climate risks to its respective insurers. Consequently, climate change serves as a stress test for the insurance industry, which is the largest in the world, generating revenues of \$4.6 trillion and accounting for 7% of the global economy. The losses incurred by insurance companies due to weather and climate-related incidents are becoming increasingly complex, encompassing property damage, business interruptions, health implications, and legal actions against polluters (Climate Guide, 2023).

The Islamic finance industry has demonstrated its adaptability and commitment to environmental concerns through the emergence and widespread adoption of green Sukuk and Sharia-compliant green and sustainable investment products (Jaafar & Brightman, 2022). However, Nazri et al (2020) explain that the takaful industry has yet to make significant strides in this area. While insurance companies are working to incorporate ethical and environmentally conscious practices into their corporate social responsibility, they are also developing risk management products such as climate risk-related insurance, which may have negative consequences (Noor, 2022). In addition, Sallemi & Zouari (2023) explain that by being environmentally friendly and responsible, takaful operators can manage their impact on people, clients, suppliers, society, and the environment to deliver increased value to all their stakeholders. To begin with, the takaful operators can incorporate concern for green issues into simpler things, such as designing corporate practices to be environmentally safe and sustainable, such as using less paper, reducing their carbon footprint, etc. While these steps seem small, they can have a huge aggregate effect if they are incorporated by the entire industry (Hassan, 2019).



The alignment of Islamic insurance principles with environmentally sustainable practices, known as green takaful, can substantially contribute to climate finance (Harahap, Risfandy & Futri, 2023). By serving as a mechanism that supports and promotes climate-conscious initiatives, green takaful can effectively reduce climate-related risks and facilitate responsible financial transactions (Khan, 2023). Muhamat et al. (2017) explains that the concept of green takaful establishes a strong connection with climate finance, as it integrates Islamic insurance principles to foster environmentally sustainable practices and will contribute to climate finance through risk mitigation, climate-resilient projects, carbon reduction, economic resilience, and alignment with sustainable development goals (Brescia et al., 2021). Green takaful serves as a crucial link between the principles of Islamic finance and the objectives of climate finance (Muhamat et al., 2017).

Notably, some studies have been conducted on green takaful and climate finance. Accordingly, Muhamat et al. (2017) undertook a survey of green takaful as a climate finance tool, and they found that the greenhouse gas (GHG) effect is a global environmental problem that necessitates participation and contributions from every nation to lessen the effect and improve the state of the environment globally. According to this research, there are two methods used to accomplish this: (1) a 35% reduction on the unconditional basis and (2) a 10% increase in climate finance and technology. Regarding its potential to assist the government in reducing carbon emissions, takaful is the focus of this paper as a tool for climate finance. Furthermore, it offers Malaysian takaful operators new commercial opportunities. Some suggestions are offered based on the practices of insurance companies in developed countries.

Obaidullah (2017) explains that one of his studies on managing climate change under the role of Islamic finance, the environmental preservation and sustainability are in line with Islamic finance's goal of advancing societal well-being. The SDGs and the shariah objectives (Maqasid al-shariah) are clearly in alignment when it comes to environmental protection, climate management, and adaptation as organisational goals. The study aimed to develop the argument further and show how Islamic finance can make a significant contribution to the global effort to find climate finance solutions. Further, they found that if subsidies are not available to cover the additional costs associated with clean technologies, Islamic social funds may be able to make a significant contribution.

Another study was conducted by Raeni et al. (2022) on mobilising Islamic funds for climate actions from transparency to traceability and concluded that the countries have begun to include green bonds in their portfolios of sovereign bonds because of mobilising enough financial resources for low-carbon development. According to the findings, the effectiveness and integrity of these financial instruments are still in practice by various countries. Furthermore, Nobanee et al. (2021) studied green and sustainable life insurance and observed that businesses all over the world are currently becoming more concerned about implementing sustainable practices. It has been found that risk management makes a significant contribution to the encouragement of sustained business operations. To ascertain the direction of the current trend in this area, it is intended to review published articles focusing on the role of risk management in promoting business sustainability initiatives and its advancement. The research findings revealed four keyword clusters in the titles of the gathered articles. They identified the journals, nations, authors, subject areas, and organisations most interested in the topic and its popular research period. Based on this research output, suggestions for future research were made, such as expanding the number of databases for the data collection phase and utilising the bibliometric analysis approach to bibliographic coupling relations.

However, the Sri Lankan risk mitigation and takaful industry still follows the traditional way; they just offer the products rather than consider climate financing. It seems that the takaful companies provide all general family takaful products. According to the studies conducted in some other countries, they have already started to discuss and introduce new and green policies through out the market, but in Sri Lanka, the regulator of the insurance industry IRCSL need to focus on the climate change and better to circulate of new guidelines of the introduction of green takaful policies under the green finance. Thus, this study will try to fill the gap in the insurance and takaful market in Sri Lanka.

3. Methodology

The research uses a qualitative study method involving an inductive research approach (Punch, 2014). Data and information for this study focus on the green takaful concept in the takaful sector in Sri Lanka, and it delves into the challenges in a descriptive manner. Data for the research were collected from industry practitioners, executive-level staff, and academicians in the takaful scheme, and the respondents were selected using a convenience sampling technique (Ilker et al., 2016). Convenience sampling was used to identify the respondents; this technique



is common in social science research (Ilker et al., 2016), applied to fewer workers in a limited timeframe and is a cheaper method. Respondents are thus selected according to the researcher's convenience, returning more reliable data than from a large population (Gravetter and Forzano, 2012; Rifas et al., 2023). As a primary source of data collection, 26 structured interviews were conducted, including 14 executive-level staff of takaful operators (EMP), 06 academicians (ACD), and 06 shariah and takaful experts (EXP) in Sri Lanka, and it's enough for qualitative studies (Bryman, 2012).

Regarding the rationale behind the selection, fourteen executive-level staff were selected from Amana takaful-general (5), Amana takaful-family (3), HNB takaful assurance (3) and Al-Falah takaful (3). Six academicians (ACD) from the Southeastern University of Sri Lanka and the Institute of Bankers of Sri Lanka (IBSL) were also selected. Additionally, six members of the Shariah advisory committee and experts (EXP) from the above takaful market players were selected for the interview. The study location, Sri Lanka, does not have a wider and developed takaful market; thus, it has minimal resources for the data collection process. Therefore, researchers are convinced that sufficient data could be obtained from the above three respondents to achieve the objective of the study.

The researchers had already prepared a set of structured interview questions to obtain data, and the ethical view of the interview questions was checked. Similarly, the participants were already (before the interview) instructed on none of the ethics-based questions after reviewing the questions by Dr. MB. Fowzul (Head, Department of Islamic Studies, Faculty of Arts and Culture, Eastern University, Sri Lanka). The interviewees were allowed to skip the question(s) once they felt inconvenienced in responding. The interviews were conducted at the residences of the interviewees. The interviewees were provided with an overview of the research project by the authors. Each interview lasted between 20 and 35 minutes. The entire interview was recorded using a professional recorder with the respondents' permission, and they were promised not to use it for any other purposes.

The member checking technique has been applied to data validation in this research. Out of three types of member checking, namely 'immediately after the data collection', 'during data analysis' and 'after data analysis', the immediately after the data collection was employed. The respondents were asked whether the statements for the questions were correct. The data collected were analysed using thematic analysis, which is a common, familiar and widely used method in social sciences research (Braun & Clarke, 2006). 'Thematic analysis' is a consistent and recognised method for qualitative data analysis with good organisation and reporting. It educates the way of actual points of interviewees under specific themes towards the research question (Banister et al., 1994).

According to Braun and Clarke (2006), indeed, this analysis is a process of encoding qualitative information with themes established through codes with reliability. As per the determination of 'accuracy' in coding reliability, the thematic analysis contains two ways of reliability, namely consensus coding and intercoder reliability. First, Consensus coding, where researchers code the same transcripts with the same code and compare results as a group. Second, Intercoder reliability measures how much researchers agree when coding the same data. These two methods are used to sidestep the potential bias of individual researchers by ensuring a collective, uniform coding approach and a blind coding mechanism. The researchers are very aware and careful in aiming for 'accuracy' as this qualitative data may have a complex, interpretive nature.

In addition, thematic analysis permits the interviewer to do analysis justice, accurately and soundly understand the research questions, and interpret the research questions by following six (6) steps while analysing the data. Thematic analysis consists of six steps, from data organisation to report writing. For instance, (1) data familiarisation: transcribe the data, reading till good understanding and gain idea, (2) initial code: note down the related codes of small information, collate the with relevant data, (3) search for themes: establishing relevant themes according to created small codes, (4) review of themes: inspect the themes that either created themes based on potential codes or not, and generate map towards analysis, (5) define and naming themes: refine every themes and generate the definition with name for those, (6) and report producing: generate the final report from the review themes with clear notice of the themes (Braun & Clarke, 2006). According to thematic analysis, first of all, interview data, which is in the form of voice, is transcribed in written form. Later, familiarisation with data, creating codes, and other steps are applied individually to the ultimate report, which adopts a descriptive style (Rifas, Hilmy & Saujan, 2023). For example, a student's (Ayesha) response to a question from an interviewee is as follows.

Question: "Tell me how your English teacher supports your learning." Reply of Ayesha: "He teaches me very well. He motivates and guides well. He is a kind teacher and he never comes late. He corrects my exercise and mistakes. He gives me a gift." For example, Ayesha mentioned in her response to one of the interview questions regarding her teacher's support; hence, this was coded as teaching, guiding, correcting mistakes, love, kindness



and giving gifts were created as codes. Similarly, every reply may bring many codes. Further, in text segments across the various datasets coded portions, as in the above example, were labelled as teacher's teaching, love, kindness, motivation and guidance. These codes were "aggregated together to form a major idea" (Creswell, 2007), which were grouped as *Teachers' Supports* as a theme.

4. Results

The green finance concept aims to achieve sustainable development goals through financial services and environmental protection mechanisms. This emerging concept seeks to promote sustainable development and address environmental concerns within the insurance industry. The discussion part of this study deeply delves into the challenges of implementing green takaful operations in Sri Lanka. The researchers got different replies with mixed information from the respondents during the interviews about the challenges of the green takaful industry. Soon after the collection of the data, the transcribing and recording process was carried out, followed by the challenges and other information being categorised to separate subsections easily.

Furthermore, from the responses (from the data analysis), the researchers identified five key challenges: regulatory, risk-related, market awareness, cultural, and learning and development challenges. These issues and challenges in the Sri Lankan takaful market lead to removing irrelevant operations and barriers and finding what participants have inside their minds, which would help enhance the takaful industry. The researchers attempt to explain these challenges in a way that is easy to understand. Accordingly, the challenges have been organised as follows. Firstly, it highlights the regulatory challenges for implementing green takaful in Sri Lanka. The second problem is related to risk, which deals with a risky environment, while takaful products will undergo green products. Market awareness challenges are focused as the third issue, cultural challenges deal with the religious and their customs and finally, learning and development challenges while implementing green takaful products rather than utilising existing products either with modification or introducing new takaful products.

4.1 Regulatory Challenges

Regulatory challenges are a significant issue in the Sri Lankan takaful sector. There is a need for regulatory support to encourage the development and implementation of green takaful products. This support is crucial in ensuring that the necessary frameworks and guidelines are in place to promote and regulate these products effectively. However, many takaful practitioners are willing to introduce particular regulations or guidelines from relevant regulatory bodies, but cannot impose those and must obey the regulatory body called IRCSL. One of the respondents to this study provided the following statement:

"If there is a need to promote the concept of green insurance, regulatory authorities should implement laws and regulations in the insurance market. Without such regulations, the market may not automatically shift towards green insurance products. This highlights the importance of regulatory intervention in promoting sustainable practices in the insurance industry." (ACD: 02)

The statement provides the main challenge faced by takaful companies in implementing green takaful operations in Sri Lanka. One of the main obstacles to the spread of the green takaful concept is the lack of support from regulatory authorities. If the insurance regulatory authorities promote the green concept in the market, it will encourage the takaful entities to initiate green takaful products.

Another similar statement provided is,

"Regulators should empower market developments in every market. While green concepts are popular in other countries, they are not yet considered in our country. Without regulatory support, it is difficult to initiate new products during financial crises. The high risk involved in such situations makes it challenging to introduce new products" (EXP: 01)

The above statement also provides some of the core challenges faced in the insurance sector in implementing green takaful operations in Sri Lanka, similar to ACD: 03. That is, regulatory support for initiating green takaful products.



4.2 Risk-Related Challenges

Green takaful products may face unique risks, such as the volatility of green investments and the potential for greenwashing (misleading claims of environmental friendliness). Takaful operators need to implement effective risk management strategies to mitigate these risks and ensure the long-term sustainability of the products. The statement made by the respondent is cited below;

“The complexity and risk associated with product development pose challenges in initiating green takaful opportunities in Sri Lanka. Green takaful refers to environmentally friendly insurance products promoting sustainable practices. Sri Lanka, however, faces difficulties in introducing such opportunities due to the intricate nature of product development and the associated risks. This implies that there are obstacles to creating and implementing insurance products that align with green principles in the Sri Lankan market. (ACD-01; EXP-02)

This statement indicates that due to the high-risk situation of the economy of Sri Lanka following the financial crisis, new initiatives in the takaful sector will face a risky environment. This challenge is one that almost every industry, including the insurance sector, is facing. Furthermore, this study highlights the financial challenges associated with implementing green takaful operations. These include the high costs of incorporating environmentally friendly practices into the insurance operations, such as investing in renewable energy sources and adopting sustainable business models. Additionally, it is undeniable that the lack of access to specialised expertise, market awareness, and technology in green insurance poses a hurdle for the successful implementation of green takaful in Sri Lanka.

4.3 Market Awareness Challenges

Market awareness plays a crucial role in successfully initiating green takaful products. Insurance companies need to understand the market demand and customer preferences when designing and offering these products. Takaful companies need to understand customer preferences, conduct market research, and educate customers about the benefits of these environmentally friendly insurance products. Collaboration with environmental organisations and government agencies can further promote the growth of the green takaful market. Importantly, according to Rosvally (2010), environmental issues create opportunities, including new green businesses based on the current scenario, which are directed towards clean energy issues. However, Islamic financing cannot be implemented without stakeholders' support and assistance. According to the findings of Johan (2022), the green takaful concept might be new to the Sri Lankan takaful market; thus, the practitioners, regulators, and business actors should educate the people about the green concept related to the takaful scheme. The process of educating the public about takaful products and their significance should be arranged by the business parties (practitioners) and shariah supervisory bodies (Mazahir, Rahman & Ramzy, 2017; Rifas et al., 2023). Many people and stakeholders may not know the concept of green takaful. This lack of awareness is elucidated by the statement made by one of the respondents as follows;

“ Market awareness can pose a significant challenge when it comes to initiating green takaful opportunities in Sri Lanka. This is because the concept of takaful insurance is still relatively new in the country, and many people are not familiar with it. Additionally, there is a lack of understanding about the benefits of green takaful, which can make it difficult to generate interest and support for these initiatives.” (EMP: 01)

4.4 Learning and Development Challenges

The learning and development challenges associated with green takaful products are significant in initiating green takaful products. This implies that there is a need for specialised knowledge and skills to design, market, and manage these products effectively. The following statement of this study relates to two kinds of respondents;



" Without proper knowledge and training, it becomes difficult to establish and promote green takaful initiatives in Sri Lanka. This means that there is a limited availability of resources and programs that can educate and train individuals in green takaful, a form of Islamic insurance that promotes environmentally friendly practices." (EMP: 05)

A similar response to the above statement was received from two academics, ACD 3 and ACD 6. The interviewees' reactions also emphasise the importance of collaboration and partnerships between various stakeholders, including government bodies, insurance companies, ethnic communities, and environmental organisations. Such collaborations can help address the challenges by fostering knowledge sharing, capacity building, and creating a supportive ecosystem for green takaful operations. Further, today, many universities and higher educational institutions worldwide offer several degrees and academic programmes regarding the environment, such as environmental sciences, environmental law, climate change and environmental insurance. The climate and environmental insurance courses are also instructed by Adjunct Professor John G. Nevius (Rosvally, 2010). In terms of degree programmes, some of degree offered in the world such as Bachelor's Degree in Agricultural Economics in Ankara University; Master's Degree in Agricultural Economics (Agricultural Business Administration; Rural Valuation, Land, Natural Resources and Environmental Economics) in Ankara University Graduate School of Natural and Applied Sciences, Master's Degree Environmental Management (Natural Resources, Environmental Economics, Management and Tools) MED-CAMPUS, International Technological University; Doctor of Philosophy in Agricultural Economics (Agricultural Business Administration; Rural Valuation, Land, Natural Resources and Environmental Economics) Department of Agricultural Economics; Post-Doctoral Research Rural Economics, Rural Land Management in Tyne University.

4.5 Cultural Challenges

The introduction of green takaful products faces cultural challenges due to the perception that environmental issues are not a priority in some societies. This mindset can hinder the acceptance and adoption of green initiatives. One of the statements of a respondent of this study is provided as follows;

"...Cultural and ethical factors may pose a challenge to the initiation of green takaful opportunities in Sri Lanka. The country's predominantly Buddhist population lacks awareness and understanding of even the takaful concept. There is a need for education and awareness campaigns to promote the benefits of takaful and its compatibility with Islamic principles." (ACD: 01)

The responses of interviewees emphasise the fact that the introduction of green takaful products encounters cultural challenges due to the perception of environmental issues, lack of awareness, religious considerations, and the need for education and collaboration. Overcoming these challenges requires effective communication, education, and partnerships to promote sustainable practices within the takaful industry. Rifas et al. (2023) found that religion is also a major influential factor in takaful among the business entrepreneurs in Sri Lanka.

All challenges reveal an important message regarding the implementation of the green concept in the field of takaful, that is, what kinds of challenges and issues exist in the takaful market. Takaful is the sector which is currently considered a significant concept among Muslims and non-Muslims in many countries, like Sri Lanka. The researchers believe that the Islamic insurance sector in the Sri Lankan insurance industry has been misunderstood conceptually. Due to the lack of greater penetration in the insurance industry, it is imperative to broaden its presence in the risk mitigation market. Further, according to the findings, the takaful sector still faces several challenges in surviving in the insurance market, including green takaful. As per the regulatory issue, Sri Lanka is a Muslim minority country where, in general, the conventional financial system is practised.

Table 2. Summary of Challenges Encountered throughout the Study

Identified Challenges	Supportive Interviews
Regulatory challenges	ACD: 2, ACD: 3, EXP: 1
Risk-related challenges	ACD: 2, EXP: 2
Market awareness challenges	EMP: 1



Learning and Development Challenges	ACD: 3, ACD: 6, EMP: 5
Cultural challenges	ACD: 1, EXP: 3

Source: Interview Data during the Research Work

5. Discussion

The takaful products are introduced among the policyholders even though the takaful scheme in Sri Lanka is still under development and has smaller market penetration (Rifas et al., 2023). The regulatory perspective should have special concern based on its nature and significance to economic growth. This sector continuously contributes as it investigates the risk mitigation mechanisms, and it reduces the threshold level of the policyholders' capital. Given the significance of these factors in the takaful industry, some arrangements are to be considered to uplift the takaful industry, such as removing the barriers and challenges. Regarding challenges, the regulatory insurance system, including the takaful sector in the Sri Lankan context, differs from other countries such as Pakistan and Malaysia, where a dual financial system is applicable. Still, the takaful scheme is forced to comply with the conventional regulator. This scenario leads the Islamic insurance industry in Sri Lanka to face several issues and challenges regarding takaful, where the regulatory scenario is not entirely focused on Shariah compliance, thus the public also has to travel with doubts.

According to Mazahir, Rahman & Ramzy (2017), takaful practitioners need to organise more educational sessions, workshops, and seminars regarding takaful policies. The lack of awareness programmes regarding the takaful scheme had a negative impact, as the public is not involved in the takaful scheme (Rifas et al., 2023). Negative views on the takaful scheme create a bigger challenge in enhancing the risk mitigating sector with shariah compliance for the whole community worldwide. The researchers believe that all difficulties would lead towards an uncomfortable takaful scheme, which will be the barriers in overcoming challenges and issues in takaful education with professionalism. However, the researchers in Islamic insurance found that, from several studies, Sri Lankan takaful and other Islamic financial institutions face several challenges and hardships in operating and surviving in the conventional market.

Furthermore, these challenges provide a significant message to the business and marketing team of the takaful practitioners. Thus, the takaful operators and stakeholders have to seek solutions and alternative approaches towards these five kinds of challenges. The researchers firmly believe that these challenges can pose disadvantages that may significantly hinder the development of the Takaful market in the future among conventional competitors and practitioners. Takaful market players will look into these challenges. Accordingly, all takaful players might be prepared to motivate through research platforms to measure the takaful industry, considering these kinds of academic research works regarding takaful business in the takaful and green takaful schemes.

In this regard, takaful market players must make collective decisions to explain takaful regulatory systems and bodies to the public. The IRC SL may instruct via circulars the insurance and takaful companies regarding green products that are more beneficial and sustainable, throughout risks faced by the industry, policyholders, society, and the country.

6. Conclusion

In conclusion, the challenges of implementing green takaful operations in Sri Lanka revolve around the lack of awareness, the regulatory framework, financial constraints, and the need for collaboration. Overcoming these challenges requires concerted efforts from all stakeholders to promote green takaful adoption and contribute to sustainable development in Sri Lanka's insurance industry. Implementing green takaful products in Sri Lanka faces several challenges. Firstly, there is a lack of awareness and understanding among the public about the concept of green takaful and its benefits. This hinders the demand for such products and makes it difficult for insurance companies to promote and sell them. Secondly, the regulatory framework in Sri Lanka may not be fully supportive of green takaful products. There might be a need for specific regulations and guidelines to govern these products, which currently may not exist or may not be comprehensive enough. Lastly, consumer preferences and cultural factors may also pose challenges to the implementation of green takaful products.

In conclusion, the challenges to implementing green takaful products in Sri Lanka include a lack of awareness, regulatory limitations, difficulties in sourcing and underwriting, limited availability of green investments, and



cultural factors. Accordingly, the challenges, namely regulation, risk-related, market awareness, learning and development, and cultural, are identified in the green takaful operations. Overcoming these challenges will require concerted efforts from insurance companies, regulators, and other stakeholders to promote and develop the country's green takaful market.

However, the implications and contributions of the study can provide different directions to the takaful regulatory bodies, takaful market players, takaful companies, policy makers and theorists. Importantly, the learning and awareness sessions related to the challenges around the implementation of green takaful products create new business opportunities that will fill the gap between the available products and expectations. Large-scale companies and factories have especially demanded Environmental liability takaful policies. Thus, it leads the business entrepreneurs to understand how they can be involved in sustainability in the business and society. Accordingly, the next generation will be protected from harmful companies and enterprises. Eventually, business ventures that do not harm the community can contribute to socio-economic development through green products.

Regarding managerial implications, the takaful market operators face challenges in their operations in the takaful sector. Particularly, these five challenges are bigger barriers to the people involved and to enhancing the current takaful market penetration in the Muslim minority context. As the researchers hope, the green takaful operation will never fail among the business entrepreneurs and individuals. Under the domination of conventional insurance, takaful policy makers with takaful operators will be able to align new green takaful policies with the Shariah. Significantly, every challenge identified through this study declares the impossibilities of the future takaful journey. Further, it may contribute to establishing a common regulatory institution for Islamic financial institutions, including the takaful scheme. Therefore, these major issues must be discussed at the top level of decision-making forums to enhance the takaful participants, which will lead to the long life of the takaful business, competitively compared to insurance in Sri Lanka. The study uses a unique and modern concept of green takaful products, especially regarding the challenges. Future researchers can consider this concept and how it can be studied in different directions under the risk mitigation mechanism.

Finally, the researchers suggest that a common Shariah Supervisory Body for takaful companies in Sri Lanka under the IRC SL, regulatory reforms, which will provide Islamic principles and support in making regulations for the takaful companies. The takaful companies may approach the takaful regulator to establish a separate guideline for takaful players. This common shariah body will instruct the public on the new and existing takaful products, which surely would be believed by the customers rather than their shariah board. Moreover, it can arrange several teaching sessions with takaful experts, including foreign scholars and educational campaigns, and publish a common notice regarding the green takaful policies and their significance through CSR or by establishing an education and knowledge marketing department. Regarding risk-related challenges, the relevant authorities and companies should explain to the public that insurance and takaful aim to mitigate the risks. Future researchers in the takaful sector may conduct further studies in Sri Lanka's takaful and green takaful sectors. As this study has been conducted using a qualitative method in an inductive approach, context, quantitative methodology, takaful policies, and regulations can be considered in future research.

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Glossary

ACD- Academic
EXP- Shariah & Expert
EMP- Employee



References

- Abdusamat, Sodikov, Z. R., & Batirova, N. S. (2021). Ways to Improve Integration of Uzbekistan in Global Financial Services with the Participation of Takaful Companies in the Conditions of Development of the Digital Economy. *The 5th International Conference on Future Networks & Amp; Distributed Systems*, 23(5), 5-7. <https://doi.org/10.1145/3508072.3508159>
- Alam, A., (2023). History and Development of Takaful Research: A Bibliometric Review. *Journal of Islamic Banking and Finance*, 8b (11), 235-247. <https://doi.org/10.1177/21582440231184852>
- Ansari, Z. (2022). A review of 20 years of takaful literature using a systematic method. *Asian Journal of Economics and Banking*, 6(1), 2–25. <https://doi.org/10.1108/ajeb-08-2021-0100>
- Arvian, Y. (2018). Sri Mulyani point that Sharia Capital Market Alternative for SDGs. <https://bisnis.tempo.co/read/1076244/sri-mulyani-menilai-pasar-modal-syariah-alternatif-untuk-sdgs/full&view=ok>.
- Atlas Magazine. (2007). Evolution of Takaful insurance in Africa, Asia and the Middle East. <https://www.atlas-mag.net/en/article/emergence-and-evolution-of-takaful-insurance>
- Aziz, A. H. A. (2022). Islamic finance and the mission to net zero. *Journal of Islamic finance*, 67(1), 70-93. <http://210.19.122.171:8081/handle/INCEIF/3560>
- Banister et al., *Qualitative Methods in Psychology: A Research Guide*, (Bekshire: Open University Press, 1994), 57.
- Braun, V. and Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, 3, 77-101.
- Brescia, V., Saad, A.A., Hasan, R., Alhabshi, S.M.S.J., & Lanzalonga, F. (2021). Exploring Sustainability from the Islamic finance Perspective. *European Journal of Islamic Finance*, 19(special issue), 45-53. ISSN: 2421-2172.
- Bryman, A. (2012). *Social Research Method* (4th Ed.). New York, United States: Oxford University Press Inc.
- Budiasa, I.W. (2020). Green financing for supporting sustainable agriculture in Indonesia. In *IOP Conference Series: Earth and Environmental Science*, 518(1), 12-42. <https://doi.org/10.1088/1755-1315/518/1/012042>
- Chandrapala, L., Eriyagama, N., Smakhtin, V., & Fernando, K. (2010). Impacts of climate change on water resources and agriculture in Sri Lanka: A review. *ResearchGate*. https://www.researchgate.net/publication/241760953_impacts_of_climate_change_on_water_resources_and_agriculture_in_sri_lanka_a_review_and_preliminary_vulnerability_mapping
- Climate Guide. (2023). The insurance industry is susceptible to the impacts of climate change Ilmasto-opas. <https://www.climateguide.fi/articles/the-insurance-industry-is-susceptible-to-the-impacts-of-climate-change>
- Cupri, A., & Cortelezzi, F. (2025). The takaful between economics, law, and religion. Considerations in relation to Islamic contract law and insurance transactions. *European Journal of Islamic Finance*, 12(1), 1–10. <https://doi.org/10.13135/2421-2172/10217>
- European Insurance and Occupational Pensions Authority. (2023). The role of insurers in tackling climate change: challenges and opportunities. *The role of insurers in tackling climate change: challenges and opportunities* https://www.eiopa.europa.eu/publications/role-insurers-tackling-climate-change-challenges-and-opportunities_en
- Federica, G. (2022). Climate Action from Abroad: Assessing Mass Support for Cross-Border Climate Compensation. *Illinois Global Institute Center for Global Studies*. <https://cgs.illinois.edu/news/2023-10-12t180944/federica-genovese-climate-action-abroad-assessing-mass-support-cross-border>
- Gravetter, F.J. & Forzano, L.B. (2012), *Research Methods for Behavioural Science*, 4th ed., Cengage
- Learning, Wadsworth.Gueye, M. K., & Mohamed, N. (2023). An Islamic perspective on Ecology and Sustainability. In *IntechOpen eBooks*. <https://doi.org/10.5772/intechopen.105032>
- Gundogdu, A.S. (2018). An inquiry into Islamic finance from the perspective of sustainable development goals. *European Journal of Sustainable Development*, 7(4), 381-381.
- Harahap, B., Risfandy, T., & Futri, I. N. (2023). Islamic Law, Islamic Finance, and Sustainable Development Goals: A Systematic Literature Review. *Sustainability*, 15(8), 6626. <https://doi.org/10.3390/su15086626>
- Hassan, H. A. (2019). Takaful models: origin, progression and future. *Journal of Islamic Marketing*. <https://doi.org/10.1108/jima-04-2018-0078>
- Hilmy, H.M.A., Hassan, R., Moujooth, H., Rooley, M. S. A. R., & Nimsith, S. I. (2022). Legal aspects of Shariah governance practices in Sri Lankan Islamic Financial Institutions: a literature review. *Journal of Enterprise and Development*, 4(1), 99–113. <https://doi.org/10.20414/jed.v4i1.4920>
- Howdon. (2019). Takaful insurance: definition, concept and functioning of the Islamic insurance. Retrieved November 13, 2023, <https://www.atlas-mag.net/en/article/takaful-insurance-0>
- Husin, M. M., & Rahman, A. A. (2016). Do Muslims intend to participate in Islamic insurance? Analysis from theory of planned behaviour. *Journal of Islamic Accounting and Business Research*, 7(1), 42-58.
- Ilker, E., Sulaiman, A.M. & Rukayya, S.A. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4.



- IMARC Group (2020), "Shrimp market: global industry trends, share, size, growth, opportunity and forecast 2020-2025", available at: www.imarcgroup.com/takaful-market
- Intergovernmental Panel on Climate Change. (2022). Annual Report of Intergovernmental Panel on Climate Change. *Sixth Annual General meeting New York*. <https://archive.ipcc.ch/#:~:text=The%2043rd%20Session%20of%20the,its%20to%201.5%20%C2%B0C>.
- Islamic Financial Service Board (2018). *Islamic financial services industry stability Report-2018*. Islamic Financial Services Board, 41-43.
- Islamic Relief Worldwide Organization. (2022). *International Islamic Climate Change Symposium*. <https://islamic-relief.org/publications/international-islamic-climate-change-symposium-2015/>
- Islamic Sustainable Finance and Investment. (2023). Malaysian Takaful Association to introduce sustainability fund under Fund4Cause program. *Islamic Sustainable Finance & Investment*. <https://islamicsustainable.com/malaysian-takaful-association-to-introduce-sustainability-fund-under-fund4cause-program/>
- Jaafar, A. Z., & Brightman, M. (2022). From structure to purpose: green and social narratives, and the shifting morality of Islamic finance in Kuala Lumpur. *Sustainability*, 14(9), 5430-5433. <https://doi.org/10.3390/su14095433>
- Jaffer, F. (2017). Takaful (Islamic Insurance): Concept, challenges, and opportunities. [https://www.semanticscholar.org/paper/Takaful-\(-Islamic-Insurance-\)-A-Concept-%2C-%2C-and-Ismail-Noor/092b5539ae699fe23385b167caa55846b97b98dd](https://www.semanticscholar.org/paper/Takaful-(-Islamic-Insurance-)-A-Concept-%2C-%2C-and-Ismail-Noor/092b5539ae699fe23385b167caa55846b97b98dd)
- Jimoh, A.T., Kolawole, K.D., & Bamigbade, D. (2024). Islamic microfinance as a panacea for poverty alleviation. *European Journal of Islamic Finance*, 11(1), 17-30. <https://doi.org/10.13135/2421-2172/9414>
- Johan, S. (2021). Determinants of corporate social responsibility provision. *The Journal of Asian Finance, Economics, and Business*, 8(1), 891-899. <https://doi.org/10.13106/jafeb.2021.vol8.no1.891>
- Johan, S. (2022). Complementary or Substitute: Sharia Financing, Green Financing, and Sustainable Development Goals?. *International Journal of Sustainable Development and Planning*, 17(2), 487-495. <https://doi.org/10.18280/ijstdp.170213>
- Khan, M. A. (2023). Takaful: An Ethical and Climate-Resilient Paradigm for Finance. <https://www.linkedin.com/pulse/takaful-ethical-climate-resilient-paradigm-finance-muhammad-ali-khan>
- Khaniya, B., Gunathilake, M. B., Rathnayake, U. (2021). Ecosystem-Based adaptation for the impact of climate change and variation in the water management sector of Sri Lanka. *Mathematical Problems in Engineering*, 1-10. <https://doi.org/10.1155/2021/8821329>
- Köhrsen, J. (2021). Muslims and climate change: How Islam, Muslim organisations, and religious leaders influence climate change perceptions and mitigation activities. *WIREs Climate Change*, 12(3), 55-78. <https://doi.org/10.1002/wcc.702>
- Liska, A. (2014). Climate Change and Its Implications for the Insurance Industry. *Journal of Financial Studies*, 2(2), 768-793. <https://digitalcommons.unl.edu/bseliska/20/>
- Maisaitulaidawati Md Husin, "Intention to participate in family takaful in Malaysia" (Doctor of Philosophy Dissertation, Academy of Islamic Studies, University of Malaya, Kuala Lumpur, 2015).
- Mazahir, S., Rahman, A. A., & Ramzy, M. I. (2017). An Analysis on Takaful Operation Under Conventional Regulator: A Sri Lankan Experience. *Katha*, 13(1), 54-72. <https://doi.org/10.22452/katha.vol13no1.3>
- McKinsey, (2022). Capturing the climate opportunity in insurance. *McKinsey & Company*. <https://www.mckinsey.com/industries/financial-services/our-insights/capturing-the-climate-opportunity-in-insurance>
- Mirza (2023). Takaful contribution share of the total insurance sector. *Country report of green finance*. <https://www.statista.com/statistics/1264763/takaful-contribution-share-total-insurance-sector-country/>
- Muhamat, A.A., Jaafar, M.N. & Syed Alwi, S. F. (2017). Green Takaful Claims: An experience of Takaful operator in Malaysia. *Journal of Emerging Economies and Islamic Research*, 5(4), 18-26.
- Muslehuddin, M. (1974). *Economics and Islam*. Islamic Publications. Lahore. vii, 112
- Mustafa, A. & Ab Rahman, A. (2023). The Significance of Ijtihad in Resolution Syariah: Towards a Takaful Legal Framework in Malaysia. *European Journal of Islamic Finance*, 10(3), 9-19. ISSN: 2421-2172.
- Nazri, M. A., Omar, N. A., Aman, A., Ayob, A. H., & Ramli, N. A. (2020). Corporate Social Responsibility and Business performance in takaful Agencies: The moderating role of objective environment. *Sustainability*, 12(20), 8291. <https://doi.org/10.3390/su12208291>
- Negreiros, P. (2021). Catalysing climate finance to support a low-carbon transition. *Open Edition Journal*, 1(2), 1867-8521.
- Nobanee, H., Alqubaisi, G. B., Alhameli, A., Alqubaisi, H., Alhammad, N., Almasahli, S. A., & Wazir, N. (2021). Green and Sustainable Life Insurance: A Bibliometric review. *Journal of Risk and Financial Management*, 14(11), 563. <https://doi.org/10.3390/jrfm14110563>
- Noor, H. (2022, February 15). *Role of Takaful industry in addressing the green issues*. <https://www.linkedin.com/pulse/role-takaful-industry-addressing-green-issues-hina-noor>
- Noorhidayati, S. (2022). Understanding Hadith on Nature Conservation: An Effort to Reinforce Ecological Piety. *ICIGR Conference Proceedings*.
- Obaidullah, M. (2017). Managing climate Change: The role of Islamic Finance. *Social Science Research Network*. <https://doi.org/10.2139/ssrn.3303687>
- Olaide, K.M., & Kareem, I.A. (2021). Islamic Financing as Mechanism for Socio-Economic Development: A Conceptual Approach. *The Journal of Management Theory and Practice (JMTPT)*, 12(2), 94-98.



- Pachauri. (2015). Energy, Environment and Sustainable Development in South Asia on JSTOR. www.jstor.org/stable/24397892
- Punch, K. F. (2014). *Introduction to social research: Qualitative and quantitative approach* (4th ed.). Singapore: SAGE Publication Asia-Pacific Pte Ltd.
- Raeni, R., Thomson, I., & Frandsen, A. (2022). Mobilising Islamic Funds for climate actions: From transparency to traceability. *Social and Environmental Accountability Journal*, 42(1–2), 38–62. <https://doi.org/10.1080/0969160x.2022.2066553>
- Rifas, A. H., & Jahan, S. N. (2021). Paddy Farmers' intention to participate in agriculture takaful in Sri Lanka: a case study. *Talaa-Journal of Islamic Finance*, 1(2), 56–69. DOI:[10.54045/talaa.v1i2.345](https://doi.org/10.54045/talaa.v1i2.345)
- Rifas, A.H., Ab Rahman, A. & Buang, A.H. (2023). Appraising the Universal Concepts of Insurance and Takaful: Similarities and Differences, *UMRAN- International Journal of Islamic and Civilizational Studies*, 10(1), 1-15. DOI: [10.11113/umran2023.10n1.571](https://doi.org/10.11113/umran2023.10n1.571).
- Rifas, A.H., Ab Rahman, A., Buang, A.H. & Talib, M.A. (2023). Involvement of Micro, Small and Medium Entrepreneurs (MSMEs) in takaful in Sri Lanka: An Extension of Theory of Planned Behaviour, *Journal of Islamic Marketing*, 14(11), 2715-2740. DOI: <https://doi.org/10.1108/JIMA-11-2021-0371>
- Rifas, A.H., Hilmy, H.M.A., & Saujan, I. (2023). Assessing the Performance of Zakat and Samurdhi Scheme in Alleviating Poverty among Muslim Community in Sri Lanka. *The Journal of Muamalat and Islamic Finance Research (JMIFR)*, 20(2), 19-37. eISSN: 2948-5266.
- Roshan, A., & Hilmy, H. (2021). Comparative study between Islamic insurance and conventional insurance in Sri Lanka. *Sri Lankan Journal of Arabic and Islamic Studies*, 5(2), 16-29.
- Rosvally, W. H. (2010). Insurance Issues for Green Start-ups: What Every Entrepreneur Needs to Know. *Environmental Claims Journal*, 22(3), 200-220, DOI:10.1080/10406026.2010.499782.
- Sallemi, N., & Zouari, G. (2023). Shariah board and takaful performance: mediating role of corporate social responsibility. *International Review of Economics*. <https://doi.org/10.1007/s12232-023-00439-2>
- Samarasinha, S. (2020). Assessing vulnerability to climate change. Google Books. https://books.google.com/books/about/Assessing_Vulnerability_to_Climate_Change.html?id=O5NLzwEACAAJ
- Senghore, A.F. (2023). Assessing the Role of Islamic Microfinance: A Women Empowerment case study. *European Journal of Islamic Finance*, 10(3), 45-70.
- Shabir, H. (2018). Capital asset pricing model and pricing of Islamic financial instruments. *Journal of Islamic economics*. <https://www.researchgate.net/profile/Shabir-Hakim>
- Silva, R.A., West, J.J., Lamarque, D.T., Shindell, W.J., Collins, G. Faluvegi, G.A. Folberth, L.W. Horowitz, T. Nagashima, V. Naik, S.T. Rumbold, K. Sudo, T. Takemura, D. Bergmann, P. Cameron-Smith, R.M. Doherty, B. Josse, I.A. MacKenzie, D.S. Stevenson, and G. Zeng (2017). Future global mortality from changes in air pollution attributable to climate change. *Natural Climate Change*, 7(9), 647-651, doi:10.1038/nclimate3354.
- Sopian, N.M. & Azmin, A.N. (2021). Takaful industry in Malaysia: Overview of key strategies and regulatory framework. *Journal of Islamic, Social, Economics and Development*, 2(35), 17-28.
- The Islamic Foundation for Ecology and Environmental Sciences. (2021, February 3). *Islamic Climate Declaration calls for fossil fuel phase out - Climate Action Network*. Climate Action Network. <https://climatenetwork.org/2015/08/18/islamic-climate-declaration-calls-for-fossil-fuel-phase-out/>
- The Securities Commission Malaysia. (2019). SC leads discussion on Islamic structured products <https://www.sc.com.my/resources/media/media-release/sc-leads-discussion-on-islamic-structured-products>
- United Nations Framework Convention on Climate Change. (2019). Introduction to Climate Finance. *United Nations Climate Change*. <https://unfccc.int/climate-action/introduction-climate-action>
- Wahyudi, D. (2012). Human responsibility towards environment in the Quran. *Indonesian Journal of Islam and Muslim Societies*, 2(2), 288-293. <https://doi.org/10.18326/ijims.v2i2.293-322>
- Zafar, S. (2023). Environmental Sustainability in Islamic teachings. *Collection of Essays*. <https://www.ecomena.org/sustainability-islam/>