ISLAMIC DEVELOPMENT BANK GROUP

Leveraging Reverse Linkage to Address Climate Change Challenge in IsDB Member Countries

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1 Introduction

The year 2015 was a turning point in the age-long global efforts to find lasting solutions to the perennial challenge of climate change which manifests itself in the forms of frequent heatwaves, floods, droughts, storms, melting glaciers, earthquakes – all of these have claimed lives, caused colossal financial damages, and increased insecurity. The international community reached a landmark Paris Climate Change Agreement in December 2015.

That Agreement and the one signed before it by the world leaders in September 2015– the 2030 Agenda for Sustainable Development (consisting of 17 Goals and 163 targets) – provide a unique opportunity for countries around the world and their development partners to place the twin development problems of the 21st century – climate change and sustainable development – in the front burner of their agenda. In fact, the Sustainable Development Goals (SDGs) – which is based on three dimensions (social, economic and environmental)—contain a goal for climate change reflecting its importance.

Climate change is an existential threat to humanity, affecting in significant ways the lives of millions of people across all walks of life—particularly the poor and the vulnerable. It has potential of reversing gains made in achieving the Millennium Development Goals – the predecessor of the SDGs. According to the World Bank (2016)[1], an additional 100 million people will fall into poverty by 2030 because of the impact of climate change. Those who are already living in poverty are affected the most, since they do not have access to the tools and means to lift themselves up from such debilitating circumstances.

The 57 Member Countries of the Islamic Development Bank (IDB) are not immune to the effects of climate change. In fact, since a significant number of these countries are situated in regions that are already under stress in terms of weather conditions (e.g. Sub-Saharan Africa, Central and South Asia), climate change is one of the most notable factors that affect economic well-being and sustainable development, and has a direct impact on the choices that IDB makes in terms of the projects it undertakes in priority areas such as infrastructure, food security and poverty alleviation.

To combat climate change, countries around the world have developed their national climate action plans which focus on mitigation and adaptation activities. To support member countries in achieving these plans, the IDB Group uses a variety of programs and instruments such as ordinary project financing that targets specific sectors including infrastructure, health, education, agriculture. It also supports the capacity development of its member countries, seen as a cross-cutting theme that is vital for catalyzing economic development and inclusive growth. Indeed, it is one of the imperatives for addressing climate change.

In 2010, the IDB Group established a new technical cooperation modality called Reverse Linkage (RL), which is a tripartite technical cooperation mechanism used, primarily, to address capacity development challenges while promoting economic cooperation between member countries. The RL modality can be an important

[1] https://openknowledge.worldbank.org/bitstream/handle/10986/22787/9781464806735.pdf

strategic tool to utilize in order to combat climate change. This can be done by linking countries that have developed expertise in addressing this challenge with countries that are in need of developing their capacities to combat climate change and its negative effects.

In this paper, we describe Reverse Linkage, make a case for the need for capacity development for climate change mitigation and adaptation and present case studies as well as suggest ways to further leverage the RL modality to scale-up cooperation among IDB member countries to build resilience against the effects of climate change.

2 What is Reverse Linkage

The IDB Group uses the South-South cooperation approach to achieve its objectives of promoting economic cooperation among member countries through capacity development. This approach was first operationalized through its Technical Cooperation Program (TCP) (launched in 1983) that comprises different modalities such as training, workshops, seminars and expert-exchanges among member Countries. Most recently, the IDB has added a new modality to its TCP called Reverse Linkage (RL). In comparison to other modalities under the theme of capacity development, RL is a more comprehensive South-South cooperation mechanism that aims to develop capacity over short-to-medium time horizon (up to 3 years) for a specific purpose in a recipient member Country through a more immersive peer-to-peer approach that requires deeper engagement of all stakeholders.

The IDB defines RL as "a technical cooperation mechanism enabled by the IDB Group whereby Member Countries and Muslim communities in non-Member countries exchange their expertise, knowledge, technology and resources to develop their capacities and devise solutions for their autonomous development".

Driven by local needs, RL projects complement the recipient countries' existing efforts in targeted areas. The projects are fully aligned with the countries' development priorities and well integrated into their development programs. RL projects are formulated by both recipient and provider countries through a peer-to-peer consultation process. This approach helps to analyze a specific barrier to economic development—specifically through the capacity dimension—as well as develop customized solutions for each context through reflective exchanges. The IDB actively plays a role of a connector and a catalyst throughout this process.

A distinctive feature of RL is that, irrespective of the level of development, all countries are believed to have expertise in certain areas that can be tapped into by other member countries.

3 The Need to Develop Capacity for Climate Change Mitigation and Adaptation

In order to reduce human-caused green-house gas emissions—one of the main reasons for climate change—there is general consensus that mitigation and adaptation are pathways that should be taken globally, and to implement solutions that can enable all stakeholders concerned to build resilience against the negative environmental impacts of climate change. The two approaches are mutually reinforcing. Mitigation alone would not be sufficient as the environmental effects of climate change are already taking a toll on people's lives, and societies have to adapt to living under the new environmental circumstances posed by this challenge.

This means that, at the level of international community and governments all the way down to the local communities, there has to be a comprehensive approach to reduce green-house gases and develop new ways to build resilience against weather

related disasters (such as droughts, floods, tsunamis, hurricanes).

Already, there has been much attention paid to these issues internationally over the last few decades, and various international accords and protocols (such as the Kyoto Protocol) are in place setting new standards on the consumption of fossil fuels, imposing limits on how much countries can emit green-house gases, and implement new technologies to meet the energy and transportation needs of societies across the globe. As lower standards are adopted according to international protocols, this will, no doubt have an impact on reducing green-house emissions. However, positive changes will require time to take effect, since the impact of accumulated green-houses gases in the atmosphere will continue to cause an increase in temperature as noted by the scientific community. This strongly highlights the importance of climate change adaptation.

International development institutions, like IDB, have a critical role to play in supporting both mitigation and adaptation efforts. This aspect is even more pronounced now with the recently introduced Sustainable Development Goals, which includes goals directly linked to climate change (goal 13: climate action), and indirectly linked by promoting resilience against it (Goal 7: Affordable and clean energy, Goal 14: Life below water, Goal 15: Life on Land).

4 Developing Capacity to Combat Climate Change through Reverse Linkage

Climate change is an expansive area requiring various expertise at country level to work together to alleviate its effects on the economy and the citizens. The developed countries have the most advanced know-how and expertise to reduce the effects of climate change which is not the case with least-developed countries that are lacking the capacity to address the issue adequately.

In addition to allocating financial resources that are needed to reduce green-house gas emissions, such as new investments in renewable energy, the IDB member countries also need to develop their capacity to mitigate the causes of climate change and enhance their resilience against its environmental effects. This capacity is needed at individual and organization levels as well as an enabling environment in order to help promote sustainable solutions to help the member countries adopt new and more innovative technologies to reduce green-house gas emissions, and to build much needed resilience, especially in countries that are exposed to extreme weather events.

RL is one of the ways the IDB uses to address the capacity gap in member countries. By linking member countries with higher levels of expertise and achievements in this specific field with those that have entered it more recently, the IDB facilitates the exchange of much needed know-how, technology, and resources across borders. The case studies below provide some projects related to climate change that IDB facilitated using RL to catalyze the process of exchange between its member countries.

4.1 Case Study 1: Diversifying Rice Varieties in Suriname with Expertise from Malaysia

As a low-lying coastal country, Suriname is vulnerable against rising sea levels, and weather events that can affect its agricultural output. According to a study conducted by Standard & Poor's in 2014[2] looking into how vulnerable countries are to climate change, Suriname was listed as number 10.

Rice is the second major agricultural export product of Suriname. Currently, it is a net rice exporting country. Although Suriname enjoys a degree of self-sufficiency in rice production, its growing population and

[2] For details, see the study entitled "Climate Change is a Global Mega-Trend for Sovereign Risk" on https://www.globalcreditportal.com

the subsequent rise in demand for food resources, as well as the effects of climate change, can negatively impact output. Therefore, the Government of Suriname is in need to grow higher quality rice varieties that will increase yields and ensure food security through enhanced resilience to the effects of climate change.

For this purpose, the Government of Suriname requested IDB's support to develop its capacity, specifically, in the rice production sector in order to increase yields and diversify its rice varieties. The IDB responded by developing a RL project and identified Malaysia—more specifically the Malaysian Agriculture Research and Development Institute—as the provider of the expertise.

The RL project was designed to bring about the necessary improvement of varieties, breeding and production methodologies, related infrastructure and human resource development to maintain Suriname's long term self-sufficiency in rice production and to cater for the expected increase in per capita consumption in the country.

Additionally, with the increased rice production efficiency, Suriname can become a major supplier of rice for the region as well as for other IDB member countries, which would serve to strengthen resilience against food shortages due to the effects of climate change and other factors.

Thus, with the new capacity and expertise gained through this RL project, the recipient institution from Suriname—Anne van Dijk Rijst Onderzoekscentrum Nickerie—is expected to become a regional Resource

Center for neighboring countries in South America as well as for other IDB member countries.

4.2 Case Study 2: Building Resilience in Senegal against Floods with Expertise from Indonesia

Senegal covers around 200,000 km^2 of land and has a population of 13.6 million. Water represents about 2.1% of the area of the country and the most important water source in Senegal is the Senegal River. This river is about 1,790 km long and makes up the country border with Mauritania at the northern part of Senegal. In Senegal, particularly in Dakar city, some of the areas lie below the sea level, increasing ground water table at some areas, exposing the capital to significant flood risk during the rainy season.

In 2009 alone, floods have caused approximately US$ 103 million worth of damages and losses in and around Dakar. More than 30,000 housing units (around 300,000 people) were affected in the capital city and its suburbs, leaving many sub-districts uninhabitable and often abandoned. In 2012, the massive flooding that has hit the same region during the rainy season has caused comparable damages, with loss of life, destruction of houses and urban infrastructure. These floods can become more disruptive to the economic development of Senegal and more deadly, especially for those living under poverty, as climate change continues to affect weather patterns negatively.

With this backdrop, Senegal applied to the IDB in 2012, for assistance in developing its capacity in flood disaster risk management. The IDB, in turn, paired Senegal with Indonesia, other IDB member country that is frequently affected by major climate related events and natural disasters such as floods, tsunamis, and earthquakes. Responding to such events has enabled Indonesia to build its capacity to pre-emptively prepare for such events, and respond to such events efficiently, thereby, lowering casualties, restoring socio-economic activity, and returning to a normal life as quickly as possible.

During the initial stages of the project, the providers of expertise were identified as the Tsunami and Disaster Mitigation Research Centre (TDRMC) and the Indonesia National Disaster Management Agency (BNPB) and the recipient agency in Senegal was identified as the Ministry of Development, Restructuring and Upgrading of Suburbs (MDRRB).

Through a peer-to-peer approach, the experts from the provider and recipient institutions conducted a needs assessment in Senegal facilitated by the IDB. It was determined that some of the important information support tools such as (i) official maps for floods, (ii) flood disaster information system, (iii) appropriate standards in flood prone areas, and (iv) flow water control levels were not available for the decision makers in Senegal. It was noticed that the relevant structures in charge of flood management in Senegal

do not have the required technical tools to prevent or mitigate flood impact at the community such as early warning systems, tilde gates and community resilience tools in case of flood disaster.

As a result of this analysis, a RL project was designed to: (i) enhance the institutional and legal framework of the MDRRB, (ii) developing standards and information system for flood disaster risk management, and (iii) supporting the design of technical tools (tide gate, early warning system, etc.) to enhance flood disaster risk mitigation and management.

4.3 Case Study 3: Helping Côte d'Ivoire Develop its Capacity to Map Soil Fertility with Expertise from Morocco

Agriculture is one of the main pillars of the economy in Côte d'Ivoire. According to the National Statistical Data of 2014 in Côte d'Ivoire, agriculture provides employment to about two-thirds of the working population and accounts for about 35% of GDP.

The principal food crops in Côte d'Ivoire are rice, cassava, yams, sweet potatoes, maize, millet, sorghum and plantains. The main export crops – cocoa, rubber, palm oil, cotton and cashew – play a key role in the sector's growth and in poverty alleviation. The domestic trade and transport industry (trucking, rail, port) depends on this sector for a large part of its business. Cotton ginneries, rubber, palm oil and sugar factories provide the base for rural industry, while an important component of urban industry is made up of cocoa processing plants, textile, cotton, seed oil operations, instant coffee factory, packaging materials, second stage transformation of oil palm into soaps and cosmetics.

However, the country has been facing a problem of soil fertility and proper land management, which constitutes a major challenge for improving crop productivity and crop production. Soil degradation has become a major driver of poor agricultural productivity. For instance, in Côte d'Ivoire, the average yield for rice production is below 0.8 ton/ha (compared to an average above 6 ton/ha in Malaysia[3] and 3-4 ton/ha in Nigeria[4]. In addition, the country has been facing a problem of soil mapping—a method used to understand the soil structure in different locations so as to develop solutions to enhance the quality of the soil for better agricultural productivity. Furthermore, inadequate fertilization of agricultural soils (about 25 kg/ha compared to an average of 52 kg/ha in Morocco according to the World Development indicators, 2016) has hampered yields, compounding problems related to effective use of agricultural lands.

This implies that available resources are used inefficiently, including fertilizer and labor inputs, and entails low resilience of food systems to climate variability. Various field studies reveal that considerable gains in productivity on land already under cultivation are possible in all commodity chains through improved management of soil fertility and dissemination of fertilizer formulation based on knowing the precise characteristics of the soil.

For these reasons, Côte d'Ivoire, requested the IDB's support to develop its capacity in mapping soil fertility. In particular, the authorities in Côte d'Ivoire expressed a desire to benefit from the Moroccan expertise in mapping soil fertility and fertilization.

The IDB responded by linking the Ministry of Agriculture and Rural Development (MINADER) of Côte d'Ivoire with the National Institute of Agricultural Research (INRA) in Morocco. Experts from INRA and MINADER conducted a needs assessment in Côte d'Ivoire, with IDB facilitating the analysis. As a result of this process, it was identified that: (i) there is a serious lack of ability to monitor farmland management as

[3] Malaysian Agricultural Research and Development Institute
[4] Nigerian National Cereal Research Institute

well as an absence of soil fertility maps to enable the optimization of crop production, and soil readiness; (ii) farmers are using limited range of fertilizer formulas; and, (iii) farmers and technicians are not equipped with the necessary expertise and awareness to value the importance of proper land management, fertilization and appropriate fertilizers for their crops.

Based on this analysis, a RL project was formulated with the overall objective to improve crop production and productivity through the development and roll out of adapted techniques for mapping soil fertility; the deployment of a comprehensive system for crop fertilization; and awareness and dissemination activities to improve crop production and productivity.

4.4 Case Study 4: Transferring Renewable Energy Expertise from Morocco to Mali

Despite significant progress in economic development experienced by Mali over the past decade, access to electricity continues to remain as a binding constraint. According to most recent data, the urban and rural rates of electricity access were around 55% and 18% respectively. The low rate of electrification in rural areas is a significant concern, and is one of the priority objectives of the Government of Mali, which considers access to electricity as a major instrument to fight against poverty.

The energy sector in Mali is characterized by high dependencies on hydroelectric power generation, which accounts for 55% of grid connected primary energy, and biomass, which meets around 80% of household energy needs. While biomass provides a relatively cheap and accessible source of energy, primarily for those living under poverty in rural areas, it is also a contributor to the rise in green-house gases. Furthermore, the hazardous smoke from burning it is a health risk for those exposed to it continuously.

Inadequate access to affordable energy limits social opportunities for the poor, women, and the youth in particular, and is a key factor in Mali's most pressing health and environmental challenges. With energy demand growing at an average of 10% per year, addressing the core institutional, financial, capacity, and knowledge barriers to the development of new and sustainable energy resources are central to Mali's core development objectives.

One of the alternative ways to provide energy in rural areas is through the utilization of renewable energy sources: most prominent of these alternatives being solar energy in Mali. The Solar irradiation in Mali is of the order of 5 to 7 kWh/m^2/day and is well distributed on the national territory. This represent a promising potential that can be developed to diversify the energy mix in order to contribute reducing the energy deficit, and reducing its reliance on fuels that are harmful to the environment.

To meet this objective, Mali approached the IDB for support in developing its capacity to meet the energy needs of its rural population. IDB, in turn, paired Mali with Morocco, a country that has developed solutions in this important area. The Moroccan National Electricity and Potable Water Utility (ONEE), the Moroccan utility charged with managing the country's electricity and potable water needs, was selected as the provider of expertise. It has a long experience in the rural electrification sector in Morocco, and succeeded to raise the rural electrification rate from 18% in 1996 to more than 98% in 2014. In Mali, the Malian Agency for the Development of Domestic Energy and Rural Electrification (AMADER) was selected as the recipient institution.

Together, these institutions diagnosed the needs of Mali in order to boost their capacity in rural electrification using solar energy. The partners formulated a RL project[5] with the objectives to: (i) improve the rural

[5] This project is currently under development.

electrification rate in Mali, (ii) enhance the skills of AMADER staff for designing and implementing rural electrification projects, and (iii) strengthen the operations and maintenance skills of technicians of the executing agency related to the up-keep of solar energy infrastructure. In addition to the capacity development component, the project will also provide the necessary hardware and technology that is required for the rural electrification of selected areas. This will include installation of solar photovoltaic cells, the associated distribution lines, and transformer stations. As such, the project provides an integrated solution that can be scaled-up and replicated once its success is proven.

5 Doing more to Combat Climate Change with Reverse Linkage

The case studies above cover just a few instances of how this highly effective way of bringing countries together to solve their common development challenges can help build resilience by developing capacity in disaster risk management, and enhancing food security through smarter ways of undertaking agricultural activities.

These success stories can be expanded further to include additional transfers of expertise to fight climate change through mitigation, as well as through adaptation. Some of the major areas in which RL can be utilized for climate change mitigation include the following:

i. **Capacity development to build expertise in renewable energy technologies**: IDB can pair MCs together to help transfer know-how and develop capacity at the individual, organizational, and enabling environment levels to strengthen the human resources needs of countries in this field; transfer necessary technology and know-how to adapt solutions to the local context of the recipient countries; and provide the necessary institutional framework (such as policies, laws and regulations related to renewable energy);

ii. **Promote regional cooperation on effective use of natural resources to fight climate change**: Through the RL modality, IDB can bring together multiple regional countries to develop strategies and action plans to combat climate change through regional cooperation. Countries that are located in high-risk areas to climate change variability can learn from the experiences of countries in other similar regions that have already developed solutions to regional environmental challenges posed by climate change;

iii. **Transfer of policy lessons from countries that are successful in reducing carbon emissions**: While it is vital to promote bottom up solutions to combat climate change, there is also a need to make sure that governments are endowed with the policy formulation tools that can help them develop the correct national paradigms and strategies on climate change, as well as develop top-down policies and regulations to promote mitigation across all relevant socio-economic sectors. IDB can help link member countries that have success stories related to environmental policies and regulations with those that need support in this area. RL can be the modality of choice to achieve this objective.

In addition to the steps outlined above for climate change mitigation, RL modality can help build resilience through climate change adaptation in the following areas:

i. **Enhancing agricultural know-how to withstand the effects of climate change**: One of the primary areas in which climate change can have an adverse impact is agriculture and food security. Rise in temperature and the associated changes in environmental patterns can affect crop yields, thereby contributing to the severity of poverty in many countries. In addition, soil fertility and water resources are also under stress from weather

related events, which are important factors that can reduce agricultural yields. In order to build resilience against such undesirable events, countries need to develop their expertise in resilient agricultural and water resources management practices that can help them grow their crops in smarter ways, employing improved means proven by scientific research wherever possible. RL can provide an efficient implementation modality to achieve this objective by linking countries with experience and resources in this area, with those that are in need to secure their agricultural output in the face of changing environmental conditions.

ii. **Climate-change related disaster preparedness**: Evidence suggests that with all the precautions that mankind can take to combat climate change, the natural disasters that emanate from this phenomenon will continue to have an impact on our way of life. As such, part of adapting to climate change is to build resilience through disaster preparedness. This means that all socio-economic sectors of our countries—including governments, private sector, and civil society—have to develop smarter ways to overcome the effects of disasters whenever they occur by implementing pre-emptive measures in anticipation of such events, as well as by rapidly recovering from such situations with well-developed action plans. Many of the IDB's member countries have developed their national response systems to natural disasters, like extreme floods, storms, and can share this experience, methods, and associated technologies with countries that face similar challenges. RL can be the modality of choice whenever countries are willing to cooperate to solve such challenges.

6 The Way Forward

As already seen in the above examples, RL can be a cost-effective, and efficient way to provide capacity development needed to address climate change. It facilitates provision of necessary expertise, technology and resources, to countries in need through a peer-to-peer approach to solving problems. Apart from its direct benefits to the issue of climate change, there are also indirect benefits such as strengthening ties between countries that can help open up new areas of cooperation, and result in new, and impactful synergies.

As a relatively new modality for capacity development, the real impact of RL interventions in member countries for climate change present an opportunity to diversify to other areas of sustainable development goals. However, demand for this approach is already growing fast, and IDB is looking into new ways to utilize RL to solve the economic development challenges of its member countries.

The issue of climate change is a wide-reaching, multi-thronged problem that cannot be solved by the efforts of individual countries alone, rather it needs collective efforts of both countries and their development partners.

The examples above can be increased with more countries establishing links among each other to transfer expertise and technology from those that have developed solutions, and are willing to share them in a spirit of solidarity. The IDB, as a development institution that has reinforced the need to strengthen cooperation among its member countries, and has adjusted its strategy to promote cooperation further, is ready to broker this exchange between its member countries.

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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