

Managing Climate Change: Role of Islamic Finance

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Abstract

Environmental protection and sustainability fits in nicely with the Islamic finance agenda that seeks to enhance the general welfare of society. Organizational goals such as the protection of the planet and the environment, climate management and adaptation clearly conform to the goals of the Sharī'ah as well as with the UN-mandated Sustainable Development Goals (SDGs). This paper takes the argument further and seeks to demonstrate how Islamic finance can significantly contribute to the global search for climate finance solutions. Islamic social funds can potentially play a significant role in absorbing the incremental costs with clean technologies where subsidies are not forthcoming to absorb the same. For zakāt funds to be used for the purpose, an additional condition needs to be met. The beneficiaries must be poor. The institution of waqf, along with zakāt and ṣadaqah, can certainly play a role in coping with humanitarian crises resulting from climate change. Awqāf, like many foundations may directly engage in the provision of goods and services related to mitigation and adaptation. Awqāf may also be dedicated to research and development and towards increasing consumer awareness and creating stronger support for action to mitigate climate change. Similar to SRI Funds, the Islamic Green Funds and similar to Green Bonds, the Islamic Green Ṣukūk can contribute significantly to the agenda of climate change.

Keywords: Environmental protection, climate change, Islamic social funds, Green *ṣukūk*.

JEL Classifications: Q54 H23 H44

KAUJIE Classifications: B4 E23 H72

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1. Introduction

Islamic economists invoke the framework of *Maqāṣid al-Sharī‘ah (MaS)* to chart the trajectory for Islamic finance. While many classical as well as contemporary Islamic scholars have discussed and elaborated upon the *Maqāṣid al-Sharī‘ah (MaS)* framework, the Islamic Research and Training Institute (IRTI) has undertaken pioneering research that underlines the fact that many Sustainable Development Goals (SDGs) clearly align with *Maqāṣid al-Sharī‘ah (MaS)*¹. The *MaS*-driven Islamic finance, therefore, would work towards achieving the SDGs.

There is a growing realization that Islamic financial institutions should align their goals with the SDGs and, therefore, would be able to protect and promote the *MaS*. Protection of the planet and the environment, climate management and adaptation, as organizational goals are clearly in conformity with *MaS* as well as with the SDGs. This paper takes the argument further and seeks to demonstrate how Islamic finance can significantly contribute to the global search for climate finance solutions. The next section of the paper highlights the alignment between *MaS* and SDGs in greater detail, particularly with respect to the environment and climate management. Section 3 focuses on climate finance as it has evolved recently across the globe. Section 4 deals with the stakeholders in climate finance and how they relate to the Islamic economic system. Section 5 discusses the instruments of climate finance – public and private. Section 6 presents a case study of the Islamic Development Bank (IsDB) and discusses how it undertakes various projects aimed at climate risk mitigation and adaptation using the tools of Islamic finance. This is followed by a summary and conclusion.²

2. *Maqāṣid al-Sharī‘ah*, SDGs and Environmental Goals

The purpose of this section is to demonstrate the convergence of SDGs in general, and the goal of climate management in particular with the *MaS*. Since the *MaS* should determine the trajectory of Islamic finance, the latter should be geared

¹ Chapra, M.U. (2008) *The Islamic Vision of Development in the Light of Maqāṣid al-Sharī‘ah*, Islamic Research and Training Institute, Islamic Development Bank

² An earlier version of this paper “Managing Climate Change: The Role of Islamic Finance” was published as IRTI Policy Paper No. PP/2017/01, Jeddah: Islamic Research and Training Institute. A shorter version “Climate Change Financing: Role of Islamic Finance” was contributed to the Marrakech Climate Change Conference (COP22) organized by UNFCCC in November 2016

towards achievement of the SDGs in general and climate management goals in particular.

2.1. Sharī‘ah on Protecting the Planet

Any action with a view to protecting the planet and environment is also a step towards achieving the objective (*maqāṣid*) of Sharī‘ah. Below I briefly highlight some key Islamic norms of human behavior that underscore the above.

According to Sharī‘ah, human beings, as vicegerents of God, have the mission of faithfully observing the values given by their Creator. During their short life in this world they may utilize the scarce resources of the planet as trustees. They must interact with each other in accordance with rules. This would not only ensure the well-being of all humans but also, protect the environment, including animals, birds and insects.³

Corruption doth appear on land and sea because of (the evil) which men’s hands have done, that He may make them taste a part of that which they have done, in order that they may return. (Qur’ān 30:41)

In the above verse, the Qur’ān calls on human beings to recognize their own contribution to the crisis. A reversal in the deterioration of the planet would require some hard choices and change in practices.

But waste not by excess: for Allah loveth not the wasters. (Qur’ān 6:141)
“Eat and drink, but waste not by excess; Verily He loves not the excessive”
(Qur’an:7:31)

The above verses highlights the importance of conservation and avoiding wastefulness. The same principle is underlined when a believer is required to be frugal in the use of water for ablution, an act of worship, even if s/he has a river at their disposal. Water and other natural resources are thus to be seen as divine provisions.

The planting of trees is highlighted as a significant pious deed in Islam. According to a widely known tradition, the planting of a tree is regarded as an act of continuous charity. There is another tradition, which says, if one has with him/her a

³ Chapra, M.U (2008), p30

sapling ready to be planted and the Day of Judgment arrives one should go ahead and plant it.

Islam forbids the willful destruction of the planet as all creations of Allah, including animals and trees, glorify God in their own way and serve a certain purpose in His larger scheme of the world.

Seest thou not that to Allah bow down in worship all things that are in the heavens and on earth, - the sun, the moon, the stars; the hills, the trees, the animals; and a great number among mankind? (Qur'ān 22:18)

This Islamic notion reinforces the scientific concept of a 'chain of life,' and interdependence among species, maintaining the balance of life on earth.

There is not an animal (that lives) on the earth, nor a being that flies on its wings, but (forms part of) communities like you. (Qur'ān 6:38)

God reminds humans in the Qur'ān not to tamper with His divine balance (here referred to as 'measure') by reminding them:

And the sky He hath uplifted; and He hath set the measure, that ye exceed not the measure, but observe the measure strictly, nor fall short thereof. (55:7-9)

There are numerous verses of the holy Qur'ān and the traditions of the Prophet, which establish the inviolable rule to preserve and protect the environment and conserve resources. Maintaining the balance of life on the planet is a supreme duty of humans and therefore, forms part of the divine objectives of the Sharī'ah.

Islamic finance aims to promote an economic concept that extends beyond being the component of a financial system, but as part of a total value-based social system. The Sharī'ah, which governs the Islamic financial system has ample injunctions which emphasize the need to care for the environment and forms of life on earth while ensuring the proper usage of natural resources.

2.2. SDGs and Climate Management

The majority of UN-mandated sustainability development goals (SDGs) relate to ending poverty and hunger, ensuring healthy lives, access to quality education, lifelong learning and employment opportunities, energy, shelter, and gender

equality. The goals also include promoting inclusive economic growth, industrialization, and building infrastructure with the view to reducing income disparities. The SDGs however, lay balanced emphasis on areas of critical importance for the planet as much as for the people⁴. These include: combating climate change and its impact, conservation and sustainable use of marine resources, protection and sustainable use of terrestrial ecosystems, management of forests, combating desertification, land degradation, and biodiversity loss. SDGs also have a social dimension and include promotion of peaceful and inclusive societies, with access to justice for all, and building effective, accountable, and inclusive institutions at all levels.

Mitigation and adaptation are two important terms that are fundamental in the climate change discourse. Climate mitigation is any action taken to permanently eliminate or reduce the long-term risk and hazards of climate change to human life, property.⁵ Climate adaptation refers to the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damage, to take advantage of opportunities, or to cope with the consequences.⁶ While mitigation tackles the causes of climate change, adaptation tackles the effects of the phenomenon. Adaptation is crucial to reducing vulnerability to climate change. A successful adaptation can reduce vulnerability by building on and strengthening existing coping strategies. In general, the more mitigation there is, the less will be the impacts to which society will have to adjust, and the less the risks for which it will have to prepare. Conversely, the greater the degree of preparatory adaptation, the less may be the impacts associated with any given degree of climate change. It should be noted that climate mitigation and adaptation are not alternatives to each other, as they are not discrete activities but rather a combined set of actions in an overall strategy to reduce greenhouse gas emissions.

Together, both mitigation and adaptation strategies should be able to meet the 2-degree target for the planet⁷.

⁴ Transitioning from the MDGs to the SDGs: Accountability for the Post-2015 Era, CDP Background Paper No. 25

⁵ The International Panel on Climate Change (IPCC) defines mitigation as: “An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.”

⁶ The IPCC defines adaptation as the, “adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation.”

⁷ There is international consensus on 2-degree target, which means that if temperature rise is kept below 2 °C, catastrophic climate change can be avoided.

2.2.2. *Contemporary Islamic Response to Climate Change*

The Islamic Declaration on Global Climate Change⁸ calls on the people of all nations and their leaders to –

- Aim to phase out greenhouse gas emissions as soon as possible in order to stabilize greenhouse gas concentrations in the atmosphere;
- Commit themselves to 100% renewable energy and/or a zero emissions strategy as early as possible, to mitigate the environmental impact of their activities;
- Invest in decentralized renewable energy, which is the best way to reduce poverty and achieve sustainable development;
- Realize that to chase after unlimited economic growth in a planet that is finite and already overloaded is not viable. Growth must be pursued wisely and in moderation; placing a priority on increasing the resilience of all, and especially the most vulnerable, to the climate change impacts already underway and expected to continue for many years to come.
- Set in motion a fresh model of wellbeing, based on an alternative to the current financial model which depletes resources, degrades the environment, and deepens inequality.
- Prioritize adaptation efforts with appropriate support to vulnerable countries with the least capacity to adapt. And to vulnerable groups, including indigenous peoples, women and children.

In particular, the declaration calls on the well-off nations and oil-producing states to –

- Lead the way in phasing out their greenhouse gas emissions as early as possible and no later than the middle of the century;
- Provide generous financial and technical support to the less well-off to achieve a phase-out of greenhouse gases as early as possible;
- Recognize the moral obligation to reduce consumption so that the poor may benefit from what is left of the earth's non-renewable resources;
- Stay within the '2 degree' limit, or, preferably, within the '1.5 degree' limit, bearing in mind that two-thirds of the earth's proven fossil fuel reserves remain in the ground;
- Re-focus their concerns from unethical profit from the environment, to that of preserving it and elevating the condition of the world's poor.
- Invest in the creation of a green economy.

⁸ <http://islamicclimatedeclaration.org/islamic-declaration-on-global-climate-change/>

3. Financing Climate Management

Climate finance is at times understood in a narrow sense as the transfers of public resources from developed to developing countries, in the light of their UN Climate Convention obligations to provide "new and additional financial resources". In a broader sense, however, climate finance refers to all financial flows relating to climate mitigation and adaptation. In this paper I focus on the broader framework. In the words of the United Nations Framework Convention on Climate Change (UNFCCC)⁹:

“Climate finance refers to local, national or transnational financing, which may be drawn from public, private and alternative sources of financing. Climate finance is critical to addressing climate change because large-scale investments are required to significantly reduce emissions, notably in sectors that emit large quantities of greenhouse gases. Climate finance is equally important for adaptation, for which significant financial resources will be similarly required to allow countries to adapt to the adverse effects and reduce the impacts of climate change.

In accordance with the principle of common but differentiated responsibility and respective capabilities set out in the Convention, developed country Parties (Annex II Parties) are to provide financial resources to assist developing country Parties in implementing the objectives of the UNFCCC. It is important for all governments and stakeholders to understand and assess the financial needs developing countries have so that such countries can undertake activities to address climate change. Governments and all other stakeholders also need to understand the sources of this financing, in other words, how these financial resources will be mobilized.

Equally significant is the way in which these resources are transferred to and accessed by developing countries. Developing countries need to know that financial resources are predictable, sustainable, and that the channels used allow them to utilize the resources directly without difficulty. For developed countries, it is important that developing countries are able to demonstrate their ability to effectively receive and utilize the resources. In addition, there needs to be full transparency in the way the resources are used for mitigation and adaptation activities. The effective measurement, reporting and verification of climate finance is key to building trust between Parties to the Convention, and also for external actors.”

⁹ http://unfccc.int/focus/climate_finance/items/7001.php

Broadly, climate finance flows may follow the earlier distinction between climate change mitigation and adaptation. For instance, mitigation finance would target the reduction of net greenhouse gas emissions including, but would not be limited to, the production of renewable energy, energy efficiency projects and Reducing Emissions from Deforestation and Degradation (REDD) projects. On the other hand, adaptation finance would enhance the resilience to the impacts of climate change and variability. One should however, take note of the fact that specific projects may be hard to be bracketed in one or the other and institutions may differ in their definition of mitigation and adaptation projects.

3.1. Size of Climate Finance Needs

Climate finance is about making right investments. Various studies seek to quantify the size of climate finance needs.

1. A UNEP paper estimates the global investment required in water, agriculture, telecommunication, power, transport, buildings, industry, and forestry sectors to be around US\$ 5-7 trillion annually to realize the aims of sustainable development.
2. The same paper quotes another estimate by the McKinsey consulting group. Based on a bottom-up analysis of how much a low-carbon revolution would cost, country by country and industry sector by industry sector, the study estimates that the shift would require incremental capital expenditures averaging 455 billion euro per annum between 2010 and 2030, which is about 2-4% of total expected capital expenditure during the period.
3. The *World Economic Forum* projects that by 2020, about \$5.7 trillion will need to be invested annually in green infrastructure, much of which will be in today's developing world. This will require shifting the world's \$5 trillion in business-as-usual investments into green investments, as well as mobilizing an additional \$700 billion to ensure this shift actually happens.
4. In its *World Energy Outlook Special Briefing for COP21*, the International Energy Agency (IEA) estimates that the full implementation of climate pledges or Intended Nationally Determined Contributions (INDCs)¹⁰ require \$13.5 trillion in energy efficiency and low-carbon technologies from 2015-2030 (almost 40% of total energy sector investment).

¹⁰ All countries were invited by the UNFCCC to submit domestic preparations to achieve the global two-degree target. The INDC submissions may be accessed from http://unfccc.int/focus/indc_portal/items/8766.php.

Against these requirements the actual financial flows show a steady increase. The Global Landscape of Climate Finance 2015 by the Climate Policy Initiative¹¹ estimates that in 2014, annual global climate finance flows totaled an average of \$391 billion (an investment increase of 18% from 2014). Private investments account for 62 percent of this at \$243 billion.

3.2. Dynamics of Climate Finance

Climate finance is about investments. Climate finance would largely require funds to flow into investments in long-life assets. Overall, experts feel that climate finance would not demand an increase investment but would require wiser investments with a move away from seeking short-term gains. A significant share of climate projects and assets to be financed involve capital intense technologies, i.e. require significant upfront investments but benefit from low and stable operating costs.

Financing costs are a key driver for the competitiveness of clean technologies. The availability of long-term capital at appropriate financing costs will therefore be crucial to meet the 2-degree target. Currently, however, short-termism dominates the financial markets. Short-termism refers to an excessive focus on short-term results at the expense of long-term interests. A global transformation towards a green economy requires a change in financing patterns – from financing operating costs to financing upfront investments and from short-term financing to long-term financing.

Besides the required shift from short to long-termism, the capital intensity of many climate finance projects also triggers other barriers. Examples are the required planning and detailed analysis before designing and implementing a project.

In addition, the planning horizons of “investors” need to match the lifetime (or at least the payback period) of the project. Innovative financing structures can play an important role in overcoming these barriers.

Unfortunately, the economic and financial crisis has further strengthened the short-termism in the global financial system. Revisions of, for example, the banking regulation “Basel” resulted in higher capital requirements for banks when providing long-term loans and consequently discouraged banks from long-term lending. While

¹¹ <http://climatepolicyinitiative.org/wp-content/uploads/2015/11/Global-Landscape-of-Climate-Finance-2015.pdf>

banking regulation primarily needs to ensure the stability of the financial sector, the side effect with regard to climate finance is not helpful.

One key differentiation should be made between upfront financing and incremental costs. Upfront investments can be repaid over the lifetime of a clean energy project. Therefore, a capital intense clean energy project can still be more profitable than a less capital intense traditional energy project. However, during appraisal it is likely that the incremental costs or the gap between the costs of clean technologies and traditional ones may not be high enough to make the project financial viable. In addition to the incremental costs, subsidies may create financing flow, which is required to create financial viability of a project, i.e. to ensure that the capital intense project generates sufficient cash flows to pay back the upfront investment.

Private sector financiers require a viable business case to get involved. Therefore, if a climate project cannot generate sufficient cash flows to repay the initial investment and interest/dividends, subsidies must be introduced to create a viable business case. Such subsidies will not be repaid by the project but can help make it financially viable.

The differentiation of financing requirements into two categories will help to approach the right financier. The private sector's role in climate finance is (with some exceptions like Corporate Social Responsibility (CSR) activities and strategic market entry projects) limited to viable business cases. Public sector sources can become involved in both categories. By using for example concessional, low interest lending, a development finance institution can "subsidize" a project and cover a component of the upfront investment. In many countries, feed-in tariff schemes built the basis for investments in renewable energy. To the extent the feed-in tariff (FiT) is above the average generation costs the difference is the element of subsidy. On the other hand, if these incremental costs are added to the ratepayers' bill, the ultimate sources of financing are the ratepayers, i.e. households and commercial customers of a utility.

4. Stakeholders in Islamic Climate Finance

Climate finance comprises multiple types of financial flows ranging from grants to investments for a very broad range of adaptation and mitigation projects over the whole lifecycle of projects. Accordingly, the sources of such financing are very heterogeneous and involve a broad range of stakeholders. Broadly, these can be divided into public and private sources of financing. Public finance uses public

funds, raised through fiscal revenues such as taxes and other government income streams to fund the production and distribution of public goods. Public finance aims to support public and private sector projects and programs through the use of public funds. They aim to close funding gaps, which would exist if only the private sector could provide financing. Public finance is also needed to provide grant money and to provide incremental cost financing.

Islamic finance as a faith-based idea has come of age. Finance professionals view it largely as asset-based finance that is free from the elements of unjust and speculative gains¹². It involves use of a range of tools that create debt, leases, equities and guarantees. Islamic bankers use them or combinations thereof for financing the needs of economic units, such as, the government, the corporate and the household sectors in the economy. Islamic finance has experienced steady growth over the past four decades as more and more countries and markets have come forward to experiment with this faith-based idea.¹³

The frenetic pace of growth has however, raised concerns about a possible mission drift¹⁴. Islamic financial services providers, using debt-creating contracts have witnessed disproportionate growth, mostly addressing the needs of high-net worth individuals and corporates. Most of these institutions are perceived to be similar to their conventional counterparts displaying a preference for short-term profit maximization over longer-term goals. Islamic economists are particularly concerned that Islamic finance has to contribute a lot more towards addressing development-related issues, and societal concerns.

4.1. Development Finance Institutions

Development Finance Institutions (DFI) are financial institutions which provide finance to the public and private sector for investments that promote, for example, the transition to a low-carbon economy. They operate on a large scale to provide significant climate benefits and economy-wide support for sustainable development and emerging climate finance instruments. Using their own capital, through government and donor investments, they intermediate public funds from developed to developing countries. Bilateral financing is mostly channeled through national development finance institutions. The Islamic Development Bank (IsDB) is the

¹² Freedom of *ribā* and *gharar* are the two ethical foundations of Islamic finance that scholars define as profits made on debt and through speculation.

¹³ Some estimates place the aggregate size of Islamic finance market at over USD 2 trillion.

¹⁴ Abozaid Abdulazeem (2010), Contemporary Islamic Financing Modes: Between Contract Technicalities and Shariah Objectives, Islamic Economic Studies, Vol. 17 No. 2, January, 2010

leader in the provision of climate finance in a way that conforms to the Sharī‘ah. Section 6 presents a case study of the IsDB as it seeks to contribute to climate risk management.

4.2. Other Climate Finance Institutions

Within the multi and bilateral arrangements there are also dedicated climate finance and renewable energy funds and initiatives, some of which serve to bundle financing from various sources.

4.3. National Climate Finance Initiatives

National climate finance initiatives (NCFIs) are mechanisms that enable governments to strengthen national political and fiscal systems through mobilising and directing climate financing to implement the national climate change strategy. NCFIs are set up to source funding from the national budget and earmark it for international climate cooperation. Thematic climate funds are also established to bundle funding from various donor to support projects and programs in climate management.

Box 1: Green Investments in UAE

Enormous opportunities exist for Green *Ṣukūk* in the solar energy plans of GCC countries including the UAE. These also have significant potential for renewable energy for sustainable development, and have significant requirements for investment to protect themselves from the impacts of climate change.

The Dubai Supreme Council of Energy (DSCE) and the World Bank have joined together to design a funding strategy for Dubai’s green investment programme using green bonds and *ṣukūk*. The DSCE has a green investment programme in place since 2010 as part of the Dubai Integrated Energy Strategy (DIES) 2030 that aims to secure a sustainable supply of energy for the Emirate. Dubai has a target of drawing 1% of its energy needs through solar means by 2020 and green bonds and *ṣukūk* would play a crucial role in arranging the necessary financing required to implement the various green projects. The inaugural Sustainability Report 2013 issued by the Dubai Electricity and Water Authority, notes that the 1,000-megawatt H.H. Sheikh Mohammed bin Rashid Al Maktoum Solar Park will provide ‘global financial investment opportunities in green finance’.

Abu Dhabi also announced a target of generating 7% of its energy capacity from renewable sources by 2020. In January 2015, the Masdar Institute of Science and Technology released a UAE Wind Atlas, similar to its previous Solar Atlas, to support investment in renewable projects. The road seems greener for the UAE, in general as well as it expected that the newly established Dubai Islamic Economy Development Center (DIEDC) will provide support for the growth of *ṣukūk* in the UAE, which will likely include green *ṣukūk* in the future.

Source: <http://www.mifc.com/?ch=28&pg=72&ac=88&bb=uploadpdf> and <http://meglobaladvisors.com/financing-a-greener-world-through-green-bonds-and-ṣukūk/>

Box 2: Green Investments in Malaysia

In Malaysia, green technology was identified as a major growth area by the Malaysian government under the National Green Technology Policy in 2009. Following this, a number of government-led initiatives have been implemented with a view to positioning the country as a hub for green technology by 2020. The three major Green financing initiatives currently in place by the Malaysian Government are as follows:

Green Technology Financing Scheme: The Green Technology Financing Scheme (GTFS) involves soft loans to companies and users of Green Technology. Islamic financing accounts for over 40% of all funds granted under GTFS. Along with conventional banks, Islamic banks in Malaysia are also eligible to participate in the scheme known as Green Technology Financing Scheme Islamic (GTFS – i). Effective 2013, the scheme offers users either a rebate of 2% on the interest or profit rate, or a government guarantee of 30% on the financed amount.

Socially Responsible Investment (SRI) Ṣukūk: Malaysia's initiative in developing Sharī'ah-compliant green fixed-income instruments received a significant boost in 2014 with the release of formal guidelines for developing and issuing SRI *ṣukūk*. The SRI *ṣukūk* would be raised to fund sustainable and responsible investment projects. The SRI *Ṣukūk* guidelines would be instrumental in attracting Malaysian issuers to raise funds through green *ṣukūk* while attracting investors from Western countries who are familiar with the concept of socially responsible investing but have yet to venture into the *ṣukūk* market.

Environmental, Social and Governance (ESG) Index: Another landmark is the formation of an Environmental, Social and Governance (ESG) Index in 2014

which would list companies that demonstrate high accountability, transparency and sustainability, including inclusiveness in diversity encompassing gender, age, and ethnicity. This Index will enable investors to divert their capital into companies that instill high levels of environmental, social and governance standards. Effectively, the ESG Index will enable green investors to channel their funds into eligible companies that comply with the green economic growth and developmental requirements along with upholding social and governance responsibilities.

Source: Islamic Finance Ready to Finance a Greener World, Report by Malaysia International Islamic Financial Centre Community accessed from <http://www.mifc.com/?ch=28&pg=72&ac=88&bb=uploadpdf>

4.4. Banks

The availability of long-term capital, including long-term debt is of outstanding importance for the realization of mostly capital-intensive green projects. The tradition of long-term finance provided by commercial banks varies significantly from region to region. In general, financial regulation has curbed the ability of commercial banks to provide long-term capital and transform maturities. Notwithstanding the bottlenecks, Islamic banks have increasingly turned their attention towards green financing and towards supporting renewable energy including hydropower, solar and wind energy. For example, through the UK-based Islamic investment bank Gatehouse Bank Plc people can now invest in sustainable-oriented companies that offer technology, products and services throughout the water industry.

4.5. Microfinance Institutions

A number of MFIs are diversifying their products and services to dedicated climate finance products; e.g. for clean energy products. Energy efficient or renewable energy solutions such as solar home systems and anaerobic digesters (biogas) are important to low-income families as they provide affordable access to clean energy and sometimes even new income-generating opportunities. Local access to respective clean energy products is sometimes challenging and MFIs need to build up internal capacities and develop loan products that reflect the characteristics of applied technologies. For many MFIs a large share of their clients is engaged in subsistence farming and is highly susceptible to external shocks such as droughts and flooding which may lower productivity significantly. Agricultural activities including farming (crops), livestock and forest-based livelihood systems

are particularly affected by climate variability and need to adapt; i.e. reduce the sensitivity to climate variability and improve the capacities of individuals to cope with the impact.

Islamic microfinance institutions have specifically relied on Islamic social funds – *zakāt*, *ṣadaqah* and waqf to absorb certain costs related to the administration of microfinance and thereby succeeded in making microfinance affordable to clients. They can play a similar role in absorbing the incremental costs with clean technologies where subsidies are not forthcoming to absorb the same. For *zakāt* funds to be used for the purpose, an additional condition need to be met, i.e. the beneficiaries must be poor.

4.6. Institutional Investors

Institutional investors are the largest group of private sector financiers and comprise a multitude of actors ranging from insurance companies to investment funds and including asset owners and asset managers. Institutional investors potentially could supply a significant share of the total climate financing requirement globally but factors like financial regulation of institutional investors and lack of standardization impede their investment capacity. Within the broad range of climate finance avenues institutional investors are particularly active through listed equity shares and corporate bonds. Direct investments in renewable energy (RE) projects are less common (but increasing) due to transaction sizes as well as skills required, and expenses related to proper due diligence and monitoring.

Whilst institutional investors manage a large amount in assets, their potential as a growing source of climate finance is restricted. The ability of asset managers to invest in climate finance depends on their investment strategy, restrictions agreed upon with their clients as well as the regulatory framework. Life insurance and pension funds are especially constrained by the latter. It is felt that green bonds can help to attract institutional investors' capital by using a well-known transaction structure.

4.7. Private Equity (PE) and Venture Capital (VC) Funds

PE/VC funds can play a crucial role in the development and scaling up of new green technologies and/or business. In the context of RE generation assets, PE/VC investments can accelerate the development of projects by investing in the early development stage. Conventional bank financing cannot usually be attracted because of the risk profile of these projects. With the support of donors, a significant number

of double bottom line PE/VC funds have been established over recent years. Their investment horizon is usually longer than the one of a conventional PE/VC fund. Islamic PE/VC funds are perceived to be closer to Islamic norms of risk-sharing and participation than debt-focused Islamic banks and, as such, offer greater potential for climate finance.

4.8. Strategic and Corporate Investors

Strategic investors provide significantly more climate finance than households, and in fact they are estimated to have contributed 38% of total private climate finance. Providing financing for low carbon projects is a core revenue generating mechanism for these investors. Included within the category of strategic and corporate investors are corporations and energy sector actors that act as dedicated vehicles with the capacity to design, commission, operate and maintain emissions reduction, and climate financing projects. These corporate actors or strategic investors include those that engineer, procure and construct projects, namely, power and gas utilities, independent power producers, energy companies, contractors and independent developers of projects. The Islamic Declaration on Global Climate Change¹⁵ calls upon corporations and the business sector to:

- Shoulder the consequences of their profit-making activities, and take a visibly more active role in reducing their carbon footprint and other forms of impact upon the natural environment;
- In order to mitigate the environmental impact of their activities, commit themselves to 100 % renewable energy and/or a zero emissions strategy as early as possible and shift investments into renewable energy;
- Change from the current business model which is based on an unsustainable escalating economy, and to adopt a circular economy that is wholly sustainable;
- Pay more heed to social and ecological responsibilities, particularly to the extent that they extract and utilize scarce resources;
- Assist in the divestment from a fossil fuel driven economy and the scaling up of renewable energy and other ecological alternatives.

4.9. Households

Households are the driver of massive investments in decentralized RE generation assets. Besides realizing their own climate project, they play a crucial role in

¹⁵ <http://www.ifees.org.uk/declaration/>

providing savings to intermediaries. Households either invest on their own, for example in decentralized renewable energy generation, or provide financing to climate projects by investing savings. It is estimated that household contributions to climate financing and renewable energy stands at around 18% of total global climate finance flows, invested almost entirely into solar PV and thermal systems (typically rooftop and small-scale solar installations). Households include families, family-level economic vehicles and entities, high net worth individuals and associated intermediaries. Microfinance schemes can help to turn households into investors in decentralized electricity generation.

Crowd-funding aims to collect a high number of small investments to realize a project. Crowd funding can be a valuable instrument in locally driven projects. The collective pool of money, usually done over the internet, is initiated by people or organizations to support a variety of activities including disaster relief support of charities, political campaigns, etc. Crowd-funding comes from crowdsourcing, the broader concept of leveraging small contributions from many parties to reach a goal. The recent successes of Islamic crowd funds to mobilize resources for achieving various social goals, e.g. poverty alleviation, point towards their potential in climate finance.

4.10. Foundations and *Awqāf*

Foundations are non-profit organizations that will either donate funds or provide the source of funding for its own charitable activities. In some countries like Germany, charitable foundations can only donate the return on their investments but need to keep their capital stock (similar to Islamic endowments or *awqāf*). Consequently, on the one hand they are a source of grant financing while on the other hand, they invest their capital to generate returns for their charitable activities and are consequently a source of investment financing. Foundations can ensure that their assets are invested in a sustainable way.

Climate change is already happening; it can already be observed in many regions of the world and already affects selected industry sectors. The consequence of extreme climatic events such as droughts and floods in developing countries pose an increasing threat to rural and peri-urban communities and their farming activities. Islamic social funds – *zakāt*, *ṣadaqah* and *waqf* - can play a role in coping with humanitarian crises resulting from climate change.

Awqāf may directly engage in the provision of goods and services related to mitigation and adaptation. Such green *awqāf* may be established as dedicated entities for conservation of soil, water, plants, disposal of waste etc.

Awqāf may be dedicated to research and development that induces a movement along the learning curve resulting in a fall in clean technology prices. With an increasing deployment of clean technologies and the resulting scale and learning curve effects, many clean technologies became cost-competitive with traditional electricity sources. This increases the market potential for clean energy technologies.

Awqāf may be dedicated towards increasing consumer awareness and stronger support of action to mitigate climate change. A change in consumer behavior can bring in desired changes without regulatory intervention. This will change the market for companies by creating new opportunities for green businesses. However, it will also pose a risk to companies who have not prepared themselves for the green transformation.

4.11. Socially Responsible Investment (SRI) and Green Islamic Funds

Socially Responsible Investment (SRI) refers to the practice of integrating environmental, social and governance criteria into financial investment decisions. Characteristics of SRIs include longer-term investment returns and investor's attention to the wider contextual factors, including the stability and health of economic and environmental systems and societies. The social investment forum defines SRI as an investment process that considers the social and environmental consequences of investments, both positive and negative, within the context of rigorous financial analysis. SRI may refer to portfolios resulting from a deliberate exclusion of specific investments. For example, 'green investing' usually refers to the exclusion of firms with environment damaging operations (like strip mining) or products (for example, hazardous chemicals) that lead to environmental pollution, or the inclusion of firms with business strategies that help the environment (for example, alternative energy). Investment choices can also be grounded on moral beliefs such as excluding companies that produce weapons, tobacco, and alcohol (also referred to as 'sin stocks'). The SRI approach is to 'screen' (positive screen) companies with strong environmental and management records (i.e. looking for sustainable business), instead of screening out (negative screen) investments connected to alcohol, tobacco and weapons.

A Green Islamic Fund is a mutual fund or other investment vehicle that will only invest in socially aware companies/assets that promote environmental responsibility

and at the same time are Sharī'ah-compliant. Such a Fund can target ethical and socially responsible investors. Traditionally Islamic equity funds have used negative screens that use "rules" based on *fatāwá* of Islamic jurists to screen out companies that are not Sharī'ah-compliant. It may be noted that the SRI approach of using positive screens for portfolio construction would be both novel and effective.

Available research shows, companies that address environmental and other ethical concerns are associated with higher market valuation and therefore, the Funds that invest in such companies may be producing superior returns. At the same time, the number and volume of green investment opportunities with appropriate risk-return-profiles are rather limited. Large financial intermediaries and institutional investors have already stressed that it is currently nearly impossible to avoid some allocation of their capital to brown investments due to a lack of green investment opportunities.

5. Instruments of Climate Finance

5.1. Instruments of Public Finance

These public finance instruments raise resources for climate finance through taxes, user fees, tradable permits, and fines. It may be noted funding for climate finance does not necessarily have to come from sources that are related to climate change. Some funds may be raised through broader fiscal instruments that have no direct benefits in terms of climate mitigation. An Islamic government can always impose these charges to recover operational costs and to generate additional revenues.

5.1.1. Environmental Taxes (Eco-taxes)

This instrument involves imposing a tax on energy products, motor vehicles and other transportation, waste management, ozone-depleting substances, and other polluting goods and activities. Eco-taxes are justified by the 'polluter pays' principal and are imposed on those who produce and purchase a good or service that discharges pollution and/or inflicts environmental damage.

5.1.2. User Fees

User fees take the form of commodity charges, burden offset charges, and regulatory fees. Commodity charges are imposed to pay for the provision of commodities or services of direct benefit to consumers, e.g. road tolls, parking,

public water charges and park entry fees. Burden offset charges are imposed to offset cost of handling burdens on others on public resources (externalities) caused by the payer's activities, e.g. for waste management. Regulatory charges are imposed to pay any costs the government incurs when handling payers' applications or requests, or to pay for inspections and control of payers' activities, e.g. for licenses, permits, vehicle registration, and inspections.

5.1.3. *Tradable Permits*

Emission trading is a market-based approach that provides economic incentives for achieving reductions in CO₂ or other pollutants. Firms are required to hold a number of permits (or carbon credits) equivalent to their emissions of, for example, CO₂. The total number of permits cannot exceed the 'cap'. The transfer or trade of permits ensures the buyer is paying a charge for increased pollution, while the seller is rewarded for emitting less.

Green Certificates are a form of energy saving trading scheme that is based on energy consumption reductions achieved through energy efficiency improvements rather than reductions in the amount of carbon emitted. Renewable energy certificate schemes provide proof of consumption of renewable energy and act as a currency for renewable energy markets. It is generally electricity consumers/suppliers (excluding the energy-intensive industry), who are obliged to purchase green certificates.

5.1.4. *Fines*

Civil fines, or civil penalties, are charges imposed by a government agency in response to the failure to comply with set rules and can take the form of parking fines, penalties for failing vehicle emission standards and illegal solid waste disposal.

5.2. Instruments of Private Finance

Private financing instruments used by various stakeholders (as highlighted in section 4) include equity, debt and mezzanine or hybrid instruments. Mezzanine instruments include subordinated debt instruments as well as preferred equity instruments. While equity is fairly simple and straightforward, debt instruments can be structured with many variations. Bonds where the proceeds are used address environmental concerns are called Green Bonds. At a policy level, governments can use various forms of "capital steerage" to shift investment into areas of urgent policy

priority. Capital steering may involve tools ranging from policy and regulation to credit enhancement, guarantees, and tax credits.

Compared to conventional finance, Islamic finance offers a much larger range of instruments that are debt-based (e.g. *qard*, *qard* with service charge), sale-based (*murābahah*, *muswama*, *bay' bi al-thaman al-ājil*, *salam*, *istiṣnā'*, *istijrār*), leasing-based (*ijārah*, *ijārah-thummal-bay'*), and partnership-based (*muḍārabah*, *mushārahah*, *mudhara'a*). There are also products based on guarantee (*kafālah*), agency (*wakālah*) and service charge (*ujr*) that are often combined to design composite products. Islamic green bonds or *ṣukūk* is one such composite product. While a discussion of all the modes and their possible application in climate finance is beyond the scope of this paper; section 5.2.1 focuses on selected products such as green *ṣukūk* in view of their huge potential. Section 5.2.2 briefly presents the Islamic modes being in use at the Islamic Development Bank, the pioneer in the field of Islamic development finance as well as climate finance.

5.2.1. *Green Ṣukūk*

'*Sakk*' (*ṣukūk* is the plural) signifies an instrument evidencing financial obligations. A *ṣakk* represents a proportionate beneficial ownership in an underlying pool of assets, or 'usufruct'. *Ṣukūk* are Sharī'ah compliant securities backed by a specific pool of assets. Typically, *ṣukūk* returns are linked to returns and cash flows generated by the assets purchased or created through the proceeds of the *ṣukūk*. Most *ṣukūk* to date have been asset-backed (e.g. infrastructure projects), where credit of the originator has been the decisive factor for ratings and investor analysis, in accordance with Sharī'ah principles. A 'green *ṣukūk*' is the Sharī'ah-compliant version of a green bond and represents Sharī'ah-compliant investments in renewable energy and other environmental assets. Green *ṣukūk* notably addresses the Sharī'ah concerns for protecting the environment.

Box 3: The Green *Ṣukūk* Working Group

In an effort to facilitate the Green Bond concept, a Green *Ṣukūk* Working Group had been established in 2012 by the Climate Bonds Initiative, the Clean Energy Business Council (CEBC) of the Middle East and North Africa, and the Gulf Bond and *Ṣukūk* Association. This working group had been mandated to:

- Identify green energy projects that fall under Sharī‘ah-compliant categories for potential investors.
- Design Green *Ṣukūk* architecture, so that product issuers can offer, and investors can access, products with confidence about their compliance with Sharī‘ah law and ethical standards.
- Promote the concept of Green *Ṣukūk* and other green Islamic finance products to governments, investors, product originators, and other interested parties.
- Engage with Governments and development banks about supporting appropriate project development and the growth of a Green *Ṣukūk* market.
- Inform the market by promoting best practice, convening industry forums and developing template models.

Green projects funded by *ṣukūk* include clean energy, mass transit, water conservation, forestry, and low-carbon technologies. These green financing initiatives also include socially responsible investments designed to improve the lives of people and communities. They are also designed to encourage investors to move capital into companies that instill high governance standards for diversity, accountability, and transparency. Eligible assets for Green *Ṣukūk* as defined by Climate Bond Standards certification include: solar parks, biogas plants, wind energy, ambitious energy efficiency and renewable transmission and infrastructure, electric vehicles and infrastructure, and light rail. *Ṣukūk* proceeds may be used to finance construction, to refinance construction debt, or to finance the payment of a government-granted green subsidy. They may involve securitizing future income cash flows from ring-fenced projects or assets with specific criteria attached. Proceeds may also be used to finance a government green payment/subsidy.

There is a growing demand in the Middle and Far East for Sharī‘ah-compliant or Islamic bonds. There is a preference for *ṣukūk* where it is easy to understand the underlying assets, how the return is generated and how secure that return is. The green *ṣukūk* are well-suited to address investor needs and channel the growing global pool of Sharī‘ah-compliant capital to fund renewable energy and climate change projects.

6. Climate Finance by the Islamic Development Bank (IsDB)

Since its inception the IsDB Group has always supported the promotion of environment protection and its sustainability through financing mitigation and adaptation projects in its member countries. It makes special provision for environment protection in all its project documents as highlighted in section 6.3 below.

6.1. IsDB Initiatives for Climate Risk Mitigation

Since its inception the IsDB has contributed to the development of renewable energy projects in its member countries (MC) by providing total financing of about US\$ 2.75 billion. Its actions to support environmental protection and mitigate climate change risk include: (i) making provision for environmental protection in all its project documents, (ii) launching the Renewable Energy for Poverty reduction (REPoR) program to tackle the energy challenges in MC via application of renewable energy resources, and (iii) adopting the Energy Policy calling for more Renewable Energy Financing. The REPoR Program is implemented through decentralized renewable electrification projects, with particular focus on solar off-grid solutions in Sub-Saharan Africa. There has been a significant increase in projects contributing to climate change mitigation during the last decade reaching a maximum of 16% in 2016 as against a figure of 6% of its portfolio of projects since inception. These projects include: renewable energy projects, hydropower projects, power transmission projects related to the evacuation of electricity from hydropower plants, transport projects related to urban transport modal change and transport oriented urban development. IsDB projects related to climate change mitigation are distributed in four regions: Sub-Saharan Africa (SSA), Asia, Countries in Transition (CIT), and MENA. About 57% of these projects are located in Asia primarily due to the abundance of hydro resources. The emerging trends in financing however, show the growing importance of the SSA region that has abundant hydro, solar and wind resources as well. Some of the success stories in this segment include:

- a) Mini hydropower plants in Tajikistan,
- b) Renewable-energy development projects and energy-efficiency projects in Turkey,
- c) Manantali hydropower project involving the cross-border cooperation of Senegal, Mali, and Mauritania,
- d) Mini Solar Home Systems in Bangladesh.

6.2. IsDB Initiatives for Climate Risk Adaptation

Since inception, around 11% of the IsDB's investments have gone into activities that collectively enhance adaptation to climate change measures of farmers and agro-pastoral communities in member countries.

There are a wide variety of adaptive measures, both at farm and sectoral levels, in the IsDB's investments in agriculture and rural development. They include, *inter alia*, the following:

- a. Appropriate agronomic practices, such as, inter-cropping, agro-forestry and conservation agriculture that improve productivity, enhance resiliency and in water management, both at farm level and in dams for supplementary irrigation, and
- b. Provision of capacity and institutional development support mechanisms.

IsDB interventions vary from one region to another. Its investment is highest in Africa, followed by Arab and Asia regions. The greater investment in Africa reflects IsDB's commitment to addressing the problems of climate change in this region where agriculture is largely rain-fed with the percentage of irrigated land being less than 7% as compared to over 30% in Asia. While Africa is responsible for only 4% of global GHG emissions, it is the most affected region in terms of climate change. Some of the success stories in this segment include:

- a. Seven-country program for Building Resilience to Recurring Food Insecurity in Sahel,
- b. Access to Quality Seeds program in Bangladesh,
- c. Water-harvesting project in Sudan.

6.3. Environmental Protection in Project Documents

How the IsDB incorporates environmental concerns at the project design phase, based on a small sample of 13 agricultural and rural development projects, can be seen in Table 1.

A thorough examination of all project-related documents reveals that the issue of environmental impact was explicitly addressed in most cases at the project design stage. Of the 13 agricultural projects under study, one successful project explicitly included environmental protection through the establishment of trees nurseries at village level, forming cooperatives with forestry producers, the planting of various

forestry and fruit tree species, establishing training programs in ecosystems management, and bush-fire control. Another project sought environment protection through the development of arboriculture (plantation of fruit trees) and reforestation (plantation of forest trees). The tree plantations replaced the already degraded plant cover and favored the regeneration of fauna and flora. A third agricultural development project also had a positive environment impact against desertification through reforestation.

Table-1
Sample of projects in the study

#	Project Name	Mode of Finance	Country
1	Scan Tomato Project	Line of Installment Sales Financing	Cameroon
2	Beyla Kerouane Agro-Pastoral Project	Loan	Guinea
3	Forecariah Land Development Project	Loan	Guinea
4	Kolente Agricultural Project	Loan	Guinea
5	Orumiyeh & Bijar Grain Silos Construction Project	<i>Istiṣnā'</i>	Iran
6	Asswani Flour Mills Project	Leasing	Libya
7	Johore Palm Oil Mill	Line of Installment Sales Financing	Malaysia
8	Goubo Plain Development Project	Loan	Mali
9	Special Support Program for Food Security	Loan	Niger
10	Tivaouane Agro-pastoral Development Project	Loan	Senegal
11	Anambe Kayanga Rice Project	Loan	Senegal
12	Grain Silos Project	Leasing	Syria
13	Sidi M'Hadheb Plateau Agricultural Development Project	Loan	Tunisia

One project focuses on the improvement of soils in the project area as a reduction in soil erosion, due to increased vegetal cover, has a positive environmental impact. The project seeks to obtain underground water resources in an environmentally friendly manner.

The sample also includes two silos projects that explicitly dealt with environmental issues in the design stage itself. The projects do not involve any significant environmental effects other than those associated with normal building construction, excavations works, etc. No relocation or resettlement was required for the project implementation. Furthermore, the project has the necessary equipment to

internalize air emission resulting from the treatment of stored grains. It has also helped to minimize environmental pollution through a reduction in the use of disinfectant pills as applied in standard silos.

The sample also included a palm oil project that was considered environment-friendly, since palm tree plantation maintains and protects the climatic and physical environment through the provision of oxygen.

6.4. Modes of Islamic Finance in use at the IsDB

The following provides a brief snapshot of the modes of Islamic finance that are being used by the IsDB for development finance. This section heavily draws on *Islamic Development Bank: Modes of Finance (2014)*¹⁶. It may be noted here that the IsDB is a major player in the clean energy sector, with investments of around US\$ 1 billion between 2010 and 2012. It will be increasing its financial support to realize Sustainable Development Goals to more than US \$150 billion over the coming years.

6.4.1. Grants

Grants are of two types:

Technical Assistance (TA) Grant: These grants are provided for technical assistance and capacity building activities in MC, with priority given to Least Developed Member Countries (LDMCs).

Special Assistance (SA) Grant: These grants are provided for social projects (schools, hospitals etc.) for the exclusive benefit of Muslim communities in Non-Member countries. They are also provided for disaster relief in Member countries.

Subsequent to approval by the IsDB and its agreement with the recipient of grant, the recipient signs a contract with a supplier/contractor/consultant to procure the goods/services to whom the IsDB then disburses the funds directly. The supplier/contractor/consultant then delivers the goods/service to the recipient.

¹⁶http://www.isdb.org/irj/go/km/docs/documents/IDBDevelopments/Internet/English/IDB/CM/Projects/Financing%20Instruments/IDB-Modes_of_Finance_28Sep14.pdf

6.4.2. Loans

A loan is a long-term concessional facility that the IsDB provides for financing development in its MC. The IsDB charges a service fee to cover its administrative expenses. The different types of loans are as follows.

Ordinary Capital Resources (OCR) Loans - these loans are classified into two types depending on their scope of activities. The source of funds for these loans is the IsDB's Ordinary Capital Resources (as defined in Article 9 of the IsDB's Articles of Agreement)

- Ordinary Loans are long-term concessional loans provided for financing development and infrastructure projects.
- Technical Assistance (TA) Loans are loans with soft terms to assist MC in obtaining consultancy services to conduct feasibility and other such studies for major projects.

Islamic Solidarity Fund for Development (ISFD) Loans – these are loans with soft terms mainly directed at projects and programs that aim for poverty alleviation and micro-finance programs in various sectors (e.g. education, health) in MC, especially LDMCs.

Subsequent to approval of the loan by the IsDB and its agreement with the recipient of grant, the borrower signs a contract with a supplier for procurement of goods/services to whom the IsDB disburses directly. The borrower repays the IsDB the principal loan amount plus service fee. The IsDB charges the service fee to cover its administrative costs. The fee ranges from a minimum of 0.75% to a maximum of 2% per annum of the principal amount. The loan product is modeled after the *qard-al-hasan* contract on which a service charge based on actual cost is permissible and does not tantamount to *ribā*.

6.4.3. Leasing

The IsDB operates a 'Lease-to-Own' structure on a medium to long-term basis. This product is used to provide for fixed assets and capital equipment (movable assets in certain cases) such as machinery and equipment for projects. The lessee acts as an agent on behalf of the IsDB and procures and maintains the assets.

Subsequent to approval of leasing arrangement, the IsDB appoints the client as its agent to sign a contract with a supplier to procure the assets, and supervise,

monitor and take delivery of the assets. The client maintains the assets, takes care of insurance and repairs in the name of the IsDB during the lease period. The IsDB pays the supplier directly for the assets and the client (now the lessee), as an agent of the IsDB, takes delivery of the assets. The lessee pays fixed periodical rentals to the IsDB over the agreed lease period. At the end of the lease period the IsDB transfers ownership of the assets to the lessee as a gift. The calculation of the rental is based on the capital cost of the IsDB, plus a fixed or floating mark-up. In the situation of a floating mark-up there is a floor and a cap and the rental of the first six months is known to the parties concerned.

6.4.4. *Istiṣnā'*

The IsDB operates *Istiṣnā'* on a medium to long-term basis, wherein the IsDB appoints the purchaser (client) as its agent who gets the asset constructed/manufactured. When the asset is constructed/manufactured and accepted by the purchaser, the IsDB transfers the title of the asset to the purchaser. The purchaser then pays the sale price of the asset in deferred payments. The IsDB uses this product to finance infrastructure projects and trade in capital goods within and among member countries. The purchaser, as IsDB's agent, ensures that until the final acceptance of the asset, it is comprehensively insured with an acceptable Islamic insurance company and that the IsDB is named as a loss payee under the insurance policies.

6.4.5. *Instalment Sale*

The IsDB operates an 'Instalment Sale' on a medium to long-term basis. Under this arrangement, the IsDB purchases the assets for its client against a promise by the latter to purchase the assets once they are delivered. The IsDB appoints the client as its agent, to procure the asset from the supplier and supervise, monitor and take delivery of the assets. The client insures the assets in the name of the IsDB during the transit period. The IsDB pays the purchase price of the assets directly to the supplier. The purchaser, as the IsDB agent, takes delivery of the assets from the supplier. Then, upon delivery, the IsDB sells the assets to the purchaser at sale price on a deferred basis in instalments. The IsDB uses this product to provide for assets such as equipment and machinery for developmental projects. The Instalment Sale agreement provides for the procurement function of the client (as an agent of the IsDB), the terms and conditions of the arrangement as well as the sale price.

6.4.6. *Restricted Muḍārabah*

Restricted *Muḍārabah* is a variant of *Muḍārabah* that is used by the IsDB, wherein the *Muḍārib* (the entity) is bound by certain restrictions on the sectors/areas/projects into which it can invest the *Muḍārabah* capital. These restrictions are agreed upon upfront in the Restricted *Muḍārabah* Agreement (RMA), which lists the terms and conditions of the operation, the investment plan, profit-sharing ratio, duration etc. The IsDB uses this arrangement for investment in specific sector projects such as sustainable agriculture, renewable energy, youth employment programs etc.

Upon maturity of the *Muḍārabah* arrangement, the *Muḍārib* will liquidate the assets of the *Muḍārabah* operation. Following the liquidation by the *Muḍārib* the IsDB will receive the *Muḍārabah* capital plus the IsDB's share of the profits. If the profit is greater than what was agreed upon, the *Muḍārib*, as an incentive, will retain the excess. The authority and responsibilities of the *Muḍārib* include the following:

- Conduct the relevant feasibility studies to determine the financial viability of the projects that will be invested in;
- Ensure that the financing will be used only for Sharī'ah-compliant ventures;
- Invest only in those projects whose return will not be less than the anticipated profit as mentioned in the Agreement; and
- Submit progress reports to the IsDB, as and when requested.

It should be noted that Restricted *Muḍārabah* financing effectively eliminates the need for the IsDB to enter into individual financing agreements for each sub-project being financed. It also gives a lot of freedom to the local executing agency (*Muḍārib*) to use its own procedures for appraisal, quality assessment and risk assessment, as well as the procurement of goods and services.

6.4.7. *Mushārahah (Equity Participation)*

The IsDB uses a variant of the classical *Mushārahah* under which it makes strategic long-term investments with the objective to maximize its development objectives. These investments are usually in the equity of Sharī'ah-compliant industrial, agro-industrial projects, Islamic banks and financial institutions of its MC. The IsDB does not acquire a majority or controlling interest in the share capital of a company. Its investments do not exceed one-third of the company's capital and does not provide the IsDB with control or the ability to exercise any significant influence

over the financial and operating policies of such companies. Investments are sold at a time when the IsDB considers it appropriate.

7. Conclusion

Islamic finance has substantial synergies with the ‘green’ economic concept and fits in well with the ethical requirements of green projects. As such, environmental protection and sustainability fits in nicely with the Islamic finance agenda that seeks to enhance the general welfare of society. Organizational goals such as the protection of the planet and the environment, climate management and adaptation clearly conform to the goals of the Sharī‘ah as well as with the UN-mandated Sustainable Development Goal. This paper takes the argument further and seeks to demonstrate how Islamic finance can significantly contribute to the global search for climate finance solutions.

Climate finance refers to all financial flows relating to climate mitigation and adaptation. It largely requires funds to flow into investments in long-life assets. Overall, experts feel that climate finance would not demand increased investment, but rather wiser investments with a move away from seeking short-term gains. A significant share of climate projects and assets to be financed involve capital intense technologies, i.e. requires significant upfront investments but benefit from low and stable operating costs. Private sector financiers require a viable business case to get involved. Therefore, if a climate project cannot generate sufficient cash flows to repay the initial investment and interest/dividends, subsidies must be introduced to create a viable business case. Such subsidies will not be repaid by the project but can help make it financially viable.

Islamic microfinance institutions have specifically relied on Islamic social funds – *zakāt*, *ṣadaqah* and *waqf* to absorb certain costs related to the administration of microfinance and thereby succeeded in making microfinance affordable to clients. They can play a similar role in absorbing the incremental costs with clean technologies where subsidies are not forthcoming to absorb the same. For *zakāt* funds to be used for the purpose, an additional condition need to be met, i.e. the beneficiaries must be poor.

The recent successes of Islamic crowd funds to mobilize resources for achieving various social goals, e.g. poverty alleviation, point towards their potential in climate finance.

The institution of waqf can play a major role in climate finance. Along with *zakāt* and *ṣadaqah* it can certainly play a role in coping with humanitarian crises resulting from climate change. *Awqāf*, like foundations, may directly engage in the provision of goods and services related to mitigation and adaptation. Such green *awqāf* may be established as dedicated entities for the conservation of soil, water, plants, disposal of waste etc. *Awqāf* may also be dedicated to research and development that induce a movement along the learning curve and a fall in clean technology prices. *Awqāf* may be dedicated to towards increasing consumer awareness and providing stronger support for actions designed to mitigate climate change.

Similar to SRI Funds, Islamic Green Funds, and Green Bonds, the Islamic Green *Ṣukūk* can contribute significantly to the agenda of climate change.

Unlike conventional finance, Islamic finance offers a wide array of modes based on debt, sale, lease, and participation that could be used for climate finance. The Islamic Development Bank, as a pioneer in the field, has been successfully using a range of Islamic products for development finance in general and climate finance in particular. New players in Islamic climate finance can benefit from the rich experience of the Islamic Development Bank in the field.

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