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AHIBS-ACT 2023 KUALA LUMPUR

ACTION RESEARCH & ISLAMIC FINANCE CONFERENCE

27-29 OCTOBER 2023

Empowering Change, Elevating Impacts

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AHIBS-ACT 2023
The 1st AHIBS International Action Conference
Universiti Teknologi Malaysia
27-29 October 2023

ISLAMIC FINANCE INTERNATIONAL CONFERENCE PROCEEDINGS

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Co-Organized by:

Association of Seniors in Islamic Finance

Sponsored by:

Harbin Institute of Information Technology
Bank Islam Malaysia Bhd.
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Durio PPE Sdn. Bhd.
Malaysian Financial Planning Council

e ISBN 978-629-97548-4-8

9 786299 754848

AHIBS PRESS
(online)

Published by:

AHIBS Press
Azman Hashim International Business School
Universiti Teknologi Malaysia
Level 10 Menara Razak
Jalan Sultan Yahya Petra
54100 Kuala Lumpur, Malaysia.
www.business.utm.my

First Printing, December 2023
Printed in Malaysia

DISCLAMER

The publication has received support from Universiti Teknologi Malaysia. The contents, however, herein reflect only the views of the authors and should not be interpreted as endorsed by the University. Universiti Teknologi Malaysia accepts no liability for any use of the information contained within this document.

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Published in Malaysia by:

Azman Hashim International Business School
Universiti Teknologi Malaysia
Level 10 Menara Razak
Jalan Sultan Yahya Petra
54100 Kuala Lumpur, Malaysia
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PREFACE

At Azman Hashim International Business School (UTM AHIBS), our commitment to advancing knowledge and innovation in the dynamic fields of business and economics fills us with immense pride. Over the years, AHIBS has consistently focused on academic excellence, fostering an environment that not only nurtures intellectual curiosity but also encourages the relentless pursuit of groundbreaking solutions. In a development that ignites excitement, AHIBS proudly unveils its inaugural collaboration with the Association of Seniors in Islamic Finance for the AHIBS International Action Conference 2023 (AHIBS-ACT-2023). This partnership marks a profound milestone in AHIBS' journey, underscoring our shared dedication to advancing knowledge and promoting ethical and socially responsible practices in the ever-evolving global financial landscape.

AHIBS-ACT 2023 comprises two integral components: the INTERNATIONAL ACTION RESEARCH CONFERENCE (IARC) 2023 and the ISLAMIC FINANCE INTERNATIONAL CONFERENCE (IFIC) 2023. In these proceedings, the spotlight shines brightly on IFIC 2023, a pivotal gathering that delves into the transformative potential of Islamic finance in the 21st century. Before embarking on this journey into the rich content of IFIC 2023, AHIBS extend heartfelt appreciation to all the generous sponsors and collaborators. Their unwavering support has been instrumental in bringing this conference to life, and AHIBS is deeply grateful for their unwavering commitment to our shared vision.

INTRODUCTION

Welcome to the ISLAMIC FINANCE INTERNATIONAL CONFERENCE (IFIC) 2023, a pivotal component of the AHIBS International Action Conference 2023 (AHIBS-ACT 2023). Under the banner of our theme, 'Empowering Change, Elevating Impacts,' we embark on a transformative and enlightening journey. In the 21st century, the realm of Islamic finance has experienced unprecedented growth, reshaping the global financial landscape. Its ethical and socially responsible principles have transcended boundaries, earning recognition and acceptance far beyond Muslim communities. IFIC 2023 stands as a catalyst, igniting further growth and innovation in this dynamic field.

This conference is a convergence of diverse voices, where industry professionals, scholars, and academics from various backgrounds come together to create a vibrant tapestry of perspectives. Our discussions span the spectrum—from theoretical foundations to practical applications and innovative solutions in Islamic finance. Topics include shariah compliance, retail and commercial financing, investment banking, takaful, derivatives, and microfinance. Moreover, IFIC 2023 boasts a diverse array of presenters—individuals hailing from different nationalities, professions, and races. This rich tapestry of collective expertise and insights promises to elevate our discussions and drive us toward tangible change and impactful outcomes.

CONFERENCE PROCEEDINGS

COMMODITY MURABAHAH: OPTION TO REPLACE UJRAH IN PTPTN EDUCATION FINANCING

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ABSTRACT - This paper aims to propose the implementation of Commodity Murabahah as an innovative alternative to replace the conventional Ujrah system in the context of National Higher Education Fund Corporation (PTPTN) education financing. The Ujrah system, commonly used in interest-based lending, has raised concerns due to its non-compliance with Shariah principles, leading to ethical and religious conflicts for Muslim borrowers. Commodity Murabahah, a well-established Islamic finance instrument, offers a feasible solution to address these issues. The research draws upon existing literature, case studies, and expert opinions to present a comprehensive analysis of the potential impacts of adopting Commodity Murabahah in PTPTN education financing. The findings suggest that embracing Commodity Murabahah can enhance the credibility and attractiveness of PTPTN financing options among Muslim students, while contributing to the broader development of the Islamic finance industry. In conclusion, this paper advocates for the adoption of Commodity Murabahah as an alternative to the Ujrah system in PTPTN education financing. By doing so, it aims to provide an ethical and Shariah-compliant mechanism that not only supports the educational aspirations of students but also aligns with the broader objectives of Islamic finance. The proposed transition holds the potential to foster financial inclusivity, strengthen compliance with religious principles, and contribute to the sustainable growth of the education sector.

1.0 INTRODUCTION

The financing of higher education has been a critical concern for governments and individuals alike. In Malaysia, the National Higher Education Fund Corporation (PTPTN) has played a pivotal role in providing financial assistance to students pursuing tertiary education. However, the conventional interest-based financing system, known as Ujrah, which PTPTN employs, has garnered increasing attention due to its non-compliance with Islamic finance principles. This has led to ethical dilemmas for Muslim borrowers, sparking the need for an alternative, Shariah-compliant financing mechanism. In response to these concerns, this paper introduces Commodity Murabahah as a viable and ethical alternative to replace the Ujrah system in PTPTN education financing.

Islamic finance principles dictate that financial transactions should adhere to ethical standards, prohibiting the charging or receiving of interest (riba) and promoting equitable risk-sharing and ethical conduct. Islamic finance is supposedly shock-resistant due to its emphasis on risk-sharing, restrictions on taking excessive risks, and close connection to actual activity. Ujrah, a system based on fixed interest rates, contradicts these principles, creating a dilemma for both PTPTN and its Muslim borrowers. As a result, there is a growing demand for an Islamic financing method that aligns with Shariah principles while addressing the financial needs of students pursuing higher education. Commodity Murabahah, a well-established Islamic financial instrument, offers a promising solution. Derived from the concept of Murabahah, Commodity Murabahah involves the purchase and resale of tangible assets, enabling the transfer of ownership and avoiding the pitfalls of interest-based lending. The asset-backed nature of Commodity Murabahah aligns with the principles of Islamic finance, which emphasize the importance of tangible backing and shared risk.

This paper seeks to explore the potential of Commodity Murabahah to replace the Ujrah system in PTPTN education financing. It will delve into the mechanics of both Ujrah and Commodity Murabahah, emphasizing their compatibility with Islamic finance principles. Furthermore, the paper will discuss the ethical and religious concerns associated with the current Ujrah system, highlighting the urgency of a Shariah-compliant alternative. By presenting the principles and operational aspects of Commodity Murabahah, the paper aims to demonstrate its viability as a suitable replacement.

The introduction of Commodity Murabahah as an alternative financing mechanism for PTPTN holds the promise of aligning the education financing system with Islamic principles while ensuring equitable access to education for all. The subsequent sections will delve into the detailed mechanics of Commodity Murabahah, examine the ethical challenges posed by this new concept and elaborate on the operational aspects of adopting Commodity Murabahah within the PTPTN framework. Through this exploration, the paper aims to contribute to the ongoing discourse on Islamic finance and education financing, while proposing a tangible solution that resonates with the principles of Shariah and socio-economic development.

2.0 MATERIALS AND METHODS

This section outlines the approach taken to analyse and propose the implementation of Commodity Murabahah as an alternative to the Ujrah system in PTPTN education financing. The research methodology involves a comprehensive review of existing literature, case studies, and expert opinions to provide an informed and well-rounded perspective on the subject matter.

2.1 Literature Review:

A thorough review of academic literature, research papers, books, and scholarly articles related to Islamic finance, Murabahah, Ujrah, and education financing forms the foundation of this study. This literature review enables the identification of key principles, mechanisms, advantages, and challenges associated with both Ujrah and Commodity Murabahah.

2.2 Comparative Analysis:

A comparative analysis is conducted to contrast the features of Ujrah and Commodity Murabahah in terms of their compatibility with Islamic finance principles, ethical considerations, and operational feasibility within the PTPTN framework. This analysis highlights the drawbacks of the Ujrah system and the potential benefits of adopting Commodity Murabahah.

2.3 Case Studies:

Case studies of Islamic financial institutions and organizations that have successfully implemented Commodity Murabahah are examined to provide real-world insights into its practical application. The case studies aid in understanding the operational processes, risk management strategies, and outcomes of Commodity Murabahah transactions.

2.4 Expert Interviews:

Interviews with Islamic finance scholars, practitioners, and experts are conducted to gather expert opinions on the feasibility and implications of replacing Ujrah with Commodity Murabahah in PTPTN education financing. The insights from these interviews offer a nuanced understanding of the challenges and potential solutions.

2.5 Regulatory and Legal Considerations:

The study assesses the regulatory and legal framework in Malaysia pertaining to both conventional interest-based financing and Islamic finance practices. This includes an examination of relevant guidelines from regulatory bodies to evaluate the legality and feasibility of adopting Commodity Murabahah for education financing.

2.6 Proposal Development:

Based on the gathered data, analysis, case studies, and expert opinions, a comprehensive proposal for the implementation of Commodity Murabahah in PTPTN education financing is developed. The proposal outlines the operational mechanics, risk management strategies, and potential impact on PTPTN borrowers and the broader education sector.

2.7 Feasibility Assessment:

The feasibility of implementing Commodity Murabahah is assessed by evaluating factors such as operational efficiency, cost-effectiveness, scalability, and compliance with Shariah principles. The assessment considers both short-term and long-term implications to gauge the sustainability of the proposed alternative.

Through this comprehensive research methodology, the paper aims to provide a well informed and substantiated argument for the adoption of Commodity Murabahah as a Shariah-compliant alternative to the Ujrah system in PTPTN education financing. The subsequent sections will present the findings of the research and discuss the potential benefits, challenges, and recommendations for the proposed transition.

3.0 DISCUSSION & RESULTS

3.1 Overview of PTPTN Education Loan.

The National Higher Education Fund Corporation (PTPTN) is a statutory body under the Ministry of Higher Education established in 1997 (Act 566) which came into force on 1 July 1997. PTPTN began operations on 1 November 1997. One of the functions of the establishment is to manage loans for higher education purposes and collect loan repayments. PTPTN has performed this function well where until December 2022, PTPTN has issued loans amounting to RM65.6 billion to 3.6 million students at all local

Institutions of Higher Learning (IPT) [1]. PTPTN is one of the biggest companies that provide student loans. PTPTN was established to ensure efficient financing is available to qualified students pursuing higher education institutions (HEIs) in line with the government's intention that no student fails to enter higher education for financial reasons. However, PTPTN is the largest source of funding for students who entered the university [4].

In line with the government's aspiration that no student fails to enter the university because of financial reasons, PTPTN should ensure adequate funding. Accordingly, PTPTN should manage the funds, considering the trend of rising enrolment to higher education each year and increasing the rate of tuition fees in higher education. Rising costs in higher education and student subsistence increasing will result in a demand for increasing the amount of financing. Any subsequent increase in funding will cause PTPTN to need to allocate more funds to finance the students. This means that the government can no longer meet the demands for these monies and has discontinued granting as of 2022. PTPTN additionally needs to raise its own fund by the acquisition of sukuk, borrowing money from financial institutions, and receiving repayments from borrowers. Loans provided by PTPTN are subject to an administrative cost of 4% per annum. However, starting in 2008, PTPTN has introduced a shariah-compliant education loan that uses the Ujrah concept which has been decided by the National Fatwa Committee for Islamic Religious Affairs.

According to the Dictionary of the Council of Languages Fourth Edition, Ujrah means wage money or salary. Ujrah also defined as the payment of wages given by tenants (users of benefits of either 'ayn or employment) to tenants (beneficiaries of either 'ayn or employment) for the benefits found. Through this concept, the borrower is charged a wage cost of 1% per annum at a flat rate on the amount of the loan issued. In addition, borrowers are also required to bear the cost of takaful coverage, Revenue Stamp and other payments as stated in the Loan Offer Document. Repayment. The loan will begin on the 12th month from the graduation date. This means that ujrah began to be imposed in the 13th month. During the 12-month period, borrowers who make loan repayments are not charged Ujrah. The loan repayment period is dependent on the amount of loan received by the borrower. The practice of ujrah model can keep devoted and potential students away from interest (riba), a course in the society, and help them attain higher skills and knowledge to integrate in the mainstream of the society [3].

3.2 Reasons of Implementing Commodity Murabahah

Commodity Murabahah is an Islamic financing structure in which the seller and buyer agree to the cost and markup of an asset. The markup takes place of interest, which is illegal in Islamic law. As such, Murabaha is not an interest-bearing loan (qardh ribawi) but is an acceptable form of credit sale under Islamic law. Commodity Murabahah is also described as a type of buying and selling transaction in which the buyer purchases a good or commodity at a price with a mixed cost and profit margin (Murabahah) that has been agreed upon by the seller and the buyer, and the commodity is then resold to other commodity traders (third parties) with the intention of receiving money.

In Malaysia, Islamic financial institutions have used this Murabahah product. The use of commodities covered by the Murabahah in Islamic banking exemplifies the harmony of the Fuqaha's guiding principles; this is because it is founded on the justification that the mechanism for consuming these commodities is a development of the Bay' al-Murabahah, which has been necessary for usage. The Shariah Advisory Council of Bank Negara Malaysia has agreed to allow the use of Commodity Murabahah on 28 July 2005. The aim is to offer new instruments to Islamic financial institutions to manage the liquidity of funds in the Islamic Interbank Money Market (IIMM). Additionally, returns from Commodity Murabahah are based on markups or profits from the sale or acquisition of assets. Therefore, there is no problem with the usage of Commodity Murabahah as it is now being done in the Islamic banking sector because they are not only a new instrument but also a way for Islamic financial institutions to support (Ta'awun) with financing products.

PTPTN may also consider adopting the concept of Commodity Murabahah for education loans offered. This is due to studies that claim the current implementation of Ujrah by PTPTN does not adhere to the criteria of sharia since the cost of wages imposed should be based on the cost of real wages rather than just a percentage of the loan amount. It is haram when the total cost is higher than the actual cost. This is in line with the guidelines issued by AAOIFI and the OIC Fatwa Council [2]. These are some of the reasons why PTPTN decided to switch to the idea of Commodity Murabahah. The following are some elements that contributed to PTPTN implementing Commodity Murabahah:

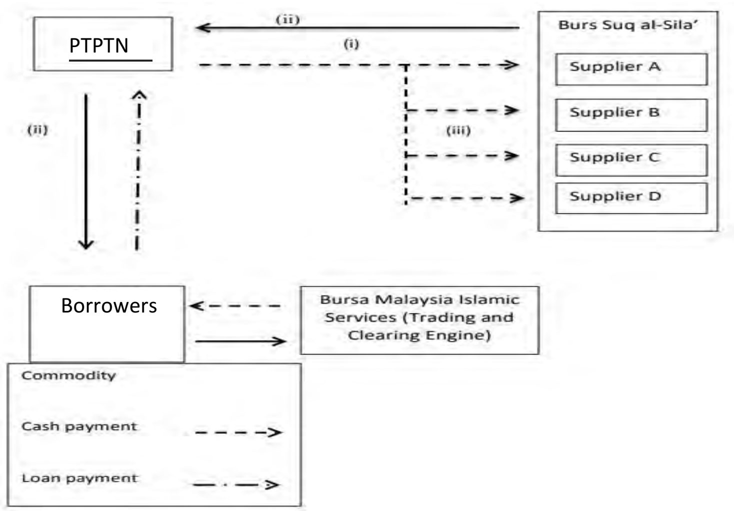
a) **Diversification of Funding Sources:** Implementing Commodity Murabahah could allow PTPTN to tap into a broader range of funding sources, including investors seeking Islamic financial instruments. This could potentially help in managing its budget and providing loans to a larger number of students.
b) **Supporting Financial Inclusion**: Commodity Murabahah can be structured in a way that focuses on affordability and accessibility. This aligns with the broader goal of supporting financial inclusion, enabling students from various economic backgrounds to pursue higher education.
c) **Creating Awareness:** By implementing Commodity Murabahah, PTPTN could contribute to the broader understanding and adoption of Islamic finance principles in Malaysia. This educational effort could raise awareness about Islamic financial instruments and their benefits.
d) **Government Policy:** Malaysia has a strong emphasis on Islamic finance as part of its national economic policy. Implementing Commodity Murabahah for education loans could align with this policy direction.

3.3 Implementation of Commodity Murabahah at PTPTN

Commodity Murabaha is a common Islamic financial transaction that is often used as an alternative to interest-based lending. It's a form of trade-based financing that is compliant with Sharia principles. However, to this day, there are no education loans that apply the concept of Commodity Murabahah. Using the Commodity Murabahah idea, PTPTN can execute education loans based on the studies and analyses done. Additionally, Amanah Ikhtiar Malaysia (AIM), an organization under the Ministry of Entrepreneur Development and Cooperatives (MEDAC), is compared because AIM also provides entrepreneur loans utilizing the Commodity Murabahah principle. AIM does not charge interest on the loans it provides because it makes money through commodity trades. If used in PTPTN, this strategy can lessen the strain on the borrower to repay the loan. As an alternative to the current approach, PTPTN can implement education loans in the following ways:

a) PTPTN purchases commodities from commodity suppliers (A) by cash in the commodity market at BSAS.
b) PTPTN sells the commodity to PTPTN borrowers on credit at a cost-plus profit margin.
c) PTPTN borrowers appoint PTPTN as a representative to resell the commodity-to-commodity suppliers (B), (C) or (D) in cash in the commodity market at BSAS.

d) Cash sales to commodity suppliers (B), (C) or (D) will enable the customers to get the cash amount of the loan, while the residual sales from PTPTN-to-PTPTN borrowers will create financial obligations payable by the borrowers within the agreed period.



The methods PTPTN can use to execute the suggested new loan concept are depicted in the diagram up above. However, PTPTN must create a plan in advance that covers the following before executing this loan concept:

a) **Structuring the Transaction:** PTPTN would work with Islamic finance experts and advisors to structure the Commodity Murabahah transactions. This involves identifying the specific commodities or assets to be used in the transactions and determining the terms of the sale and purchase agreements.
b) **Identification of Goods:** PTPTN would identify a tangible asset or commodity that can be used in the Commodity Murabahah transaction. This could be something that holds value and is easily tradable in the market. Normally, the financial institution Islamic banking uses the services of the Murabahah Commodity Exchange Market or known as Bursa Suq al-sila' (BSAS).
c) **Purchase and Resale:** PTPTN would purchase the chosen commodity from a supplier at a certain cost. Immediately after the purchase, PTPTN would resell the commodity to the student (applicant) at a higher price, reflecting the agreed-upon profit margin. The resale price includes the original cost and the markup representing the profit.
d) **Deferred Payment:** Instead of requiring the student to repay the loan in fixed instalments, the repayment could be deferred to a later date. The student would agree to pay the total deferred amount over a specified period.
e) **Documentation and Legal Agreements:** All transactions and agreements would be documented in accordance with Islamic finance principles. This includes clear disclosure of the cost, markup, repayment terms, and any other relevant terms and conditions.
f) **Repayment:** The student would make repayments over the agreed-upon period. The repayments would be calculated based on the deferred amount and the repayment schedule.

g) **Ownership Transfer:** Once the deferred amount is fully paid, ownership of the commodity or asset would be transferred to the student, and the financing arrangement would be concluded.

4.0 CONCLUSION

In conclusion, considering the implementation of Commodity Murabahah as an option to replace Ujrah in PTPTN's education financing could bring about several potential benefits and considerations. Commodity Murabahah, a well-established concept in Islamic finance, offers an alternative framework that aligns with Sharia principles and caters to the needs of Muslim students seeking ethical and compliant financing options.

ACKNOWLEDGEMENT

This thesis is becoming success through the guidance and assistance from everyone, including family and friends. Specially, please let me to express my salutation of appreciation on the following valuable mentors and guiders. First and foremost, we want to express our gratitude to family for their continuous support and endless cooperation which we would have not completed this project in the stipulated time. Second, we want to use this occasion and take this chance to deliver my deep appreciation and profound admiration to Dr Razli Bin Ramli for their outstanding supervision, insightful critique and continuous inspiration during the time period of the thesis. Their valuable recommendations and advice were really useful. Their insightful comments motivated us to improve this thesis significantly. Doing task under their supervision was a tremendously valuable learning process. Third, we would want to express our gratitude to the PTPTN management and to all of the respondents who have helped to shorten the process and provide encouragement to us while we work on this thesis. Finally, we want to thank all of my dear friends for their invaluable support and inspiration. This thesis would not have been completed effectively without them.

REFFERENCES

1. Ahmad Fadhulalh Adnan, Utusan Malaysia Online, 16 Mac 2022: PTPTN bantu 3.6 juta pelajar dengan jumlah pinjaman sehingga RM65.60 b
2. Aqilah Binti Ali. (2019). Tinjauan Hukum Islam Terhadap Ujrah PTPTN. 5-7
3. Juhan, R., Koperasi Malaysia, M., Tunku Ibrahim, J., Setar Kedah Darul Aman, A., Induk dan Zon Tengah Maktab Koperasi Malaysia, K., Templer, J., Jaya, P., Darul Ehsan, S., Koperasi Malaysia Zon Selatan Tingkat, M., Kerjasama, B., Dhoby, J., Bahru Johor Darul Takzim, J., & Koperasi Malaysia Zon Timur, M. (2018). Skop dan Proses ALAMAT. www.mkm.edu.my
4. Mohamad, M. T., Aminuddin, M. N., & Hasbulah, M. H. (2018). International Journal of Islamic and Civilizational Studies Pembiayaan Perumahan Berasaskan Komoditi Murabahah: Kajian Kes di CIMB Islamic Bank Home Financing Based on Commodity Murabahah: Case Study at CIMB Islamic Bank Article history. http://jurnalumran.utm.my/index.php/umran

COMMERCIAL CRIME (SCAMMER) IN MALAYSIA IS BECOMING CRITICAL

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ABSTRACT - Royal Malaysian Police (PDRM) statistics show commercial crime cases in 2022 amounted to RM1.73 billion. Why are scammers allowed to continue to run rampant? What is sad is that the Malaysian seem to have been 'besieged' by various types of scams. To date, there has been no concerted effort from all parties to combat cyber fraud. All parties, such as the government, authorities, financial institutions, financial planners, psychologists, and the surrounding community, should play a role in fighting this crime.

Keywords: *Scammer, Commercial Crime, Role, Type of Scams.*

1. INTRODUCTION

Individuals in any country, including Malaysia, are vulnerable to scams due to a variety of circumstances, which include:

a) **Financial Pressures:** Economic challenges and financial troubles may cause individuals to take risks in the goal of receiving immediate financial relief, making them more receptive to claims of easy money.
b) **Cultural Factors:** Scammers who pose as trustworthy individuals or organisations might take advantage of cultural norms such as trust and respect for authority figures.
c) **Emotional Triggers:** Scammers frequently utilise emotional triggers such as fear, greed, or urgency to push victims into making rash judgements.
d) **Lack of Financial Literacy:** People who don't have a solid grasp of personal finance and investing may believe in inflated returns or fall for dubious schemes.
e) **Technological Advancements:** As technology has advanced, con artists' techniques have gotten more complex. They now use internet platforms and communication avenues to prey on unsuspecting people.
f) **Unregulated Investments:** Scammers occasionally work in unregulated industries, which makes it simpler for them to trick those looking for investment opportunities.
g) **Lack of Reporting:** Victims may be reluctant to report frauds out of fear or humiliation, which can let the fraud cycle continue [1][2].

2. MATERIALS AND METHODS

The types of cyber commercial crimes are as follows, non-existent job offers, Macau scams, love scams, investment scams, money scams from outside parties and other fraud kinds are among those that are often reported. In fact, a fraud organisation has recently dared to exploit images of well-known Ustaz and media personalities to entice people to engage in shariah investment schemes.

Following are statistics regarding scammer victims in 2020, broken down by gender and age, according to a study by the Royal Malaysian Police (PDRM).

2.1 By Gender

GENDER	STATISTICS (%)
Woman	55
Man	45

Table (A)

Women are influenced and fall in love with syndicates, they become victims of love scams because they are lonely and in need of affection.

2.2 By Age

AGE	STATISTICS (%)
17– 40 Years Old	65
41 – 60 Years Old	23
Others	12

Table (B)

The 17 to 40-year-old demographic is particularly vulnerable to fraud since they utilise mobile devices and have unrestricted access to social media. The survey concluded that those between the ages of 41 and 60 are targets of scams because they don't read newspapers or the internet, which prevents them from being aware of scammers' tricks.

3. RESULTS AND DISCUSSION

Financial planners play a vital role in helping individuals make informed and responsible financial decisions, which can contribute to reducing the likelihood of falling victim to scams. Here's how they can help:

AREA	EXPLAINATION
Education	Educate clients about different types of scams, warning signs, and common tactics used by scammers. This awareness can empower individuals to recognize and avoid potential scams.
Risk Assessment	Assess a client's risk tolerance, financial goals, and investment objectives. By understanding these factors, planners can guide clients away from high-risk and potentially fraudulent schemes.
Personalized Advice	Provide personalized financial advice that takes into account a client's specific circumstances. This helps clients make decisions that align with their goals, reducing the likelihood of being swayed by quick-money promises.
Investment Guidance	Guide clients towards legitimate and well-regulated investment opportunities. They can help clients understand the importance of conducting due diligence before investing in any opportunity.
Fraud Prevention Strategies	Recommend strategies to protect clients from fraud, such as setting up strong account security measures, regularly monitoring financial accounts, and being cautious when sharing personal information online.
Elderly Protection	Assist in establishing safeguards and providing ongoing financial monitoring.
Behavioural Finance Insights	Understand behavioural finance can help clients make rational decisions by addressing cognitive biases and emotional triggers that scammers often exploit.
Referrals to Professionals	Refer clients to legal authorities, regulatory bodies, or law enforcement agencies for further investigation.

Table (C)

Increasing personal awareness about the importance of financial literacy and staying vigilant against potential scams involves a combination of education, habits, and proactive steps. Here are some strategies:

AREA	EXPLAINATION
Education and Learning	Encourage individuals to attend financial literacy workshops, seminars, and online courses. Share educational resources such as articles, videos, and books that cover topics related to financial literacy and scam prevention.
Verify Information	Teach individuals to verify the legitimacy of investment opportunities by researching the company, checking official websites, and reading reviews from reputable sources.
Protect Personal Information	Stress the importance of safeguarding personal and financial information. Individuals should avoid sharing sensitive information online or over the phone unless they are certain about the legitimacy of the request.
Utilize Trusted Sources	Guide individuals to rely on trustworthy sources for financial advice, such as certified financial planners, reputable financial websites, and government resources.

Understand Risk and Return	Educate individuals about the relationship between risk and return. Help them understand that higher returns typically come with higher risks, and any investment promising guaranteed returns should be viewed with caution.
Report Suspicious Activity	Teach individuals how to report suspicious emails, phone calls, or investment opportunities to relevant authorities or consumer protection agencies.
Peer Awareness	Encourage discussions about financial literacy and scam prevention among friends, family, and colleagues. Sharing experiences and knowledge can help spread awareness.
Regularly Review Finances	Emphasize the importance of regularly reviewing financial statements, bank accounts, and investment portfolios to detect any unauthorized activity.

Table (D)

Combining these techniques can help people become more adept at spotting possible frauds and developing a strong sense of financial awareness.

4. CONCLUSION

To reduce commercial cyber-crime (scammers), all parties need to play a role such as the government, authorities, financial institutions, financial planners, psychologists, and the surrounding community, should play a role in fighting this crime. Among the steps that can be taken are:

a) Ministries can launch public awareness campaigns.
b) Governments can create and enforce laws and coordination with law enforcement agencies.
c) Collaborating with Private sectors such as banks, telecommunications companies, and online platforms.
d) Establish consumer protection agencies or offices.
e) Promoting cybersecurity awareness among individual and businesses.
f) Provide support services for scam victims.
g) Developing educational materials and resources for schools, workplaces, and community centres.
h) Gather and analyse data on scam trends to better understanding.
i) Collaborate with international organizations and other governments to track down and apprehend scammers.

This study aimed to reduce commercial crime (scammers) in Malaysia based on the cause of the scams and the categories of victims. Therefore, through this study, users would play a role according to their respective capacities.

REFERENCES

1. Kumara Sabapatty (2022). Orang Melayu paling ramai jadi mangsa scammer, Malaysia Gazette. https://malaysiagazette.com/2022/06/22/orang-melayu-paling-ramai-jadi-mangsa-scammer/
2. Marzuki Yusoff (2023). Kenapa dibiar scammer terus berleluasa, Sinar Harian. https://www.sinarharian.com.my/article/270495/suara-sinar/analisis-sinar/kenapa-dibiar-scammer-terusberleluasa

ISLAMIC VENTURE CAPITAL

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ABSTRACT – This paper examines Islamic Venture Capital (VC), a distinctive form of private equity that integrates the ethical principles of Islamic finance with conventional investment strategies. Characterized by its robust growth since the 1990s, Islamic VC operates within the framework of Shariah law, prohibiting interest, uncertainty, and speculation, and fostering a risk-sharing investment model. Focused on investments in businesses providing tangible goods and services, Islamic VC supports societal welfare alongside economic development. The paper explores its unique operational models, particularly mudaraba and musharaka financing, and discusses innovative exit strategies like Musharakah Mutanaqisah. Highlighting its potential impact on conventional banking, Islamic VC is posited as a model for ethical and effective global finance, offering insights into the future of venture capital in a broader economic context.

1. INTRODUCTION TO VENTURE CAPITAL AS AN ASSET CLASS

Venture capital (VC) is a vital form of private equity and a specific type of financing provided by investors to startup companies and small businesses believed to have long-term growth potential. Alongside Private Equity (PE), VC is recognized as the fifth asset class, complementing traditional investments like equities, fixed income, cash, real estate, and commodities. This section explores VC's role in modern finance and its significance as an emerging asset class. The evolution of VC has led to the development of specialized forms, such as Islamic Venture Capital, which combine traditional investment strategies with ethical principles [4].

2. THE STEADY GROWTH OF ISLAMIC FINANCE

Islamic finance has shown remarkable growth, with its rate consistently in double digits year-over-year since 1990. The growth range has been wide, with the lowest yearly growth rate at 10.81% and the highest at 29.8%. Notably, Islamic finance saw substantial growth, especially during periods of struggle for conventional banks, such as between 2007 and 2010. The global Islamic financial services industry, valued at approximately $1.13 trillion, is relatively small compared to conventional finance but represents a significant and growing sector. This growth underpins the emergence of Islamic VC as a key player in the financial sector, applying Islamic finance principles to the venture capital model [5][9].

3. LITERATURE REVIEW

3.1 Principles of Islamic Finance and Their Application to Venture Capital

Islamic finance is defined by strict adherence to principles that avoid interest (riba), unconditional reward, uncertainty in transactions (gharar), speculation (maysir), and involvement in haram goods or services. These principles set Islamic finance apart from conventional banking, where discretionary investment choices are more prevalent. This section will discuss how the principles of Islamic finance, including the Quran and Sunna's stance on interest as an act of exploitation, align with the venture capital ethos of risk and profit-sharing. The practical application of these principles is embodied in Shariah-compliant venture capital, which is the focus of the next section [1][2][3][4][7][9].

3.2 The Compatibility of Shariah-Compliant Venture Capital with Islamic Law

Shariah-compliant Venture Capital financing must comply with Islamic law's principles and parameters. Islamic law emphasizes the development of an economy where the financial sector, including investing activities, is an integral part. In this context, investing and wealth creation are seen as obligations that benefit the community. This section will explore how Shariah-compliant VC, especially in its investments in companies offering real goods and services, fits within the broader framework of Islamic economic development. This compatibility is further reflected in the specific operational models and compliance standards in Islamic VC, which are detailed in the following section.

3.3 Operational Models and Compliance in Islamic Venture Capital

In Islamic VC, the relationship between the capital supplier and the entrepreneur is a partnership, typically taking the form of mudaraba or musharaka financing. This section will delve into the specific criteria that businesses must meet to be considered Shariah-compliant, such as avoiding prohibited activities, maintaining certain debt-to-asset ratios, and ensuring ethical operations. The discussion will include how Islamic jurists apply the rule of necessity in investment criteria due to the limited number of fully compliant firms. To uphold these models and standards, Islamic VC funds require a formal structure and guidelines, as discussed in the next section [10].

3.4 Establishing Islamic Venture Capital Funds

The establishment of Islamic VC funds requires adherence to specific guidelines issued by the Security Commission. This includes appointing an independent Shariah Advisor for expertise and guidance on Shariah principles and ensuring that the activities of the venture companies are compliant with Shariah. This section will outline these requirements and the processes involved in setting up a Shariah-compliant VC fund. While establishing these funds is crucial, it's equally important to consider the exit strategies for investments, ensuring they align with Shariah principles, as explored in the following section [8].

3.5 Exit Strategies in Islamic Venture Capital

Islamic VC investors and the management of invested companies have several options for exiting transactions, including IPOs, LBOs, MBOs, M&As, systematic liquidation, and a unique method known as Musharakah Mutanaqisah (MM or diminishing partnership). MM is a hybrid model combining sale and partnership features, adapted for modern financing needs. This section will discuss these exit strategies, with a particular focus on how MM starts as a partnership and transitions towards full ownership by the entrepreneur, aligning with

Shariah principles. The innovation in these strategies not only aligns with Shariah law but also offers new avenues in the broader financial market, paving the way for the potential influence of Islamic VC on conventional banking, as discussed in the final section [11].

4. FINDINGS: THE POTENTIAL INFLUENCE OF ISLAMIC VC ON CONVENTIONAL BANKING

Islamic VC could potentially impact conventional banking by offering alternative financing options for companies and entrepreneurs. If Islamic VC firms can provide capital and expertise levels comparable to or better than conventional financial institutions, they could significantly reshape the business financing landscape. This section will explore the potential of Islamic VC to offer innovative financing solutions and its implications for the global financial market, suggesting a future where Islamic VC is a pivotal player in the world of finance [6].

5. CONCLUSION

As we reach the culmination of our exploration into Islamic Venture Capital (VC), it becomes evident that this innovative financing model stands at the intersection of traditional investment strategies and the ethical principles of Islamic finance. This journey through the intricacies of Islamic VC has revealed not only its adherence to Shariah law but also its significant impact on the broader financial landscape. The following conclusion synthesizes the key insights gleaned from our comprehensive analysis, encapsulating the essence of Islamic VC's growth, ethical foundations, operational models, and its potential to shape future financial practices. It aims to provide a conclusive overview of how Islamic VC serves as a beacon for ethical investment and a harbinger of change in the global finance sector.

- **Reflecting on Islamic Venture Capital's Growth and Principles**: This ties back to the sections discussing the steady growth of Islamic finance and the unique principles guiding Islamic VC. The mention of consistent growth since the 1990s connects well with the earlier discussion on the historical development and growth of Islamic finance.
- **Ethical Foundations and Societal Impact:** This section resonates with the earlier discussions on the principles of Islamic finance and their application to venture capital, as well as the societal benefits emphasized in Shariah-compliant VC. It effectively summarizes how Islamic VC aligns investments with ethical and societal values.
- **Operational Models and Shariah Compliance:** This part is a succinct summary of the sections discussing operational models and compliance in Islamic VC, reiterating the importance of mudaraba and musharaka models and Shariah compliance in Islamic VC's operational framework.
- **Future Prospects and Global Influence:** Here, the conclusion touches on the innovative exit strategies discussed in the paper, like Musharakah Mutanaqisah, and Islamic VC's potential influence on conventional banking. It effectively summarizes the insights from the latter sections of the paper on exit strategies and the potential global influence of Islamic VC.
- **Conclusion and Outlook:** This final part provides a strong closing statement, emphasizing Islamic VC's role as a pioneering model that merges financial growth with ethical values. It aligns well with the overall narrative of the paper, encapsulating its core thesis and suggesting broader implications for the future of global finance.

REFERENCES

1. AAOIFI (2010), "*Shariah Standards for Islamic Financial Institutions*". Accounting and Auditing Organization for Islamic Financial Institutions, Manama. Available at: https://aaoifi.com/shariaa-standards/.
2. Ahmad Farid, F.M. (2012). "*Shariah Compliant Private Equity and Islamic Venture Capital*". Edinburgh University Press, Edinburgh. Available at: https://edinburghuniversitypress.com/.
3. Anwer, Z., Asadov, A., Kamil, N. K., Musaev, M., & Refede, M. (2019). "*Islamic venture capital–issues in practice*". ISRA International Journal of Islamic Finance. Available at: https://www.emerald.com/insight/content/doi/10.1108/.
4. Elsiefy, E. (2014). "*Fundamental requirements for building an Islamic venture capital model*", Accounting and Finance Research, Vol. 3 No. 1, pp. 55-66. Available at: https://www.researchgate.net/publication/.
5. Ethis (2021). "*Islamic Venture Capital via Crowdfunding: A New Approach*". Available at: https://ethis.co/blog/.
6. Euromoney (2022). "*Banks want to be venture builders too*". Available at: https://www.euromoney.com/article/.
7. Gladstone, D. and Gladstone, L. (2002). "*Venture Capital Handbook: An Entrepreneur's Guide to Raising Venture Capital*". Prentice Hall, NJ. Available at: https://www.oreilly.com/library/.
8. Hamzah, Z. (2011). "*Islamic Private Equity and Venture Capital: Principles and Practice*". IBFIM, Kuala Lumpur. Available at: https://ikr.inceif.org/handle/INCEIF/2065.
9. Hassan, R., Mikail, S.A. and Arifin, M. (2011). "*Historical development of Islamic venture capital: an appraisal*". Journal of Applied Sciences Research, Vol. 7 No. 13, pp. 2377-2384. Available at: https://www.researchgate.net/publication/.
10. Mohammad Bitar (2014). "*Banking regulation, stability and efficiency of Islamic banks : what works best? A comparison with conventional banks*". Business administration. Université de Grenoble. Available at: https://theses.hal.science/tel-01246172/document.
11. Thaker, M. A. B. M. T., Thaker, H. B. M. T., & Pitchay, A. B. A. (2020). "*Leveraging islamic banking and finance for small business: Exploring the conceptual and practical dimensions*". Available at: https://www.adb.org/sites/default/files/publication/616791/.

CAN TAKAFUL INSURANCE SURVIVED IN TODAY'S DIGITAL SPACE?

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ABSTRACT – The insurance industry, particularly Takaful insurance, faces transformative challenges in the digital era. Rapid technological advancements and changing customer expectations necessitate a revolution of traditional insurance models. This article explores the intersection of Takaful insurance and the digital landscape, assessing the potential for survival and growth in this dynamic environment. By examining key trends, technological innovations, and regulatory considerations, we aim to provide insights into the adaptability of Takaful insurance in the digital space.

1. INTRODUCTION

In an era characterized by digital disruption and unprecedented technological progress, industries across the globe are experiencing profound transformations. The insurance sector, including Takaful insurance, is no exception. Takaful, which adheres to Islamic principles of risk-sharing and ethical conduct, has carved its niche in the broader insurance landscape. However, its ability to thrive in today's digital space is a subject of significant debate and scrutiny.

This article delves into the challenges and opportunities that Takaful insurance faces in an increasingly digitalized world. We begin by outlining the fundamental principles of Takaful and its unique value proposition. Subsequently, we examine the digitalization trends shaping the broader insurance industry and their implications for Takaful providers. Through an analysis of technological innovations, customer preferences, regulatory frameworks, and industry collaborations, we seek to shed light on whether Takaful insurance can not only survive but also thrive in today's digital environment. [2]

2. THE ESSENCE OF TAKAFUL INSURANCE

Takaful insurance, rooted in Islamic finance principles, emphasizes risk-sharing, mutual assistance, and ethical conduct. It is built on the foundation of cooperative participation among policyholders, with the aim of providing financial protection and security. Unlike conventional insurance, where policyholders pay premiums to an insurer, Takaful participants contribute to a common fund, which is then used to cover losses and expenses. Any surplus in the fund is distributed among participants, aligning Takaful with the principles of fairness and equity [1][3].

3. DIGITAL DISRUPTION IN INSURANCE

The digital age has ushered in a wave of transformation within the insurance sector. Traditional insurance models, characterized by lengthy paperwork, manual processes, and limited customer engagement, are being challenged by innovative technologies. Digital disruption in insurance encompasses several key areas: [1]

- **Customer Experience Enhancement:** Digital platforms and mobile applications have revolutionized how customers interact with insurers. From policy purchase to claims processing, customers now expect seamless, user-friendly experiences.
- **Data Analytics and Underwriting:** Advanced analytics and artificial intelligence enable insurers to better assess risks, personalize policies, and optimize pricing. This data-driven approach enhances profitability and risk management.
- **Insurtech Collaborations:** Start-ups and technology firms, collectively known as "insurtechs," are collaborating with traditional insurers to bring innovative solutions to market. These partnerships accelerate digital transformation.
- **Blockchain and Smart Contracts:** Blockchain technology ensures transparency and trust in insurance transactions. Smart contracts automate claims processing and settlement, reducing administrative overhead [5].

4.0 TAKAFUL IN THE DIGITAL AGE

The challenge for Takaful insurance lies in adapting its cooperative and ethical principles to the digital landscape. While the essence of Takaful aligns with principles of fairness and transparency, the digital space presents both opportunities and hurdles:

- **Customer Engagement:** Digital channels offer Takaful providers the means to engage with a broader audience. Personalized offerings and digital interfaces can attract a diverse customer base.
- **Regulatory Compliance:** Regulatory frameworks must evolve to accommodate digital Takaful models. Ensuring compliance with Shariah principles in a digital context is essential.
- **Technological Innovation:** Takaful operators can harness technology to streamline operations, enhance underwriting, and offer innovative products while adhering to Islamic principles [4][6].

5.0 CONCLUSION

The question of whether Takaful insurance can survive in today's digital space is multifaceted. While the essence of Takaful aligns with principles of fairness and transparency, adapting to digital disruption requires strategic planning, innovation, and regulatory support. Takaful providers that successfully navigate this transformation stand to thrive in the digital age, expanding their reach and impact while staying true to their ethical foundations.

In conclusion, the survival and growth of Takaful insurance in the digital era hinge on embracing technological advancements, fostering customer-centric approaches, and upholding Shariah compliance. As the digital landscape continues to evolve, Takaful providers must seize the opportunities presented by digitalization while staying committed to their core principles.

REFERENCES

1. Abdull Manaf, A. W., & Amiruddin, N. binti. (2019). Fintech and the Challenge of Digital Disruption in Takaful Operation. Asia Proceedings of Social Sciences, 4(1), 1–3. https://doi.org/10.31580/apss.v4i1.527
2. Advancing Digital Insurance and Takaful in Malaysia. (n.d.). Www.ey.com. https://www.ey.com/en_my/take-5-business-alert/advancing-digital-insurance-and-takaful-in-malaysia
3. Ahmad, Z., Mokal, M. N., & Rahman, M. (2023). Takaful Industry in the Era of Technological Advancement. JEKSYAH Islamic Economics Journal, 3(02), 56–69. https://doi.org/10.54045/jeksyah.v3i02.726
4. Husin, M. M. (2019). The Dynamics of Malaysian Takaful Market: Challenges and Future Prospects. Journal of Islamic Finance, 8, 131–137. https://journals.iium.edu.my/iiibf-journal/index.php/jif/article/view/352/162
5. McKinsey. (2017). Digital disruption in insurance: Cutting through the noise. https://www.mckinsey.com/~/media/mckinsey/industries/financial%20services/our%20insights/time%20for%20insurance%20companies%20to%20face%20digital%20reality/digital-disruption-in-insurance.ashx
6. PricewaterhouseCoopers. (n.d.). Digital Insurers and Takaful Operators (DITO). PwC. https://www.pwc.com/my/en/industry/financial-services/insurance/digital-insurance.html

ISLAMIC GREEN FINANCE, ECOSYSTEM AND PROSPECTS IN SCALING UP SUSTAINABLE INVESTMENTS

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ABSTRACT - In response to escalating environmental crises and the imperative for global climate action, the financial sector stands at a pivotal crossroads. This paper delves into the intersection of Islamic finance and sustainable investments, poised to drive global transformative change. Climate-induced challenges have hit corporations in vulnerable regions, underscoring the urgency of addressing climate risks. While Islamic finance inherently champions ethical financial practices, the literature on green finance remains sparse. Existing studies have highlighted a substantial research gap in climate finance, particularly in examining green finance determinants at the corporate level. This article contributes to filling this void by exploring Islamic finance's role in reshaping the financial landscape to align with sustainability goals. Recent developments, like the emergence of Islamic green sukuk, offer promising avenues to address sustainability concerns in financial systems. Since 2017, these developments have gained momentum, with scholars identifying synergies between green and Islamic finance, especially in Islamic economies. Malaysia's case exemplifies this potential, as green Islamic finance aligns with Islamic principles, fostering a shift toward low-carbon investments. This paper navigates the burgeoning field of "Greening Islamic Finance," highlighting its role in mobilizing climate action investments. It explores the alignment of Islamic finance with environmentally conscious investments, addressing the development of the Islamic green finance ecosystem and alignment strategies. The study underscores the urgency of climate action and the potential for Islamic finance to guide a transition to a sustainable, climate-resilient future. It offers insights into foundational principles, ethical finance, climate finance, and practical case studies that demonstrate the convergence of these vital domains, promoting responsible financial stewardship for a greener planet.

Keywords: Islamic finance - Green finance - Sustainability - Climate Change – Sukuk

1. INTRODUCTION

In an era marked by burgeoning environmental challenges and the urgent need for climate action, the world's financial systems stand at a crossroads. Specifically, companies located in countries highly susceptible to climate-related challenges have experienced adverse impacts on their financial performance due to significant weather unpredictability and associated climate-related hazards [28]. As societies and economies grapple with the implications of climate change, a remarkable convergence is taking shape, one that seeks to harness the principles of Islamic finance to drive sustainable, environmentally responsible investments. The intersection of Islamic finance and the global movement for climate action offers a compelling narrative of financial innovation, ethical responsibility, and the potential to catalyse transformative change on a planetary scale [44]. Islamic finance, grounded in the principles of Shari'ah (Islamic law), is a system that inherently prioritizes ethical and responsible financial practices. Its core tenets, including risk-sharing, asset backing, and the prohibition of excessive uncertainty (gharar) and ambiguity (jahl), resonate profoundly with the principles of sustainability and ethical investment. Within this framework, the concept of "greening" Islamic finance emerges as a potent mechanism to channel financial resources into projects and initiatives that mitigate climate change, preserve the environment, and foster sustainable development.

There is a noticeable dearth of research in the realm of green and environmental finance and investment. This observation is supported by Diaz-Rainey et al.'s (2017) investigation, which scrutinized 21 prominent finance journals spanning the period from 1998 to 2015. Their analysis unearthed a mere 12 studies tangentially connected to climate finance within this extensive dataset. Additionally, their examination of 29 esteemed business journals revealed a scant 25 studies that correlated with the domain of climate finance. This evidence underscores a notable neglect of research attention towards climate finance, despite its increasingly acknowledged role as a pivotal and efficacious mechanism for addressing climate-related challenges.

For instance, recent studies by Zhou et al. (2018) delved into the nexus between carbon risk and the cost of debt financing for Chinese and Australian corporations, respectively. However, their focus pertained to carbon emissions rather than climate financing. Furthermore, numerous researchers have embarked on descriptive inquiries centered on country-specific and project-oriented aspects of green and climate finance for mitigation or adaptation. Examples include Liu et al.'s (2018) work on China, Raberto et al.'s (2018) study of Europe, and Lin Ngan et al.'s (2018) investigation of Malaysia, among others. Nevertheless, none of these inquiries has undertaken empirical analyses of the determinants of green finance at the corporate level, using data specifically related to green financing. These studies predominantly emphasize and elucidate the regulatory landscape, motivational drivers, international collaboration, government commitment, and public sentiments that underpin the realm of climate financing. However, a comprehensive empirical exploration of the drivers and determinants of green finance at the corporate level remains conspicuously absent in the existing literature.

In this context, Islamic finance emerges as a fitting contender to contribute significantly to this redefinition of financial objectives. The principles of Islamic finance, rooted in the Maqasid al-Shariah, share common ground with the values and principles of sustainable finance, particularly concerning the preservation of the environment and society. These shared principles open doors to vast opportunities for Islamic finance to leverage the robust growth witnessed in the green finance and investment sectors worldwide. Islamic finance, with its ethical underpinnings and emphasis on societal welfare, presents itself as a natural conduit for propagating the ideals of green finance while fostering a sustainable and responsible financial ecosystem. As the world grapples with the climate crisis, the alignment of Islamic finance with the goals of sustainability and environmental preservation holds the potential to not only reshape the financial landscape but also to drive meaningful change in support of a more resilient and equitable global future.

More recently, the emergence of Islamic green sukuk, often seen as an Islamic-compliant counterpart to green bonds, represents a novel financial instrument that has the potential to address some of the issues previously voiced regarding the intersection of financial systems and environmental sustainability. The discourse surrounding the compatibility of green and Islamic finance began gaining traction in July 2017, coinciding with the issuance of the world's inaugural green sukuk by a Malaysian solar photovoltaic firm. This development took place partly in response to global initiatives such as the United Nations Sustainable Development Goals and the Paris Climate Agreement. Within this context, some experts and practitioners have identified synergies between the principles of green finance and Islamic finance that could significantly contribute to the pursuit of sustainability and climate objectives, particularly within Islamic economies [5] [44]. Of note is the Malaysian scenario, where the evolution of green Islamic finance has created an avenue that aligns with Islamic principles while facilitating a "capital switch" toward low-carbon investments. This shift is particularly relevant to sectors such as oil and gas and agroforestry, which have historically been carbon-intensive and environmentally impactful.

This academic article endeavours to explore the burgeoning field of "Greening Islamic Finance" and its pivotal role in scaling up investments in climate action. It navigates the intricate terrain of Islamic finance's compatibility with environmentally conscious investments and delves into the development of Islamic green finance ecosystem and strategies that can facilitate this alignment. In doing so, it seeks to shed light on the unprecedented opportunities that lie at the confluence of Islamic finance and green finance, highlighting the potential to mobilize substantial capital for sustainable, low-carbon initiatives. The urgency of climate action cannot be overstated. As the world grapples with the dire consequences of rising temperatures, extreme weather events, and ecosystem degradation, the role of the financial sector in mitigating these challenges has never been more pronounced. In this context, Islamic finance emerges not only as a source of funding but as a beacon of ethical and responsible financial practices that can guide the transition to a sustainable, climate-resilient future.

In pursuit of this imperative, the study embarks on a rigorous exploration, offering a platform for discourse and insight into the transformative potential of greening Islamic finance to scale up investments in climate action. The ensuing sections will delve into the foundations of Islamic finance, elucidate the principles of ethical finance, explore the evolving landscape of climate finance, and present case studies and best practices that exemplify the convergence of these vital domains. In doing so, we embark on a path of discovery, one that embraces both tradition and innovation, ethics, and economics, and, above all, the enduring commitment to safeguarding our planet through responsible financial stewardship.

2. SUSTAINABLE DEVELOPMENT AGENDA AND ISLAMIC FINANCE

In the face of pressing global challenges related to climate change, poverty, inequality, and environmental degradation, the Sustainable Development Agenda (SDA) has emerged as a vital framework to guide international efforts towards a more sustainable and equitable future. Simultaneously, Islamic finance, deeply rooted in ethical and Sharia-compliant principles, has garnered attention for its potential to contribute to sustainable development goals [5]. The SDA, articulated through the Sustainable Development Goals (SDGs), outlines a comprehensive global agenda for addressing various challenges, including poverty, hunger, health, education, gender equality, clean water, and climate action. Islamic finance principles, such as risk-sharing, asset backing, and the prohibition of excessive uncertainty (Al-Gharar) and ambiguity (Al-Jahala), resonate with the ideals of sustainability and ethical investment. This section delves into the compatibility between Islamic finance and the SDGs, highlighting examples of financial instruments and practices that contribute to specific SDGs [30]. This chapter explores the intersection of the SDA and Islamic finance, examining how the ethical and socially responsible foundations of Islamic finance align with the objectives of sustainable development.

2.1 Sustainable Development Goals (SDGs) and Climate Change

Climate change, characterized by increasingly frequent and severe weather events, poses a formidable challenge to the social well-being, economic development, and financial stability of current and future generations. Concerns about the immediate and long-term impact of these environmental changes have catalysed a range of global initiatives aimed at mitigating climate change threats and addressing broader environmental crises. Among these transformative efforts stand the United Nations' Sustainable Development Goals (SDGs) and the landmark Paris Agreement.

The United Nations introduced the SDGs in 2015 as a comprehensive framework for addressing pressing global challenges. This ambitious agenda comprises 17 specific goals, each designed to advance sustainable development outcomes by 2030 (United Nations, 2015). While the SDGs encompass a wide array of objectives, it is worth noting that seven of these goals are expressly dedicated to environmental sustainability. These include:

a. **Clean Water and Sanitation:** Ensuring access to safe and clean drinking water and adequate sanitation, thereby promoting health and well-being.
b. **Affordable and Clean Energy:** Encouraging the transition to clean, renewable energy sources to combat climate change and improve energy access.
c. **Sustainable Cities and Communities:** Fostering the development of sustainable, inclusive, and resilient cities and human settlements.
d. **Responsible Consumption and Production:** Promoting sustainable consumption patterns and sustainable management of resources.
e. **Climate Action:** Urging immediate and effective action to combat climate change and its impacts.
f. **Life Below Water:** Conserving and sustainably using marine resources and preserving ocean ecosystems.
g. **Life on Land:** Protecting terrestrial ecosystems, combating desertification, and halting biodiversity loss.

The environmental dimensions of the SDGs underscore the inextricable link between sustainable development and climate action. Achieving these goals necessitates a holistic approach that includes mobilizing the requisite financial resources from both public and private sectors.

2.2 The Global Rise of the Green Agenda

The global prominence of the green agenda took a monumental leap forward at the Paris climate conference in December 2015. During this historic event, 195 countries came together to adopt the Paris Agreement, a landmark treaty representing the world's first universal commitment to address climate change comprehensively. This pivotal moment marked a turning point in international efforts to combat climate change and ushered in a new era of global sustainability [73]. The Paris Agreement set forth a resolute commitment to limit the global temperature rise this century to well below 2 degrees Celsius above pre-industrial levels, with an aspirational target of limiting it even further to 1.5 degrees Celsius. It not only established a critical benchmark for climate action but also galvanized policymakers, governments, and the private sector to prioritize sustainable development. This new imperative aimed at achieving economic prosperity underpinned by greater social inclusion, the reduction of environmental degradation, and the preservation of natural ecosystems.

Substantial progress has been achieved in advancing the green agenda since the Paris Agreement's adoption. One of the most compelling indicators of this progress is the remarkable growth in renewable energy investment. Globally, cumulative investment in renewable energy since 2010 has surpassed an impressive US$2.2 trillion [75]. Moreover, the global green bond market has surged, with new issuances reaching US$155.5 billion in 2017, a substantial increase from US$81.6 billion in 2016 [16]. Annual global investment in clean energy, critical to mitigating climate change, has also surged by 3% from 2016 to reach US$333.5 billion in 2017.

In the European Union (EU), sustainable finance has taken centre stage as part of the broader Capital Markets Union initiative. With the support of a High-Level Expert Group on Sustainable Finance, the region has formulated a comprehensive strategy. In May 2018, the European Commission unveiled a series of legislative proposals known as the Sustainable Finance Package. These proposals include the establishment of a common classification system or taxonomy for sustainable investments, disclosure requirements related to sustainable investments, and new categories of benchmarks focusing on carbon footprint (European Commission, 2023).

The G20 economies have also recognized the critical role of green finance in achieving sustainability objectives. In 2016, the G20 established the G20 Green Finance Study Group, aimed at identifying barriers to green finance and facilitating the mobilization of private capital for green investments. The Financial Stability Board has lent its support to this endeavour, exploring ways to integrate environmental considerations into the financial system (Financial Stability Board, 2020). The imperative for large-scale investments to fund sustainable development has spurred the financial community into action. Financial institutions, governments, and private sector entities are increasingly called upon to facilitate investments in sustainable technologies and businesses. This engagement is not only about financing growth sustainably but also contributing to the creation of a low-carbon, climate-resilient economy.

The global rise of the green agenda underscores the pivotal role of finance in driving sustainability. In this context, Islamic finance, with its ethical underpinnings and principles that align with sustainable finance, emerges as a potent instrument for propagating green development. The convergence of Islamic finance and the green agenda holds the potential to accelerate sustainable investments, promote environmental conservation, and contribute significantly to the realization of the SDGs and broader sustainable development objectives.

2.3 The Green Finance Paradigm and Sustainable Investment

The financial landscape is currently undergoing a profound transformation to align with the burgeoning trend of a greener economy. Stewart RB et al (2009) think that this transition signifies a departure from the existing economic model, characterized by an increased emphasis on social and environmental responsibility. The emerging model underscores several key elements, including the adoption of circular economy principles, the reduction of emissions, the enhancement of resource efficiency, the utilization of clean technologies, responsible consumption practices, and the promotion of social justice and equality, both within and across generations. In the wake of this transformative shift, new financial concepts have come to the forefront of public discourse. Terminologies such as green finance, sustainable finance, climate finance, carbon finance, and ethical finance have emerged, reflecting a departure from traditional finance's profit-centric approach. Historically, finance has predominantly served as a tool for economic decision-making, driven by the neoclassical market economy's objective of profit maximization and shareholder value [57].

However, authors of Financing a Sustainable European Economy say that the ongoing transformation in finance is reshaping its role in profound ways. Finance is evolving from its dominant neoclassical paradigm, centered on profit and shareholder wealth maximization, to a new role that supports sustainable development, green economy principles, low-carbon practices, and climate change adaptation and mitigation. This transformation is characterized by its rapid, dynamic, and multilevel nature [21].

Zadek (2018) illuminates a paradigm shift within the economy, fundamentally altering the role of finance, encompassing financial actors and markets. It underscores the departure from the traditional finance perspective and explores an emerging alternative. The objective is to identify this evolving financial direction, since the shift towards sustainability within the finance sector is perceived as an outcome of established systems that adapt in response to external disruptions, such as climate change, the transition to clean energy, and the emergence of a low-carbon economy. Concurrently, grassroots innovations and novel financial endeavours like climate finance, green finance, and carbon finance contribute to this transformation. This represents a fundamental alteration in the financial system across various tiers, encompassing international, public, corporate, and household finance.

A pivotal factor in the transformation of finance lies in digitalization and the process of digital transformation. Technological innovations serve as a significant catalyst for societal shifts, affecting production, consumption, and interpersonal communication. Digitalization, particularly in the banking sector, is described as a "worldwide megatrend that fundamentally reshapes established value chains across various industries and public sectors". Noteworthy instances of digital transformation are evident in sectors such as media, banking, telecommunications, and insurance, all of which are actively engaged in extensive digital overhauls. In parallel, green finance plays a supporting role in facilitating green growth and the transition to a sustainable economy while mitigating adverse environmental impacts. Green finance entails investments in renewable energy, emissions reduction in industry, sustainable transportation, recycling, organic agriculture, waste management, water resource management, eco-innovation, and clean technology by both public and private entities.

Climate finance represents a recent addition to the international discourse. Its primary objective is to bolster efforts related to climate change adaptation and mitigation. This encompasses financing the transition to low-emission and climate-resilient development. Climate finance stands as a critical component of global climate policy. Effectively addressing climate change necessitates a complex combination of public funding, private investments through carbon markets, sophisticated national and international regulations, forest and energy policies, international development funding, international trade regulations, and coordinated tax policies. This paradigm shift in finance has significant implications for sustainable investment. As finance increasingly aligns with green and ethical principles, investment strategies are evolving to prioritize environmental, social, and governance (ESG) factors. Sustainable investment funds, impact investing, and socially responsible investment (SRI) are gaining prominence as investors seek to contribute positively to society and the environment while achieving financial returns.

The convergence of finance and sustainability has prompted the development of regulatory frameworks and standards to ensure transparency and accountability. Organizations such as the United Nations Principles for Responsible Banking (PRB), the Task Force on Climate-related Financial Disclosures (TCFD), and the Global Reporting Initiative (GRI) are playing pivotal roles in shaping these standards.
Simultaneously, the global landscape of sustainable finance and investment has undergone a remarkable transformation. Sustainable and Responsible Investment (SRI) strategies have gained substantial traction among investors who seek to align their portfolios with environmental, social, and governance (ESG) criteria. As a result, the sustainable investment universe has witnessed exponential growth in recent years. One of the

standout trends within this paradigm is the surge in green finance. Green finance refers to investments in projects, assets, and enterprises that have a positive environmental impact or contribute to sustainable development. This global phenomenon signifies a profound opportunity to harness Islamic financial instruments, given their inherent compatibility with sustainable finance principles.

Islamic finance, rooted in ethical and Sharia-compliant principles, shares foundational values with sustainable finance. These principles encompass financial stability, economic growth, poverty alleviation, equitable wealth distribution, financial and social inclusion, and environmental preservation. This alignment renders Islamic finance a natural vehicle for promoting green development and addressing climate change challenges within the broader context of sustainable development.

2.4 The Relationship Between Sustainable and Responsible Investment (SRI) and Sustainable Development Goals (SDGs)

In recent years, there has been a significant global effort to integrate Environmental, Social, and Governance (ESG) considerations into financial frameworks, driven by both financial institutions and policymakers. According to a report by the United Nations Environment Program (UNEP), this surge in interest has led to the adoption of approximately 300 policy and regulatory measures aimed at promoting sustainability across 60 countries by the year 2017. This marks a substantial increase compared to the roughly 140 measures that were in place in 2013 [75].

This paradigm shift reflects a growing recognition of the interconnectedness between financial markets and environmental, social, and governance issues. Academic research supports this trend, with studies highlighting the potential impact of ESG integration on investment performance and risk management [19]. Furthermore, the inclusion of ESG criteria in investment decisions is seen as a means of addressing long-term sustainability challenges, such as climate change, social inequality, and ethical governance [61]. These initiatives represent a concerted effort to align financial practices with broader societal and environmental goals. As more data becomes available on the performance of ESG-focused investments and their impact on corporate behavior, the integration of ESG considerations into financial decision-making is expected to continue its upward trajectory. A central approach that has emerged within this transformative wave is Sustainable and Responsible Investment (SRI). SRI, as an investment strategy deeply rooted in the overarching principles of sustainability and ethical responsibility, has garnered significant traction in the financial landscape. It has garnered substantial support from prominent institutional investors who are increasingly realigning their investment portfolios to incorporate ethical and responsible objectives.

SRI encompasses a wide array of classifications, each focusing on various categories that span climate change mitigation, environmental conservation, ethical considerations, governance practices, social impact, responsible investment, and broader sustainability criteria. These classifications are often distinguished by unique acronyms, reflecting the diverse facets of sustainability that the investment community embraces.

Recent studies underscore the growing prominence of SRI within the investment world. For instance, a report by the Global Sustainable Investment Alliance (GSIA) revealed that as of 2020, sustainable investments accounted for over $35 trillion of global assets under management, representing a significant increase from previous years [25]. The surge in SRI adoption can be attributed to its potential to not only generate competitive financial returns but also to address pressing global challenges, including climate change and social inequality [24]. As SRI continues to gain momentum, it is becoming increasingly essential for investors to navigate the various dimensions of sustainability and responsibly align their portfolios with their values and objectives. This entails thorough due diligence to select the most suitable SRI strategies and criteria based on individual preferences and impact goals.

A study conducted by the Global Sustainable Investment Alliance (GSIA) unveiled a notable surge in investments driven by Sustainable and Responsible Investment (SRI) strategies. In the span of just two years, from 2014 to 2016, the total value of assets managed through SRI mandates experienced an impressive growth of nearly 25%, reaching an astounding sum of US$23 trillion. Remarkably, SRI mandates now represent approximately 26% of the entire spectrum of professionally managed assets on a global scale, highlighting the substantial shift towards responsible and sustainable investment practices [25].

Taking a different perspective on the impact of SRI, the United Nations' Principles for Responsible Investment (PRI) provides a compelling viewpoint. As of April 2017, PRI signatories were collectively responsible for the management of assets valued at approximately US$68 trillion. These signatories have made a dedicated commitment to integrating Environmental, Social, and Governance (ESG) factors into their investment decisions and ownership practices. This commitment not only underscores the growing importance of sustainability within the investment community but also fosters a marketplace that places a premium on responsible and sustainable investing.

The remarkable expansion and extensive acceptance of Sustainable and Responsible Investment (SRI) underscore the growing dedication within the financial sector to responsible investment strategies. This fundamental shift toward integrating sustainability and responsibility into investment practices harmonizes perfectly with the overarching objectives of green finance and the Sustainable Development Goals (SDGs). As the momentum behind SRI continues to build, it acts as a powerful catalyst for green finance, not only generating positive environmental outcomes but also promoting economic well-being and social inclusivity.

3. NEXUS OF GREEN FINANCE AND ISLAMIC FINANCE

In the landscape of contemporary finance, two distinct but increasingly interlinked paradigms have emerged as powerful agents of change: Green Finance and Islamic Finance. While Green Finance seeks to channel capital into sustainable, environmentally responsible ventures, Islamic Finance operates within the framework of Sharia principles, emphasizing ethical, equitable, and socially responsible financial practices. In recent years, the confluence of these two dynamic financial domains has given rise to a promising synergy, where the principles of sustainability and ethical finance converge. This chapter explores the intriguing nexus of Green Finance and Islamic Finance, delving into the shared values, complementary objectives, and innovative solutions that emerge when these two worlds intersect. It examines how the principles of Islamic Finance can bolster the foundations of Green Finance, creating a robust framework for sustainable development, ethical investment, and the collective pursuit of a greener, more equitable future.

3.1 The Definition of Green Finance

Wang and Zhi (2016) define green finance as financial activities that harmonize environmental preservation with economic profitability. At its core, green finance is centered on providing funding for investments that produce positive environmental outcomes [36]. According to Ozili (2021), green finance is the provision of funding for projects that not only generate economic advantages but also contribute to the advancement of a sustainable environment. Lindenberg (2014) extends the concept of green finance to encompass all

investments related to environmental goods and services, as well as investments in activities geared towards mitigating environmental and climate damage.
These outcomes span a broad range of objectives, encompassing the reduction of different types of pollution, the mitigation of greenhouse gas (GHG) emissions, the promotion of energy efficiency via technologies like wind energy, and the implementation of strategies to combat climate change. The primary aim of green finance is to direct financial resources toward projects and endeavours that promote environmental sustainability and play a role in shaping an eco-friendlier future, as emphasized by the United Nations [75].

3.2 The Importance of Green Finance

Green finance holds significant importance due to its perceived benefits, as outlined by various scholars and researchers. First, He et al. (2020) argue that green finance plays a pivotal role in fostering the development of smart cities over the long term. Smart cities are characterized by innovative urban planning and infrastructure that prioritize sustainability and efficiency.

Moreover, green finance contributes to inclusive economic growth, as emphasized by [76]. By channelling funds into environmentally responsible projects, it supports economic development that benefits a broader spectrum of society. This aligns with the goal of creating more equitable and sustainable economies. Additionally, Li et al. (2021) highlights the potential of investments in green projects to reduce both short-term and long-term carbon emissions. This aligns with global efforts to combat climate change and its associated environmental impacts, making green finance a critical tool in mitigating climate related challenges.

Furthermore, green financing offers advantages to institutional shareholders interested in impact investing, as noted by Tang and Zhang (2020) and Barber et al. (2021). Impact investing seeks to generate positive social and environmental effects alongside financial returns, aligning with the growing emphasis on responsible and ethical investment practices. Moreover, Reboredo (2018) suggests that green financing provides diversification benefits to investors in corporate and treasury markets. Diversification is a risk management strategy that involves spreading investments across different asset classes, enhancing overall portfolio resilience.

Lastly, an increase in green financing can reduce funding for fossil fuel activities that pose environmental and climate risks, contributing to the transition towards a more sustainable and climate-resilient economy. This point is emphasized by Sachs et al. (2019a) and Ozili (2022a), highlighting the potential of green finance to reshape financial markets and redirect capital towards environmentally responsible endeavours. Collectively, these perspectives underscore the multifaceted advantages associated with green finance, making it a significant driver of positive environmental, social, and economic outcomes.

3.3 Instruments and Mechanisms of Green Finance

Green finance assumes a crucial role in the promotion of sustainable development by enabling investments in initiatives and projects congruent with the principles of environmental conservation and climate resilience. This financial approach is primarily designed to tackle pressing challenges, including the reduction of pollution levels, the mitigation of climate change impacts, and the advancement of cleaner and more efficient energy utilization. In consequence, it actively contributes to the realization of the United Nations' Sustainable Development Goals (SDGs) and the overarching aims delineated in the Paris Agreement, thereby aligning its mission with globally recognized sustainability objectives.

A 'conventional' financial product, service, or instrument can undergo a 'green' transformation when it is employed as a means to generate funds dedicated to environmentally responsible investments, projects, or activities, as highlighted by Li et al. (2018). This transformation entails redirecting financial resources towards initiatives that prioritize environmental sustainability and positive ecological impacts. Several noteworthy examples of such 'green' financial products and services have emerged in recent years, illustrating the versatility and adaptability of traditional financial tools in promoting environmental wellbeing.

One exemplar is the provision of loans at reduced interest rates to support tree planting initiatives in local communities. These loans serve as a mechanism to incentivize and finance reforestation efforts, ultimately contributing to improved air quality, biodiversity, and carbon sequestration. Syndicated loans designed to fund cross-border green projects represent another avenue for channelling capital into large-scale international sustainability endeavours. These collaborative financial arrangements enable diverse stakeholders to participate in projects aimed at addressing global environmental challenges, such as renewable energy infrastructure development or climate-resilient infrastructure projects [11] [46].

Oh and Kim (2018) and Ozili (2022) show that Green mortgage loans have gained prominence as an effective way to promote sustainable housing and energy-efficient construction practices. These specialized mortgages offer favorable terms and incentives to homeowners who choose to implement environmentally friendly features in their properties, such as solar panels, energy-efficient insulation, or water-saving technologies. Such loans not only reduce the carbon footprint of residential buildings but also contribute to long-term energy savings for homeowners. Solar energy financing mechanisms play a pivotal role in expanding the adoption of clean and renewable energy sources. These financial products facilitate the installation of solar panels on residential and commercial properties, allowing individuals and businesses to harness solar power and reduce their reliance on fossil fuels. Clean air auto loan products represent a promising innovation in the automobile industry, providing financing options for environmentally friendly vehicles, such as electric cars and hybrid vehicles. These loans encourage the transition to cleaner transportation alternatives and contribute to reduced greenhouse gas emissions and air pollution.

Green finance instruments encompass a diverse array of financial mechanisms employed to secure funding for projects and initiatives aligned with environmental sustainability and climate resilience. These instruments play a pivotal role in mobilizing resources for endeavours that seek to address pressing environmental challenges and contribute to a greener and more sustainable future [15]. Within the literature, numerous examples of green finance instruments have been documented, each tailored to specific contexts and objectives. One prominent example is the issuance of green bonds, which have gained significant traction in recent years. Green bonds are debt securities that are exclusively earmarked for environmentally friendly projects, such as renewable energy installations, energy-efficient building construction, or sustainable water resource management. Investors in green bonds are attracted not only by financial returns but also by the opportunity to support initiatives that have a positive impact on the environment [11].

Structured green investment funds represent another facet of green finance, with Lindenberg (2014), Sachs et al. (2019), and Chang et al. (2019) discussing their importance. These funds pool capital from various investors and allocate it to a diversified portfolio of green assets, ranging from clean energy infrastructure to sustainable agriculture projects. They offer a convenient way for investors to engage in environmentally responsible investing while benefitting from professional fund management. Carbon market instruments constitute a specialized category within green finance. They involve the trading of carbon credits or emissions allowances as a means to incentivize emissions reduction and promote carbon neutrality. These instruments play a critical role in addressing climate change by putting a price on carbon emissions and encouraging businesses to adopt cleaner practices. Community-based green investment funds, as highlighted by Sachs et al. (2019), empower local communities to participate in environmentally sustainable initiatives. These funds often focus on grassroots projects that address specific environmental challenges within communities, fostering a sense of ownership and collaboration among residents.

Moreover, initiatives such as the green bond grant scheme (Chang et al., 2019) and the international climate fund (GFI, 2016) serve as mechanisms to provide financial support and incentives for green projects, particularly in regions where the transition to a low-carbon economy faces economic or regulatory challenges. Lastly, the green finance landscape also includes vehicles like green venture capital and green venture funds, as examined by Randjelovic et al. (2003) and Nassiry and Wheeler (2011). These funds specialize in financing innovative startups and businesses that develop sustainable technologies, products, or services. By fostering innovation in the green sector, they contribute to the growth of environmentally conscious industries.

3.4 Islamic Finance Approach to Green Finance and Investments

The significant proliferation of green finance in recent years reflects a growing interest among investors in actively addressing the challenges posed by climate change. An especially intriguing definition arising from this movement characterizes green finance as the strategic use of financial instruments to allocate capital with the explicit goal of achieving environmental objectives [58]. This perspective proves instrumental in bridging the connection between Islamic finance and green finance.

Islamic finance, much like green finance, finds its foundations in the principles of advancing and enriching sustainable development within a framework founded on fairness, equality, and ethical considerations. These shared principles trace their origins to the fundamental tenets of maqasid al-Shariah, emphasizing the imperative of safeguarding property (Al-maal) and progeny (Al-nasl). In accordance with Islamic teachings, humanity is entrusted with the stewardship of the Earth, tasked with the responsibility of working toward the betterment of all living beings, individuals, and future generations.

A notable advantage of Islamic finance lies in its capacity to attract fresh sources of funding that have not been fully harnessed by conventional green finance mechanisms [29]. This distinctive characteristic is progressively emerging as a compelling value proposition, further reinforcing the rationale for integrating green elements within the realm of Islamic finance. This convergence of principles and the untapped potential of Islamic finance in promoting environmentally responsible investments highlight the promising synergy between these two financial paradigms [16]. As the global community seeks innovative approaches to address pressing environmental challenges, the fusion of Islamic finance and green finance presents a fertile ground for advancing sustainable development while adhering to ethical and equitable principles.

Green Bonds and Sukuk share a common objective and serve as financial instruments designed to raise capital for environmentally sustainable projects and initiatives. However, they differ in their structures and adherence to specific financial and ethical principles. Green Bonds are conventional bonds that are issued with the explicit purpose of funding environmentally friendly projects. The issuer of a Green Bond commits to using the proceeds solely for projects and activities that have a positive environmental impact, such as renewable energy projects, clean transportation, or sustainable agriculture. On the other hand, Sukuk are Islamic financial instruments designed to adhere to Sharia principles. While they can also be used for environmentally sustainable projects, Sukuk are structured in accordance with Islamic finance principles, which prohibit interest (riba) and promote risk-sharing and ethical investments [5] [44] [75].

The rise of Green Bonds and Sukuk has been a noteworthy development in recent years, signalling a growing commitment to environmentally responsible financing. The global green bond market witnessed a remarkable surge from 2013 to 2017, with 2017 alone seeing an issuance volume of an impressive US$155.5 billion. This growth trajectory is expected to persist, with projections suggesting that the market could expand exponentially, reaching an astonishing US$1 trillion by 2020 [16]. These projections align with the ambitious goals set forth by organizations like the Climate Bonds Initiative and the Asian Development Bank (ADB).

The ascent of green bonds and Sukuk, along with their potential for continued expansion, underscores the pivotal role that green finance plays in addressing urgent environmental challenges and promoting sustainable development. As these financial instruments gain prominence, they contribute significantly to channelling capital towards projects that prioritize environmental preservation and ecological resilience, ultimately fostering a more sustainable and resilient global economy.

In July 2017, Malaysia achieved a significant milestone that resonated not only in the domain of green finance but also within the global sukuk market. This milestone was realized through the groundbreaking issuance of the world's first green Socially Responsible Investment (SRI) sukuk by Tadau Energy, a prominent player in Malaysia's renewable energy sector. As of April 2018, Malaysia witnessed a total of five issuances of green sukuk, collectively approved for issuance sizes amounting to RM3.7 billion. Notably, RM2.4 billion of this capital has been successfully allocated to finance an array of environmentally responsible projects, encompassing renewable energy ventures and green building initiatives.

The Malaysian government has made significant strides in advancing sustainability and fostering a green economy, as demonstrated by its 2021-2025 roadmap. This comprehensive plan includes a strong emphasis on enhancing green financing mechanisms and providing incentives to drive investments in renewable energy and environmentally responsible projects. Such a commitment reflects Malaysia's dedication to addressing environmental challenges and promoting sustainable economic growth. In line with these priorities, the Securities Commission Malaysia (SC Malaysia) took proactive measures in 2019 by launching the Sustainable and Responsible Investment (SRI) Roadmap for the Malaysian Capital Market. This roadmap serves as a strategic blueprint to create a conducive SRI ecosystem within the Malaysian capital market. It outlines the pivotal role that the capital market plays in propelling Malaysia's journey toward sustainable development. By facilitating sustainable and responsible investments, SC Malaysia aims to leverage the capital market as a powerful force for driving positive environmental and social outcomes.

Indonesia, too, left an indelible mark on the global sukuk market by launching the world's inaugural sovereign green sukuk, with a substantial value of US$3.25 billion. The proceeds generated from this five-year sukuk wakalah are explicitly earmarked for deployment through budget allocation, subsidies, or project funding, all dedicated to eligible green projects. These projects span across various sectors that play pivotal roles in advancing the transition towards a low-emission economy and fostering climate-resilient growth. They encompass initiatives focused on climate mitigation, adaptation, and biodiversity conservation.

As of the first half of 2022, the Indonesian government has emerged as a prominent issuer of ESG sukuk, with a particular focus on green sukuk. Indonesia is widely recognized as a trailblazer in the realm of green sukuk, and this distinction stems from its groundbreaking issuance of the world's first sovereign green sukuk in 2018. This pioneering move was driven by Indonesia's commitment to secure $50 billion in financing to fulfil its climate commitments and achieve ambitious national emissions-reduction targets by 2030.
Indonesia's commitment to green sukuk has been steadfast, with the government consistently issuing two green sukuk each year—one in the domestic market and another in the Eurobond market. Notably, in 2019, Indonesia

issued the world's first retail green sukuk, further emphasizing its dedication to expanding the reach of environmentally responsible investments. In total, Indonesia has successfully raised an impressive $5.8 billion through sovereign green sukuk issuances.

The proceeds generated from these green sukuk issuances have played a pivotal role in financing a diverse array of projects that contribute to environmental sustainability and climate resilience. These projects span a spectrum of crucial areas, including renewable energy development, energy efficiency enhancements, sustainable transportation initiatives, waste-to-energy projects, and effective waste management systems. Additionally, a significant portion of the funds has been channelled toward climate resilience efforts in areas that are particularly vulnerable to the impacts of climate change.

An exceptional facet of this sukuk program lies in its rigorous selection process, exclusively extending to sectors that received favorable assessments, varying from dark to medium to dark ratings. These assessments were conducted by the Centre for International Climate and Environmental Research (CICERO), an esteemed independent external reviewer. The purpose of such assessments was to provide investors with a high degree of confidence that their investments would be channelled into genuinely green and sustainable projects, ensuring the alignment of funds with environmental preservation and climate resilience objectives. These remarkable developments not only underscore the growing prominence of green finance within the Islamic finance sphere but also highlight the concerted efforts of nations like Malaysia and Indonesia in championing sustainable financing. They represent pioneering steps in leveraging the potential of sukuk as a potent tool for mobilizing capital towards initiatives that address critical environmental challenges and contribute to a more sustainable and resilient future.

Islamic green finance holds unparalleled potential, marking a confluence of ethical finance and environmental sustainability. This potential is underscored by a notable shift among institutional investors who are increasingly embracing responsible investment practices. A growing number of investors are recognizing the imperative of integrating environmental considerations into their portfolios, not only for ethical reasons but also due to the financial advantages associated with sustainable investments. Research by the Global Sustainable Investment Alliance (GSIA) has revealed that sustainable investing assets reached $35.3 trillion in 2020, reflecting a 15% increase from 2018, further attesting to the burgeoning demand for responsible financial products [25].

However, despite this surge in investor interest, the availability of green financial products tailored to Islamic finance principles remains somewhat limited on a global scale. Shariah-compliant green investment opportunities, which adhere to Islamic ethical guidelines, represent a niche segment within the broader sustainable finance landscape. To fully realize the potential of Islamic green finance, it is essential to address this gap and foster the development of a comprehensive ecosystem that accommodates the unique requirements of Shariah-compliant investors. To catalyse the growth of Islamic green finance, several key strategies are crucial. First, regulatory frameworks need to be established that provide clear guidelines and standards for Islamic green financial products. These regulations should ensure transparency, compliance with Shariah principles, and alignment with internationally recognized green standards. The involvement of regulatory authorities and religious scholars in shaping these frameworks is vital to build trust among investors. Financial institutions and governments must collaborate to create innovative Islamic green financial products that cater to a diverse range of investor preferences. This can include green sukuk, Islamic green bonds, and Shariah-compliant green investment funds. To date, Malaysia has been a pioneering player in the Islamic green finance space, issuing green sukuk and establishing a regulatory framework for sustainable and responsible investment. Such initiatives serve as exemplars of the potential for integrating Islamic finance principles with environmental sustainability objectives.

Indeed, Islamic green finance represents a compelling convergence of ethical finance and sustainable development. As institutional investors increasingly seek responsible investment opportunities, the growth potential of this sector is significant. To fully capitalize on this potential, building a robust ecosystem with clear regulatory guidelines, innovative financial products, and widespread awareness is essential. By aligning Islamic finance principles with green finance objectives, we can not only meet the demand for responsible investments but also contribute to global sustainability efforts.

4. BUILDING ISLAMIC GREEN FINANCE ECOSYSTEM

In an era marked by the pressing issues of climate change and environmental degradation, the confluence of Islamic finance and green finance emerges as a critical axis of exploration. As outlined in the previous chapter, there is a burgeoning awareness of the substantial prospects within Islamic green finance, as evidenced by a growing cohort of investors striving to harmonize their financial pursuits with ecologically responsible principles. This chapter embarks on an in-depth examination of the fundamental underpinnings and integral components that are indispensable in nurturing and advancing the domain of Islamic green finance. It endeavours to elucidate the multifaceted aspects, principles, and practices that underlie this dynamic and evolving field, shedding light on the pathways toward its robust development and sustained growth [27].

To provide a comprehensive understanding of Islamic green finance ecosystem, the chapter dissects its core components, including its financial instruments, investment principles, and regulatory frameworks. It delves into the various instruments employed in Islamic green finance, showcasing examples like green sukuk and ethical investment vehicles. Additionally, it elucidates the investment criteria and principles that guide Islamic green finance, emphasizing their alignment with sustainability and ethical considerations.
Furthermore, the chapter delves into the regulatory landscape, highlighting the efforts made by governments and financial institutions to foster Islamic green finance through policy and regulatory measures. It emphasizes the importance of robust governance and disclosure standards in ensuring transparency and accountability within this burgeoning field.

4.1 Regulatory Framework

Throughout the world, the development and establishment of standards and guidelines for the green bond market have been a collaborative effort involving both private and public sector entities. This collective endeavour has been instrumental in shaping the landscape of green finance. Various stakeholders, including Multilateral Development Banks (MDBs), non-profit organizations, and national governments, have actively contributed to the formulation and advancement of these standards and guidelines. This multifaceted approach underscores the pivotal roles played by both the public and private sectors in nurturing the field of green finance.

The significance of clear and universally accepted standards and classifications for green assets cannot be overstated, especially in the context of sustainable financing instruments such as green bonds and sukuk. These standards serve as crucial benchmarks, ensuring consistency and transparency in the structuring of green financial instruments. By adhering to established standards, issuers and investors alike can have confidence in the integrity and environmental impact of these instruments.

Several notable bodies have been at the forefront of developing and promoting these standards, thereby contributing to the global proliferation of green bonds and sukuk. For instance, the Climate Bonds Standard (CBS) introduced by the Climate Bonds Initiative (CBI) has played a pivotal role in providing a recognized framework for green bonds. Similarly, the Green Bond Principles (GBP) set forth by the International Capital Market Association (ICMA) have become widely adopted as guidelines for green bond issuance. In addition, the Sustainable and Responsible Investment (SRI) Sukuk Framework established by regulatory authorities, such as the Securities Commission (SC), has paved the way for the issuance of socially responsible Islamic bonds. On a broader regional scale, the ASEAN Green Bond Standards (ASEAN GBS) developed by the ASEAN Capital Markets Forum (ACMF) have contributed to the harmonization of green bond standards within the ASEAN region and beyond.

Malaysia has emerged as a prominent example in the realm of sustainable finance, showcasing a robust framework that successfully integrates Islamic finance with sustainable finance principles. This progressive approach took shape in 2014 when the Securities Commission Malaysia (SC) introduced the Sustainable and Responsible Investment (SRI) Sukuk Framework. This framework was designed to streamline the financing of SRI initiatives, encompassing a wide spectrum of projects, including those related to natural resources, renewable energy, energy efficiency, community, and economic development, as well as waqf properties and assets.

The introduction of the SRI Sukuk Framework was a pivotal step in Malaysia's developmental agenda. It aimed to foster an enabling environment for SRI issuers and investors, laying the groundwork for the convergence of Islamic finance with SRI and the green industry. Malaysia's experience in facilitating the issuance of green sukuk, driven by the development of this framework and the accompanying ecosystem, is poised to serve as a model for harmonizing Islamic finance with sustainable and green finance [25]. To further incentivize the utilization of green sukuk as a fundraising channel, several initiatives and incentives have been introduced in Malaysia, including World Bank (2019):

4.1.1 Tax Deduction

Issuers of SRI sukuk that are approved or authorized by or lodged with the SC are eligible for tax deductions on issuance costs until the year of assessment 2020. This financial incentive aims to reduce the financial burden on issuers and encourage SRI sukuk issuance.

4.1.2 Green SRI Sukuk Grant Scheme

Capital Markets Malaysia administers a RM6 million Green SRI Sukuk Grant Scheme. This initiative is designed to defray the costs associated with independent expert reviews incurred by sukuk issuers, making it more financially feasible for issuers to engage in green finance activities.

4.1.3 Tax Exemption

Recipients under the Green SRI Sukuk Grant Scheme enjoy tax exemptions from the year of assessment 2018 to 2020. This exemption serves as an additional incentive for stakeholders involved in green sukuk projects, further promoting their attractiveness as sustainable financing options. The combination of these incentives and the establishment of the SRI Sukuk Framework positions Malaysia as a pioneering force in aligning Islamic finance with sustainable development objectives. This holistic approach not only fosters responsible investment practices but also bolsters Malaysia's reputation as a trailblazer in sustainable finance on the global stage.

4.2 The Issuance of Green Sukuk

The issuance of green sukuk involves a comprehensive process, including the crucial step of obtaining an external review report to evaluate the alignment of the green sukuk with specific green sukuk standards or guidelines, such as the Green Bond Principles (GBP) or the Sustainable and Responsible Investment (SRI) Sukuk Framework. Before appointing an external reviewer, issuers are advised to establish their internal green sukuk framework, adhering to the selected green standards and guidelines. To enhance the quality of their framework, issuers may seek guidance from consultants or institutions with expertise in environmental sustainability and other aspects relevant to green sukuk issuance [56].

The internal green sukuk framework serves as a governance document through which issuers outline the designated use of proceeds from the green sukuk issuance. Typically, this entails allocating the proceeds to eligible environmentally friendly projects that align with the issuers' sustainability values. Such clarity and specificity in the framework are essential for providing investors with transparent information when making investment decisions. The activities covered by the green sukuk framework are inherently aligned with the core principles of the chosen green standards, such as GBP or ASEAN Green Bond Standards.

In the process of designing the green sukuk framework, issuers must carefully balance the trade-off between stringency and transparency. This means that the internal assessment of eligible green projects should undergo a rigorous selection process before the issuance of the sukuk. Subsequently, an external reviewer evaluates the quality and alignment of the green sukuk, ensuring that it adheres to the established green standards. This meticulous approach not only upholds the integrity of green finance but also provides investors with the confidence that their investments contribute to environmentally responsible projects of high quality.

Indonesia, in its pursuit of sustainable and environmentally responsible financing, has introduced a comprehensive Green Bond and Green Sukuk Issuance Framework. Under this Framework, the nation aims to fund or refinance "Eligible Green Projects" through the issuance of green bonds and sukuk. This initiative underscores Indonesia's strong commitment to addressing climate change, given its vulnerability to climate induced disasters and its vast tropical landscape and seascape with abundant biodiversity, high carbon stock values, and valuable energy and mineral resources. The nation's proximity to the global ocean conveyor system further exacerbates its susceptibility to natural disasters intensified by climate change. In response to these challenges, Indonesia has adopted the Framework, paving the way for its landmark issuance of sovereign green sukuk, the first under this framework.

Meanwhile, Tadau Energy, as the world's inaugural green sukuk issuer, has developed its green sukuk framework, providing a robust structure for climate-friendly investments and the assessment of environmental impacts arising from its projects. The proceeds from Tadau Energy's green sukuk are directed toward solar power development in Malaysia, a technology crucial for facilitating the transition to a low-carbon and climate-resilient society. Similarly, PNB Merdeka Ventures has implemented a green sukuk framework to ensure transparency, disclosure, and integrity throughout the green sukuk issuance process. This framework aligns with the guidelines set forth by the Sustainable and Responsible Investment (SRI) Sukuk Framework and the ASEAN Green Bond Standards.

Saiti and Othman (2017) think that the internal green sukuk framework, a pivotal governance document, serves as the primary reference for external reviewers tasked with evaluating the projects' environmental credentials. This assessment plays a crucial role in determining the greenness of the projects and, consequently, the value-added to the green sukuk issuance process. Issuers must exercise meticulous care during this evaluation, as it directly impacts the environmental integrity of the projects and contributes to the overall success of green sukuk initiatives.

While the idea of utilizing funds for green projects holds great promise, the issuance of green sukuk necessitates a thorough assessment and review process to ensure soundness and adherence to best practices. It is crucial to establish the eligibility of green projects to ensure that issuers meet all the requirements of project selection and management in accordance with international standards and best practices. This is where the role of external reviewers becomes indispensable, as they assess the alignment of the sukuk program with green sukuk standards or guidelines. Although not mandatory, appointing external reviewers significantly enhances investor confidence, signalling the authenticity of green sukuk and promoting accountability and transparency in Islamic green finance [12].

Advocacy for external reviewers has been robust, driven by the need to preserve the integrity of the green bond market. An independent external review report bolsters the credibility of a green bond issuer by complementing the issuer's disclosures. It also provides investors with a sense of assurance, thereby increasing their confidence that the proceeds from the issuance will exclusively fund environmentally beneficial projects. In June 2018, the International Capital Market Association (ICMA) introduced the Guidelines for Green, Social, and Sustainability Bonds External Reviews. These guidelines aim to promote best practices and complement existing relevant guidance, such as the Assurance Framework for Climate Bonds Standard (CBS), the draft EU Green Bond Standards by the High-Level Expert Group on Sustainable Finance, and the ASEAN Green Bond Standards.

These guidelines outline various types of external reviews, including second-party opinions, verification, certification, and green scoring/rating, predominantly conducted at the preliminary stage of green bond issuance. Institutions with environmental expertise, independent of the issuer, often provide second-party opinions. These opinions assess alignment with the principles of green bonds, including the issuer's objectives, strategy, policy, and processes related to environmental aspects and the evaluation of environmental and/or social features of the intended projects. An example of a second-opinion provider is CICERO, a climate research institute based in Oslo, Norway, which assesses issuers' frameworks for project selection and investment. CICERO's green methodology employs three green shades, providing transparent information on the environmental performance of issuers and their projects. These external reviews serve as an invaluable tool in ensuring the credibility and environmental impact of green sukuk issuances.

Issuers of green bonds or sukuk can seek independent verification against specific criteria, which typically pertain to business processes and environmental standards. This verification process may focus on alignment with internal or external standards and the claims made by the issuer. It may also evaluate the environmentally or socially sustainable aspects of underlying assets. Assurance or attestation regarding the issuer's internal tracking methods for the use of proceeds, fund allocation, statements of environmental or social impact, or alignment of reporting with established principles can also be part of this verification process. Certification, on the other hand, is a robust and effective mechanism that enhances confidence and transparency in the mainstream debt capital markets. Climate Bonds Standard (CBS) provides tools for investors and intermediaries to assess the environmental integrity of bonds. The CBS incorporates the Green Bond

Principles (GBP) and outlines sector-specific technical criteria embedded with a taxonomy for eligible projects and assets (CBS, 2020; GBP, 2019).
If an issuer intends to issue green bonds under the Climate Bonds Initiative (CBI) standards, they can choose from a list of approved verifiers provided on CBI's website. These verifiers match with the bonds' geographical coverage and sector criteria, allowing issuers to engage with a verifier that suits their needs. Issuers have the option to certify their green bonds or associated green bond frameworks against recognized external green standards or labels. These standards or labels define specific criteria, and alignment with them is typically verified by qualified and accredited third parties. This verification process ensures consistency with the certification criteria [16].

For example, PNB Merdeka Ventures' Green SRI Sukuk RM2 billion program, which aims to fund an 83storey office space within the Merdeka PNB118 tower project, sought certification for green building practices. The project received a medium green rating from CICERO, the second-opinion reviewer of its green sukuk framework. The assessments demonstrated that the project was rigorously pursuing environmental sustainability and aimed for triple platinum sustainability certification under the Malaysian.

Green Building Index (GBI), Malaysian Green RE program, and the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. The project had achieved precertification at the highest level (Platinum) under GBI and GreenRE and expected to attain a strong Gold or Platinum LEED certification. This certification process underscores the commitment to environmentally friendly practices within green finance initiatives.

Issuers of green bonds or sukuk can opt to have their green bond, associated green bond framework, or specific features like the use of proceeds assessed by qualified third parties. These third parties often include specialized research providers or rating agencies that employ established scoring or rating methodologies. The output of this assessment may include a focus on various aspects such as environmental and/or social performance data, the issuer's adherence to established principles, or benchmarks like alignment with a 2degree climate change scenario. It's important to note that this scoring or rating process is distinct from traditional credit ratings, although credit ratings may still reflect significant environmental risks associated with the issuer's activities [27]. This additional evaluation offers investors valuable insights into the environmental and social performance of green finance initiatives beyond their financial creditworthiness.

4.3 Shariah Compliance in Islamic Green Finance

To ensure the seamless integration of Islamic finance with green finance principles, it is paramount to uphold strict adherence to Shariah law. This section delves into the critical mechanisms and processes that underpin the Shariah compliance of green financial products and investments. It sheds light on the pivotal role played by Shariah scholars in this context and explores the evolving trends in Shariah-compliant green finance structures.

4.3.1 Shariah Compliance Mechanisms

In the realm of green finance within the Islamic framework, maintaining Shariah compliance is the cornerstone. This involves a rigorous process that encompasses several key aspects:

a. **Shariah Screening:** One of the initial steps in ensuring Shariah compliance for green finance initiatives involves rigorous screening. This entails scrutinizing potential investments or projects to ensure they align with Islamic ethical and moral principles. Activities or industries considered haram (forbidden) in Islamic finance, such as those related to alcohol, gambling, or pork, are excluded from green finance portfolios [1].

b. **Shariah Scholars:** Central to the process are Shariah scholars, who provide the essential oversight needed to evaluate and approve green finance projects. These scholars possess expertise in Islamic jurisprudence and finance, enabling them to assess the ethical and financial aspects of proposed initiatives. Their involvement ensures that all investments and financial products adhere to Shariah principles.

c. **Transparency and Accountability:** Transparency and accountability are integral to Shariah compliance in green finance. Comprehensive documentation and reporting are essential to demonstrate that all investment activities are in line with Islamic principles. This includes disclosing how the funds are utilized and providing investors with regular updates on the environmental and financial performance of green projects.

4.3.2 Emerging Trends in Shariah-Compliant Green Finance Structures

As the intersection of Islamic finance and green finance gains prominence, several noteworthy trends have emerged in the development of Shariah-compliant green finance structures:

a. **Sukuk Al-Ijarah:** Sukuk Al-Ijarah, a type of Islamic bond, has gained attention as a viable instrument for financing green projects. These sukuk are structured to adhere to Shariah principles and support environmentally sustainable initiatives. Their popularity reflects a growing demand for Islamic finance solutions that align with green objectives.

b. **Sustainable Wakaf:** The concept of Wakaf (endowment) in Islamic finance has been adapted to support sustainable and green projects. By dedicating specific assets or funds to environmental causes, Islamic financial institutions contribute to the development of eco-friendly initiatives while adhering to Shariah principles.

c. **Ethical Investment Funds:** Shariah-compliant ethical investment funds have emerged to cater to investors seeking financial products that align with both Islamic values and environmental responsibility. These funds invest in companies and projects that meet strict ethical and environmental criteria.

d. **Impact Measurement:** Shariah-compliant green finance structures increasingly focus on measuring and reporting the environmental and social impact of their investments. This aligns with the broader trend in green finance, where transparency and accountability in terms of impact are paramount.

Obviously, the fusion of Islamic finance with green finance necessitates unwavering commitment to Shariah compliance. The involvement of Shariah scholars, transparent reporting, and emerging financial structures, such as Sukuk Al-Ijarah and sustainable Wakaf, are indicative of the dynamic and evolving landscape of Shariah-compliant green finance. These developments reinforce the compatibility of Islamic finance with the principles of environmental sustainability, offering investors an ethical and sustainable avenue for financial growth.

4.4 Islamic Green Financial Instruments

The success of green finance initiatives heavily relies on the availability of effective financial instruments that can efficiently channel investments into sustainable and environmentally responsible projects. This section delves into the diverse spectrum of Islamic financial instruments that can be customized to support green finance endeavours. Through real-world illustrations of green sukuk and other innovative financial products, we illuminate the versatility of Islamic finance in addressing pressing environmental challenges [12].

4.4.1 Sukuk Al-Ijarah: Pioneering Green Finance

One of the standout financial instruments at the intersection of Islamic finance and green finance is Sukuk Al-Ijarah. These Shariah-compliant Islamic bonds have garnered significant attention for their ability to finance green projects while adhering to Islamic principles. Sukuk Al-Ijarah can be structured in various ways to support environmental sustainability:

a. **Asset-Backed Green Sukuk:** In this model, Sukuk Al-Ijarah is backed by tangible green assets, such as renewable energy infrastructure or eco-friendly real estate projects. Investors receive periodic returns, and upon maturity, they receive the initial investment amount. The income generated from these investments is directed toward green initiatives, ensuring a positive environmental impact [6].

b. **Green-Wakaf Sukuk:** Incorporating the Islamic concept of Wakaf (endowment), these sukuk allocate funds specifically for sustainable and charitable purposes. Investors contribute to the Wakaf and receive returns in compliance with Shariah law. The proceeds are channelled into green projects, offering investors both financial growth and the satisfaction of contributing to environmental causes [40].

4.4.2 Ethical Investment Funds: Aligning Profit with Principles

Ethical investment funds, a hallmark of Islamic finance, play a pivotal role in green finance. These funds provide investors with opportunities to grow their wealth while adhering to Islamic values and contributing to environmental sustainability. Such funds select investments based on rigorous ethical and environmental criteria:

a. **Ethical Equities:** These funds invest in shares of companies that meet strict ethical and environmental standards. By supporting eco-conscious enterprises, investors not only profit financially but also promote responsible business practices.

b. **Green Real Estate Investment Trusts (REITs):** Green REITs specialize in environmentally sustainable real estate projects. Investors in these trusts benefit from rental income and capital appreciation generated by green properties, fostering both financial growth and eco-friendly development [17].

4.4.3 Impact Investment Platforms: Measuring Environmental Outcomes

In the realm of Islamic green finance, impact investment platforms are gaining prominence. These platforms allow investors to allocate funds to projects with quantifiable environmental and social impacts:

a. **Renewable Energy Projects:** Impact investment platforms facilitate investments in renewable energy initiatives, such as solar and wind farms. Investors can track the amount of clean energy generated and the reduction in carbon emissions, offering transparency and accountability [33].
b. **Green Microfinance:** Targeting environmentally responsible entrepreneurship, green microfinance initiatives provide funding to small businesses engaged in eco-friendly practices. Investors witness the positive social and environmental changes resulting from their investments [38].

4.4.4 Emission-Reduction Sukuk: Innovative Financial Solutions

In the pursuit of environmental sustainability, emission-reduction sukuk have emerged as innovative financial tools. These sukuk are designed to fund projects and technologies that mitigate greenhouse gas emissions:

a. **Carbon-Neutral Transportation Sukuk:** Emission-reduction sukuk can support the development of carbon-neutral transportation systems, such as electric public transport networks. Investors contribute to reducing pollution while benefiting from sukuk returns [37].
b. **Carbon Capture and Storage (CCS) Sukuk:** Funding CCS projects through sukuk enables the capture and safe storage of carbon dioxide emissions. This technology plays a crucial role in mitigating climate change and is supported by environmentally conscious investors [68].

4.4.5 SRI Sukuk Framework: Bridging Islamic Finance and Sustainability

In a concerted effort to harmonize Islamic finance with global sustainability objectives, the Securities Commission Malaysia (SC) introduced the SRI Sukuk Framework, a groundbreaking initiative that has been instrumental in propelling green finance within the Islamic financial landscape. This innovative framework delineates the criteria and guidelines for issuing Socially Responsible Investment (SRI) sukuk, with a primary focus on promoting transparency and accountability in these ethical financial instruments [3][32][37][68][55]. The core components of the SRI Sukuk Framework lay the foundation for responsible and sustainable financial practices:

a. **Use of Proceeds Clarity**
Under this framework, SRI sukuk issuers are mandated to provide a clear and explicit account of how the raised funds will be utilized, ensuring that they are exclusively directed toward eligible SRI projects. These projects encompass a wide spectrum, spanning natural resource preservation, renewable energy, energy efficiency, community and economic development, as well as waqf

properties and assets. This stipulation establishes a direct connection between capital mobilization and sustainable endeavours.

b. **Assessment and Reporting Mechanisms**
To further enhance transparency and credibility, the framework allows for the appointment of independent assessors who evaluate the eligible SRI projects. These assessors serve as an additional layer of scrutiny, reinforcing the ethical and environmental standards of SRI sukuk. Moreover, issuers are obliged to furnish annual reports to investors, offering comprehensive insights into the progress and impact of these projects. This annual reporting not only fosters accountability but also promotes informed investment decisions.

c. **Diverse Range of Eligible SRI Projects**
The SRI Sukuk Framework encompasses a diverse array of projects that are considered eligible for SRI sukuk issuance. These projects span multiple categories, including renewable energy initiatives, environmental conservation efforts, social welfare programs, and educational endeavours. By categorizing these projects, the framework ensures that SRI sukuk align with overarching sustainable development objectives, reinforcing the commitment to addressing pressing social and environmental challenges [55].

d. **Alignment with Sustainable Development Goals (SDGs)**
An integral facet of the SRI Sukuk Framework is its emphasis on aligning SRI projects with the United Nations' Sustainable Development Goals (SDGs). This alignment underscores the global commitment to addressing complex social and environmental issues and harnesses the potential of Islamic finance to contribute meaningfully to these shared goals [54].

The SRI Sukuk Framework, born from the vision of the Securities Commission Malaysia, serves as an exemplary model for jurisdictions worldwide seeking to integrate Islamic finance with sustainability imperatives. Its robust emphasis on transparency, accountability, and alignment with global sustainability goals has been instrumental in advancing the field of Islamic green finance and demonstrates the potential for ethical financial instruments to drive positive social and environmental change.

4.5 Risk Management in Islamic Green Finance

In the realm of Islamic green finance, prudent risk management is indispensable due to the distinctive nature of green investments. This section meticulously assesses the risk factors intertwined with green projects and delves into innovative strategies for managing and mitigating these risks while staying true to the tenets of Islamic finance. Through real-world case studies and exemplary practices, we unveil successful risk management approaches [3].

4.5.1 Identifying Green Investment Risks

Green investments, while aligned with noble environmental objectives, are not without risks. Islamic green finance projects face several distinctive risks that necessitate careful consideration:

- **Environmental Risk:** Projects aimed at environmental sustainability may be susceptible to natural disasters, climate change impacts, or regulatory changes. Assessing and managing these risks are paramount to project success.
- **Regulatory and Compliance Risk:** Evolving environmental regulations and standards can impact green projects. Complying with these regulations is crucial to avoid legal and reputational risks.

- **Market and Financial Risks:** Fluctuations in commodity prices, currency exchange rates, and interest rates can affect the financial viability of green projects. Developing risk-mitigation strategies is essential.
- **Reputation Risk:** In the socially conscious landscape of green finance, any perceived deviation from ethical and sustainable practices can lead to significant reputational damage. Ensuring transparency and integrity is vital.
- **Technology Risk:** Investments in cutting-edge green technologies may carry inherent technological risks. Staying abreast of technological advancements is vital for risk management.

4.5.2 Shariah-Compliant Risk Mitigation Strategies

Mitigating risks in Islamic green finance requires innovative approaches that align with Shariah principles. The following strategies exemplify how Islamic finance principles can be harnessed to address green investment risks:

- **Takaful-Based Insurance:** Islamic finance's equivalent of conventional insurance, Takaful, offers risk sharing mechanisms. Takaful funds can be utilized to cover environmental and compliance risks, providing protection while adhering to Shariah principles [55].
- **Waqf-Backed Risk Reserves:** Leveraging the Islamic concept of Waqf, green finance projects can establish risk reserve funds. These funds, built on donated assets, serve as a financial safety net to address unforeseen environmental or market risks [59].
- **Ethical Screening and Due Diligence:** Prior to investment, rigorous ethical screening and due diligence can help identify and avoid projects with inherent environmental, regulatory, or reputational risks. Sharia compliant principles guide this assessment.

Eventually, Islamic green finance projects navigate a unique landscape of risks that require tailored strategies. By embracing Shariah-compliant risk mitigation approaches, such as Takaful-based insurance, Waqf-backed risk reserves, and ethical screening, these projects can effectively safeguard their investments while upholding ethical and environmental values. Case studies underscore the practicality and success of these risk management strategies in real-world Islamic green finance initiatives, fostering a sustainable and responsible financial ecosystem.

4.6 Market Development in Islamic Green Finance

The growth of Islamic green finance markets relies on a collaborative effort involving various stakeholders, and governments play a pivotal role in nurturing this burgeoning sector. Governments can drive market expansion by establishing supportive regulatory frameworks that offer incentives such as tax benefits and favourable lending terms for green finance projects. Demonstrating a commitment to sustainability through national policies and climate goals sends a powerful message to investors and financial institutions. Additionally, investing in capacity building by training financial professionals in both Islamic finance and environmental sustainability ensures effective market development.

Financial institutions, including Islamic banks and investment firms, are essential players in advancing Islamic green finance. They contribute by innovating financial products tailored to meet the evolving needs of investors, such as green sukuk and ethical investment funds. Offering risk-sharing mechanisms like Takaful insurance and Waqf-based reserves builds investor confidence, particularly in projects with inherent environmental or market risks. Moreover, developing in-house expertise in green financing ensures financial institutions can rigorously assess the viability and environmental impact of projects, thereby contributing to market growth.

Civil society and public awareness are critical drivers of market development. Civil society organizations can advocate for Islamic green finance and raise awareness about ethical and sustainable investment opportunities. Educating consumers about the benefits of ethical investments is paramount in stimulating demand for Islamic green financial products, thus creating a sustainable market. Moreover, promoting transparency and accountability by monitoring and reporting on the environmental and social impacts of projects ensures the credibility and integrity of Islamic green finance.

4.6.1 International Collaboration and Partnerships

Cross-border collaborations and international partnerships hold immense potential for Islamic green finance. Collaboration between countries can facilitate the flow of Islamic green investments across borders, enabling capital to reach projects with the greatest environmental impact. Additionally, international partnerships foster knowledge exchange on best practices in Islamic green finance, encouraging countries to learn from each other's successes and challenges. Standardizing Islamic green finance criteria and regulations on a regional or global scale can enhance market confidence and attract international investors.

To illustrate the effective development of Islamic green finance markets, we explore noteworthy case studies. The Malaysian Green Sukuk Initiative serves as an exemplary model where the government, financial institutions, and civil society collaborated to develop a thriving market for green sukuk. Clear regulatory frameworks, innovative financial products, and public awareness campaigns have made Malaysia a global leader in Islamic green finance. Moreover, cross-border collaborations between Gulf Cooperation Council (GCC) countries and Southeast Asian nations have led to the issuance of cross-border Islamic green bonds, enhancing the flow of capital to fund environmentally sustainable projects across regions. Lastly, global platforms and ethical investment networks established by civil society organizations facilitate cross-border investments in projects that align with ethical and environmental values, further promoting Islamic green finance on a global scale.

5. CONCLUSION

In a world grappling with escalating environmental crises and an urgent call for global climate action, the financial sector finds itself at a momentous crossroads. This journey through the intersection of Islamic finance and sustainable investments reveals a potent catalyst for transformative global change. Climate induced challenges have not spared corporations in vulnerable regions, underscoring the critical need to confront climate risks head-on. While Islamic finance inherently champions ethical financial practices, the existing body of knowledge in the realm of green finance remains relatively sparse.

This article has ventured into uncharted territory, contributing to bridging this research void by exploring the pivotal role of Islamic finance in reshaping the financial landscape to align with sustainability goals. The emergence of Islamic green sukuk since 2017 offers a beacon of hope, providing promising avenues to address sustainability concerns within financial systems. This convergence of green and Islamic finance, particularly in Islamic economies like Malaysia, exemplifies the potential to shift towards low-carbon investments while remaining steadfast to Islamic principles.

Our exploration of "Greening Islamic Finance" has illuminated its significance in mobilizing climate action investments. It has carefully navigated the intricate relationship between Islamic finance and environmentally conscious investments, shedding light on the development of the Islamic green finance ecosystem and alignment strategies. The urgency of climate action cannot be overstated, and this study underscores the vital role Islamic finance can play in guiding the world toward a sustainable, climate resilient future.

As we conclude this expedition through the realms of foundational principles, ethical finance, climate finance, and practical case studies, a resounding message emerges: the convergence of these vital domains heralds a new era of responsible financial stewardship for a greener planet. Islamic finance, with its inherent commitment to ethical values and principles, is well-poised to lead the way towards a financial frontier where sustainability and profitability walk hand in hand. In this transformative journey, the financial sector has a unique opportunity to be a beacon of hope, steering humanity towards a future where responsible financial practices underpin a thriving and resilient planet for generations to come. The fusion of Islamic finance and sustainable investments is no longer a mere aspiration; it is a clarion call for a sustainable financial frontier that beckons us all to partake in shaping a better world.

REFERENCES

1. AAOIFI (2017), Shari'ah Standards (Full Text of Sharia'ah Standards for Islamic Financial Institutions as at Safar 1439 A.H - November 2017 A.D), The Accounting and Auditing Organization for Islamic Financial, Manama.
2. Aassouli, D., Asutay, M., Mohieldin, M. and Nwokike, T.C. (2018), "Green Sukuk, Energy Poverty, and Climate Change A Roadmap for Sub-Saharan Africa".
3. Abdullah, M.S. and Keshminder, J.S. (2022), "What drives green sukuk? A leader's perspective", Journal of Sustainable Finance and Investment, Vol. 12 No. 3, pp. 985-1005.
4. Abdullah, N. and Nayan, M.A. (2020), "Green sukuk: financing the future to sustainable environment", IJZIP: International Journal of Zakat and Islamic Philanthropy, Vol. 2 No. 2, pp. 2672-7471.
5. Ahmed, H., Mohieldin, M., Verbeek, J., & Aboulmagd, F. W. (2015). "On the Sustainable Development Goals and the Role of Islamic Finance." Policy Research Working Paper, World Bank, No. WPS7266.
6. Alam, N., Duygun, M. and Ariss, R.T. (2016), "Green sukuk: an innovation in Islamic capital markets", in Dorsman, A., Arslan-Ayaydin, Ö. and Karan, M.B. (Eds), Energy and Finance, Springer International Publishing, Cham, pp. 167-185.
7. Anugrahaeni, P. (2017), "Analysis of Indonesian sovereign green bond and green sukuk initiatives analisis inisiatif sovereign green bond dan green sukuk Indonesia", Kajian Ekonomi Dan Keuangan, Vol. 1 No. 1, pp. 1-24.
8. Azhgaliyeva, B.Y.D. and Kapsalyamova, Z. (2022), "Financing climate change mitigation using green sukuk", IAEE Energy Forum/Third Quarter 2022, pp. 1-7.
9. Azhgaliyeva, D., Kapoor, A. and Liu, Y. (2020), "Green bonds for financing renewable energy and energy efficiency in South-East Asia: a review of policies", Journal of Sustainable Finance and Investment, Vol. 10 No. 2, pp. 113-140.
10. Barber, B. M., Morse, A., & Yasuda, A. (2021). "Impact investing." *Journal of Financial Economics*, *139*(1), 162-185.
11. Berensmann, K., & Lindenberg, N. (2016). "Green finance: actors, challenges and policy recommendations." *German Development Institute, Briefing Paper*, *23. Bonn*.
12. Brahim, C.T. (2018), "The role of green Islamic sukuk to the promotion of sustainable development objectives", Journal of the New Economy, Vol. 01, pp. 186-207.
13. Burhan, A. (2020), "Dampak COVID-19 Terhadap Kinerja BMT", Jakarta.
14. Chamani, A., Anshory, A., Hudaefi, F.A., Junari, U.L. and Zaenal, M.H. (2020), "The role of zakat institution in preventing COVID-19", Policy Brief March 2020.
15. Chang, Y. (2019). "Green finance in Singapore: barriers and solutions." *ADBI Working Paper 915 (2019), Available at SSRN: https://ssrn.com/abstract=3326287*.
16. Climate Bonds Initiative (2022), "Climate bonds initiative", Climate Bonds Initiative, available at: www. climatebonds.net/
17. Dinçer, H., Yüksel, S. and Karakus, H. (2022), "The role of green sukuk for sustainable energy production", pp. 42-55.
18. Dörry, S. and Schulz, C. (2018). "Green financing, interrupted: potential directions for sustainable finance in Luxembourg." *Local Environment*, *Vol. 23 No. 7*, pp. 717-733.

19. Eccles, R. G., & Serafeim, G. (2013). "The performance of corporate sustainability and environmental, social, and governance (ESG) criteria: A meta-analysis of empirical studies." *Journal of Sustainable Finance & Investment*, *3*(2), 112-131.
20. Endo, Y. (2018), “Literature reviews”, Ultrasound Quarterly, Vol. 34 No. 4, pp. 297-299.
21. Financing a European Sustainable Economy (2017) *Interim report, by the high-level expert group on sustainable finance.*
22. Fitrah, R. and Soemitra, A. (2022), “Green sukuk for sustainable development goals in Indonesia: a literature study”, Jurnal Ilmiah Ekonomi Islam, Vol. 8 No. 1, pp. 231-240.
23. Fullwiler ST (2015). "Sustainable finance: building a more general theory of finance." *Binzagr Institute for Sustainable Prosperity, Working paper no. 106*.
24. Geczy, C., Stambaugh, R., & Levin, D. (2020). "Investing in Socially Responsible Mutual Funds." *Journal of Finance*, *75*(5), 2387-2427.
25. Global Sustainable Investment Alliance (GSIA)." (2020). *Global Sustainable Investment Review 2020*.
26. He, Z., Liu, Z., Wu, H., Gu, X., Zhao, Y., & Yue, X. (2020). "Research on the Impact of Green Finance and Fintech in Smart City." *Complexity*, *2020*.
27. Hossain, G.M.S. (2020), “Predicting corporate green sukuk rating, Hamad bin Khalifa university”, available at: https://search.proquest.com/openview/6f63f2da402b916f4ccd2e16c0dfc317/1?pq-origsite¼gscholar&cbl¼2026366&diss¼y
28. Huang, H.H., Kerstein, J., and Wang, C. (2018). "The impact of climate risk on firm performance and financing choices: an international comparison." *Journal of International Business Studies, Vol. 49 No. 5*, pp. 633-656.
29. IFEES The Islamic Foundation For Ecology And Environmental Sciences (2015). Islamic Declaration on Global Climate Change." *http://islamicclimatedeclaration.org/islamic-declaration-on-global-climate change/.*
30. Islamic Development Bank (2015). “The Role of Islamic Finance in Achieving Sustainable Development Goals”." *Published by Islamic Development Bank.*
31. Jin, I. and Kim, Y. (2017). “Analysis of the impact of achieving NDC on public climate finance”." *Journal of Sustainable Finance and Investment*, *Vol. 7 No. 4*, pp. 309-334.
32. Keshminder, J., K. Bariam Singh, G., Wahid, Z.A. and Syafiq Abdullah, M. (2019), “Green sukuk: Malaysia taking the lead”, Majcafe.Com, Vol. 22 No. Special Edition 2, pp. 1-22.
33. Keshminder, J.S., Abdullah, M.S. and Mardi, M. (2022), “Green sukuk – Malaysia surviving the bumpy road: performance, challenges and reconciled issuance framework”, Qualitative Research in Financial Markets, Vol. 14 No. 1, pp. 76-94.
34. Khalilurrahman, K. and Mubarrak, H. (2022), “Retail green sukuk in Indonesia: toward a Maqashid approach”, Share: Jurnal Ekonomi Dan Keuangan Islam, Vol. 11 No. 1, p. 208.
35. Lin Ngan, S., Angelo Promentilla, M.B., Yatim, P., and Loong Lam, H. (2018). “A Novel Risk Assessment Model for Green Finance: The Case of Malaysian Oil Palm Biomass Industry.”" *doi: 10.1007/s41660-0180043-4.*
36. Lindenberg, N. (2014). "Definition of green finance." *Lindenberg, Nannette, Definition of Green Finance (April 15, 2014). DIE mimeo.*"
37. Liu, F.H.M. and Lai, K.P.Y. (2021), “Ecologies of green finance: Green sukuk and development of green Islamic finance in Malaysia”, Environment and Planning A: Economy and Space, Vol. 53 No. 8, pp. 18961914.

38. Masruro, U. and Nasrulloh, U.F. (2022), “Green sukuk investment: student’s role and interest in realizing a golden Indonesia 2045”, Journal of Interdisciplinary Socio-Economic and Community Study, Vol. 2 No. 1, pp. 1-10.
39. Misa Darko, E. (2022), “Examining the relationship between sustainable finance and green economic progress in Ghana: the stakeholders’ perspectives”, IOP Conference Series: Earth and Environmental Science, Vol. 1044 No. 1, p. 12013.
40. Musari, K. (2022), “Integrating green sukuk and cash waqf linked Sukuk, the blended Islamic finance of fiscal instrument in Indonesia: a proposed model for fighting climate change”, International Journal of Islamic Khazanah, Vol. 12 No. 2, pp. 133-144.
41. Narayan, P.K. and Phan, D.H.B. (2019), “A survey of islamic banking and finance literature: Issues, challenges and future directions”, Pacific-Basin Finance Journal, Vol. 53 No. February, pp. 484-496.
42. Narayan, P.K., Rizvi, S.A.R. and Sakti, A. (2022), “Did green debt instruments aid diversification during the COVID-19 pandemic?”, Financial Innovation, Vol. 8 No. 1, p. 21.
43. Nassiry, D., & Wheeler, D. (2011). "A green venture fund to finance clean technology for developing countries." *Center for Global Development Working Paper No. 245.*
44. Obaidullah M (2017). “Managing climate change: The role of Islamic finance”." *IRTI Policy Paper, (201701)*.
45. Oh, D., & Kim, S. H. (2018). “Green finance in the Republic of Korea: Barriers and solutions (No. 897).”" *ADBI Working Paper*. *Tokyo.*
46. Ozili, P. K. (2021b). "Managing Climate Change Risk: The Policy Options for Central Banks." *In New Challenges for Future Sustainability and Wellbeing.* Özen, E., Grima, S. and Gonzi, R.D. (Ed.) *Emerald Studies in Finance, Insurance, and Risk Management. Emerald Publishing Limited*, *Bingley*, pp. 307-318.
47. Ozili, P.K. (2021a). "Digital Finance, Green Finance and Social Finance: Is thera a Link?" *Financial Internet Quarterly*, *17(1)*, 1-7.
48. Ozili, P.K. (2022a). "Theories of sustainable finance." *Managing Global Transitions*, *Vol. 20, No. 4*, December. Forthcoming.
49. Ozili, P.K. (2022b). "Policy perspectives in promoting green finance." *Working Paper*. Forthcoming.
50. Ozili, P.K.(2022c). "Circular economy and central bank digital currency." *Circular economy and sustainability Journal.* Forthcoming
51. Pickering, J. and Mitchell, P. (2017). "Erratum to: What drives national support for multilateral climate finance? International and domestic influences on Australia’s shifting stance." *International Environmental Agreements: Politics, Law and Economics*, *Vol. 17 No. 1*, pp. 127-127.
52. Prakash, N. and Sethi, M. (2021), “A review of innovative bond instruments for sustainable development in Asia”, International Journal of Innovation Science, doi: 10.1108/IJIS-10-2020-0213.
53. Raberto, M., Ozel, B., Ponta, L., Teglio, A., and Cincotti, S. (2018). “From financial instability to green finance: the role of banking and credit market regulation in the eurace model”." *Journal of Evolutionary Economics*, *doi: 10.1007/s00191-018-0568-2*.
54. Raeni, R., Thomson, I. and Frandsen, A.-C. (2022), “Mobilising Islamic funds for climate actions: from transparency to traceability”, Social and Environmental Accountability Journal, Vol. 42 Nos 1/2, pp. 3862.
55. Richardson, E. (2019), “Responsible finance sukuk—can they bring societal value to a value-neutral market?”, Capital Markets Law Journal, Vol. 14 No. 3, pp. 394-428.
56. Roslen, S.N.M., Sahlan, L.A.B. and Mary, P. (2021), “Yield behavior of green SRI sukuk”, Global Business and Management Research, Vol. 13 No. 4, pp. 127-138.

57. Ryszawska B (2016). "Sustainability transition needs sustainable finance."" *Copernican J Finance Account*, *5*(1):185–194. *https://doi.org/10.12775/CJFA.2016.011*.
58. Sachs, J., Woo, W. T., Yoshino, N., & Taghizadeh-Hesary, F. (2019a). "Importance of green finance for achieving sustainable development goals and energy security." *Handbook of green finance: Energy security and sustainable development*, 3-12.
59. Saeed, M. (2021), "Green sukuk for financing renewable projects in Islamic social finance", Contemporary Issues in Islamic Social Finance, Vol. 12, Routledge, London, pp. 331-346.
60. Sasongko, A. and Sakti, A. (2020), "Sovereign green Sukuk: environmental Risk Model development", No. WP/2/2020.
61. Schaltegger, S., & Burritt, R. (2017). "Contemporary Environmental Accounting: Issues, Concepts, and Practice."" *Routledge*.
62. Septiana, E. and Dewi, G. (2008), "Challenges and opportunities for the development of green sukuk in Indonesia", Budapest International Research and Critics Institute-Journal (BIRCI-Journal), Vol. 5 No. 3, pp. 18488-18500.
63. Sisodia, G., Joseph, A. and Dominic, J. (2022), "Whether corporate green bonds act as armour during crises? Evidence from a natural experiment", International Journal of Managerial Finance, Vol. 18 No. 4, pp. 701-724.
64. Siswantoro, D. (2018), "Performance of Indonesian green sukuk (islamic bond): a sovereign bond comparison analysis, climate change concerns?", IOP Conference Series: Earth and Environmental Science, Vol. 200 No. 1, p. 12056.
65. Siswantoro, D. and Surya, H.V. (2021), "Indonesian green sukuk (islamic bond) of climate change: a revisited analysis", IOP Conference Series: Earth and Environmental Science, Vol. 716 No. 1, p. 12044.
66. Snyder, H. (2019), "Literature review as a research methodology: an overview and guidelines", Journal of Business Research, Vol. 104 No. July, pp. 333-339.
67. Sukmana, R. (2020), "Critical assessment of Islamic endowment funds (WAQF) literature: lesson for government and future directions", Heliyon, Vol. 6 No. 10, p. e05074.
68. Suroso, D.S.A., Setiawan, B., Pradono, P., Iskandar, Z.S. and Hastari, M.A. (2022), "Revisiting the role of international climate finance (ICF) towards achieving the nationally determined contribution (NDC) target: a case study of the Indonesian energy sector", Environmental Science and Policy, Vol. 131, pp. 188-195.
69. Suwanan, A.F., Putro, A.C., Triyanto, A., Munir, S. and Merlinda, S. (2021), "Analysis of the impacts and challenges of covid-19 on green sukuk in Indonesia", Halal Development: Trends, Opportunities and Challenges, Routledge, London, pp. 32-37.
70. Tang, D. Y., & Zhang, Y. (2020). "Do shareholders benefit from green bonds?" *Journal of Corporate Finance*, *61*, 101427.
71. Tang, D.Y. and Zhang, Y. (2020), "Do shareholders benefit from green bonds?", Journal of Corporate Finance, Vol. 61, p. 101427.
72. The Financial System We Need" (2015) *Inquiry: design of a sustainable financial system. Geneva*.
73. The United Nations Framework Convention on Climate Change (UNFCC) (2019), "What is the Paris agreement?", United Nation Climate Change, available at: https://unfccc.int/process-and-meetings/theparis-agreement/the-paris-agreement
74. Thomson, I. and Charnock, R. (2022), "Engaging with the IPCC on climate finance: a call to action and platform for social and environmental accounting scholars", Social and Environmental Accountability Journal, Vol. 42 Nos 1/2, pp. 1-10.

75. UN Environment. (2018). “Global trends in environmental finance 2018.”" *Retrieved from UNEP website*. Wallerstein I (2004) "*Koniec świata jaki znamy*," *Warszawa*.

76. Wang, X., & Wang, S. (2020). "The Impact of Green Finance on Inclusive Economic Growth—Empirical Analysis Based on Spatial Panel." *Open Journal of Business and Management*, *8*(05), 2093.

77. Wang, Y., & Zhi, Q. (2016). "The role of green finance in environmental protection: Two aspects of market mechanism and policies." *Energy Procedia*, *104*, 311-316.

78. Zadek S (2018) "*Greening digital finance*." http://sdg.iisd.org/commentary/guest-articles/greening-digitalfinance/.

79. Zadek, S., & Flynn, C. (2013). "South-originating green finance: exploring the potential." *The Geneva International Finance Dialogues*, November.

80. Zhang, L., Huang, F.L.L., Ni, X. and Iqbal, S. (2022), “Energy financing for energy retrofit in COVID-19: Recommendations for green bond financing”, Environmental Science and Pollution Research, Vol. 29 No. 16, pp. 23105-23123.

81. Zhou, Z., Zhang, T., Wen, K., Zeng, H., and Chen, X. (2018). "Carbon risk, cost of debt financing and the moderation effect of media attention: evidence from Chinese companies operating in high-carbon industries." *Business Strategy and the Environment*, *Vol. 27 No. 8*, pp. 1-14.

ISLAMIC CIVILIZATION'S INFLUENCE ON MODERN CITY PLANNING

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ABSTRACT - Since its inception, Muslims have worked to instill in new cities in Islamic nations ideas that are directly and indirectly tied to Islam, which is a modern religion that encompasses many humanitarian, social, and economic ideals (taking into consideration the concept of urban planning in that period). Therefore, through ways of acting and living in an urban settlement, new Islamic notions affected the planning patterns for new cities. This paper thoroughly examines the impact of Islamic civilisation on modern urban management practices. Through an in-depth exploration of historical precedents and critical principles, the research sheds light on how Islamic urban planning and governance have shaped cities. Case studies of cities like Cordoba in Spain, Baghdad in Iraq, Istanbul in Turkey, Erbil in Kurdistan, Kuala Lumpur in Malaysia and Isfahan in Iran highlight the integration of aesthetics, functionality, and social inclusivity in urban design. The study also emphasises the relevance of Islamic principles in addressing contemporary urban challenges, including sustainability, inclusivity, and effective governance. Recommendations guide integrating Islamic principles into urban planning policies, educational initiatives, and community engagement. This research underscores the enduring wisdom of Islamic urban planning, offering valuable insights for creating vibrant, inclusive, and sustainable cities in the present day.

Keywords: *Islamic civilization; city management; urban planning; multi-cultural; sustainability; governance; inclusivity*

1. INTRODUCTION

This study would require an urban community, by which we mean the appearance of a physical urban sign or symbols that deal with these meetings, to get at the notion of urban agglomeration to explore the urban concept of coexistence and interaction from an urban point of view. For this, we will be guided by the first urban settler who converted to Islam, Mecca[1]. From its beginning until it was recognised as an Islamic city in the traditional sense of the term (Umm al-Qura), succeeding Islamic cities founded in the first Hijri centuries, reaching other countries towns and cities[2].

Islamic civilisation has influenced many facets of modern life, including governance and urban design[3]. The Islamic civilisation's guiding ideas and values have had a long-lasting impact on urban planning from the first Islamic empires to the present[4]. In the framework of contemporary city management techniques, this paper aims to study the historical development of Islamic urban planning and its present applicability. The primary objectives of this paper are:

- To look at the historical roots of Islamic city planning and administration.
- To clarify the fundamental beliefs and norms that govern Islamic urban planning.
- To evaluate the relevance and influence of Islamic city design on modern city administration.
- To put out suggestions for incorporating Islamic teachings with contemporary municipal administration techniques.

2. MATERIALS AND METHODS

This study adopts an exploratory research design to investigate the impact of Islamic civilization on modern urban management practices. The researchers select and analyse case studies of cities Cordoba, Baghdad, Istanbul, Erbil, Kuala Lumpur, and Isfahan that have historical significance in the context of Islamic civilization. Gather data on urban planning and governance practices, architectural features, and societal impacts to identify Islamic influences and principles.

3. CASE STUDIES BACKGROUND

Islam and its application as a way of life Islam means "peace" when translated literally[5], [6]. When the system outlined by Allah in the Quran and communicated by the Prophet Muhammad S.A.W. is put into practice, adhered to, and centred on submission to Allah in advancing humankind, Islam is a peaceful religion for an individual, community, or environment. This also refers to urbanisation, as noted in Surah Al-Naml 27:91–92:

[Say, O Muḥammad], "I have only been commanded to worship the Lord of this city, who made it sacred and to whom [belongs] all things. And I am commanded to be of the Muslims [i.e., those who submit to Allāh]. And to recite the Qur'ān. And whoever is guided is only guided for [the benefit of] himself; and whoever strays-say, I am only [one] of the Warners". Surah Al-Naml 27:91–92.

There are many places that God Almighty mentioned in His Holy Book among the stories of the Qur'an, and in the stories of the Qur'an, there are lessons and appeals, and here is now a summary of some of them: ***First: (Mecca Al-Mukarramah),*** Mecca is one of the purest places on earth in the Kingdom of Saudi Arabia, and on its lands are located (the Holy Kaaba), considered the qibla of Muslims throughout the globe. Mecca was mentioned in the Book of God in the following text, where God Almighty said, "And it is He who withheld their hands from you and your hands from them within [the area of] Makkah after He caused you to overcome them. And ever is Allāh, of what you do, Seeing" (24) Surah Al-Fath.

Second: (Al -Madinah Al -Munawara), Al -Madinah Al -Munawara (Yathrib), which is one of the cities of (Saudi Arabia) that was mentioned in the Book of God in verse 101 of Surat Al -Tawbah, where the Almighty mentioned, "And among those around you of the bedouins are hypocrites, and [also] from the people of Madīnah. They have persisted in hypocrisy. You, [O Muḥammad], do not know them, [but] We know them. We will punish them twice [in this world]; then they will be returned to a great punishment". [101 of Surat Al -Tawbah].

"It was not [proper] for the people of Madīnah and those surrounding them of the bedouins that they remain behind after [the departure of] the Messenger of Allāh or that they prefer themselves over his self. That is because they are not afflicted by thirst or fatigue or hunger in the cause of Allāh, nor do they tread on any ground that enrages the disbelievers, nor do they inflict upon an enemy any infliction but that it is registered for them as a righteous deed. Indeed, Allāh does not allow to be lost the reward of the doers of good" (120) Surat Al-Tawbah.

Third: (Egypt). As for Egypt, God Almighty mentioned it in Quran,
"And [recall] when you said, O Moses, we can never endure one [kind of] food. So call upon your Lord to bring forth from the earth its green herbs, cucumbers, garlic, lentils, and onions. [Moses] said, would you exchange what is better for what is less? Go into [any] settlement, and you will have what you have asked. And they were covered with humiliation and poverty and returned with anger from Allāh [upon them]. That was because they [repeatedly] disbelieved in the signs of Allāh and killed the prophets without right. That was because they disobeyed and were [habitually] transgressing." (61) Surah Al-Baqarah.
"And when they entered upon Joseph, he took his parents to himself [i.e., embraced them] and said, Enter Egypt, Allāh willing, safe [and secure]." (99) Surat Yusuf.

Fourth: (The Holy Land). God Almighty, as mentioned in Surah Al-Ma'idah (21), "O my people, enter the blessed land [i.e., Palestine] which Allāh has assigned to you and do not turn back [from fighting in Allāh's cause] and [thus] become losers".

Fifth: (Babylon). It is that city in the centre of Iraq, and God Almighty mentioned it in His book, where the Almighty said.
"And they followed [instead] what the devils had recited during the reign of Solomon. It was not Solomon who disbelieved, but the devils disbelieved, teaching people magic and that which was revealed to the two angels at Babylon, Hārūt and Mārūt. But they [i.e., the two angels] do not teach anyone unless they say, We are a trial, so do not disbelieve [by practising magic]. And [yet] they learn from them that they cause separation between a man and his wife. But they do not harm anyone through it except by permission of Allāh. And they [i.e., people] learn what harms and does not benefit them. But they [i.e., the Children of Israel] certainly knew that whoever purchased it [i.e., magic] would not have in the Hereafter any share. And wretched is that for which they sold themselves if they only knew." (102) Surah Al-Baqarah.

Sixth: (The city of Iram with pillars). God Almighty mentioned in AL Quran (Iram with posts (7) the like of which has not been created in the land (8)) (7,8) Surah Al-Fajar, and the city of the people of Ad (Iram with pillars) is located in the region of the Arabian Peninsula between all from (Yemen and Oman). The word city appears in the Holy Qur'an (14) times, all of which are defined with the definite article, and the word village occurs (33) times, all of which are defined with the definite article the village and not defined ((the village)). According to the founders of a prominent school of law, Imam Abu Hanifa (80 AH–150 AH) and Imam Malik (93 AH–179 A.H.), the core of a medina/city should have been in the interconnectivity of these three factors: Governance (kadi), the Masjid (Education), and the Market (suq) economy and its environs (Figure 1). These elements interact with one another to form a powerful Islamic city[7]

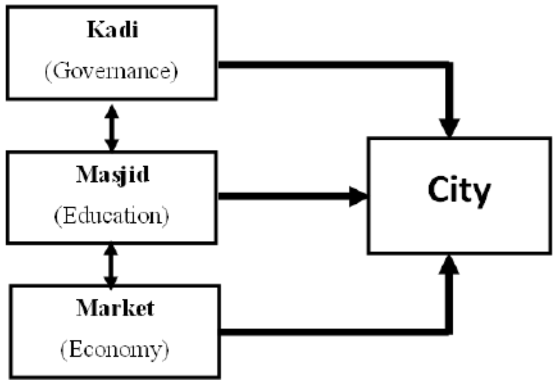

Figure 1 Islamic City (Madina) Model interconnectivity from three main factors (Kadi, Masjid and Market)

The construction of the first Islamic city, Madinah, by Prophet Muhammad S.A.W., is a wonderful illustration of the nucleus [3]. Through links, all three parts were physically connected. The Masjid Nabawi, the hub of education, amusement, community, and health, was the governor—the Prophet S.A.W. himself—and his residence was right next to it. The suq and houses were located around the mosques. The public can contact the leader or governor for any issues because of their vicinity. Following the weather, the links were also well-ventilated, shaded, and had vacant air space through the enclosures induced by the closeness of the structures and natural urban patterns. Comparatively speaking, the district laws within the homes were distinct from those found in modern cities.

3.1 Islamic City Planning's Historical Foundations

The growth of cities in the early Islamic empires was a crucial turning point in the evolution of urban planning. A significant legacy was left by the Abbasids, Umayyad, and Ottomans, among others, as painstakingly planned towns that displayed sophisticated infrastructure and governmental systems [8]– [10]. Notable instances like Baghdad, Cordoba, and Istanbul attest to the inventive methods used.

Urban Development in Early Islamic Empires:

Urban centres were influenced by the early Islamic empires, which were noted for their vast territorial holdings and many cultural influences. The following are some significant features of urban growth during this time: ***Abbasid Caliphate (750-1258 CE):*** The Abbasid Caliphate, which had Baghdad as its capital, saw the height of Islamic urban design. Caliph Al-Mansur established Baghdad in 762 CE, serving as a model for planned urban growth [11]. It had a central palace complex with a circular configuration with concentric walls. The city's streets were organised in a grid form, displaying an unheard-of urban planning complexity [11], [12].

- ***Umayyad Caliphate in Andalusia (756-1031 CE):*** Cities, including Cordoba and Seville, rose to prominence during the Umayyad era in Spain. Particularly, Cordoba was praised for its innovative urban infrastructure. The city's street, market, and water supply networks were excellent. La Mezquita, a large mosque, was a city landmark and a masterpiece of architecture[13], [14].
- ***Ottoman Empire (14th-20th century):*** Over several centuries, the Ottoman Empire included various nations in Europe, Asia, and Africa. Istanbul (previously Constantinople) and other cities

are prime examples of the Ottomans' skill in urban design. The Topkapi Palace, Hagia Sophia, and the Grand Bazaar were among the city's important landmarks. The city also had a well-planned layout. The Ottomans also showed their skill in water management by using cisterns and aqueducts to guarantee a steady water supply [15]–[17].

Islamic Urban Principles:

Islamic urban planning was underpinned by principles rooted in Islamic jurisprudence, or Sharia [18, p. 48]. These principles guided not only physical design but also emphasized social, economic, and environmental considerations:

- ***Equity and Justice:*** Islamic urban planning prioritized justice and equity. Residential neighbourhoods accommodated various socioeconomic strata, ensuring all residents had access to the necessities [19]. ***Community Cohesion:*** Community cohesion was facilitated by combining religious, residential, and commercial facilities. Mosques, stores, and homes were frequently placed close together, promoting community among the locals [20].
- ***Accessibility to Public Amenities:*** Accessibility to public facilities, including marketplaces, spas, and educational institutions, was given priority in Islamic cities; this strategy aimed to improve locals' living standards [21].
- ***Provision of Green Spaces:*** One notable aspect of Islamic urban planning was the inclusion of green spaces in the urban fabric. Incorporating gardens, parks, and orchards gave inhabitants access to leisure areas and improved the city's overall aesthetic appeal [22].

3.2 Islamic Principles' Applicability to Modern City Management

Sustainability and Environmental Considerations: Islam's guiding principles prioritize environmental care [23]. With growing environmental concerns and the requirement for sustainable urban development, this viewpoint is pertinent:

- ***Water Management:*** Islamic towns have used sophisticated water management systems, such as aqueducts, underground cisterns, and innovative irrigation methods. These methods can help modern cities manage their water supplies effectively, particularly in arid or water-scarce areas [24].
- ***Green Spaces and Gardens:*** Islamic cities incorporated beautiful gardens, orchards, and green spaces into their urban design; this enhanced the aesthetic appeal while benefiting the environment by reducing heat, improving air quality, and promoting biodiversity. This strategy can help modern cities build more habitable, environmentally friendly surroundings [25]–[27].
- ***Resource Utilisation:*** Islamic cities showed a careful use of resources. Sustainable building methods were prioritized, and materials from nearby sources were regularly employed. This concept is in keeping with current campaigns to reduce carbon footprints and support eco-friendly construction methods and supplies [28]–[30].

Inclusivity and Social Cohesion: The Islamic civilization's dedication to social cohesiveness and inclusivity provides important lessons for modern city management, especially in establishing varied, peaceful communities:

- ***Access to Public Spaces:*** Islamic cities ensured that all people, regardless of their socioeconomic class or religious background, had access to public places, including markets, parks, and educational institutions. This strategy encourages social engagement, involvement in the community, and a sense of belonging [21], [31]. ***Equitable Housing and Services:*** Islamic city design avoided dividing up groups based on wealth or rank by aiming to accommodate different socioeconomic strata inside the metropolis. This idea is consistent with contemporary initiatives to build mixed-income communities and guarantee all inhabitants access to basic amenities [32], [33].
- ***Religious and Cultural Tolerance:*** Islamic cities have a history of tolerating various religious and cultural populations. This inclusiveness aided in the cohabitation and understanding of numerous communities. This strategy can be applied in modern city administration to encourage interfaith communication and multiculturalism [29], [34], [35].

Governance and Administration: Insights into contemporary city management methods, particularly in terms of accountability, openness, and citizen participation, can be gained from studying the governing arrangements of past Islamic cities:

- ***Transparency and Accountability:*** Islamic cities had accountability and transparency-focused governing systems. This guaranteed that administrative choices were made with the community's interests in mind. Modern cities can use similar strategies to increase resident credibility and trust [36].
- ***Citizen Participation:*** Islamic cities promoted public involvement in local government. This featured routes for public comment, public engagement processes, and ways for locals to express their concerns. Similar tactics can be used by contemporary municipal management to promote civic participation and involve citizens in decision-making [37], [38].
- ***Efficient Service Delivery:*** Historical Islamic cities prioritized efficient service delivery and ensured all residents had access to basic facilities. This idea directly applies to current initiatives to deliver dependable and open access to public services [30].

4. RESULTS AND DISCUSSION COMPARATIVE ANALYSES

4.1 Case Study 1: Cordoba, Spain

During the Islamic rule of Al-Andalus, Cordoba was one of the most culturally and intellectually advanced cities in medieval Europe. It reached its zenith during the 10th century under the Caliphate of Cordoba. Under Islamic rule from the 8th to the 11th century, Cordoba stands as a testament to Islamic civilisation's sophisticated urban planning and governance principles [39].

Key Insights:

- ***Multi-cultural Harmony:*** Muslims, Christians, and Jews coexisted in Cordoba, a melting pot of cultures, religions, and nationalities. This international setting impacted the city’s governing systems, which sought to respect and accommodate varied communities, among other areas of city administration [40].

- ***La Mezquita:*** The Great Mosque of Cordoba (La Mezquita) exemplifies how religious, cultural, and architectural components may coexist. In keeping with the inclusiveness of Islam, it served as a focal point for religious and cultural events [41].
- ***Marketplaces and Trade:*** The city's lively markets, such as the Alcaicera, served as centers of commerce. These markets were thoughtfully designed to house a variety of vendors and merchants, demonstrating the Islamic emphasis on trade and economic progress [42].
- ***Architectural Marvels:*** The Great Mosque, also known as La Mezquita, was Cordoba's most recognizable landmark. It was a masterpiece of architecture with characteristic horseshoe arches and a hypnotic forest of columns. The mosque was a superb example of how Islamic and Moorish architectural styles could coexist [43].
- ***Integration of Faith and Community:*** The mosque's spiritual importance matched its architectural magnificence. It was a place of prayer and a center for social, intellectual, and cultural pursuits. This blending of spiritual, cultural, and social elements is consistent with Islamic urban ideas [44], [45].
- ***Innovative Water Management:*** Aqueducts, reservoirs, and channels made up the sophisticated water management system that made Cordoba famous. This guaranteed a steady water supply for skill [ty and showed the day's engineering skill[46].
- ***Historical Continuity and Adaptation:*** The erection of a Christian cathedral inside the old mosque edifice marked Cordoba's metamorphosis following the Christian Reconquista. The historical continuity and adaptive reuse show the city's capacity to change while preserving its cultural history [47].
- ***Applicability to Contemporary Urban Challenges:*** Cordoba is an example of how several architectural styles and cultural influences may be successfully incorporated. In order to construct urban landscapes that seamlessly integrate many cultural and architectural components, modern cities might learn from this example [48].
- ***Cultural and Religious Tolerance:*** Modern cities aiming for openness and tolerance can learn much from Cordoba's history of embracing various religions and cultures [45].

4.2 Case Study 2: Istanbul, Turkey

Through its numerous monuments, urban, historical, archeologically, and natural features, Constantinople, formerly the capital of the Romans, Byzantine, and Ottoman empires, represents the distinctive values of these cultures. After capturing Constantinople in 1453 C.E., Mehmet II changed the name of the city to Istanbul and proclaimed it the capital of the Ottoman Empire. One of the finest instances of how an Islamic city attempts to develop is Istanbul, which has its own complicated, distinctive, and unique qualities [49].

Mosque constructed and Education:

Just after conquest in 1453, new initiatives were started right once to create Istanbul's Turkish and Islamic identity. The Ottomans were then obligated to choose ideal locations in Istanbul for the construction of mosques, baths, and markets as well as give the districts names. Sultan also picked a prominent topographical location for the large mosque, which served as the community's focal point. The Fatih mosque was constructed as Istanbul's first kulliye and finished in 1471[49]. (a complex consisting of a mosque and surrounded by a group of public buildings such as hospital, schools, dormitories, baths, kitchen, libraries, or hospices). Along with learning about Islam, pupils at many Ottoman schools also studied mathematics, astronomy, psychology, the military, and other scientific and social sciences. Once more, this kulliye acted as the hub of a newly

emerging mahalle (neighbourhood). The mosque continued to play a crucial role in the religious, cultural, and political life of Muslim society during the Ottoman era[50]: ***The Blue Mosque:*** The Sultan Ahmed Mosque, often known as the Blue Mosque, was constructed in the early 1600s (Sultanahmet Camii in Turkish). ***Hagia Sophia:*** Hagia Sophia, also known as Ayasofya in Turkish, is a stunning piece of architecture that was once an Orthodox church until the Ottoman Turks ordered that it be converted into a mosque in 1453. ***Ortaköy Mosque:*** Officially known as the Büyük Mecidiye Camii, the majestic Ortaköy Mosque is ideally located at the Ortaköy pier on the shores of the Bosphorus Strait, just below the Bosphorus Bridge.
Water supply systems: A search and construction effort for a new water source started after the Ottomans conquered the area in 1453. Five brand-new, important transmission lines were constructed by several SultansSultan Mehmet II commissioned the restoration of the water systems built by the Byzantine Emperor Valens in the Marmara region [51]. The greatest of them, the Krkcesme water supply system, was constructed in 1563 and is still in use. It is 55 km long, has a 17 443 m3/day capacity, 94 fountains, 19 wells, 15 water tanks, 13 public Turkish baths, and 4200 m3 of water storage. With a combined storage capacity of 1.7 million m3, eight historical water supply dams were constructed. There were more than a thousand historical public fountains in Istanbul [52].

Cultural and Religious Tolerance: As people of various ethnic backgrounds have started to coexist, a setting has been created for this to happen. The four great religions Islam, Christianity, Judaism, and Buddhism are among them. Istanbul also accepts followers of other faiths, including Bahaism and Hinduism, therefore in this way, it can be said to have a multicultural structure. As a result, it is well recognised that Istanbul is home to a diverse range of cultures and religions [53].

4.3 Case Study 3: Isfahan, Iran

The Safavid dynasty (16th to 18th century) ruled Isfahan, which served as the Islamic world's epicenter of culture and the arts. It was renowned for the majesty and beauty of its architecture [54].
Key Insights:

- ***Naghsh-e Jahan Square:*** It is one of the biggest city squares in the world and is also referred to as Imam Square. The Grand Bazaar, Ali Qapu Palace, Shah Mosque, and Lotfollah Mosque are impressive buildings surrounding it. This ensemble combines aesthetics, usability, and social places [55], [56].
- ***Bridges and Water Management:*** Historical bridges in Isfahan include the Si-o-Se Pol and Khaju Bridge. These provided crucial transportation connections and social areas for get-togethers and recreational activities. The engineering of the bridges also managed the Zayandeh Rud River's water flow (Case et al., 2021). ***Multifunctional Urban Spaces:*** The public areas of Isfahan accommodated a variety of uses, including religious, cultural, commercial, and recreational activities. The versatility and flexibility of the city are reflected in the varied approach to urban development [57].
- ***Applicability to Contemporary Urban Challenges:***
- ***Integrating Aesthetics and Functionality:*** Isfahan exemplifies how metropolitan areas may be both aesthetically pleasing and productive. This is an important lesson for modern cities balancing aesthetics and utility [56].
- ***Civic Engagement and Social Integration:*** Isfahan's public areas are multipurpose, encouraging community contact and involvement and offering lessons for contemporary cities aiming for social inclusiveness [55].

4.4 Case Study 4: Baghdad, Iraq

Baghdad, a famous city with a long history, offers lessons in urban administration and development that very apply to current issues. Baghdad serves as a useful case study for understanding how historical Islamic beliefs influenced urban development because of its past as the capital of the Abbasid Caliphate [1].
Key Insights:

- ***Infrastructure and Advanced Urban Planning:*** Baghdad was a prime example of skilled urban design in the past, with radial streets branching off from the central core and a sophisticated system of canals for water delivery. Contemporary city administrators can use these methods to improve urban infrastructure [59].
- ***Equity and Accessibility:*** All people of Baghdad should have equal access to the city's amenities and services. Contemporary cities can use this idea to guarantee inclusivity and accessibility in urban development [60].

4.5 Case Study 5: Erbil, Kurdistan

The Kurdistan Region of Iraq's main city, Erbil, is a singular case study of urban growth under a challenging geopolitical environment. Because of its historical importance and present-day difficulties, Erbil makes a fascinating case study for analyzing how Islamic ideas are used in urban planning [61]. It is located west of Erbil and was originally a mosque. It was named after the ruler − Muzaffar ad-Din Kokburi. Choly Minaret (Al-Muzaffariyya Minaret), it's (37) m high and dates back to (1123-1163 A.D.) [25].

Key Insights:

- ***Cultural Preservation and Integration:*** Historical sites like the Erbil Citadel are part of Erbil's rich cultural history. City administrators can learn a lot from juggling the preservation of cultural identity with contemporary urban growth [25].
- ***Community Engagement and Governance:*** Given the region's unique political dynamics, effective governance mechanisms and community involvement are essential. In this situation, drawing on traditional Islamic civic values may be advantageous [61], [62].
- ***Cultural, education and Religious Tolerance***: A setting has been established for this to occur as people from different ethnic backgrounds have begun to coexist. They include all four major world religions: Buddhism, Christianity, Judaism, and Islam. Erbil-Kurdistna is regarded as having a cosmopolitan structure because it allows adherents of various religions including Bahaism and Hinduism [25]. Many well-known historians, scientists, and statesmen reside in the city of Erbil, including:
- ***Sultan Muzaffar ad-Din Kokburi (1163-1232):*** The Salahaddin's brother-in-law established Erbil as his capital from 1190 to 1232 and built a number of structures that can still be seen at the base of the higher town [63].
- ***Ibn Al-Mustawfi (1169-1239) Ahmed:*** His knowledge of Islamic law, language, military sciences, and literary works was extensive. During the Abbasid era, he served as a judge in the Erbil state [64], [65].

- ***Ibn Khelekan (1211-1282):*** Kurdish Muslim scholar Ibn Khallikan lived in the 13th century. Khallikan was trained in Islamic law, history, and language before he was born in Erbil in 1211[66].

Erbil archaeological places:

- ***Erbil Castle:*** The castle is located in the heart of Erbil, close to the site of the ancient settlement of the city.
- The historical cuneiform texts discovered in the castle can be linked to Assyrian ruins. The walls around Erbil Castle date back to the Atabegian Period (1102–1210 B.C.). Its circumference is (45 m), its height is (60 000 m), and its entire area is (364 m)[25], [61], [63].
- ***Choly Minaret (Al-Muzaffariyya Minaret):*** It was formerly a mosque, and it is situated west of Erbil. It was given the name Muzaffar ad-Din Kokburi in honour of the monarch. It is (37) m tall and was constructed in (1123-1163 A.D.)[25].

4.6 Case Study 6: Malaysia

In an effort to identify how Ottoman civilization has affected modern Malaysia, it is claimed that Malaysia has had a lasting relationship with the Ottoman Empire since its early history. As a result, according to history, the Malay Archipelago and the Ottoman Empire had a long-standing relationship, which was evident in Aceh in the 19th century [67]. However, the Sultan of Johor was the first regional leader to travel to Istanbul in the 1880s. First off, as was already mentioned, the Ottoman Empire had an influence on many Muslim nations, Malaysia included, and this influence can be seen in the architectural design of modern Malaysian mosques [68].

The Ottoman Civilization's Influence on Malaysia's Mosque Construction:

The majority of mosques created in Malaysia, especially those with dome and minaret constructions, are icons of Islamic civilization [69], which was combined with Ottoman and other civilizations like Moorish, Seljuk, and Roman, among others. On his tour of Malaysian mosques, Ronan O'Connell noted that both Putrajaya and Kuala Lumpur are home to some of the most amazing mosques, which were constructed and designed using a combination of Middle Eastern, North African, and Spanish architectural styles [68]. Connell further emphasised that one of the things that fascinated him in Kuala Lumpur was his visit to the Masjid Wilayah Mosque, which was modelled and architecture on Istanbul's renowned Blue Mosque and designed in the 17th century Ottoman style. It was estimated that the Mosque can accommodate up to 17,000 worshippers. This was done to accurately locate the impact of the Ottoman Civilization in contemporary Malaysia. According to some reports, Kuala Lumpur Mosque can accommodate more worshipers than the mosque in Istanbul. This mosque is perched on a hill and is adorned with [70, p. 128] domes, two imposing minarets, a landscape garden, and a semicircular water feature.

The Islamic Arts Museum, Masjid Wilayah, and a portion of the International Islamic University are said to exemplify Kuala Lumpur's growth as a centre of the modern Muslim metropolis. This is as a result of the Ottoman Empire having a significant influence on Masjid Wilayah and its enormous main pendentive dome. Ahmed asserted that Johor, Malaysia's southernmost state, reflects more Ottoman emblems than any of the former Ottoman lands' provinces, despite the Ottoman Civilization's influence on the country's capital.[71], [72]. It is claimed that Sultan Abu Bakar Mosque in Johor started building in 1895 and incorporated several Ottoman architectural designs from the 19th century, which helps to further illustrate the influence of the Ottoman Empire in modern-day Malaysia. The impact spread so far that Sultan Abdulhamid II of the Ottoman

Empire sent Mihrab, a gift constructed of iron and painted gold to indicate the direction of the Ka'ba, to the Sultan of Johor [68].

The Ottoman Civilization's Influence on Malaysia's Convenience Building:

As was already mentioned, no matter how little or large a place is, the Ottomans excelled at building toilets and installing sanitary objects as part of the civilizations they introduced to numerous Muslim countries. Additionally, it is known that the Ottoman Empire constructed restrooms, communal kitchens, and Madrasah with restrooms throughout the 15th century, particularly in the Mehmed Afendi Madrasa in Istanbul and the Bayzit II Madrasah in Edirne. Such structures are said to be a representation of how much social compassion early Ottoman sultans had for their people [50]. According to an empirical analysis, it is difficult to go more than two to three kilometers in modern Malaysia without finding conveniences, whether they are in a store, mall, or other hub of activity. One may argue that in Malaysia today, whether owned by a Muslim or a Christian, Musallah (Surau), toilets must be supplied in every building, including schools (Madrasah).

Ottoman Civilization's Influence on Islamic Education in Modern Malaysia:

One of these is the influence of Ottoman civilisation, as the nation developed friendly relations with the Ottomans during the early period, particularly in the 15th, 16th, and 17th centuries. The master-apprentice relationship, in which a pupil stays inside the sphere of his teacher and studies religious knowledge, is one of the most persistent educational systems that the Ottomans developed [50]. Analysing Kuala Lumpur's urban growth, Malaysia's capital city, offers a useful case study in modern city administration considering Islamic precepts. Kuala Lumpur is an attractive instance for exploring the integration of Islamic ideas in contemporary urban design because of its diversified population, which includes members of many ethnic and religious groups, including a sizeable Muslim community [68].

- ***Inclusivity and Cultural Integration:*** Urban planning is done with inclusivity in Kuala Lumpur. The peaceful coexistence of mosques, temples, and churches is a testament to Malaysia's commitment to religious tolerance. This strategy promotes a sense of solidarity throughout the community [73].
- ***Green Spaces and Sustainability:*** Parks like KLCC Park and the Lake Gardens exemplify how the city values green spaces. Keeping Islamic values of good stewardship, these sites offer leisure grounds and contribute to environmental sustainability [74].
- ***Governance and Citizen Engagement:*** Good governance, transparency, and public involvement in decisionmaking are highly valued in Malaysia. This is consistent with traditional Islamic values of good administration and populace participation [68].

5. CONCLUSION

In conclusion, a wealth of lessons and ideas may be drawn from the historical roots of Islamic city design that are still relevant in modern urban planning. The Abbasids, Umayyads, and Ottomans were early Islamic empires that created cities with highly developed planning, infrastructure, and government systems. Using grid layouts, centralised administrative structures, and sophisticated water management, case studies of cities like Baghdad, Cordoba, and Istanbul highlight their creative ways. Islamic urban planning's enduring ideals, grounded in Sharia and emphasising equity, justice, and community harmony, are still in force today. Creating inclusive and sustainable cities may learn a lot from integrating religious, residential, and commercial places, making public utilities accessible and providing green spaces.

Incorporating Islamic ideas into modern city administration is crucial as we investigate the future. Urban planners, architects, and religious experts can work together to provide a comprehensive approach to city building. Educational initiatives should focus on integrating Islamic urban planning and governance into curricula to create a new generation of professionals with the skills to construct cities based on these principles. Conversations between local government representatives, community leaders, and residents are facilitated by community participation. By offering methods for participatory budgeting and decision-making, we empower citizens to play an active role in the growth and governance of their cities.

Cities can benefit from the rich tradition of Islamic urban planning by adopting these suggestions and pursuing these prospects. By doing this, we honor the knowledge of the past while paving the way for cities that are inclusive, sustainable, and sensitive to cultural differences in the face of 21st-century difficulties. By embarking on this transformative path, we may construct urban settings that serve as symbols of advancement and represent the enduring principles of Islamic civilization.

REFERENCES

[1] A. Manikam, "APPLICATION OF THE CONCEPT OF THE ISLAMIC CITY AND ITS INFLUENCE ON THE," pp. 391–396, 2022.

[2] M. A. M. Sabry, "Planning and Architecture of the Islamic City, the Old City of Damascus ' تخطيط وعمارة المدينةالإسلامية مدينة دمشق القديمة,'" *J. Educ. Coll. Wasit Univ.*, no. 2518–5586, p. 21, 2018.

[3] N. S. A. Latip, N. Z. Harun, A. Abdullah, and M. Ibrahim, "The derivation of urban design principles in Malay-islamic town of kuala terengganu," *Plan. Malaysia*, vol. 18, no. 2, pp. 243–254, 2020.

[4] J. bte Mohamad, "Building Heaven on Earth: Islamic Values in Urban Development1," *Cities of the world*, no. December 1995, pp. 11–13, 1995.

[5] R. D. Nursita and A. Sahide, "The Concept of Peace in Islam and Its Relevance to International Relations," *AlAlbab*, vol. 8, no. 2, pp. 211–224, 2019.

[6] J. Jamil, "Islam Means Peace," no. January 2005, 2018.

[7] F. Shojaee and M. Paeezeh, "Islamic city and urbanism, an obvious example of sustainable architecture and city," *Cumhur. Sci. J.*, vol. 36, pp. 231–237, 2015.

[8] H. Tiliouine, A. Renima, and R. J. Estes, "The State of Social Progress of Islamic Societies," *State Soc. Prog. Islam. Soc.*, no. April, 2016.

[9] Saylor.org, "The Abbasid Dynasty:The Golden Age of Islamic Civilization," *Abbasid Dynasty Golden Age Islam. Civiliz.*, pp. 1–6, 2012.

[10] M. Kamrava, *The Modern Middle East*. 2005.

[11] M. Al-Saffar, "Urban heritage and conservation in the historic centre of baghdad," *Int. J. Herit. Archit. Stud. Repairs Maintence*, vol. 2, no. 1, pp. 23–36, 2017.

[12] J. B. Schur, "The Baghdad That Was: Using Primary Sources to Teach World History.," *With Reprod.*, vol. 73, no. 1, pp. 15–22, 2009.

[13] C. M. Tagle, "CUNY Academic Works Transformations : Suburban Cordoba During the Umayyad Caliphate , 929-1009 How does access to this work benefit you ? Let us know !," 2018.

[14] M. Bleeke, "Reassessing the Roles of Women as 'Makers' of Medieval Art and Architecture," *Mediev. Fem. Forum*, vol. 49, no. 1, pp. 97–101, 2013.

[15] S. Akboy-İlk, “The Architectural Pedigree of İznik’s 14th-Century Green Mosque in Turkey,” *Archit. Hist.*, vol. 11, no. 1, pp. 1–32, 2023.
[16] D. Goffman, “The Ottoman Empire and Early Modern Europe,” *Ottoman Emp. Early Mod. Eur.*, 2002.
[17] S. Acciai, “The Ottoman-Turkish House According to Architect Sedad Hakkı Eldem,” *ABE Journal*, no. 11. 2017.
[18] K. S. Krishnaveni, *Smart Living for Smart Cities - Case Studies*. 2020.
[19] Nashrah and J. Said, “Development of Urban Architecture the Time of the Prophet Muhammad PBUH in Madinah Period,” vol. 192, no. EduARCHsia 2019, pp. 124–132, 2020.
[20] M. Peucker, “The civic potential of Muslim community organisations for promoting social cohesion in Victoria (research report),” no. March, p. 4, 2017.
[21] N. Kassim, M. Zafrullah, M. Taib, N. " Shikin Abdullah, and Z. B. Mohd Taib, “Integration of Islamic Principles in the Planning and Designing of Urban Public Spaces,” *Researchgate.Net*, vol. 00, no. 1, pp. 0–000, 2014.
[22] K. G. Alrasheedi, G. J. Lue, S. N. Baby, and N. Al-Ansari, “GIS-based Spatial Accessibility to Islamic Facilities for Muslim Community in the Melbourne Metropolitan Area,” *J. Earth Sci. Geotech. Eng.*, vol. 10, no. 5, pp. 49–68, 2020.
[23] L. Bsoul, A. Omer, L. Kucukalic, and R. H. Archbold, “Islam’s Perspective on Environmental Sustainability: A Conceptual Analysis,” *Soc. Sci.*, vol. 11, no. 6, 2022.
[24] N. Loodin and A. T. Wolf, “Will IslamicWater Management Principles Be Included If theHelmand River Treaty Is Revisited?,” *Water (Switzerland)*, vol. 14, no. 1, pp. 1–18, 2022.
[25] Słowa kluczowe, “Cultural and political impact on modern Kurdish poetry in Erbil,” vol. 3, pp. 521–523, 2015.
[26] M. Technologies, “Online Journal of Communication and Media Technologies Volume: 4 – Issue: 1 – January - 2014,” pp. 185–215, 2014.
[27] N. Asif, N. Utaberta, M. A. Othuman Mydin, and M. Y. Mohd Yunos, “Redefining Islamic garden: Comparative analysis of approaches, ideas and design framework,” *J. Teknol.*, vol. 75, no. 9, pp. 77–81, 2015.
[28] B. Auwal Adam Sa *et al.*, “Parameters: A Theoretical Assessment and Technological Advancement in Artificial Intelligence Islamic Smart City Innovation,Concept, Application and Shari’ah Parameters: A Theoretical Assessment and Technological Advancement in Artificial Intelligence,” *Glob. Journals*, vol. 22, no. 1, pp. 0–5, 2022.
[29] H. Mortada, “Urban sustainablity in the tradition of Islam,” *Adv. Archit. Ser.*, vol. 14, pp. 715–723, 2002.
[30] J. Antoniou, *Islamic cities and conservation*. 2008.
[31] P. W. Germeraad, “Islamic traditions and contemporary open space design in Arab-Muslim settlements in the Middle East ’,” vol. 23, 1993.
[32] A. Perdana, “Evaluation of Physical Aspect of Islamic Residential Concepts in the Sharia Housing Project,” *J. Archit.*, vol. 19, no. 2, p. 149, 2021.
[33] Abeer Hussam Ed-Din Al-Lahham, “Housing Communities between Islamic Freedom and Capitalist Kaleidoscope,” vol. 24, no. 2, pp. 99–117, 2012.
[34] A. Fadzil, “Religious Tolerance in Islam : Theories , Practices and Malaysia ’ s Experiences as a Multi Racial Society Introduction : Meaning of Tolerance Tolerance has been widely accepted as a virtue related to human conduct . It deals with all aspects of human lif,” no. 3, 2011.
[35] A. YAZDANI, “The culture of peace and religious tolerance from an islamic perspective,” *Veritas*, no. 47, pp. 151–168, 2020.
[36] M. I. Bin Mohamad Yunus, “Good Governance According to Islamic Perspective,” *FIAT JUSTISIAJurnal Ilmu Huk.*, vol. 11, no. 3, p. 200, 2018.
[37] C. Papa and N. Rossi, “Smart Cities and Sustainable Finance: The Islamic Perspective,” *Eur. J. Islam. Financ.*, vol. 9, no. 2, pp. 18–26, 2022.
[38] H. Mohammadi, *Citizen Participation in Urban Planning and Management: The case of Iran, Shiraz City, Saadi Community*. 2010.

[39] R. Holod, A. Petruccioli, and A. Raymond, "The City in the Islamic world," *Choice Rev. Online*, vol. 46, no. 10, pp. 46-5788-46–5788, 2009.
[40] X. de Souza Briggs, "Civilization in Color: The Multicultural City in Three Millennia," *SSRN Electron. J.*, no. December, pp. 311–342, 2005.
[41] Glaire D. Anderson B., "The Great Mosque of Cordoba and the Alhambra: Christian Attitudes Towards Islamic Architecture in Spain During the Reign of Charles V," 1998.
[42] K. E. Mcilwraith, "On Convivencia, Bridges and Boundaries: Belonging and exclusion in the narratives of Spain's Arab-Islamic past," 2018.
[43] M. L. Smith, "University of Nottingham Department of Classics and Archaeology Córdoba : Roman influences in Islamic Architecture By," no. May, 2019.
[44] A. Ahmed, "Ibn Khaldun's understanding of civilizations and the Dilemmas of Islam and the West today," *Middle East J.*, vol. 56, no. 1, pp. 20–45, 2002.
[45] S. Sariyildiz, Ö. Çiftçioğlu, B. Tuncer, and R. Stouffs, "Knowledge Model for Cultural Analogy in Design and Design Education," *LOCAL VALUES a NETWORKED Des. WORLD*, no. September 2014, pp. 91–104, 2004.
[46] C. Theorist, U. Felon, L. D. Policy, and L. F. Policy, "W . C W . C Ma," vol. 1, no. 6, p. 414, 1999.
[47] F. Fiorin, "Owning the Past, Controlling the Present: The Mosque-Cathedral of Cordoba," no. February, 2019.
[48] N. A. Mari *et al.*, "Mapping and Characterizing the Green Belt of Córdoba: Land Dynamics and the UrbanRural Transformation Process," *J. Agron. Res.*, vol. 2, no. 1, pp. 29–46, 2019.
[49] H. Budiman, "Istanbul, The Development of Islamic City Thinking," *MATEC Web Conf.*, vol. 280, p. 02005, 2019.
[50] R. Saoud, "Muslim Architecture Under Ottoman Patronage (1326-1924)," *Found. Sci. Technol. Civilis.*, pp. 3–23, 2004.
[51] J. Lonholdt, "Water and Wastewater Management in the Tropics," *Water Intell. Online*, vol. 5, no. 0, pp. 9781780402543–9781780402543, 2015.
[52] D. Altinbilek, "Water management in Istanbul," *Int. J. Water Resour. Dev.*, vol. 22, no. 2, pp. 241–253, 2006.
[53] R. Schuman, C. For, and A. Studies, "Robert Schuman Centre for Advanced Studies," *Glob. Gov.*, vol. RSCAS 2010, no. 2, p. 30, 2010.
[54] S. L. Farhan, M. G. Abdelmonem, and Z. A. Nasar, "The urban transformation of traditional city centres: Holy Karbala as a case study," *Archnet-IJAR*, vol. 12, no. 3, pp. 53–67, 2018.
[55] A. Assari, T. M. Mahesh, and E. Assari, "Conservation of historic urban core in traditional Islamic culture: Case study of Isfahan city," *Indian J. Sci. Technol.*, vol. 5, no. 1, pp. 1970–1976, 2012.
[56] A. N. Ebrahimi, "A STUDY ON THE EFFECTS OF SAHIBABAD SQUARE IN TABRIZ UPON THE FORMATION OF NAGHSH-E-JAHAN SQUARE IN ISFAHAN A STUDY ON THE EFFECTS OF SAHIBABAD SQUARE IN TABRIZ UPON THE FORMATION OF NAGHSH-E-JAHAN SQUARE IN ISFAHAN Faculty of Architecture and Urbanism , ," no. December, 2016.
[57] I. Case, S. Khaju, and A. K. Bridges, "The Social Impact of the Architectural Components of Safavid Bridges in International Journal Of Architecture and Urban Development Components of Safavid Bridges in Isfahan (Case S tudy : Khaju and Allahverdi Khan Bridges) T he Social Impact of the Ar," no. April, 2021.
[58] "Unconfirmed 648738.crdownload." .
[59] M. S. F. Al-Ataabi and T. M. Hameed, "Architecture and urban of the Islamic Arabic city 'study in unlimited their properties,'" *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 737, no. 1, 2020.
[60] D. Abdurrahman, "Multiculturalism in Islamic Civilization During the Classic Period," *Addin*, vol. 11, no. 1, p. 27, 2017. [61] H. Alizadeh, R. pamoq, S. Shahmohammadnejad, and S. Ostowar, "Investigating the features of urban form in the Kurdish city of Erbil (old part) regarding the traditional Islamic principles of built Environment," no. April 2019, 2019.
[62] S. Mofidi, "Kurdistan under the Impact of Religio-Political Confrontations of Ancient Empires (From the Median Empire to the Advent of Islam)," vol. 9, no. 2, pp. 1–13, 2021.

[63] H. A. R. GIBB, J. H. KRAMERS, and J. S. E. LfiVI-PROVENgAL, “THE ENCYCLOPAEDIA OF ISLAM,” *Encycl. Islam*, vol. I (A-B), pp. 1215–1217, 1986.

[64] S. D. A. B. I. Al-Mustawf, *Tārīkh Irbil, al-musammá Nabāhat al-balad al-khāmil bi-man waradahu min alamāthil*. 1980. [65] A. Yaz, “Article International Journal of Kurdish Studies 7 (2), pp. 253-286,” vol. 7, no. 2, pp. 253–286, 2021. [66] R. Crawford, “Baynes, Thomas Spencer (1823–1887), editor of the Encyclopaedia Britannica,” in *Oxford Dictionary of National Biography*, Oxford University Press, 2004.

[67] Alaeddin Tekin1, “RESTORATION OF RIAU SULTANATE-OTTOMAN RELATIONS (1857-1904) Explanatory Factors,” *AL-Shajarah ISTAC J. Islam. thought Civiliz.*, no. July, pp. 1–23, 2020.

[68] S. U. Gokaru, M. R. M. Nor, and F. A. F. A. Hamid, “Ottoman Civilization and Its Impact in Contemporary Malaysia: An Evaluation,” *J. Al-Tamaddun*, vol. 18, no. 1, pp. 193–201, 2023.

[69] A. S. Hassan and M. S. A. Nawawi, “Malay architectural heritage on timber construction technique of the traditional Kampung Laut Old Mosque, Malaysia,” *Asian Soc. Sci.*, vol. 10, no. 8, pp. 230–240, 2014. [70] B. Lewis, *Istanbul and the Civilization of the title: Ottoman Empire Centers of Civilization*. 1972.

[71] S. Kayadibi, “Ottoman Connections to the Malay World,” 2011.

[72] A. C. Milner, “The Impact of the Turkish Revolution on Malaya,” *Archipel*, vol. 31, no. 1, pp. 117–130, 1986.

[73] A. Aziz and A. B. Shamsul, “The religious, the plural, the secular and the modern: a brief critical survey on Islam in Malaysia,” *Inter-Asia Cult. Stud.*, vol. 5, no. 3, pp. 341–356, 2004.

[74] A. Ali, N. Utaberta, M. Surat, and M. Qays Oleiwi, “Green Architecture and Islamic Architecture: The Islamic Arabic City and the Traditional Islamic House,” *Appl. Mech. Mater.*, vol. 747, pp. 24–27, 2015.

DIGITAL TRANSFORMATION IN ISLAMIC FINANCE: THE ADVENT OF THE SHARIAH COMPLIANCE REAL-TIME DASHBOARD (SCRD) IN ADDRESSING COMPLIANCE CHALLENGES

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ABSTRACT - In the intricate world of Islamic finance, maintaining strict adherence to Shariah compliance is of utmost importance. This paper explores the foundational concepts and the evolution of Islamic banking since the 1970s, emphasizing the vital role of Shariah Governance in safeguarding ethical practices within Islamic Financial Institutions (IFIs). It underscores the increasing complexities associated with IFIs' operations and the paramount importance of ensuring that every transaction aligns with the core tenets of Shariah law. The challenges, especially the scarcity of adept Shariah auditors and the hurdles in consistent compliance monitoring, are highlighted. Responding to these challenges, this research introduces the Shariah Compliance Real-time Dashboard (SCRD) as an innovative solution. The SCRD, more than a digital tool, is an emblem of Industry 4.0 and the broader digital transformation movement, offering instantaneous feedback on Shariah compliance. By delving into the manifold advantages of the SCRD, the paper showcases its potential to not only streamline compliance processes but also to reinforce stakeholder confidence, marrying the advancements of digital technology with the unwavering principles of Shariah.

Keywords: *Islamic Finance, Shariah Compliance, Shariah Governance, Compliance Monitoring, Continuous Monitoring, Innovation*

1. INTRODUCTION

Islamic banking has emerged as a beacon of ethical finance, carving a niche for itself in the global financial landscape [4][9]. Anchored in the foundational principles of Shariah law, it serves as an alternative to conventional banking systems, emphasizing ethical transactions, risk-sharing, and asset-backed financing. As the industry has matured and expanded its reach, it confronts a gamut of operational complexities. These complexities are magnified by the intricate nature of Shariah laws and their interpretations, making compliance a challenging endeavour. In countries like Malaysia, which has positioned itself as a hub of Islamic finance, the onus of maintaining unblemished compliance and governance is immense [8]. With advancements in technology and the ever-evolving financial ecosystem, it becomes pertinent to explore innovative solutions like the Shariah Compliance Real-time Dashboard (SCRD) that can address these challenges [1][3][5]. This paper delves deep into this framework, offering insights into how digital tools can potentially enhance transparency, ensure adherence to Shariah laws, and bring about operational efficiencies.

2. BACKGROUND OF ISLAMIC BANKING

Islamic banking, intricately interwoven with the tenets of Shariah law, stands as a beacon of ethical finance in the global arena [6]. Unlike its conventional counterparts, Islamic banking pivots around unique philosophies that emphasize mutual risk, profit sharing, and the ethical underpinnings of each transaction. It accentuates equity in transactions and bases dealings on actual business activities or tangible assets. This not only fosters an environment conducive to entrepreneurship, trade, and commerce but also contributes significantly to societal progress. This system vehemently prohibits any dealings rooted in interest (riba), gambling (maisir), or speculative trading (gharar), thereby enshrining the lofty ethics and values dictated by Shariah law [2].

Charting the historical evolution of Islamic banking brings to the fore its meteoric rise since its genesis in the 1970s. Fast forward to 2019, and the global landscape of Islamic finance boasted assets worth a staggering USD 2.88 trillion, translating to an impressive annual growth rate of 14%. Furthermore, this burgeoning sector enveloped more than 1500 financial institutions, casting its net over 80 countries. A testament to its significant growth, the globe's leading 100 Islamic banks witnessed an average asset growth rate of 13% [2].

Zeroing in on Malaysia—a trailblazer in Islamic finance—the nation's initial foray into this ethical financial system was marked by the Islamic Banking Act of 1983. This groundbreaking legislation facilitated the establishment of Malaysia's first-ever Islamic bank. However, as the Islamic finance landscape evolved both locally and globally, the need for a more encompassing regulatory framework became apparent. In response, Malaysia transitioned from the Islamic Banking Act of 1983 to the Islamic Financial Services Act 2013, which now governs the operations of Islamic banks in the country, attesting to Malaysia's commitment to continually refine and enhance its Islamic finance sector. As of the close of 2019, Malaysia's Islamic banking assets impressively surged to USD 254 billion, accounting for a noteworthy 38.0% of the nation's total banking sector deposits. Furthermore, Bank Negara Malaysia, the central bank of the nation, currently registers 17 Islamic banks, cementing Malaysia's leadership and dedication in expanding this ethical financial paradigm [2].

3. SHARIAH GOVERNANCE: AN IN-DEPTH OVERVIEW

Islamic banking's ascendancy on the global stage underscores the paramount importance of adhering to the guiding principles of Shariah law. As the Islamic finance ecosystem expands and becomes increasingly intricate, every transaction, decision, and strategic approach must be meticulously anchored in Shariah's core tenets [6]. This commitment to ethical financing and risk-sharing is intrinsic to Islamic banking, necessitating a governance framework that intertwines these values within every operational facet. Enter Shariah Governance, a directive delineated by the Central Bank of Malaysia as of 20 September 2019. This governance structure aims to guarantee that Islamic Financial Institutions (IFIs)—be it licensed Islamic banks, takaful operators, investment banks with a nod for Islamic banking, or Shariah committee members—conduct their operations in congruence with the ethical, moral, and legal standards espoused by Shariah law [2].

As Islamic finance evolved, blossoming in complexity and scale, the necessity for a sturdy governance system became evident—a system that would champion unwavering allegiance to Shariah principles. Beyond mere religious fidelity, this evolution reflects an effort to buttress stakeholder confidence, emphasizing the ethical dimensions of business undertakings [2][4][7][8].

For a clearer perspective on the tenets of Shariah Governance, its foundational pillars are elucidated below:

Component	Details	Relevant Sections
The Board's Role	• Policy formulation • Strategy mapping • Overall oversight	Sections 7-10
Shariah Committee Dynamics	• Setting governance procedures • Decision-making • Considering all business and risk facets	Sections 11-14
Appointment Criteria and Processes	• Qualification benchmarks • Experience prerequisites • Tenure guidelines • Impartiality standards	Sections 12-13
Control Functions	• Shariah Risk Management • Shariah Review • Shariah Audit	Sections 16-19
Senior Management's Responsibility	• Strategy formulation • Overseeing day-to-day operations • Prompt reporting of non-compliance	Section 15
Cultivating Shariah Compliance Culture	• Advocacy of Shariah principles • Effective communication from leadership	Section 20
Remuneration Paradigms	• Aligning policies with risk and governance objectives	Section 21
Mandate for Transparency and Disclosures	• Assuring stakeholder clarity • Solidifying commitment to Shariah principles	Section 22

Table 1: The foundational pillars of Shariah Governance [2]

In summation, Shariah Governance is the foundational bedrock safeguarding the ethical integrity of IFIs. This meticulously crafted framework not only champions adherence to Shariah tenets but also engenders a culture rich in trust, transparency, and principled integrity [2].

4. CHALLENGES IN RESOURCES FOR COMPLIANCE MONITORING

The journey towards achieving robust compliance monitoring in Islamic Financial Institutions (IFIs) faces several obstacles. One of the principal challenges is the evident scarcity of qualified and adept Shariah auditors. This deficit, combined with other challenges, poses a threat to the reputation and growth of IFIs [9].

Refer to Diagram 1 for a visual summary of the primary challenges.

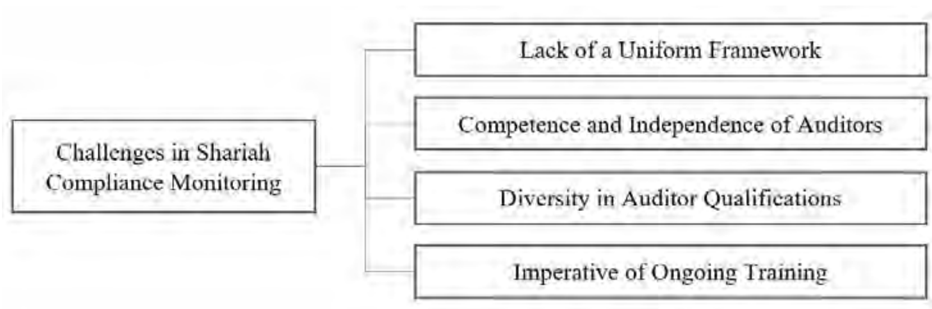

Diagram 1: Challenges in Shariah Compliance Monitoring [4][7][9]

Brief Overview of Challenges:

- **Lack of a Uniform Framework:** While the Shariah Governance Framework (SGF) in Malaysia advocates for a Shariah audit function, the absence of a standardized guideline from Bank Negara Malaysia (BNM) results in varied practices among IFIs [7].
- **Auditor Competence and Independence:** The quality and objectivity of Shariah auditors are often a concern. Discrepancies in audit outcomes can arise when auditors don't meet the specific needs of banks [7].
- **Diversity in Auditor Qualifications**: Without standardized practices, IFIs tend to employ Shariah auditors from diverse backgrounds, leading to potential inconsistencies in audits [7].
- **Imperative of Ongoing Training:** The ever-evolving nature of Shariah issues necessitates continuous training for auditors to keep them updated [7].

4.1 Focus: Scarcity of Qualified Shariah Auditors

Central to the challenges is the acute scarcity of Shariah auditors with expertise spanning Shariah principles, accounting standards, and auditing practices. This deficiency not only impacts the day-to-day operations but can also have lasting repercussions on the growth trajectory and reputation of IFIs. The subsequent section introduces the Shariah Compliance Real-time Dashboard (SCRD) as a promising solution to address some of these challenges [4].

5. INTERVENTION: THE SHARIAH COMPLIANCE REAL-TIME DASHBOARD (SCRD)

As we navigate the digital era, characterized by an increasing reliance on technology and data-driven strategies, the importance of instantaneous compliance monitoring in the financial domain becomes strikingly evident. In this landscape, the Shariah Compliance Real-time Dashboard (SCRD) presents itself as a pioneering solution. It promises a centralized and automated approach to compliance monitoring, offering real-time insights and visual representations of Shariah compliance levels [1].

5.1 The Essence of SCRD

SCRD transcends its role as merely a digital application; it embodies a strategic vision. Designed to incorporate all Shariah prerequisites, SCRD, through continuous data assimilation, offers immediate visual updates on compliance levels. This ensures stakeholders are constantly abreast of their alignment with Shariah mandates.

5.2 Diverse Benefits of SCRD

The SCRD system bestows a myriad of advantages, each tailored to the unique needs of its beneficiaries as per following diagram:

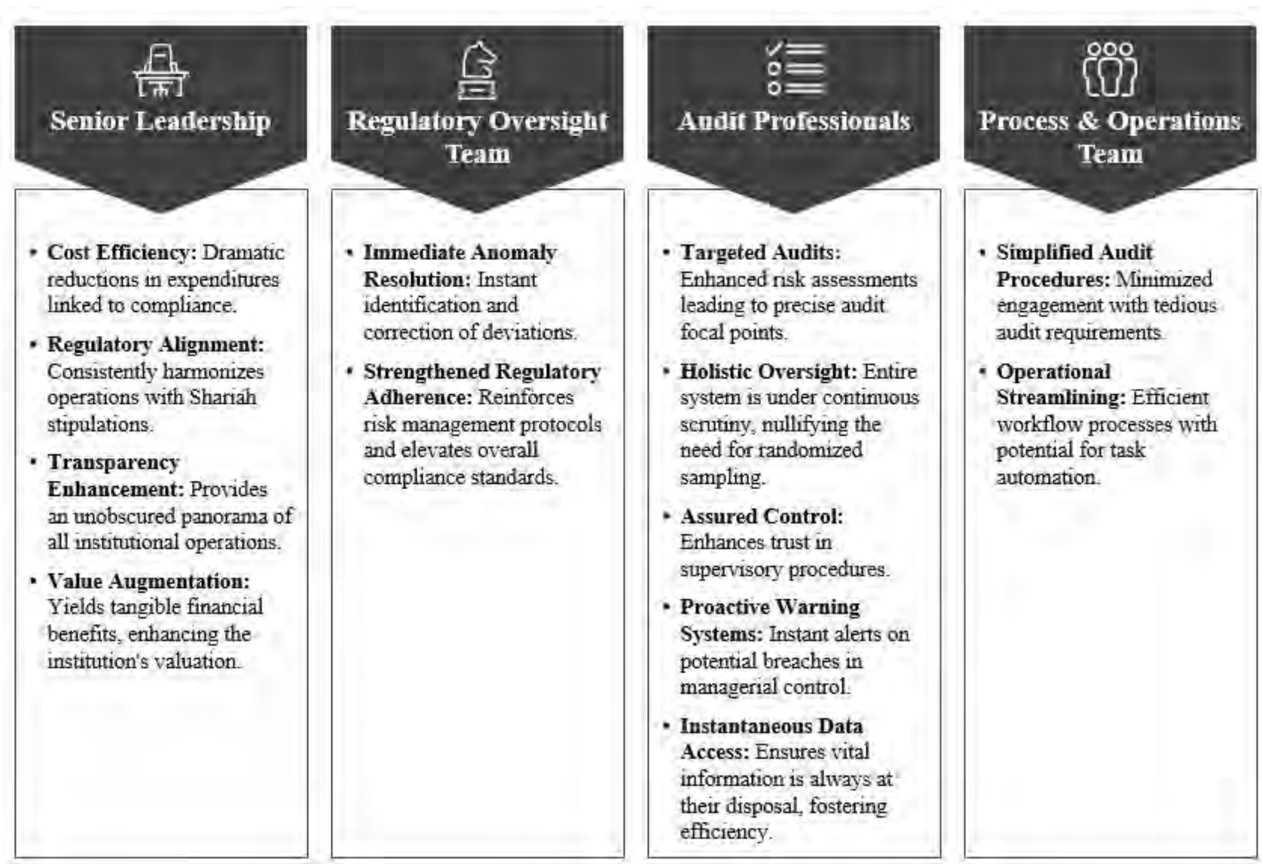

Diagram 2: Stakeholder-Centric Advantages of the SCRD [3]

6. CONCLUSION AND RECOMMENDATIONS

In the wake of Industry 4.0, a paradigm dominated by digital innovations and technological progress, myriad opportunities emerge. These opportunities promise enhanced accuracy and efficiency across a broad spectrum of industries, finance being a prime contender. With the burgeoning significance of Islamic finance on the global stage, innovative tools like the SCRD become indispensable to assure unwavering adherence to Shariah mandates.

As IFIs grapple with the dual challenge of upholding financial rectitude while staying true to Shariah guidelines, the amalgamation of digital tools into their framework isn't just beneficial—it's essential.
Looking ahead, it's pertinent for industry stakeholders to delve deeper into the versatility of SCRD across diverse regulatory landscapes. Additionally, understanding the interplay between cutting-edge fintech innovations and Shariah compliance will be crucial. There's also a compelling need to study the correlation between instruments like SCRD and the degree of trust and reliability they instill among clientele.

In charting the course for the future, it's imperative that institutions remain proactive in adopting and adapting to technological evolutions. This not only ensures their sustained relevance but also fortifies their commitment to maintaining the sanctity of Shariah principles in an ever-evolving financial landscape.

ACKNOWLEDGEMENT

The author wishes to extend profound appreciation to Dr. Haji Razli Ramli of UTM AHIBS. His astute guidance, steadfast encouragement, and deep-seated expertise have been the pillars upon which this conference paper stands. His insights not only enriched the content but also provided the impetus needed to bring this work to completion.

REFERENCES

1. Al Wahshi, J. F. (2022). An investigation into the role of data governance in improving data quality: a case study of the Omani banking sector. *European Conference on Information Systems (ECIS) Proceedings.* AIS Electronic Library (AISeL). https://doi.org/10.1080/23311975.2022.2072566
2. Bank Negara Malaysia (Central Bank of Malaysia). (2023). Retrieved from https://www.bnm.gov.my/
3. Deloitte. (2018). Next Wave of Continous Control Monitoring Solution. India: *Deloitte*.
4. Fatihu Shehu Isa, N. M. (2020). Shariah Audit Practices in Malaysia: Moving Forward. *Journal of Islamic Finance*, 42-58.
5. Khalil Al-Refaee, A. S. (2013). The Effect of using Information Technology on Increasing the Efficiency of Internal Auditing Systems in Islamic Banks Operating in Jordan . *Research Journal of Finance and Accounting*, 110-117.
6. Latifah Algabry, S. M. (2020). Conceptual framework of internal Sharīʿah audit effectiveness factors in Islamic banks. *ISRA International Journal of Islamic Finance*, 171-193.
7. Nur Laili Ab Ghani, A. R. (2015). An Analysis of Shari'ah Audit Practices in Islamic Banks in Malaysia. *Jurnal Pengurusan*, 107-118.
8. Rosnia Masruki, M. M. (2020). Shariah Governance Practices of Malaysian Islamic Banks in the Light of Shariah. *Asian Journal of Accounting and Governance*, 91-97.
9. Zuhroh, I. (2022). Mapping Islamic Bank Governance studies: a systematic literature review. *Cogent Business & Management*.

CONCLUDING REMARKS

On behalf of the Azman Hashim International Business School International Action Conference 2023 (AHIBS-ACT 2023) organizing committee, we express our sincere gratitude to all contributors who have played a pivotal role in bringing this publication to fruition. Your unwavering commitment and scholarly rigor have been indispensable in shaping its contents. Throughout this collaborative endeavour, we have witnessed the convergence of ideas and discussions that transcend traditional academic boundaries, resulting in a rich tapestry of knowledge and insight. Our contributors include international presenters from diverse countries, representing various professions—from government officials to private sector experts—and encompassing participants from different races and backgrounds. This publication is a testament to our collective intellectual pursuit, and it stands as a beacon of academic excellence and interdisciplinary collaboration. We deeply appreciate the enthusiasm and support of each contributor, which has been crucial to our success. Looking forward, we eagerly anticipate further collaborative ventures that will continue to push the frontiers of knowledge and contribute significantly to the global community. Our profound appreciation extends to all involved for upholding the highest standards of academic rigor and integrity in ensuring that this work not only informs but also inspires future scholarly pursuits.