



ISLAMIC DEVELOPMENT BANK GROUP

Climate Change Adaptation in Member Countries: The Role of Islamic Development Bank

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1. Background

The historic Paris Climate Change Deal in December 2015 has forced the developed countries to honour their commitments to provide US\$100 billion annually by 2020 to support mitigation and adaptation projects in developing countries. This is good news for agriculture, which is vulnerable to climate change but offers great solutions. Globally, agriculture (including forestry, livestock, and fisheries) is estimated to contribute 14% of the greenhouse gases (GHGs) that cause climate change. Agriculture is recognized for its role in the climate change phenomena and its mitigation. Mitigation has the potential to reduce climate change impacts, and adaptation can reduce the damage of those impacts. Together, both approaches can contribute to the development of societies that are prone to the threat of climate change.

The challenge is how to achieve reductions in agricultural contribution to GHG emissions while remaining productive and resilient to climate change. Agriculture is highly exposed to climate change, as farming activities directly depend on climatic conditions. Changing rainfall patterns is a serious problem in many regions as well as rising temperatures; variability and seasonality as well as extreme events, heatwaves, droughts, storms and floods are common phenomena in many regions. Even if some climatic changes may be positive for some regions as prediction suggests, most will be negative, affecting regions already suffering from environmental or other changes associated with climate change. This is made worse by failure in other sectors that agriculture depends on, including infrastructure, energy, and markets. This is

particularly the case in developing countries where under investments in these sectors have significant negative effects on the overall performance of agriculture with respect to economic development.

The effects of drought and increasing floods translate into hunger and poverty for many rural agricultural communities. This is a common problem in many developing countries because of their overwhelming dependence on agriculture and natural resources, and their low adaptive capacity to climate change. In Africa and other IDB member countries, rapid population growth, unproductive agriculture and land degradation are posing serious challenge to sustainable economic development. This requires collective actions to reverse this situation and safeguard the livelihood of communities in these countries that depend on agriculture.

What is needed most is to scale up agricultural solutions that are productive, enhance resiliency to climate change, and at the same time provide some mitigation where possible. This is what is commonly referred to as climate-smart agriculture (FAO, 2013). Such solutions have significant potential of reducing GHG emissions.

At Islamic Development Bank (IDB), we invest in agriculture and rural development in member countries (MCs) to help them address the menace of climate change. Together, the MCs occupy about 29% of the world's agricultural land area, with forests and pastures in some countries taking the lion's share of the total agricultural land. Therefore, agriculture in these countries can contribute significantly to both mitigation and adaptation to climate change.

In the next section, we provide a synopsis of IDB’s investment in agricultural and adaptation measures since its inception. This is done in relation to its overall investments in its MCs in various development aspects including health, education, and infrastructure. The third section provides some case studies of projects that highlight adaptation measures that could be scaled up. It also highlights some key lessons learnt from the projects. The final section provides some concluding remarks.

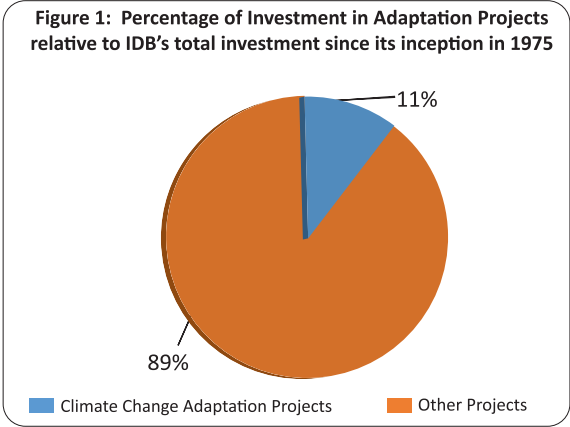
2. Overview of Climate Change Adaptation Projects Financed by IDB

IDB has invested about US\$9.7 billion in agriculture and rural development projects since its inception. This investment in agriculture in its MCs was driven largely by the need to make it productive and enhance food security, increase its resiliency and adaptation to climate change and climate variability as well as minimize its contribution to climate change. These are not mutually exclusive goals although, in reality, they are not easy to implement together. There is a wide range of adaptive measures, both at farm and sectoral levels, in IDB’s investment in agriculture and rural development. They include, inter alia, the following:

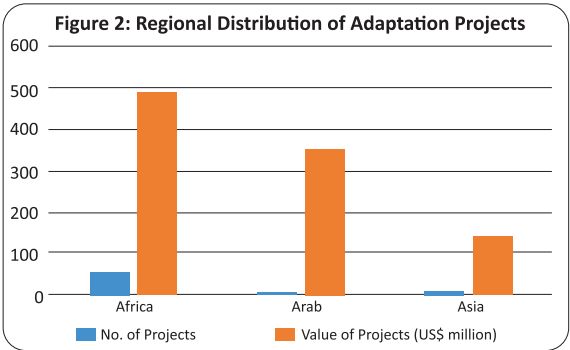
- Appropriate agronomic practices such as inter-cropping, agroforestry and conservation agriculture that improve productivity, enhance resiliency, and minimize GHG emissions;
- Investments in water management, at both farm level and dams at larger scales, for supplementary irrigation;
- Capacity and institutional development support mechanisms;
- Strengthening the capacity of farmers and agribusiness to take on board mitigation and adaptation measures, and;
- Improving access to Islamic finance products that are essential for the

development of productive agriculture that is resilient to climate change.

About 11% of IDB’s investment has gone into activities that collectively enhance adaptation to climate change measures of farmers and agro-pastoral communities in IDB Member Countries (Figure 1).



The IDB’s investment in climate change varies from one region and country to another: It’s investment is highest in Africa, followed by the Arab and Asia regions (Figure 2). Across the three regions, IDB has invested in 66 projects that have activities with strong adaptation measures. These projects have benefited many agrarian and rural communities in the intervention areas.



The greater investment in Africa reflects IDB’s commitment to addressing the problems of climate change in this region where agriculture is largely rain-fed. Irrigation is also limited in Africa, with estimates being less than 7% of the potential agricultural areas compared to over 30% in Asia. While the African continent is responsible for only 4% of the global GHGs, it is the most affected

region of the world by climate change. Six out of the 10 most affected countries in the world are, for example, in Africa. About 65% of the African population are also estimated to be affected directly, not to mention that there are already 10 million refugees in Africa. Within Africa, Senegal has made the most investment through IDB funding.

In part, the high vulnerability of Africa to climate change is due to low use of yield-enhancing technologies. For example, fertilizers use is, on average, under 10kg of nutrients per hectare. This in turn has made the productivity of land currently under farming low and contributed to land degradation as farmers engage in extensive farming, bringing more marginal lands, forests and woodlands under cropping.

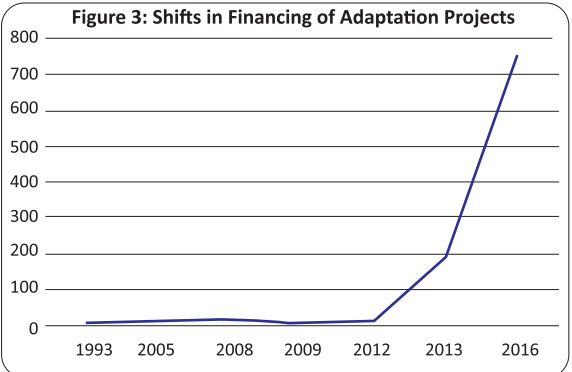
With increased realization of the importance of climate change and vulnerability of the agricultural communities, the historic investment of IDB in agricultural adaptation projects showed a radical shift from 2012 when investments grew up by many folds (Figure 3). It is poised to grow further, and more rapidly too, as per the IDB’s 10-Year Strategic Plan (2015 to 2025). The main drivers of the rapid growth are investments in integrated water resource management, including irrigation that account for a significant part of it. Growth will also happen in other interventions that are essential for increasing productivity and resiliency. This includes increasing access to improved seeds and fertilizers, livestock including aquaculture and apiculture, forestry and agro-forestry practices, extension and

advisory services, remunerative markets, rural storage facilities that minimize post-harvest losses, rural feeder roads, and Islamic micro-finance.

IDB also aims at forging strategic partnership as one of its key mechanisms to grow further investments for adaptation of agriculture to climate change. One such partnership that is already in place is the Lives and Livelihood Fund (LLF) that was established in 2015 between IDB, the Bill and Melinda Gates Foundation, and other donors mainly from the Gulf Cooperation Countries: Saudi Arabia, Qatar, and the United Arab Emirates. The US\$2.5 billion facility has a grant component of US\$0.5 billion that buys down the cost of financing MCs from IDB. This will increase the overall investment in agriculture in IDB’s MCs, with emphasis on scaling up interventions that can increase both the productivity and resiliency of crops and livestock to climate change and climate variability.

Other strategic partnership that uses co-funding modalities exists with the multilateral developments banks: the World Bank (Deep Dive Initiative), the Africa Development Bank (Program for the Transformation of Africa’s Agriculture), the Asian Development Bank (ADB), as well as with the International Fund for Agricultural Development (IFAD). Private sector partnership are also conducted through the Islamic Corporation for Development of the Private Sector (ICD) of the IDB Group.

The AAA (Adaptation of African Agriculture) initiative that is led by the Government of Morocco is a new and exciting partnership that IDB will also engage in to scale up its investment in adaptation of agriculture to climate change. The AAA is amid to work towards increasing agricultural productivity and the power of carbon sequestration of African soils, with the double benefit of mitigation and adaptation. IDB is a founding member and supporter of the initiative. To help with funding adaptation projects,



the AAA will also help unlock for Africa's agriculture with a significant part of the US\$100 billion annually promised by the developed nations, to support mitigation and adaptation projects in developing countries.

3. Case Studies

3.1 Regional Project on Building Resiliency to Recurrent Droughts

IDB and seven of its member countries in West Africa that were seriously affected by the 2011 drought rolled out a 5-year regional project in 2012/2013 on 'Building Resilience to Recurring Food Insecurity in the Sahel'. The 2011 drought and associated food insecurity was one of the worst in historical times in the Sahel region. It put an estimated 13 million people directly at the risk of food insecurity in the region. In Senegal, for instance, the production of sorghum and millet (important food crops in rain-fed Sahel agro-pastoral areas) declined by 41% compared to the 2010/2011 levels. Food reserves in the region went low.

The seven country IDB-funded program that is still ongoing was budgeted at US\$351 million and covered Burkina Faso, Chad, Gambia, Mali, Mauritania, Niger and Senegal. It aims at reaching 2.1 million beneficiaries directly and around 13 million people indirectly. The program has deployed a 3-pronged approach that integrates the key interventions needed to enhance resiliency to climate change. These are:

- Diversifying the production asset base (minimize risks associated with few enterprises);
- Increasing the production and productivity of the crops (including tree crops), and livestock (including fish) to generate some buffer against food insecurity in the event of adversity and surplus that can be marketed to generate incomes, and;

- Strengthening the capacity of national and regional institutions to mainstream resiliency and enhance their preparedness to manage food insecurity in the event of droughts.

The latter includes several institutional functions: access to remunerative markets through forging strong public-private sector partnership, provision of extension services in a gender-sensitive manner, improving access to affordable credit, increasing coverage and conditions of rural access roads, and improving weather forecasting in ways that allows better decision making by farmers. It also includes providing an enabling policy environment that supports farmers, pastoralists and private sector investments in building resiliency. Although Implementation progress of the projects has been slow, due to the complex nature of such integrated development programs, it is evident that program will deliver tangible results. Farmers and agro-pastoralists are re-building their asset base in both livestock and crops.

Figure 4: The Relwende Women Group of Louda Village in Kaya Province of Burkina Faso displaying their bumper harvest of cowpeas, nutritious grain legumes. The project on building resiliency to recurrent provided them with improved seed of the crop, fertilizers, and training on good agronomic practices. With the group is Bashir Jama Adan (kneeling down), staff member of agriculture and rural development department of IDB when he visited them in Oct 2016.



The design of the seven-country building resiliency project, its expansive national and regional coverage as well as wide range of stakeholders is also providing a good platform for partnership with other development agencies. This has significant potential to generate knowledge that can help make informed decision in the design of similar programs in the future. *An important lesson learnt is to take a two-step approach in project implementation; first strengthen the implementing national institutions and follow that with investments in production and adaptation inputs.* This requires the provision of technical and implementation support to the national teams. Another lesson: get the Islamic micro-credit up and running during the first year of the project. Farmers will need it to buy inputs and invest in technologies that are required to minimize post-harvest losses (e.g., the PIC bags that provide anaerobic conditions that controls insect damage to the grains). It also takes time to establish the facility with local financial institutions; and so it is important to initiate it early in the project implementation timeline.

3.2 Improving Access to Improved Seeds in Bangladesh

Access to quality seeds is key to adaptation measures of climate change and climate variability. IDB invested with the Government of Bangladesh through a project in 2009 to increase access to certified seeds for farmers. The goal was to strengthen capacity of the national agricultural research institute to increase supply of breeder and foundation seeds to private seed companies to produce certified seeds and to farmer's associations/cooperatives to generate quality declared seeds. The target crops are rice, wheat, maize, tuber crops, pulses, oil seed crops, vegetables, fruits, and spices. The crop varieties include some, which can withstand floods, a major problem in Bangladesh, for some extended periods. The project also provided resources to strengthen on-farm

adaptive research at farmers' field level on improved varieties and good agronomic practices that can enhance productivity and resiliency to climate change.

The project has certainly made significant contribution to the national food security and enhanced its resiliency to climate change associated risks through the supply of improved seeds. The country has already achieved rice self-sufficiency and has started exporting aromatic rice. The affordability of food has also improved while reserve stocks have doubled compared to 2013 levels, rising consistently since 2009. The total food production has increased to 35 million MT of milled rice (rising from around 31.8 million MT in 2009) and 1.33 million MT of wheat (rising from 0.85 million MT in 2009). The number of food insecure people has also been reduced as reflected in reduction of poverty (where food consumption or caloric intake is the major determinant). While these successes cannot be attributed to the project only, it is fair to say it has and is indeed contributing significantly to it. This contribution is likely to grow more as farmers gain more access to improved seeds through the private sector, something that needs more support going forward.

3.3 Water harvesting project of Sudan

Rainwater harvesting can improve enormously the adaptation and resiliency of farmers and pastoralists to climate change. Sudan is a leader in this area where rainwater harvesting has been institutionalized since 1919. This has helped many rural communities collect rainwater or catching the runoff during the rainy season (July-Sep) and to store it for the period of shortage (Dec-June). IDB partnered with the government of Sudan to scale up rain-water harvesting project for agro-pastoral communities in the Al-Gadarif State where annual rainfall is typically under 700 mm, is unimodal (one season only), and is increasingly becoming highly variable, probably due to climate change effects. The

purpose of the project was to increase the supply of water for domestic use, livestock, and irrigation.

Figure 5: Water harvesting through small dams supported by the project in Al-Gadarif State, Sudan.



Working with the local institutions and the community, the project used relatively simple water harvesting techniques for sustainability purpose. The main water storage facilities used included the Hafir (shallow ground reservoir/dug-outs), small dams, ground water wells, natural depressions (Turda, Rahad, Fola and Dahal), rooftops of houses, and tanks on homes. The impact over a span of 3-5 years has, indeed, been enormous. 29 Hafirs with capacity between 20,000 to 50,000 m³ and three other small dams have been constructed. It is estimated that about 250,000 habitants and more than 5 million heads of livestock in the region have benefited from the project. These successes have worked as incentives for the government, both at national and regional level, to scale up and replicate the project in other locations. An important lesson from this project is the need to engage effectively in the implementation activities all key stakeholders at national, regional, and the local community level. This engenders ownership and sustainability. Having strong Project Implementation Units leading the implementation process is also essential. This was certainly the case in this project. It, however, came with a strong technical backstopping from IDB and close supervision of the project by its program officers.

3.4 Improving Access to Islamic Micro-finance

Access to affordable financing is a major obstacle for farmers and agropastoralists to adopt innovations that improve their agricultural productivity and for agribusinesses to grow in rural areas. Islamic microfinance provides the economically active poor with financial and non-financial services through trading and shariah-compliant investment instruments (e.g., Murabaha, Salam, Mudaraba, and Musharakah, among others). By providing Shariah-compliant instruments, Islamic microfinance institutions (MFI) provide 'smart finance' through engaging with the beneficiary in trade and investment instead of merely being an arms-length lender. As an investor, MFI will be involved in the decision making process to ensure that the investment makes a profit.

A project in Sudan that was designed to better link farmers to markets provides a good example of the power of this Islamic financial mechanism. The goal was 3-fold: (i) to efficiently purchase produce from farmers for sale to the Government of Sudan's strategic food reserve; (ii) to replace the middleman and to give farmers a better price for their produce based on official advance, and purchase rates determined by the Ministry of Agriculture; and (iii) to ensure that the farmers income will increase and more farmers will be motivated to produce for livelihood instead of only for subsistence

The process involved developing a business plan in collaboration with Ministry of Agriculture, Ministry of Social Welfare, Zakah Chambers, World Food program and Government of Sudan's Strategic Food Security Reserve. It included feasibility study conducted to provide Salam financing to farmer groups. The outcome was a project of US\$8.22 million line of financing approved for 30% seed purchase, 30% land development, and 40% during harvest; emergence of strong farmers associations

that are linked to umbrella Farmers Union and Bank of Khartoum; and the development of stronger linkage of farmers to markets such as the Sudan Strategic Food Reserve and the World Food Program.

The case of Sudan is not an isolated one. IDB has enormous experience in promoting Islamic Microfinance in several IDB member countries. More than US\$ 520 million have been invested in 27 Islamic MFI projects since 2001. Many of these projects have reduced the vulnerability of farmers, small and medium enterprises to shocks associated with climate variability and market failures. By developing the capacity of MFIs to support small agribusinesses, IDB has been successful in creating mini-development banks/small business incubators, focusing on employment creation and growing resilient agriculture and agribusinesses in its MCs.

4. Conclusion

Agriculture is highly exposed to climate change, as farming activities directly depend on climatic conditions. Therefore, investments in adaptation measures must be enhanced in all developing countries. In this regard, IDB has played a critical role with an investment currently at US\$ 9.7 billion in agriculture and rural development sector of its MCs. About 11% of this investment has gone to climate change adaptation measures. This includes improving access to improved seeds and fertilizers that are needed to increase productivity, harvesting rainfall and water runoff, and increasingly growing access to Islamic micro-financing.

Among IDB's focal regions, most of the investments are in Africa where the effects of climate change, particularly droughts, are high. This is followed by the Arab and Asia regions. IDB's investments in its MCs have had enormous benefits in enhancing the adaptation of farmers and pastoral communities to climate change and climate variability. The investments have

also strengthened institutions at national and regional levels. These investments are much needed in the development and implementation of successful climate change adaptation programs.

Forging strategic partnership is important for achieving economies of scale and documenting lessons learnt. This partnership is the way forward for IDB as reflected in its 10-Year Strategy Framework, which places high priority on increasing investments in the agriculture and rural development.

References

Food and Agricultural Organization of the United Nations (2013). Climate-Smart Agriculture Sourcebook. Rome, Italy. FAO.

Corporate profile of the Islamic Development Bank

Establishment

The Islamic Development Bank (IDB) is an international financial institution established pursuant to Articles of Agreement done at the city of Jeddah, Kingdom of Saudi Arabia, on 21 Rajab 1394H corresponding to 12 August 1974. The Inaugural Meeting of the Board of Governors took place in Rajab 1395H (July 1975) and the IDB formally began operations on 15 Shawwal 1395H (20 October 1975).

Vision

By the year 1440H, the Islamic Development Bank will have become a world-class development bank, inspired by Islamic principles, that has helped significantly transform the landscape of comprehensive human development in the Muslim world and helped restore its dignity.

Mission

To promote comprehensive human development, with a focus on the priority areas of alleviating poverty, improving health, promoting education, improving governance and prospering the people.

Membership

The IDB has 57 member countries across various regions. The prime conditions for membership are that the prospective country should be a member of the Organization of the Islamic Cooperation (OIC), that it pays the first instalment of its minimum subscription to the Capital Stock of IDB, and that it accepts any terms and conditions that may be decided upon by the Board of Governors.

Capital

At its 38th Annual Meeting, the IDB's Board of Governors approved the 5th General Capital Increase whereby the Authorized Capital was increased to ID100 billion and the Subscribed Capital (available for subscription) was increased to ID50 billion. By the same Resolution, the Board of Governors agreed to the calling in of the callable (in cash) portion of the 4th General Capital Increase. As at the end of 1436H, the subscribed capital of the IDB stood at ID49.92 billion.

Islamic Development Bank Group

The IDB Group comprises five entities: the Islamic Development Bank (IDB), the Islamic Research and Training Institute (IRTI), the Islamic Corporation for the Development of the Private Sector (ICD), the Islamic Corporation for the Insurance of Investment and Export Credit (ICIEC), and the International Islamic Trade Finance Corporation (ITFC).

Head Office, Regional and Country Offices

Headquartered in Jeddah, the Kingdom of Saudi Arabia, the IDB has four regional offices in Rabat, Morocco; Kuala Lumpur, Malaysia; Almaty, Kazakhstan; and in Dakar, Senegal and Country Gateway offices in Turkey (Ankara and Istanbul), Indonesia, and Nigeria.

Financial Year

The IDB's financial year used to be the lunar Hijra Year (H). However, starting from 1 January 2016, the financial year will be Solar Hijra year starting from 11 of Capricorn, (corresponding to 1 January) and ends on the 10 of Capricorn (corresponding to 31 December of every year).

Accounting Unit

The accounting unit of the IDB is the Islamic Dinar (ID), which is equivalent to one Special Drawing Right (SDR) of the International Monetary Fund.

Language

The official language of IDB is Arabic, but English and French are also used as working languages.

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