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### **ACRONYMS**

AFD French Development Agency

DEMAC Diaspora Emergency Action and Coordination

FAO Food and Agriculture Organization of the United Nations

FDI Foreign direct investment

FFR Financing Facility for Remittances

FORIM Forum of Migrant's International Solidarity Organizations

GCA Global Center on Adaptation

GIZ German Corporation for International Cooperation

HTA Home-town associations

IFAD International Fund for Agricultural Development
IPCC Intergovernmental Panel on Climate Change

MEET Africa European Mobilization for Entrepreneurship in Africa

ODA Official development assistance SDG Sustainable Development Goal SWC Soil and water conservation

UNCCD United Nations Conventions to Combat Desertification 3SI Sustainability, Stability and Security Initiative in Africa

# Executive summary

The projected costs of financing climate resilience in sub-Saharan Africa are enormous, creating a significant adaptation finance gap. The European Centre for Development Policy Management, an independent "think and do tank" pursuing inclusive and sustainable development policies in Europe and Africa, estimated in 2023 that the climate finance gap for Africa would be around US\$200–400 billion per year until 2030. That said, one of the largest sources of external capital to sub-Saharan Africa reached US\$54 billion in 2023, nearly 1.5 times the size of foreign direct investment (FDI) flows in 2023 and relatively more stable. Moreover, remittances supported the current accounts of several African countries that were dealing with food insecurity, drought, supply chain disruptions, floods and debt-servicing difficulties. This has led to the question of how diaspora finance can be leveraged for sustainable development and climate resilience in the region.

Based on an extensive literature review, the report addresses two main related questions:

- 1. Could remittances and diaspora investments be sustainable resources for climate resilience and adaptation, and under what conditions?
- 2. How can the impact of remittances and diaspora investments on climate change resilience be strengthened at the family and community levels?

This report delves into the critical intersection of remittances, diaspora investments, and climate adaptation in sub-Saharan Africa, to offer comprehensive insights. It begins by analysing the effects of migration and remittances on countries and households of origin, especially in the agricultural sector, and then examines initiatives aimed at enhancing the impact of diaspora finance on sustainable development and climate resilience.

The report identifies conditions under which remittances and diaspora investments could constitute sustainable resources for climate adaptation.

Through the review of existing literature on the nexus between migration, remittances, diaspora investment and climate adaptation in agriculture, this report examines the effects on countries and households of origin, as well as initiatives to enhance the

<sup>&</sup>lt;sup>1</sup> KNOMAD. 2019. *Migration and Development Brief 40*. [Cited 15 July 2024]. Available from: <a href="https://knomad.org/publication/migration-and-development-brief-40">https://knomad.org/publication/migration-and-development-brief-40</a>.

impact of diaspora finance on sustainable development and climate resilience. It is structured to provide insights into the multifaceted dimensions of remittances and diaspora finance, offering recommendations for leveraging these resources effectively to address the challenges posed by climate change in sub-Saharan Africa.

In particular, the report produces a series of key findings on i) the motivations behind and effects of remittances in regions and households of origin; and ii) how the impact of diaspora finance on climate adaptation can be enhanced. Furthermore, it emphasizes several actions and produces a set of recommendations to facilitate the engagement of diasporas and migrants towards greener remittances and investments.

### Key findings

# MOTIVATIONS AND EFFECTS OF REMITTANCES IN REGIONS AND HOUSEHOLDS OF ORIGIN

- 1. In areas lacking insurance and credit markets, remittances serve as a mutual insurance strategy, with migrants sending money to support families during difficulties. This helps small-scale farming cope with climate shocks.
- 2. Remittances cover food deficits and unexpected expenses, stabilizing household consumption during shocks. Used as collateral, remittances enable investments in less climate-dependent production techniques and diversify income sources. However, dependence on remittances may reduce agricultural efforts by recipients, though this impact varies based on labour market conditions and the ability to hire replacement labour forces.
- 3. Remittances may also be a resource for resilience and adaptation and help households cope with and prepare for risks, supporting the acquisition of assets for resilience and engagement in climate-resilient activities. Their success however is often related to contextual conditions, to pre-migration household attributes (e.g. assets), and to the characteristics of migrants (e.g. age, level of education, engaging in circular migration).

# ENHANCING THE IMPACT OF DIASPORA FINANCE ON CLIMATE RESILIENCE

4. Several obstacles hamper the use of remittances and migrant investment as a resource for climate adaptation. Remittances are often used for immediate needs, especially during climate shocks. Lack of information and coordination can hinder the effective use of remittances for adaptation. Factors such as poor infrastructure and inefficient services discourage investment in smallholder agriculture. Migrants often lack information on climate risks and green investment opportunities.

5. Many initiatives have demonstrated impact, which include i) expanding access to financial services, improving financial literacy, and increasing market transparency can lower remittance costs and enhance their use for investment. Mobile money and fostering competition can further reduce transaction costs; ii) initiatives helping migrants to pool their resources and direct pooled savings towards larger-scale investments can overcome scale limitations and collective action issues. This includes programmes supported by hometown associations and civil society organizations. However, sustainability and targeting might be an issue, and collective initiatives are somewhat losing popularity with more recent generations of migrants who are increasingly turning to individual or collective investments in private businesses; and iii) encouraging diaspora investment through private initiatives or diaspora bonds shows promise. Success depends on overcoming governance issues and building trust. Despite the potential, only five sub-Saharan countries have issued diaspora bonds since 2000, mainly due to the high costs associated with information and issuance.

### Conclusion and recommendations

Diaspora finance, primarily through remittances and diaspora investment, already significantly mitigates climate change effects by supporting home communities. However, barriers to investment in climate-resilient systems extend beyond financial constraints to include lack of information, infrastructure and market issues. Because not all migrants can invest in climate adaptation, targeting migrants with appropriate products is essential.

Three main recommendations are proposed:

- 1. **Awareness and capacity-building:** Provide clear and fact-based information to diaspora and remittance-receiving households to raise awareness of the urgency and needs for climate change adaptation, and reinforce their capacity to identify technological and innovative solutions in which to invest;
- 2. **Development of green financial products:** Encourage financial and remittance service providers to develop green products, and foster partnerships with local organizations committed to sustainable development in both the origin and destination countries to promote climate-smart solutions; and
- 3. **Impact evaluation and data collection:** Collect data and conduct detailed impact evaluations of past efforts to promote green and climate-resilient diaspora investments to facilitate a thoughtful scaling up of successful approaches.

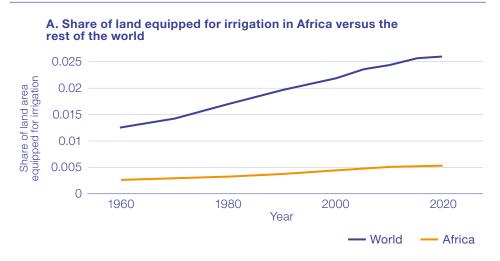
# Introduction

Developing countries, particularly in sub-Saharan Africa, face enormous challenges due to climate change that result in extraordinarily high financial needs. Agriculture and food systems, which are major drivers of growth for African economies and a source of livelihood for a large share of the population, are particularly vulnerable. Africa is already experiencing negative consequences in the agricultural sector (IPCC, 2022). Ortiz-Bobea et al. (2021) estimate that climate change has reduced total agricultural productivity growth in sub-Saharan Africa by 34 per cent since 1961, which is more than in any other region. Ray et al. (2019) demonstrate that human-induced climate change led to a decrease in global food production since 1970 compared to a no-climate change counterfactual. In sub-Saharan, they estimate that total food calories decreased by 1.4 per cent.

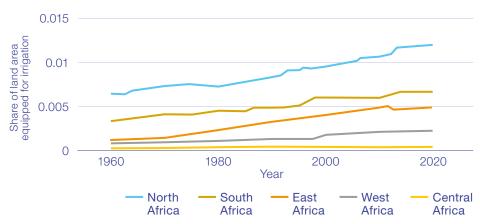
Adapting food systems to climate change is an urgent yet major challenge for Africa. As emphasized by the Intergovernmental Panel on Climate Change (IPCC) and the Global Center for Adaptation (GCA), the necessary actions in this regard are well-identified (GCA, 2021; IPCC, 2022). Investments are needed at multiple levels. This includes public-level investments to support research and extension, provide infrastructure and improve water management. Private sector investment can promote climate-smart agrifood value chains that foster the adaptation of agricultural production. Finally, farm-level investments can diversify crop and livestock production to adopt climate-smart technologies (such as drought-tolerant crops) and conservation practices (such as agroforestry), as well as investing in water management technologies, such as irrigation, among other measures (GCA, 2021).

Massive financial resources are needed to support this transformation. The GCA projects that the cost of adapting Africa's food systems would amount to US\$15 billion annually. While this figure is substantial, it is considerably lower, equivalent to just one tenth of the cost associated with inaction (GCA, 2021). Yet, the share of public expenditure and development flows allocated to the agricultural sector has long been too low (FAO, 2022; 2023) and recent figures show no signs of improvement. This explains in part the large and persistent agricultural productivity gap observed between the continent and the rest of the world (Byerlee et al., 2009). Africa also lags far behind in the use of climate-resilient technologies such as irrigation, fertilizer or modern varieties (figure 1) (Suri & Udry, 2022).

Figure 1. Trends in irrigation 1960-2020



### B. Share of land equipped for irrigation across regions in Africa



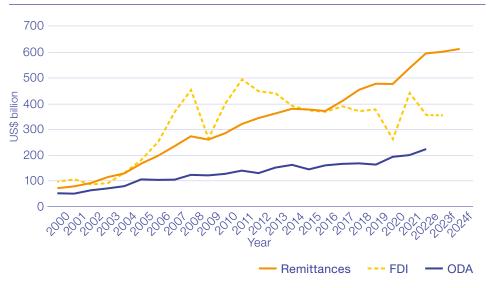
Source: Suri and Udry, 2022.

Faced with these substantial and growing needs in terms of resilience to climate change, the financial resources of migrants that are transferred back to their home countries are constantly increasing. Whether diaspora finance, mainly through remittances and other investments, can be mobilized to promote sustainable development and adapt food and agricultural systems in sub-Saharan Africa remains to be seen.

Remittances are an increasing source of external capital inflows, particularly for developing countries. The value of remittances has more than quadrupled over the last twenty years and has increased by around 50 per cent since 2013. In 2022, remittance flows worldwide reached US\$831 billion, corresponding to an annual growth of 5 per cent. Ratha et al. (2023) projected that they were expected to reach US\$840 billion in 2023. These patterns are even more pronounced for low- and middle-income countries that receive more than three quarters of these flows: remittance inflows have increased by 8 per cent in 2022, resulting in total inflows of US\$656 billion.

Some of the recent rise in remittances is due to better measurement of previously unrecorded official flows, regulatory changes in balance of payments data by the International Monetary Fund (IMF) and a gradual shift to formal remittance channels in many countries (Clemens & McKenzie, 2018). Conversely, a sizeable share of remittance flows remains unreported in the official accounts of some countries, particularly low-income countries, where transnational interpersonal transfers still operate outside a weak formal banking system and informal channels are widely used to avoid costly money transfer service providers. Freund & Spatafora (2008) estimate that informal remittances account for around 35–75 per cent of formal remittances to developing countries, with significant regional variations. The highest share observed was in sub-Saharan Africa. However, despite measurement problems, remittance flows undoubtedly represent a major and growing source of external financing for developing countries compared with foreign direct investment official development assistance (ODA) and portfolio investment flows, particularly when China is excluded from the sample (Figure 2).

Figure 2. Remittances, foreign direct investment, and official development assistance flows to low- and middle-income countries, excluding China, 2000–2024



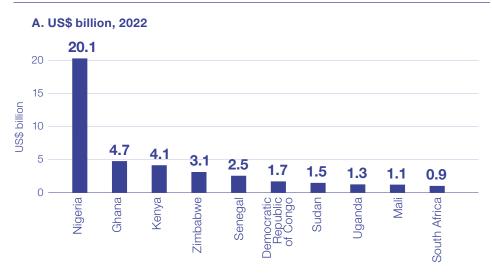
Sources: World Bank-KNOMAD staff; World Development Indicators; IMF Balance of Payments Statistics. Also see World Bank-KNOMAD (2016) for sources, methods, and challenges of collecting remittance data.

Note: FDI = foreign direct investment; ODA= official development assistance; e = estimate; f = forecast.

The situation is slightly different in sub-Saharan Africa, where official remittance amounts (US\$54 billion in 2022) are similar to ODA but remain almost twice as large as FDI flows (mainly due to large financial transactions in South Africa). Due to the size of its population and economy, Nigeria is by far the largest recipient of remittances in the region, accounting for more than one third of total remittances with US\$34 billion in 2023, followed by Ghana (US\$4.6 billion) and Kenya (US\$5.7 billion). Despite smaller amounts, some countries such as Senegal or Zimbabwe nevertheless receive a larger share of their gross domestic product (GDP) from their diaspora abroad (around 10 per cent, figure 3).

It should be noted that diaspora finance is larger than remittances and may be channelled through financial instruments recorded in FDI or portfolio investment flows, which are often difficult to measure separately or at least to identify as originating from the diaspora abroad.

Figure 3. Top remittance recipients in the sub-Saharan Africa, 2022



### B. Percentage of GDP, 2022



Sources: Sources: KNOMAO-World Bank staff estimates; World Development Indicators; IMF Balance of Payments statistics.

Note: GDP = gross domestic product.

\*South Sudan is excluded due to issues related to data validity.

Against this backdrop, international organizations, donors, and governments in countries of origin and destination are showing growing interest in initiatives and policies that can enhance the benefits of diaspora finance for sustainable development. This is particularly the case for building climate resilience by alleviating capital constraints. Because of the amounts involved, remittances are indeed recognized as an opportunity to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs) in various ways around

their three pillars, at the household, community and international levels (Ponsot et al., 2017). This is particularly the case for SDG 13, where remittances and diaspora investments are expected to play a role in mitigating the negative effects of climate change and helping to cope with climate shocks, enabling the adoption of more sustainable crops and climate-resilient technologies, as well as income diversification through non-agricultural activities.

However, remittances are different from other sources of external financing in some respects. First, they do not imply per se any form of commercial or economic transaction between the donor and the recipient and are considered as a secondary source of revenue in the national balance of payments (in contrast to profit-seeking FDI or portfolio investment flows). Second, they have no a prioristated objective or are not systematically aimed at a targeted use (in comparison to government-to-government ODA for development). Most often, they are direct interpersonal transfers with various motivations, ranging from pure altruism to productive investment between private individuals based on family relationships or groups of relatives. As such, remittances tend to be far less volatile than other foreign capital inflows and less contingent on business cycles (De et al. 2019; IFAD & World Bank, 2021), while fulfilling a wide variety of objectives.

In this context, this analytical report seeks to address two questions:

- 1. Could remittances and diaspora investments constitute a sustainable resource for climate resilience and adaptation? If so, under what conditions?
- 2. What can be done to strengthen the impact of remittances and diaspora investments at the family and community level while targeting this impact on climate change resilience?

The nexus between remittances, diaspora investment and the various dimensions of development is a recurrent and still much-debated issue in the literature. Indeed, the answer can be complex because remittances are a very specific source of external capital that encompass various, and sometimes competing, economic and social dimensions. In addition, financial flows from the diaspora are the result of individual migrations, which may themselves constitute an adaptation strategy to climate change and whose effects may complement but also offset each other. Consequently, the combined effect of remittances and migration needs to be considered as a whole. This analytical report reviews the extensive literature on the subject, focusing on the linkages between migration-related remittances, diaspora investment and climate adaptation in agriculture.

The document is organized as follows: first, we synthesized existing evidence on the effect of migration and remittances on countries and households of origin, focusing on rural households and the effects in the agricultural sector. In the second part, we review the literature on the mechanisms and initiatives that could enhance the impact of diaspora finance on sustainable development and climate change resilience.

# Motivations and impacts of remittances in regions and households of origin

The impact of remittances on recipient households and communities largely depends on the reasons that have motivated their sending. Several motivations for remittances as well as the reasons behind the original decision to migrate have been presented in the literature (Rapoport & Docquier, 2006; Yang, 2011). They include the altruistic motive, where a migrant cares about the recipients' welfare and is willing to increase their consumption level through the sending of remittances (Agarwal & Horowitz, 2002); the exchange motive, with remittances used as a compensation for different services rendered to the migrant by recipients, such as taking care of the migrant's assets or looking after the migrant's immediate family like children or spouse (Cox, 1987); the insurance motive, with remittances increasing in times of hardships to smooth recipients' consumption (Cox, Eser & Jimenez, 1998; Lucas & Stark, 1985; Gubert, 2002); the loan repayment motive, with remittances corresponding to the repayment of debts incurred for the migrant's education in the home country or the initial costs of migration (Poirine, 1997; Ilahi & Jafarey, 1999); and finally, the investment motive, with remittances being invested in human or physical capital by the recipients, or funding future investments by the migrants themselves.

Depending on the motivation behind remittances, their effects on those who are left behind are likely to differ. In particular, the way they are allocated between consumption and investment expenditures by recipient households is likely to vary if they serve, say, an insurance role or an investment motive. A general conclusion that arises in the reviewed literature is that several motives often operate simultaneously, so ruling out alternative explanations for remittance flows can be challenging.

As a result, another strand of the remittance literature has somewhat sidestepped the question of motivations behind remittances and simply explored how remittances affect recipient households or countries. At the macro level and from a theoretical standpoint, remittances affect the receiving country's economy through various transmission channels. On the one hand, remittances may represent a vital source of external financing for the domestic economy, alleviate credit constraints and thereby contribute positively to economic growth. On the other hand, they may have adverse effects, such as causing "Dutch disease", where an influx of foreign currency leads to an appreciation of the local currency, making exports less competitive, or reducing the labour supply in the home country.

As a result of these various channels, the direction of the impact of remittances on growth is not predetermined and becomes an empirical question. Unfortunately, most analyses investigating the impact of remittances on the economic growth of origin countries are inconclusive (Clemens & McKenzie, 2018). In a recent meta-analysis based on 95 published articles that report 538 estimates quantifying this impact, the authors found that approximately 40 per cent of the studies report a positive effect, 40 per cent report no effect, and 20 per cent report a negative one (Cazachevici, Havranek & Horvath, 2020). While those differences can be partly attributed to variations in specifications or differences in sample size and composition, the challenge of obtaining convergent and consistent results with macro-data has shifted the focus to studies assessing the effects of remittances at a micro-level, utilizing robust causal identification methods.

### The insurance function of remittances

With migration being a key component in rural households' livelihood strategies, particular attention has been paid to the question of whether migration and remittances constitute an efficient tool to combat rural underdevelopment and poverty, and more recently, whether they enhance adaptation of smallholder farmers to climate risks. Several papers have established that remittances serve an insurance role. They are part of a larger literature assessing the strategies adopted by households to cope with risk in contexts generally characterized by a lack of well-functioning insurance and credit markets and the fragility of social programmes and services. These strategies are multifaceted and can manifest at two stages: ex ante, before shocks occur, to reduce their magnitude and exposure to risk, and ex post, aftershocks occur, to insulate consumption patterns from income variability (Morduch 1995; Fafchamps 2003).

Reducing exposure to risk ex ante can be achieved in various ways, primarily by altering production choices. People may adopt and specialize in production techniques that are less dependent on rainfall, such as small-scale irrigation, or that are resistant to droughts and other environmental risk factors, like growing pearl millet in Sahelian areas. They may also diversify their portfolio of incomegenerating activities by planting different crops or several varieties of the same crop, combining farm and non-farm activities, or raising different species of animals in the case of livestock producers. Even if all these strategies help to reduce risk,

some risk remains that must be dealt with ex post. When hit by a shock, people may dissave or borrow. They may liquidate part of their assets (through the selling of livestock or land), or may also reduce or modify their food consumption or cut non-essential spending. As a last option, people may decide to rely on others, against a promise of future reciprocity.

Even though the above discussion made no specific mention of it, migration essentially stands everywhere in this typology. Migration may be both an ex ante livelihood- and risk-diversification strategy and a way to deal with risk ex post, once a shock has occurred. It can also be thought of as a risk-sharing strategy, as migrants and their relatives who remain in the village generally agree in advance to help each other in case of trouble, as in a mutual insurance contract. This translates into the sending of remittances by the migrant whenever the family in the village faces difficulties (Lucas & Stark, op. cit.; Gubert, op. cit.; Yang and Choi, 2007; Clarke and Wallsten, 2004). While migration is often perceived as an escape from a climate threat or the abandonment of an inhospitable region, and thus seen as a failure of individuals and systems to adapt, it can also be part of a proactive strategy for resisting climate change. Rather than being a sign of abandonment, migration is an adaptation strategy that has been traditionally used for centuries, particularly in the Sahel, where populations have always resorted to migration to adapt to climatic stress and maintain small-scale family farming, despite deteriorating environmental conditions. The role of migration as an adaptation strategy is also well-documented among nomadic pastoral societies (Fernandez-Gimenez & Le Febre, 2006; Hampshire, 2002; Gonin, 2014; Wang et al., 2013).

Lalou & Delaunay provide a compelling illustration of migration and remittances as adaptation in the semi-arid region of Niakhar, Senegal (Lalou & Delaunay, 2015). Small-scale family farming in this region does not enable all households to achieve food self-sufficiency each year. Despite recurrent cereal deficits due to low rainfalls from 1999 to 2003, most households managed to ensure their subsistence. They did this through in-kind remittances and purchases of millet funded by monetary remittances sent by seasonal migrants. An exception occurred during the agricultural year 2002–2003 when rainfall deficits were particularly severe. There is no doubt in this context that seasonal migration constitutes an adaptation and enhances food security. In pastoralist societies, the range of informal transfers that operate (remittances, *zakat* [a form of almsgiving and religious tax in Islam], etc.) have also been found to reduce the vulnerability of households that benefit from these social support systems (Devereux, 2006).

Average quantity of self-produced millet annually (per person, in kg) 1999–2000 2000-2001 < 50 50-100 100-150 150-210 210-250 2001-2002 2002-2003 250-300 300-350 Average quantity of millet available once millet purchases made possible by remittances are taken 350-400 into account (per person, in kg) 400-450 450-500 500-550 550-600 600-650 > 65 1999–2000 2000-2001

Figure 4. Village-wise distribution of quantity of millet self-produced and available per person per year, Niakhar, Senegal, 1999–2003

Source: Extracted from Lalou & Delaunay (2015). The red colour indicates when quantities of millet are lower than the norm of 210 kgs per person annually, while the green colour indicates higher quantities. The darker the colour, the further the quantities deviate from the norm.

2002-2003

2001-2002

# Reduced effort and land and labour reallocations toward off-farm activities

The insurance role of remittances has two main implications. First, it implies that a significant share of what is sent by the migrants is used to cover food deficits or unexpected expenses, and hence geared towards consumption expenditures. What is left for investment is therefore often limited, especially in areas where environmental degradations linked to climate change are resulting in growing deficits in the subsistence sector. The second implication of remittances as insurance is the likely disincentive effect this mechanism can have on those left behind. Any insurance system indeed involves some moral hazard. In this case, those left behind may be tempted to reduce the effort they invest in staple cropping knowing that they can rely on remittances should shortfalls occur. Evidence of moral hazard is provided by several authors (Azam & Gubert, 2006; Wouterse & Taylor, 2008). In the case of Mali, Azam & Gubert (2006) show that the geographical dispersion of the migrants and their families, while providing a risk-pooling benefit, raises information and enforcement issues. Without proper monitoring, each participant in the insurance pool has an incentive to underreport income or to reduce effort in order either to be eligible for financial assistance or to be dispensed from supporting others. More specifically, they find that the insurance provided by migrants induces a significant "shirking" behaviour on the part of those remaining behind. The latter are found to use their productive resources in a much less efficient way than households without migrants, and consequently they get much lower farm income per capita than expected.

It is important to note that remittances are not the sole transmission channel through which migration impacts communities and households in the origin country. Other transmission channels, starting with the act of migration itself and the way it alters the labour endowment of the household, may also play a role in the way transfers influence production decisions. This implies that one cannot separate remittances from migration, and assess the impact of remittances in isolation, because these two phenomena are intertwined and endogenous. Except in cases of seasonal or circular moves during the dry season, migration mechanically induces a loss of labour. Whether or not this leads to falling productivity depends on who migrates, whether they are participating in agriculture, and how those who are left behind adapt to this loss (Zezza et al., 2011; Ezra & Kiros, 2011). If migration mainly involves young and vital individuals who were participating in agriculture before their departure, this can lead to the adoption of labour-saving strategies, the abandonment of labour-intensive crops, or a decrease in labour inputs to agriculture and a fall in productivity. But labour losses may also have a rather neutral impact if there is widespread under-employment in agriculture and surplus labour. Finally, the departure of male and female migrants may have distinct effects on agricultural activities. In some cases, predominantly male moves can increase pressure on female-headed households, as women are often left to deal with increased workload and responsibilities, but without equal or direct access to financial, social and technological resources (Deshingkar, 2012). Rural women heads of household may for instance confront de jure or de facto discrimination regarding land and property ownership and tenure, or access to credit. In Côte d'Ivoire, for example, the departure of men has been connected with the feminization of agriculture and the deterioration of female living conditions in origin areas (Bassett, 1991). A few other studies show that women left behind may be able to get help from extended family and social networks for farm work. The capacity of those left behind to adapt to migrant departures also depends on the functioning of labour markets. If labour markets function perfectly, migrant-sending households may be able to replace migrants with hired labour. But if there are labour market imperfections, whereby migrant-sending households are unable to hire labour or hired labour is an imperfect substitute for family labour (which is likely if migration deprives the left behind of their most productive individuals), there may be negative consequences on household production.

The empirical literature studying this issue mainly indicates that remittancesreceiving households tend to reduce their labour supply or reallocate their labour to non-agricultural or less labour-intensive activities. For more on this, Carletto & Winters (2010) provide evidence from various countries. As an illustration, Miluka et al. (2010) investigate the impact of international migration on technical efficiency, resource allocation and income from agricultural production of family farming in Albania. Their results suggest that migration is used by rural households as a pathway out of agriculture: migration is negatively associated with both labour and non-labour input allocation in agriculture, while no significant differences can be detected in terms of farm technical efficiency or agricultural income. In the same vein, De Brauw (2010) explores the effects of seasonal migration on agricultural production in rural Viet Nam, finding weak evidence that migrant households decrease rice production and strong evidence that they increase production of more land-intensive crops. This translates into lower fertilizer and labour use by migrant households in comparison to similar non-migrant households. Those results are consistent with a move from labour-intensive into land-intensive crops, rather than productivity changes or a shift towards more capital-intensive types of production.

# Evidence on the effect of remittances on investment in climate-resilient agriculture

While the preceding discussion has mainly emphasized the disincentive effects of remittances as insurance, the overall picture would not be complete without mention of the potential contribution of remittances on ex ante preparedness against climate events and resilience-building. Migration may indeed also become a resource for adaptation when remittances or income sent back by the migrants allow the acquisition of assets that reduce risk and/or build resilience (for example, see Adger et al. 2002; IFAD, 2020). In addition to remittances, the feedback of migrant networks, including transfers of knowledge, may contribute to technical and institutional innovations for risk-reduction, resilience-building and adaptation in the home communities. As an illustration, in disaster-prone countries as diverse as Bangladesh, Ethiopia, Burkina Faso and Ghana, Mohapatra et al. (2012) find evidence of a positive role of remittances in preparing households against natural disasters. Ex ante actions taken by households in preparation for a disaster include

investments to protect and enhance household assets, adoption of new technologies (drought-resistant seeds, irrigation, etc.) and investment in communication facilities to improve information on possible disasters and anticipatory precautionary measures. Scheffran et al. (2011) and Karanja Ng'ang'a et al. (2016) reach the same conclusions in the case of Western Sahel (with investment in small-scale irrigation schemes) and the semi-arid lands of northern Kenya respectively.

Deshingkar (2012) provides examples in which migrant households have been found to invest in agriculture and natural resource management in the context of Western Mexico, the Central Plateau of Burkina Faso and Eastern India. In some migrant-sending states such as Michoacán (Western Mexico), migration to the United States of America has contributed to boosting avocado cultivation, by allowing subsistence farmers to enter the market. In Burkina Faso, some migrant households have been found to have an above-average adoption rate of soil and water conservation techniques that contribute to increased crop yields (Deshingkar, op. cit.). In Eastern India, migration has led to an intensification of agriculture through capital investments, but on large farms only. A last example is provided by Lalou & Delaunay (2015) in the case of Niakhar (Senegal). After more than ten years of field observations, the authors have found that significant agricultural innovations in the form of new cultures have been introduced through the migration channel: watermelon from the Saloum Delta, sesame from Eastern Senegal, greenhouse market gardening from Dakar, etc. In general, the insurance provided by migrants through the sending of remittances may give households confidence to take more risks and innovate, secure in the knowledge that they will be compensated if their harvest fails. This, together with all the above examples, suggests that migration and remittances may contribute to enhancing climate adaptation and resilience.

# Examples of positive effects in certain circumstances

Some other studies offer a more nuanced perspective on the developmental impact of migration, and in particular on its capacity to strengthen the process of adaptation. As argued by Mendola (2012), the relationship is indeed complex, multifaceted and context-specific. Even more so, migration can be an erosive coping strategy for vulnerable households that resort to migration without achieving a positive outcome. As an illustration, studying female migration in Tamil Nadu, India, Sundari (2005) notes that the poorest households sell their assets upon leaving and experience a loss of land, housing, jewellery and livestock. Their livelihoods thereby have become more vulnerable than they were before moving.

In other words, the relative "success" of migration as an adaptation strategy often depends on the contextual conditions and household attributes that exist before the movement occurs. Consequently, a significant number of contributions result in establishing a typology of households that are classified depending on how they manage to use migration in the face of rainfall variability, livelihood and food security stressors (Mosse et al., 2002; Deshingkar, 2012; Warner et al., 2012; Warner & Afifi, 2014; Melde et al., 2017). Based on field observations in eight research sites

conducted in the framework of the Where the Rain Falls project, Warner et al. (2012) distinguish four household migration profiles that are described in Figure 5.

Figure 5. Household profiles depending on whether migration is adaptive or erosive vis-à-vis rainfall, food and livelihood insecurity

Migration improves household resilience	Migration used to survive, but not to flourish	Migration erosive coping strategy	Migration not an option: trapped populations
ECONOMY: Poor  ADAPTATION OPTIONS: Access to livelihoods options and assets (social economic, political)  EDUCATION: Children have 3–5 years more education than parents MIGRANT: Early 20s, single; temporal migration REMITTANCES: education livelihood diversification,	ECONOMY: Land scarce ADAPTATION OPTIONS: Less access to assets and institutions for support EDUCATION: Children have same education level as parents MIGRANT: Household head, mid 40s, migration in hunger season REMITTANCES: Success in obtaining food or money to buy food	ECONOMY: Landless  ADAPTATION OPTIONS: few adaptation options in situ, inability to diversify EDUCATION: All household members have low or no education/ skill levels MIGRANT: Household head, mid 40s, migration in hunger season REMITTANCES: Partial success in obtaining food or money to buy food	ECONOMY: Chronically food insecure, landless, female-headed HH ADAPTATION OPTIONS: Insufficient assets to adapt locally or through migration EDUCATION: More households have low or no education/ skill levels MIGRANT: Not feasible REMITTANCES: none. Abandoned/ trapped populations
health			

Resilience to climatic stressors

Vulnerability to climatic stressors

Source: Extracted from Warner and Afifi (2014) and based on Warner et al. (2012).

In all cases, households are poor, or with low incomes. The main element that differentiates them is their asset base. Depending on a household's asset base, migration can either be a multisite livelihood strategy or a survival strategy. The former is more likely to enhance resilience, while the latter is more likely to be erosive. At one of the extremes are also people who do not move at all, because they are too poor to migrate and do not even have access to migration options. These households are likely to be those who are most in need of aid in the face of a climatic or environmental shock. Many studies document the existence of "trapped" populations who aspire to and need to migrate but cannot do so (Lubkemann, 2008; Black & Collyer, 2014). Another typology of households is provided by Mosse et al. (2002) in the case of India. The author distinguishes two profiles: very poor households for whom migration is critical to the management of debt and social dependencies, and households for whom migration provides a means to manage risk and build assets.

Next to households' asset base, Deshingkar (2012) explores the circumstances or contextual conditions in which migrants do or do not invest in agricultural intensification. Starting with the case of Mexico, Deshingkar finds that access to farmland and land quality are important determinants of migration and their investment in agriculture. The level of remittances also matters since productive investment, including agricultural intensification and expansion, is feasible only after household consumption needs have been satisfied. According to Deshingkar, this explains why relatively better-endowed households are in a more opportune position to invest in land. In Burkina Faso, migration is positively associated with soil and water conservation (SWC) in only one study area where migrant households may have benefited more from some external support under SWC programmes. Last, in India, only those farmers with larger plots of land were able to invest remittances in agriculture. This suggests that any external intervention aimed at enhancing food security and resilience in migration-intensive areas should consider the differences in the way migration is used by households, as well as the challenges and benefits it can bring.

# An evidence review of how the impact of diaspora finance on climate adaptation can be enhanced

The previous section highlighted several obstacles to the use of remittances for investment and as a resource for climate adaptation in rural areas. First, remittances are a very specific source of external capital. They mainly take the form of direct and one-to-one interpersonal transfers between a migrant and their relatives back home, responding to various motives, including the insurance motive. This means that remittances constitute a shock absorber for households in many sub-Saharan African countries, especially among those that experience climate-related disturbances. While this insurance role certainly helps to reduce transitory poverty and hence contributes to longer-term goals related to health and education, it also means that only a fraction of remittances (between 20 and 30 per cent) (see IFAD, 2015) can fund adaptation-related investments.

Second, the use of remittances as a funding window for micro-level adaptation strategies and climate-risk preparedness may be constrained by information asymmetries and coordination failures. The disincentive effect of remittances as insurance, which translates into recipient households tending to rely on remittance receipts for their subsistence, means that migrants may find it difficult to channel the money they send towards a specific use (and more particularly a "productive" one). An additional and related constraint on the migrants' side is the difficulty of managing development projects at a distance unless they are provided with a means to send money to trustful middlemen or formal intermediaries, such as microfinance institutions with direct responsibility for monitoring investments.

A third constraint relates to the physical and institutional environment characterizing communities of origin. Poor or non-existent rural roads and market infrastructures provide few incentives to invest remittances in local economies. Due to high

prices of goods and inputs, limited technology availability, and challenging market entry conditions, such investments may be seen as economically inefficient and excessively risky. Migrants accordingly prefer investing in projects that are non-productive, either locally or in urban areas, such as real estate.

Fourth and last, if remittances are rarely invested by recipient rural households on their farm, it is in part because barriers to innovation and technological change in African smallholder agriculture are numerous and not limited to financial constraints. As detailed above, one reason to expect a positive link between migration, remittances and adaptation to climate change is that liquidity constraints and lack of insurance mechanisms are major barriers to technological change in smallholder agriculture. Yet, evaluations of programmes aimed at alleviating liquidity constraints through credit, improved savings or subsidies, generally find positive impacts on agricultural decisions, although of limited magnitude and contingent on the context. Research has long been underway to understand the "puzzle" of agricultural technology adoption in sub-Saharan Africa, and to explain the large and persistent yield gap between this region's agricultural production and that of the rest of the world (see reviews by Bridle et al., 2019; Acevado et al., 2020; Suri & Udry, 2022). The consensus is that multiple binding constraints typically affect different types of rural households. Non-financial constraints include the lack of or high variability in the profitability of technologies that are developed in contexts that do not account for the specific constraints encountered locally (Duflo et al., 2008; McCullough et al., 2022); inefficiencies in agricultural extension services and information systems (BenYishay & Mobarak, 2014); the absence or failure of input and output markets (Bonila Cedrez et al., 2020; Burke et al., 2019); and imperfect land and labour markets.

An additional and related issue is the lack of information on "green" investment needs, opportunities, and returns in the country of origin. This gap is compounded by the absence of financial products designed to channel and monitor migrants' remittances toward specific climate adaptation investment projects. Furthermore, as Ferro (2021) notes, not all migrants are fully aware of the climate scenarios developed for Africa. They do not systematically acquire transferable skills in local climate adaptation, nor do they have the necessary conditions and means to mobilize for collective action from abroad. Using a survey of nearly 1,000 African migrants living in Europe, Salia & Nyantakyi (2022) found that 88 per cent of migrants are willing to invest in projects provided that they are crucial to the development of their country of origin. Nonetheless, diasporas prefer community-level projects issued as support during and after crises and are sensitive to the project's objective. However, they often face difficulties in identifying appropriate interventions at the group or community level and lack the means to do so.

This certainly leaves scope for facilitating diaspora engagement in green and climate-related finance. While it is now widely acknowledged that migrant resources are critical to achieving the SDGs, being captured in four goals and five targets, the developmental and investment potential of migration might be an underexploited asset. To enhance it, the role of diasporas needs to be better considered in the development equation, and institutional capacity needs to be

strengthened to develop financialization strategies, not only for remittances but also for other forms of diaspora capital flows (Nurse, 2019). Indeed, diaspora finance is widespread and increasingly is taking varied forms, with financial mechanisms other than interpersonal remittances, such as broader diaspora philanthropy or bonds for example, facilitating transfers from migrants (and their descendants) to their countries of origin (or heritage) and which could have beneficial development impact (Gelb et al., 2021).

Several initiatives have indeed been put in place to leverage diaspora finance for development, with a dual objective: first, to maximize the local impact of remittances on recipient households and communities; and second, to go beyond individual remittances by providing financial instruments for larger-scale diaspora investment. These initiatives broadly include:

- 1. Initiatives aimed at facilitating migrant remittances and making them less costly, and more generally efforts to broaden (transnational) financial access;
- 2. Initiatives aimed at overcoming the problems of collective action and reducing the inefficiencies associated with decision-making within households in cases of information asymmetry, by encouraging collective remittances and diaspora philanthropy in partnership with hometown associations;
- 3. Initiatives aimed at channelling migrant financial resources and savings into transnational financial instruments for targeted purposes with a broader development impact.

However, as Yang and McKenzie (2015) and Gelb et al. (2021) have noted, the substantial political interest and growing policy efforts contrast sharply with the severe lack of quality evidence on different diaspora finance initiatives that can help guide policy. The following sections review a range of existing initiatives, examining their strengths, weaknesses, and opportunities. Additionally, they identify gaps in knowledge to facilitate reflection on their potential impacts.

### Broadening transnational financial inclusion

It is estimated that 50 per cent of the world's population has no access to any form of formal or semi-formal financial services, with the highest proportion residing in low- and middle-income countries, especially in rural areas. Sub-Saharan Africa has the highest proportion of unbanked adults (80 per cent). Consequently, a large proportion of remittance recipients operate outside the traditional banking system and are therefore a key target for the "banking of the unbanked" (Nurse, 2019). Due to several reasons, the lack of access to financial services, particularly in countries of origin, is indeed a major obstacle to sending remittances and to managing how they are used.

First, the lack of access to financial services impacts the cost of remittances and the amounts sent. In many contexts, migrants abroad must resort to costly remittance service providers, or to cheaper but riskier informal mechanisms that are difficult to register outside official regulation (e.g. hawala variants, hand-tohand money transfers, etc.). Cross-country evidence (Freund & Spatafora, 2005) or evidence relating to various contexts such as migration from El Salvador (Aycinena et al., 2010), Guatemala (Ambler et al., 2014) and Tonga (Gibson et al., 2006) suggest that reducing remittance fees can have a significant impact on both the amount and frequency of transactions. One of the main recommendations of the SDGs concerning migration is precisely to reduce transfer costs. The Group of Eight (G8) heads of state summit first agreed in 2009 on a target to reduce the average cost of sending remittances from 10 per cent to 5 per cent in five years (the "5X5" target), which was reaffirmed in the SDGs with a further reduced target of 3 per cent by 2030. This target should be achieved by increasing transparency and competition in remittance markets, on the one hand, and by improving information and the ability of migrants to compare the relative costs of different remittance services, on the other. One well-known example is the Remittance Prices Worldwide website (World Bank, n.d.) that provides remittance prices for several sending and receiving countries. Transaction costs have been successfully reduced over the recent period, but further efforts are needed in some markets and corridors. In 2022, the global average cost of sending US\$200 remained at 6.2 per cent, with the highest level in sub-Saharan Africa (8 per cent) and banks being the most expensive channel (11.8 per cent) (Ratha et al., op. cit.).

Second, widespread cash-to-cash transfers and poor access to financial services may reduce migrants' ability to manage the amounts they send back to their home country and therefore affect the way remittances are allocated between consumption, savings and investment. While there is consistent evidence that migrants prefer to have control over the use of remittances, several studies have jointly documented the positive impacts on migrant households' savings of interventions aimed at facilitating access to bank accounts. Ashraf et al. (2015) in El Salvador and Chin et al. (2011) in Mexico both provide experimental evidence that helping migrants open savings accounts in their home country increases savings, but even more so when migrants are offered a high level of monitoring and control. These findings echo other evidence on the positive impacts of improved financial literacy and financial education training of migrants and their families on financial knowledge, savings and (joint) financial decision-making within transnational households. See for example Do et al, 2014 among Indonesia female migrants; Seshan and Yang (2014) among Indian male migrants in Qatar; and Gibson et al. (2014) among migrants in Australia and New Zealand.

Improving the access of migrant households to financial services and savings in both origin and destination countries could provide an additional option to allocate remittances not only to consumption but also to investment. Furthermore, at the level of the recipient household, the formal registration of remittances can be used to assess creditworthiness and promote microcredit and microinsurance, with the aim of globally improving the financial inclusion of migrant households. However, as Yand and McKenzie (op. cit.) note, these initiatives should prioritize savings

services that offer migrants the opportunity to monitor or control their savings. They should be complemented by initiatives to reduce the cost of remittances and improve the financial literacy of transnational households so that they can make informed decisions and benefit from climate-resilient investments. Mobile money and payments, with pioneering innovations in mobile-to-mobile or mobile-to-account transfers by operators such as Orange in West Africa or M-Pesa in Kenya in partnership with remittance service providers, could further reduce transaction costs and benefit the unbanked populations that predominate in many remittance-receiving countries.

# From interpersonal remittances to diaspora philanthropy

A wide variety of initiatives tend to go beyond interpersonal transfers to overcome problems of collective action and intrahousehold decision-making by helping migrants to pool their resources and channel pooled remittances towards longer-term household investments, or larger-scale public goods at the community level. This includes projects supported by financial institutions (e.g. formal banks) that offer training to migrants and specific financial products (remittances, credit and savings) to support investment, as well as programmes that focus more on investment promotion by hometown associations.

These pooled remittances take place when diaspora communities agree to send back funds collectively to the country of origin, usually using civil society organizations and/or community associations as intermediaries to fund local development projects. As reported by Gelb et al. (2021), in most cases, diaspora members from the same community in the origin country contribute to a hometown association (HTA) or a similar organization in their country of residence that raises funds for a specific purpose, such as infrastructure projects in various sectors. They can also contribute regularly to a common fund without having decided a priori on a specific project. In some cases, these pooled remittances are complemented by the government or a public sector donor in the country of origin to maximize their impact on local or community investments. Two well-documented examples of these initiatives include the Mexico's tres por uno (3 x 1) national programme that matches each dollar contributed by migrant association with three dollars from the recipient municipalities, local and federal states, and the similar PARE 1+1 programme in Moldova in cooperation with an NGO and the Moldovan government. Finally, members of the diaspora can participate in other forms of philanthropy with different types of intermediaries, such as religious groups, professional networks, diaspora foundations or internet-based philanthropic platforms (see for instance the Linkapil programme for the Filipino diaspora) (Newland et al., 2010).

Although existing evidence on the impact of pooled remittances is limited, indicative results show that those routed through HTAs can positively influence the provision of local infrastructure, particularly in rural areas. Beauchemin & Schoumaker (2009) show that villages in Burkina Faso with a migrant association are more likely to have health facilities, primary schools, water facilities and roads. Similar results are

found by Chauvet et al. (2014) in the case of Mali, suggesting that HTAs help build local infrastructure and invest in projects with a wider impact for the community of origin. The first evaluation of the 3 x 1 programme by Duquette-Rury (2014) also shows that it has significantly improved Mexican households' access to sanitation, water and drainage in the beneficiary rural villages. Therefore, several migrantsending countries are implementing policies to actively encourage HTAs and to get them to send higher amounts of remittances. Nevertheless, Yang & McKenzie (op. cit.) raise the question of whether policies should try to encourage the formation of these associations or prompt such associations to engage in more activities. Some qualitative evidence has indeed questioned the sustainability of these projects and highlighted the lack of funds provided for maintenance. Moreover, it is unclear to what extent these projects are well-targeted to meet the needs of recipient communities and whether they crowd out local and public funding. However, due to limited fundraising among diaspora members, HTAs tend to focus on relatively small-scale projects that are complementing existing ones rather than replacing them.

Other forms of diaspora philanthropy are even less documented in the literature, resulting in their volumes and impacts being largely unknown. A few existing studies focus on the supply side of such transfers, i.e. on the factors affecting diaspora donations and on the policy options that can foster them. As noted by Newland et al. (op. cit.) and Licuanan et al. (2015), such transfers are generally made by a wealthier and more educated segment of the diaspora. Donations tend to be geographically directed towards migrant's provinces of origin, or to causes that are linked to migrants' origin communities (De Souza et al. 2023). Other factors include responses to natural disasters, trust in the non-profit sector, and matching priorities between donors and organizations. Hence, diaspora philanthropy could be promoted through policies that either create tax incentives, provide technical support to diaspora organizations in both the destination and origin countries, or inform and raise awareness among potential donors in the diaspora, notably by providing a forum to high-profile diaspora donors or influencers (Newland et al., op. cit.). Finally, as Licuanan et al. (ibid.) point out, even when migrants do not remit directly to their home communities (or HTAs), they direct their donations to their provinces of origin, which are generally not among the least developed. Hence, the impact of their donations on development may remain limited, or at least unevenly distributed. In the same vein, Espinosa (2015) highlights the difficulties encountered in implementing diaspora philanthropy, due in part to the complex motivations of donors, and even questions whether it should be considered a source of development aid.

In addition to promoting such initiatives, several origin and destination countries are trying to encourage migrants to invest in projects in their home country. As part of their cooperation policies, some destination countries have indeed developed various initiatives to support diasporas and increase their impact on development, through capacity-building, networking and advocacy programmes, or the financing of diaspora projects and entrepreneurship (IFAD, 2023). Examples of such programmes are the Diaspora Emergency Action & Coordination (DEMAC) initiative in Denmark; the Forum of Migrants' International Solidarity Organizations (FORIM)

in France; the European Mobilization for Entrepreneurship in Africa (MEET Africa) supported by the French Development Agency (AFD) and the German Corporation for International Cooperation (GIZ), or the WIDU.africa platform implemented by the GIZ in Germany (see Shayan, 2021 for a more complete review). None of these programs have been evaluated yet, and the extent to which they contribute to fostering sustainable development in their origin is still unknown. Additional impact evaluations are urgently needed to answer these questions about collective remittances and philanthropy.

# Channelling diaspora investment for climate-change resilience

Beyond remittances or philanthropic transfers, migrants may contribute to development through profitable investments or remunerative placements in the public or private sectors. Unlike remittances, there are no credible estimates of the volume of those financial flows, and the impacts have not been evaluated.

Ratha et al. (2015) underline the under-exploited potential of mobilizing diaspora savings as a source of funding for development. They estimate that in 2013, total diaspora savings amounted to US\$497 billion, US\$36 billion of which come from the sub-Saharan diaspora, which could be invested in origin countries.

Based on a review of initiatives aimed at channelling diaspora finance for development, Gelb et al. (op. cit.) break down the forms of diaspora investment into three categories: equity, loans and bonds, which differ in the level of return, in the type of investor and investment, and the degree of tradability of the instrument in financial markets. The first two forms of investment are generally aimed at the private sector. Although they are poorly documented, they represent an underexploited source of development (Asquith & Opoku-Owusu, 2021). To understand diaspora investment potential, in 2018 the Commonwealth Foundation conducted in a qualitative and quantitative survey of 1,000 members of diasporas of six commonwealth countries (Bangladesh, Fiji, Ghana, Jamaica, Kenya and Nigeria). While the majority (90 per cent) were involved in sending money back to their country in the form of remittances to their family or donations to charity groups, a smaller proportion (42 per cent) had some savings in their origin country. An even smaller share had invested in their origin countries (Commonwealth Foundation, 2018) even though most interviewees (80 per cent of those owing a business, 60 per cent of professionals) expressed interest in saving or investing in their origin countries. Governance issues such as corruption, political instability, insecurity, weak legal framework or administrative red tape were the among the most cited constraints, along with a lack of access to information and the lack of trust in investment partners.

The extent to which such investments can contribute to fostering the adaptation of the agricultural sector and food systems to climate change depends on the profitability of innovations in this area, which brings us back to the multiple constraints outlined earlier and to the need to reinforce research for developing profitable and climate-smart investment opportunities.

Diaspora bonds issued by governments of origin countries are seen by some as another promising and untapped opportunity for financing development (Ketkar & Ratha, 2011; Ratha et al. 2015; Rustomjee, 2018). Ketkar & Ratha (ibid.) use the examples of Israel and India to highlight the potential of this financial instrument. Both countries were able to raise nearly US\$44 billion during times of difficulty. This suggests that such instruments could be a significant funding source for countries facing high instability, particularly those with a large share of high-skilled migrants in their diaspora. Since 2000, only five African countries – Ghana, Ethiopia, Kenya, Nigeria, and Rwanda – whose diasporas represent 12 per cent of the total African migrant population, have issued diaspora bonds, with mixed success. Many aimed to finance infrastructure projects but failed to attract sufficient investors.

Akkoyunlu & Stern (2018) analysed the supply and demand-side determinants of diaspora bonds using panel data from eight developing countries (plus Israel) that have issued diaspora bonds in the past decades. On the demand side, the diasporas do not base their decision to invest on pure profit maximization. However, good governance of the issuing country and levels of FDI and ODA are significant determinants of bond purchase, as they are probability interpreted as good signals for the potential success of the bonds. They also find the economic performance of the diaspora's host countries to be a significant determinant. Rustomjee (op. cit.) also notes that bonds that were not only specifically targeted at diasporas were more successful at attracting investors.

Moreover, as Rustomjee notes, the cost of issuing such bonds is high. Detailed information on the size, location, demographic and economic characteristics of the diaspora as well as on their savings and average earnings is needed to anticipate available resources. Such information is often limited. The costs associated with the preparation, marketing and distribution of diaspora bonds can also be substantial, particularly when compliance with regulations is necessary across multiple legal systems. According to the United Nations Development Programme (UNDP), these costs may reach up to four or five per cent of the bond's face value (Rustomjee, op. cit.).

To assess the potential of diaspora bonds to finance climate change mitigation in Africa, Salia & Nyantakyi (op. cit.) surveyed 927 African migrants living in Europe on their motivation to purchase such bonds. Their analyses reveal that important factors are related to migrants' economic status, their ties with their home country and their willingness to provide support in the event of a crisis, including climate-driven crises such as floods, water shortages, natural disasters and pandemics. Diasporas are thus found to be sensitive to the purpose for which the bond is issued. With global warming considered a major crisis worldwide, a bond issued to support improvement projects could be attractive to the diaspora.

Presented as a promising way to finance the private and public investments needed to adapt to climate change, the issuance of green bonds is limited by several obstacles in developing countries. As summarized by Banga (2019) and Qadir & Pillay (2021), several key barriers prevent the development of green bonds in developing countries. These barriers include the lack of knowledge and capacity to assess climate risk and identify eligible projects, the minimum size requirements for bond projects, the relatively small scale of resilience projects, inappropriate institutional arrangements for green bond management, and the high transaction costs associated with issuance.

# Conclusion and recommendations

This literature review demonstrates the complex, multi-faceted and context-specific relationship between remittances-cum-migration and climate adaptation. It explores the role that remittances can play as an insurance function to climate risks – both ex ante and ex post. It also provides some evidence of remittances being used to invest in climate-resilient agriculture both financially and through transfer of knowledge.

The review draws out how different mechanisms and initiatives have been, or could be used to support diaspora finance towards climate adaptation. These include strengthening financial inclusion, mobilizing diaspora philanthropy and encouraging diaspora investment. While there is an undeniable link between migration, remittances and climate change, the evidence for how diaspora finance can be effectively channelled into climate adaptation is still emerging. Based on the findings from the literature review, the following recommendations aim to enhance and expand opportunities for the diaspora to contribute to financing climate adaptation, both in terms of preparedness and in crisis response.

# 1. Awareness and capacity-building with diaspora

- The international donor community should collaborate with diaspora organizations and communities to provide clear and fact-based information on predicted climate scenarios in their country of origin, as well as potential solutions for adapting and mitigating against the impacts of climate change. Where appropriate, this collaboration should also extend to partnership with the international humanitarian response community.
- The international donor community should work alongside diaspora organizations and communities to reinforce their understanding of potential technological and innovative solutions that can enhance climate resilience in their regions of origin, and raise awareness on the role the diaspora can play in supporting this (knowledge transfer and investments). These partnership should also extend to stakeholders in diaspora's host countries that are sensitive to ecological issues as a way to promote climate-smart solutions.

- Governments and international donor organizations should foster partnerships between diaspora organizations and organizations in origin countries that are committed to promoting sustainable development and green practices.
- Governments and the international donor community should actively engage diaspora organizations and communities in steering committees or advisory groups related to national climate agendas, plans, and climateoriented projects. This will facilitate the sharing of relevant information and collaboration opportunities.
- The international donor community should support diaspora efforts to raise awareness around green impact investment opportunities in their country of origin.

# 2. Awareness and capacity-building within migrant households and remittance receivers

 Government and international donors should support financial and climate adaptation education for remittance-receiving and migrant households. This initiative should focus on improving financial management skills, promoting savings for economic resilience, and encouraging the productive use of remittances. Additionally, it should provide tailored information on climate change adaptation solutions, especially in rural areas.

# 3. Financial inclusion, digitalization and development of green financial products

- The international donor community and governments should strengthen financial inclusion, expand digital payment systems and digitalization, especially in rural areas. This will help reduce the cost of remittances, improve financial management of remittances, and promote savings and climateresilient investments.
- To support sustainable development, international donors and governments should support financial service providers in developing green financial products, including credit and insurance., and ensure that these products are integrated with remittance services and diaspora-focused financial services.
- The international donor community should collaborate with governments, the private sector and financial service providers in countries of origin to develop and promote green investment opportunities (especially in green and carbon-reducing or offsetting initiatives and solutions) and to remove barriers to the diaspora investments in origin countries.

### 4. Impact evaluation and data collection

 There is a need for research and evaluation efforts to assess the impact of past and current diaspora green investments and use findings to facilitate a thoughtful scaling up of successful approaches and thereby promote diaspora green and climate-resilient investments.

Migrants' remittances and diaspora investments hold significant potential to support households, communities and countries of origin with their climate adaptation needs. Beyond financial contributions, raising awareness, building capacities, and forming strategic partnerships are essential. By implementing these recommendations, we can better harness the power of diaspora resources to support sustainable development and climate adaptation efforts.

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The International Fund for Agricultural Development (IFAD) is a specialized agency of the United Nations and an international financial institution, with the mandate to invest in rural people to eradicate poverty in low- and middle-income countries. IFAD has extensive experience in promoting climate adaptation and resilience for smallholders, green financing in agriculture and rural youth employment. In addition, IFAD's US\$70 million multi-donor Financing Facility for Remittances (FFR) aims to maximize the impact of remittances on development and promote diaspora engagement in migrants' countries of origin. Environment, Climate, Gender and Social Inclusion Division (ECG) ensures that IFAD's operations are environmentally sustainable, climate change resilient, nutrition sensitive and inclusiveness. It also contributes to resource mobilization of supplementary funds (GCF, GEF, AF...) and the generation of evidence-based knowledge and its dissemination.



The <u>United Nations Conventions to Combat Desertification (UNCCD)</u> promotes the avoidance, reduction and reversal of desertification and land degradation and is a driving force behind SDG 15. Its objective is to support countries and communities with the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions. With 197 Parties, the UNCCD unites decision makers, scientists, civil society and the private sector around a shared vision and framework for action to transform how land resources are used and managed to ensure healthy lives and sustainable livelihoods.





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