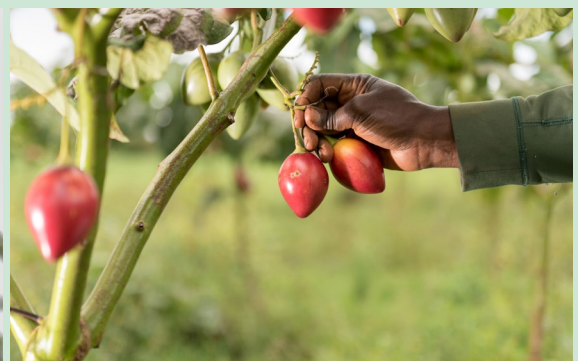


# PRIVATE INVESTMENTS IN ADAPTATION

Increasing private investments for  
climate resilient smallholder farmer-  
based agriculture and communities in  
developing countries

November 2022



## List of abbreviations

<b>DAC</b>	Development Assistance Committee
<b>DCA</b>	Dan Church Aid
<b>DFI</b>	Development Finance Institution
<b>ESG</b>	Environmental and Social Corporate Governance
<b>FAO</b>	Food and Agriculture Organisation
<b>FPIC</b>	Free, Prior, and Informed Consent
<b>GAP</b>	Good Agricultural Practices
<b>HREDD</b>	Human Rights Environmental Due Diligence
<b>ICT</b>	Information and Communications Technology
<b>IFAD</b>	International Fund for Agricultural Development
<b>IFU</b>	Investment Fund for Developing Countries
<b>NAP</b>	National Adaption Plans
<b>NBS</b>	Nature-based Solutions
<b>NDC</b>	National Determined Contribution
<b>NGO</b>	Non-Governmental Organisation
<b>ODA</b>	Official Development Assistance
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>RBC</b>	Responsible Business Conduct
<b>SAFIN</b>	Agri-SME Finance and Investment Network
<b>SSA</b>	Sub-Saharan Africa
<b>UNDRIP</b>	United Nations Declaration on the Rights of Indigenous Peoples
<b>UNEP</b>	United Nations Environment Programme
<b>UNGPs</b>	United Nations Guiding Principles on Business and Human Rights
<b>UNSDG</b>	United Nations Sustainable Development Group
<b>USD</b>	United States Dollar
<b>WBCSD</b>	World Business Council for Sustainable Development
<b>WRI</b>	World Resources Institute

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**Cover Photos:** Davasha Photography & Jjumba Martin

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Photo: Davasha photography



# 1: Foreword

We are in the midst of a climate crisis. Despite growing efforts to reduce emissions, we must adapt to the effects of global warming and acknowledge the need for support to vulnerable countries. Developed countries have promised to scale up their adaptation support to these countries, but even if they deliver on their promises, it won't be enough. Additional actors are greatly needed, both civil society and the private sector must engage. However, experience shows us that little private investment goes to adaptation, especially in the poorest countries.

DanChurchAid commissioned this report to learn more about challenges and opportunities for the private sector to invest in adaptation, to benefit the poorest and most vulnerable countries.

The conclusions are clear. There are opportunities where companies and investors have a good business case, and where local communities benefit from adaptation initiatives. However, we must acknowledge challenges, and consider initiatives to reduce risks and promote successful investments. At the same time, we must also ensure that investments are done in a responsible manner, ensuring that the rights of workers and their families, and their local communities, are not violated.

With this report we want to encourage the private sector – as well as civil society – to seize the opportunity, to work together, and to increase investments in adaptation.

**Birgitte Qvist-Sørensen**  
General Secretary, DanChurchAid

## 2: Executive Summary

Climate change is already a real and serious risk to food production. The hardest affected are the 500 million smallholder farmers and their families and communities, who are an essential part of the global food chain and who contribute more than 30 % of the global food production. They already experience diminishing crop yields due to climate change and need solutions that can help them adapt.

This study argues that there is a very clear need for increased investments into climate adaptation for smallholder farmers. Despite the large contribution to global food security, limited adaptation finance is today directed towards this group and their communities.

Increased investments in climate adaptation can serve as a catalyst for a sustainable transformation of food production to benefit biodiversity, livelihoods and climate mitigation. These multiple co-benefits can be amplified by integrated approaches and multistakeholder partnership initiatives to development.

Private investments should be accompanied by an increased focus on social and environmental risks and adhere to the UN guiding principles for business and human rights.

**Four main barriers to increased private investments** in climate adaptation have been identified:

### a) Climate adaption is conceptually underdeveloped

The broader realization of the impact of climate change on livelihoods and nature is relatively new and rudimentary. There is a lack of knowledge on the investment potential in climate adaptation and on how the financial, environmental, and social aspects can be targeted.

#### **b) Inadequate and/or incoherent national policy frameworks**

National policy frameworks are often inadequate and fail to address climate adaptation specifically. Only six African countries have submitted National Adaptation Plans, and many policy frameworks currently in place disincentivize developments and investments in climate adaptation.

#### **c) A complex business case**

The business case for investments in climate adaptation is complex and has a high-risk profile. Investments in climate adaptation have a long investment horizon which contrasts with the focus on short term returns in conventional financial markets.

#### **d) Limited access to finance for small holder farmers**

Smallholder farmers are considered a high-risk group that does not align with current financial instruments such as loans and insurance provided by financial institutions. Among other issues, these farmers are associated with high transaction costs due to small-scale production, dispersion of customers over large areas, and lack of collateral.

The study points to and exemplifies **three distinct private investment avenues** in climate adaptation through multi-stakeholder and value chain approaches:

#### **a) Investments in blended finance development programmes with a focus on nature-based solutions (NBS)**

Blended finance is an effective option for catalysing investments in sustainable development in developing countries. Catalytic development finance from public institutions or philanthropic donors is used to reduce the investment barriers for private investors, and thus create investable opportunities. NBS offer commercial investment opportunities and enables them to directly and positively impact nature and society while targeting climate mitigation and adaptation strategies.

#### **b) Collaboration and financing by companies to de-risk their sector, supply chain and assets**

Supply chain companies such as traders and retailers have strong incentives and potential to directly contribute to “de-risk” the supply chains of food products. Companies can invest both directly in producers and/or cooperatives, or indirectly through NGOs.

#### **c) Private investments, new technological solutions and showcasing climate services to serve the last mile**

A multitude of technologies and business models can support climate resilience in agriculture. Digital climate services hold great potential for smallholder farmers to increase productivity and generate resources efficiency, climate mitigation and empowerment of farmers and rural communities, in addition to other socio-economic livelihood improvements. ■



## 3: Introduction

### 3.1: Purpose and objective

This study seeks to investigate how companies and investors can contribute to climate adaptation in developing countries, with a focus on food systems and small-scale agriculture. Attention will be given to what makes investments successful, and which roles DCA and other actors can play in accelerating private investments in climate adaptation. The aim is to inspire and increase interest in and understanding of the potential, challenges, and risks associated with investments in climate adaptation in developing countries.

### 3.2: Setting the scene

Agriculture and food systems are at the front line of biodiversity and climate change. Agriculture, forestry and land use as a whole are responsible for 22 % of all greenhouse gas emissions<sup>1</sup>. The negative impacts on natural ecosystems and biodiversity are larger than any other sector. This report is a call to action for the private and public sectors globally to substantially increase attention to and investments in climate adaptation measures targeted towards agriculture in developing countries.

#### Smallholder farmers

Smallholder farmers or smallholders are defined as farmers cultivating agricultural land in farms less than 2 hectares or 5 acres.

Smallholder farmers account for 24% of all agricultural land, produce 29% (in energy measures) of all human food, animal feed and fuel, and 32% for human food only.

It is estimated that there are about 500 million smallholders globally.

1. IPCC, 2022b: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

Climate change is already a real and serious risk to food production, and there is both a need and business opportunities for private funding and investments into the sector to strengthen the sector and its ecosystem as a whole. The hardest affected are the 500 million smallholder farmers and their families and communities, subsistence farmers



and other farmers, who are an essential part of the global food chain and contribute more than 30% to global food production. These smallholders lack financial capacity and knowledge to adapt to changing circumstances.

The study shows that although there is an urgent need to increase attention to and investment in climate adaptation and resilience, it would be a mistake to separate this from the general need to transform food production towards economic, ecological and social sustainability, and to harvest the multiple co-benefits from integrated approaches and multistakeholder partnership initiatives to development. For example, to also increase biodiversity and climate mitigation through nature-based solutions.

While private investment in adaptation is urgently needed, the study also highlights the environmental and social risks related to investments in local communities. There is a need for scaled up investments, and they must, as all private investments, be done in a socially responsible manner, adhering to the United Nations Guiding Principles on Business and Human Rights. The study includes potential mitigating actions to social and environmental risks.

### 3.3: Research design

The research will contribute to a developing body of literature exploring how private investments in climate adaptation in developing countries can be enhanced. The type of investments in focus in this study include:

- Investments that are based on multistakeholder partnerships, including for example international/national private companies, civil society organisations, research institutions, investors, or public authorities.
- Investments where international companies or investors have an “active ownership” in cooperation with local/national/international actors.

Climate adaptation measures represent a wide range of target areas and beneficiaries, with different features and possibly with different factors limiting or increasing private investments.

The research will focus on private investments that have an inclusive approach. This implies that the business cases should have a clear focus on inclusion of vulnerable groups, through e.g., job and income generation in the value chains of the private investments. As such, focus will be on investments that have a clear commercial purpose in combination with a clearly defined development orientated goal/approach in the countries of implementation.

It follows from the logic of the proposed scope of investments that the focus should be on investment made through blended finance. Blended finance is defined as “the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries”<sup>2</sup>. Blended finance is a combination of concessional finance and commercial finance designed to finance climate, green, and sustainable projects. Concessional finance is typically provided by development agencies and by multilateral banks and climate funds. Blended finance is seen as an effective option to break down some of the barriers to private investments in adaptation and provide a natural entry point to the multistakeholder focus. As of 2021 it is estimated that total blended finance activities targeting climate adaptation amounts to USD 11 billion, with most of this financing going to Sub Saharan Africa<sup>3</sup>. ■

2. <https://www.oecd-ilibrary.org/docserver/ded656b4-en.pdf?expires=1654156126&id=id&ac-cname=guest&checksum=2F-B054C78B7A4C3D891E18C-AD252513D>

3. The State of Blended Finance, Coverage 2021.





## 4: Climate Adaptation - The Imperative

### 4.1: Defining adaptation

The effects of climate change can already be felt across the world with changes in average temperatures, shifts in seasons, unpredictable weather patterns and more frequent extreme weather events. Countries and communities have become increasingly aware that a reduction in carbon emissions is no longer enough to halt the impact of climate change. There is a need to develop solutions that can respond to current and future effects of climate change. These realizations have led to an increased focus on climate adaptation which, according to the **OECD DAC Rio Marker for Climate**, include actions that:

>> *Intend to reduce the vulnerability of human or natural systems to the current and expected impacts of climate change, including climate variability, by maintaining or increasing resilience, through increased ability to adapt to, or absorb, climate change stresses, shocks, and variability and/or by helping reduce exposure to them. This encompasses a range of activities from information and knowledge generation to capacity development, planning and the implementation of climate change adaptation actions<sup>4</sup>.*

### 4.2: Agriculture in developing countries

The effects of climate change will have a disproportionate impact on the developing world<sup>5</sup>. Some 500 million smallholders in the world's poorest countries, who in most cases inhabit the most vulnerable landscapes on hillsides, in deserts, and on floodplains, already suffer from the effects of climate change<sup>6</sup>. In Asia and Africa smallholder farmers with 2 ha of land or less account for an estimated 32% of the world's food production<sup>7</sup> and 40 % of all jobs across the 2 continents. In Sub-Saharan Africa the number is even higher with more than 60% of the work force deriving their livelihood from agricultural production. Despite the large contribution smallholders make towards global food security, very little adaptation finance is being directed towards smallholders, whom are one of the groups hit the hardest by climate change<sup>8</sup>. At the same time it should be mentioned that studies indicate that smallholder farming is more sustainable when compared to large-scale farming due to more ecological management practices (lower pesticide use, organic management etc.)<sup>9</sup>.

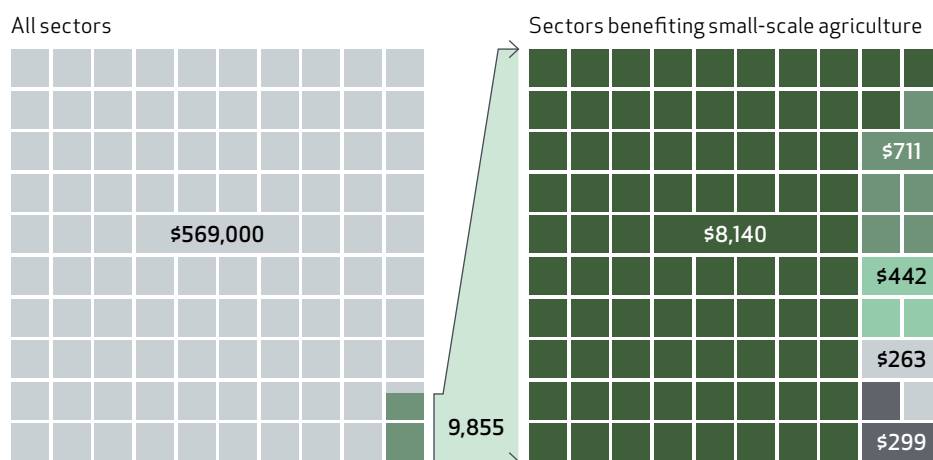
The required investments in climate adaptation are massive. It is estimated that the total annual funds needed for adaptation in developing countries lies between USD 140- 300 billion until 2030, and could increase to 500 billion by 2050<sup>10</sup>. In sub-Saharan Africa alone, the need is estimated at USD 132 billion annually. As can be seen in Figure 1 below, in 2017 the total climate financing for smallholder agriculture in developing countries amounted to 10 billion USD<sup>11</sup> which represents only a fraction of the total needs.

4. [https://www.oecd.org/dac/environment-development/Revised%20climate%20marker%20handbook\\_FINAL.pdf](https://www.oecd.org/dac/environment-development/Revised%20climate%20marker%20handbook_FINAL.pdf)
5. <https://www.usglc.org/media/2021/03/USGLC-Fact-Sheet-Climate-Change.pdf>
6. <https://www.ifad.org/documents/38714170/40213192/asap.pdf/b5a8c1f9-f908-4a68-ad30-e3d5eeb17c31?t=1521454445000>
7. <https://ourworldindata.org/smallholder-food-production>
8. <https://agricultureandfoodsecurity.biomedcentral.com/track/pdf/10.1186/s40066-018-0209-x.pdf>
9. <https://sustainabilitycommunity.springernature.com/posts/are-small-farms-better>
10. <https://www.unep.org/resources/adaptation-gap-report-2021>
11. <https://www.climatepolicyinitiative.org/wp-content/uploads/2020/11/Examining-the-Climate-Finance-Gap-in-Small-Scale-Agriculture.pdf>

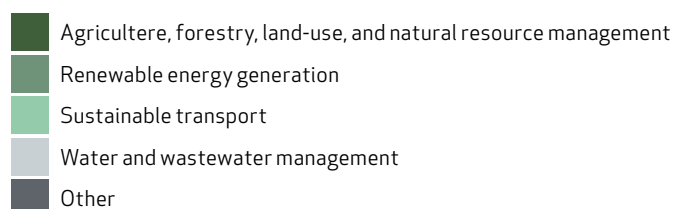


**FIGURE 1: Share of annual climate finance in small-scale agriculture relative to other climate finance.**

SOURCE: Chiriac et al, 2020. Examining the Climate Finance Gap for Small-Scale Agriculture



All numbers in USD millions. Each square = 1% of total



The current commitments from governments are insufficient to meet the increasing need for climate adaptation funding. This gap is experienced particularly severely by smallholder farmers across the developing world. Climate finance targeting smallholder agriculture represents only 1.7 % of total climate finance, with an estimated 49 % of this finance being targeted at adaptation (ibid). There is a growing consensus that the total need for financing cannot be filled by public funding alone and that the private sector must play a larger role. However, recent studies estimate that the private sector accounts for just 1.6% of total adaptation finance. This contrasts with a recent report from the Global Commission on Adaptation, which estimates that every dollar invested in adaptation could yield a tenfold economic benefit<sup>12</sup>.

Smallholder farmers will feel the brunt of inconsistent rainfall, extreme weather and rising temperatures, and it is estimated that productivity will drop by 30% by 2050 unless serious action is taken for smallholders to be able to adapt to changing circumstances<sup>13</sup>. Recent studies<sup>14</sup> indicate that since the 1960's climate change has led to a decrease in productivity of 21% and that productivity in parts of Africa most affected by climate change has fallen by 40%. These changes coupled with an estimated 50% increase in food demand by 2050<sup>15</sup> underlines the need for action.

Climate change will have a disproportionate impact on communities and groups around the world who have limited decision making power and opportunity to change behavior and adapt to changing circumstances. In addition, it is important to mention that women and girls in many cases experience the biggest impact of climate change, leading to amplification of existing gender inequalities. In many areas women bear disproportionate responsibility for ensuring provision of food and water, which makes them more vulnerable to climate change<sup>16</sup>.

12. [https://files.wri.org/s3fs-public/uploads/GlobalCommission\\_Report\\_FINAL.pdf](https://files.wri.org/s3fs-public/uploads/GlobalCommission_Report_FINAL.pdf)

13. [https://files.wri.org/s3fs-public/uploads/GlobalCommission\\_Report\\_FINAL.pdf](https://files.wri.org/s3fs-public/uploads/GlobalCommission_Report_FINAL.pdf)

14. <https://openknowledge.worldbank.org/bitstream/handle/10986/36875/P17064300a6dea0db09c8b0cf6a1dfe8b8a.pdf?sequence=1&isAllowed=y>

15. [https://www.fao.org/fileadmin/templates/wsfs/docs/Issues\\_papers/HLEF2050\\_Global\\_Agriculture.pdf](https://www.fao.org/fileadmin/templates/wsfs/docs/Issues_papers/HLEF2050_Global_Agriculture.pdf)

16. <https://www.unwomen.org/en>

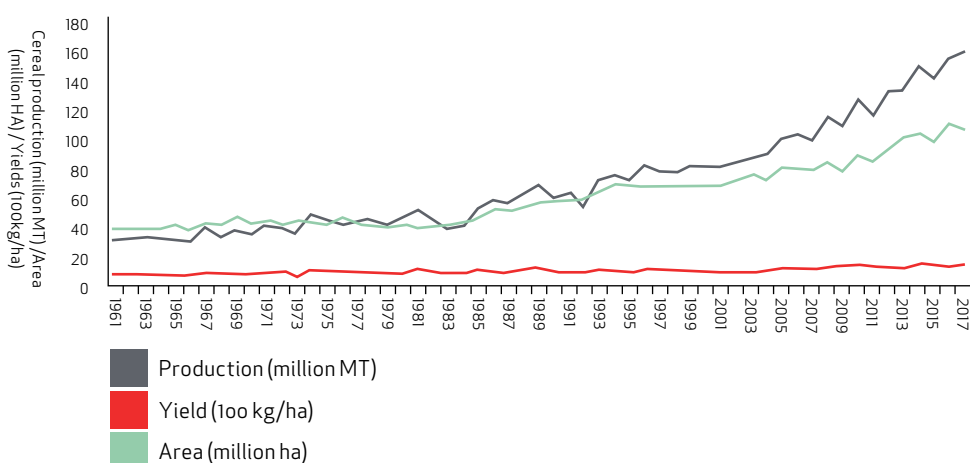
### 4.3: An unsustainable path

Smallholders already experience diminishing crop yields due to climate change. They desperately need solutions and technologies that can help them adapt through climate smart agriculture solutions, such as drought resistant crop varieties and ICT solutions providing GAP and weather information. Smallholder farmers, if nothing is done to adapt to climate change, will have a progressively harder time sustaining the same level of productivity.

Companies and investors across the globe are increasingly incorporating environmental and social risks into their investments through a realization of the social and environmental importance of these risks, as well as the economic potential therein. Sustainable investments that incorporate ESG factors rose from USD 30.7 trillion in 2018 to USD 35.3 trillion in 2020<sup>17</sup>. Despite these encouraging developments, there is still a persistent belief that sustainable investments are less profitable, and many companies still lobby against environmental regulations that have the potential to impact financial profits. This leads to many investments still being carried out with limited attention to environmental and social risks<sup>18</sup>.

From an environmental standpoint, many smallholder farmers find themselves in an unsustainable situation. Climate change is affecting the productivity of farmland negatively, which may lead farmers who do not take adaptive action to convert natural ecosystems into farmland. However, this action easily becomes a negative cycle that quickly exhausts the options for increased production for smallholders and leaves them with degraded lands that are vulnerable to climate change impacts, such as droughts or excessive rainfall. Figure 2 below shows how the increase in cereal production in Sub Saharan Africa has been driven by an increase in cultivated land.

**FIGURE 2: Trends in cereal production, area planted and productivity in sub-Saharan Africa (SSA)**  
SOURCE: FAOSTAT 2018



In summary, the challenges are diverse and complex and cannot be solved either by the public sector or the private sector alone. As will be argued, multistakeholder approaches that combine agendas, expertise, and finance from both the private and public sector provide a path to solving these issues in a more sustainable manner. ■

17. <http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf>

18. <https://www.iisd.org/system/files/2021-02/still-one-earth-private-sector.pdf>







## 5: Barriers to private investments in adaption and smallholder agriculture

This chapter outlines the identified main barriers to private investments in climate adaptation. A discussion of some of the key factors deterring the supply of private investment to small-scale farming more broadly is included.

### 5.1: A new specific focus for most stakeholders

A key point that is important to keep in mind and which cuts across most barriers to increased investments in climate adaptation is that it is a relatively new area of focus for most stakeholders involved. So much so that many development agencies, investment funds and not least private sector companies more broadly have not included climate adaptation as a strategic area of focus with specific targets, or have only done so very recently. While the concept of climate adaptation is not new, the current focus on adaptation and the broader realization of its importance is relatively new. Understanding climate adaptation and its solutions are not fully developed or proven. There is still a quite undeveloped understanding of how the choices we make are affected by climate change, be it in large-scale infrastructure projects or in choices small-scale farmers make about crop selection, seed varieties and irrigation. We have a poor understanding of how investments in adaptation can help solve the problems in ways that target the financial, environmental, and social aspects<sup>19</sup>.

The limited knowledge of the impacts of climate change and the potential solutions do not create a favorable environment for private investments. The financial argument for investments in adaptation, seen broadly, is well articulated in recent publications, yet the potential remains relatively untapped.

It is noted that more attention is being paid to climate risks by investors<sup>20</sup> through frameworks such as the Environmental, Social and Corporate governmental framework. This framework is used by investors to identify environmental, social and governance risks of a given investment. The use of the ESG criteria is a voluntary tool

19. [https://files.wri.org/s3fs-public/uploads/GlobalCommission\\_Report\\_FINAL.pdf](https://files.wri.org/s3fs-public/uploads/GlobalCommission_Report_FINAL.pdf)

20. Engaging the private sector in financing adaptation to climate change: Learning from practice. Fayolle et al. Action on Climate Today, 2019.

21. <https://openknowledge.worldbank.org/bitstream/handle/10986/35203/Enabling-Private-Investment-in-Climate-Adaptation-and-Resilience-Current-Status-Barriers-to-Investment-and-Blueprint-for-Action.pdf?sequence=5&isAllowed=y>
22. Engaging the private sector in financing adaptation to climate change: Learning from practice. Fayolle et al. Action on Climate Today, 2019.
23. <https://openknowledge.worldbank.org/bitstream/handle/10986/35203/Enabling-Private-Investment-in-Climate-Adaptation-and-Resilience-Current-Status-Barriers-to-Investment-and-Blueprint-for-Action.pdf?sequence=5&isAllowed=y>
24. <https://climateinstitute.ca/wp-content/uploads/2022/07/A-whole-of-government-approach-to-climate-adaptation.pdf>
25. <https://www.globalsupportprogramme.org/nap-gsp>
26. <https://openknowledge.worldbank.org/bitstream/handle/10986/35203/Enabling-Private-Investment-in-Climate-Adaptation-and-Resilience-Current-Status-Barriers-to-Investment-and-Blueprint-for-Action.pdf?sequence=5&isAllowed=y>
27. <https://openknowledge.worldbank.org/bitstream/handle/10986/36875/P17064300a6dea0db09c8b0cf6a1dfe8b8a.pdf?sequence=7>

that can be used to embed climate, social and governance risk in a given investment - an important factor in climate adaptation. However, while the private sector has begun to work more systematically with the internal embedding of climate risks in their investments<sup>21/22</sup>, there is limited traction in private investments that target climate adaption more broadly through solutions that can help others adapt.

Clearly connected to the above, and to lack of knowledge about the effects of climate change and solutions through climate adaptation, is a lack of reliable data to help local governments develop evidence-based policy frameworks targeting climate adaptation that create a more solid foundation for the private sector to engage in climate adaptation and incentivize investment. Localized climate risk data is not readily available in most low-income countries despite its accessibility being a quite clear need in the context of climate adaptation, where localized geographical data is required, not least in the case of agricultural production.

## 5.2: A lack of strong framework conditions in support of climate adaptation

In addition to the climate adaptation challenges introduced above, relevant national policy frameworks are often incoherent or inadequate, and fail to address a specific approach to climate adaptation<sup>23/24</sup>. Since 2010 UNEP has assisted the least developed countries in the world in developing National Adaptation Plans (NAP) through “The National Adaptation Plan Global Support Programme”<sup>25</sup> and the One-on-one country support programmes. However, as of 03/2021, only six countries in Africa have NAPs. This number could, however, increase significantly because 34 countries have applied for support to develop NAPs<sup>26</sup>. The lack of coherent policies targeting adaptation are serious inhibitors for private investment. A clear political framework creates the necessary confidence, long term outlook and transparency for private investors.

Policy frameworks should be created with attention to the incentives and instruments needed to drive investments in adaptation, such as guarantees, tax benefits and access to financial instruments that can provide risk sharing, for example blended finance. The current agricultural support structures embedded in government policies targeting agriculture are generally seen as unsustainable. A recent study<sup>27</sup> from 79 countries with available data indicates that USD 374 billion in agricultural support goes towards subsidies that distort the market. With the current support structures in place, the World Bank estimates that some additional 56 million hectares of land will be converted to farmland by 2040. In the short run the support is beneficial for farmers, but in the long run the support will end up contributing to a regressive development, with agricultural production becoming increasingly resource intensive and a diminishing ability to attract private research and innovation (ibid).

Climate adaptation is a complex undertaking, not least for smallholder farming, which requires clear policy frameworks that are repurposed to incentivize private sector investment in what may be complicated or risk prone investments. Repurposing these frameworks is a massive undertaking that cuts across a multitude of vested interest from governments to producers.

The body of literature concerning framework conditions for adaptation points to a large and diverse number of policy initiatives that could help create more enabling environments for private investments. A few specific, relevant policy areas merit highlighting:

- Providing incentives for solution providers to climate adaptation needs more attention from policy makers. There are many private companies in all parts of the world that have developed solutions that can help smallholder farmers adapt based on viable business cases. Many of these solutions are centered around data-driven agriculture that provides weather information and good agricultural practices (GAP) at scale. Other solutions come within new crop varieties and agroecological practices such as agroforestry. The proper incentives for these companies to invest in a given context need to be present, and essentially boil down to access to risk sharing finance and/or guarantees.
- The low number of NAPs and incoherent approaches to climate adaptation at the central level means that policy incentives currently in place are not in line with the real needs and developments brought on by climate change<sup>28</sup>. Many policy frameworks have a very narrow focus on agricultural support mainly on yields<sup>29</sup>, as opposed to a more holistic approach to agricultural production (more nature-based solutions).

### 5.3: A more complex business case beyond business-as-usual

The currently available climate finance targeting climate adaptation is at a very low level. A recent study<sup>30</sup> shows that climate finance through blended finance approaches is heavily skewed towards climate mitigation, with 63% of total finance going towards renewable energy and energy efficiency, while only 8% targets climate resilient/sustainable agriculture. This is due to more coherent knowledge on climate mitigation along with comprehensive policy frameworks; investments in climate mitigation also simply present a more compelling investment case for most private sector investors. In general, mitigation projects have a far more clear-cut business case with a clear time span, thus incurring less risk and shorter investment periods. While there are also quite clear bankable investment projects within adaptation, not least in climate-smart agriculture, many climate adaption projects are seen as having a less clear business case that to a larger degree provides public and social value.

28. <https://openknowledge.worldbank.org/bitstream/handle/10986/36875/P17064300a6dea0db09c8b0cf6a1dfe8b8a.pdf?sequence=1&isAllowed=y>

29. [https://files.wri.org/s3fs-public/uploads/GlobalCommission\\_Report\\_FINAL.pdf](https://files.wri.org/s3fs-public/uploads/GlobalCommission_Report_FINAL.pdf)

30. Blended Finance for Climate Report: How to increase Private Investments for Climate Finance in Developing Countries. Convergence, 2021



One such example is coastal protection or early warning systems that might be of some importance to certain private companies, but the investment case seen purely as the potential financial return is seldom there. In many cases these projects will have clearer social and public benefits. Additionally, a core issue with private investments in adaptation is the need for short term returns and quick turn around on investments, which does not harmonize well with investments in adaptation that often require a longer investment horizon that takes climate change into account<sup>31</sup>. Given the current metrics with which private investors operate – short term investments with a clear business case – blended finance structures are important to attract private investments because the business will be more complex with less return, and in many cases involve a higher degree of risk.

#### 5.4: The issues with smallholder farming

The barriers preventing private investments in smallholder farming are numerous. These revolve around high real and perceived risk of investing in smallholder farmers in developing countries, small ticket size and issues with scale that do not align with current financial instruments such as loans and insurance provided by financial institutions. In addition, many smallholder farmers will have quite weak links to the commercial and formal economy, making them difficult investment cases for private investors. Climate adaptation does provide an entry point to solve some of these issues through technologies that increase productivity and create more stable production, with the potential for greater scale to ultimately make smallholder farmers a more viable business case for financial institutions providing loans and insurance. Blended finance provides an option to reduce investment risks in climate adaptation for smallholders through different instruments, such as guarantees, first loss, concessional finance and technical assistance, which can help investors assess the potential while mitigating some of the risks. Blended finance opportunities are presented in more detail in section 6.

#### 5.5: Limited access to finance

Smallholder farmers play a vital role in the economies of developing countries through job and income generation along with food production. Despite this contribution, it is notoriously hard for smallholder farmers to access formal financial services that could otherwise help them adapt to climate change. As demonstrated, financial institutions are reluctant to invest in smallholders. Smallholder farmers are associated with high transaction costs due to the small scale of production, dispersion of customers over large areas and lack of collateral that make it a risky investment with limited potential for return<sup>32</sup>. Smallholder farmers have weak connection to markets both in terms of actual physical access but also in terms of

31. Engaging the private sector in financing adaptation to climate change: Learning from practice. Fayolle et al. Action on Climate Today, 2019.

32. <https://www.climatepolicyinitiative.org/wp-content/uploads/2020/11/Examining-the-Climate-Finance-Gap-in-Small-Scale-Agriculture.pdf>

assurance of ability to sell their production in the market<sup>33</sup>. In addition, smallholders will often have a limited understanding of market dynamics, and their access to financial services will need to be accompanied by technical assistance to mitigate risk and make the investment bankable. Furthermore, traditional financial services need collateral, to which smallholder farmers very rarely have access<sup>34</sup>. There are some steps being taken by financial institutions to adapt their financial services to fit the needs of smallholder farmers better and micro credit also provides an option for smallholders to access finance, often through farmer cooperatives.

The finance gap in smallholder farming remains large and there seems to be no easy solution to increased investments in smallholder farming. An estimated 10 % of smallholder farmers access formal financial services, with a majority of these being well established farmers producing high value cash crops (ibid). The lack of access to finance for smallholder farmers leaves them with very few options to adapt to climate change.

In summary, blended finance mechanisms that contribute to risk reduction emerge as a clear option to help smallholders adapt to climate change and increase production and stability while making them a more bankable investment opportunity for financial institutions. ■

33. <https://openknowledge.worldbank.org/bitstream/handle/10986/21679/949050WPOBox3800English0Publication.pdf?sequence=1&isAllowed=y>

34. Collateral also raises ethical questions with regard to the financial risk smallholders are placed in.







## 6: Private sector opportunities for engaging and investing in climate change adaptation in agriculture

This chapter showcases opportunities within three distinct avenues of private sector engagement and investment in climate adaptation. It suggests business cases for how private investments can co-drive climate adaptation in global food production through a) investments in blended financed development programmes with a focus on nature-based solutions, b) collaboration and financing by companies to de-risk their sector, supply-chain and assets, and c) private investments climate services to serve the last mile.

### 6.1: Introduction

Good evidence exists for promising opportunities for market-based private investments in climate resilience in agriculture. These opportunities are to some degree available today and with good evidence and indications of bankable projects. However, in order to unleash the potential and especially scaling up of solutions, huge efforts from all involved system actors will be necessary. This relates in particular to developments in the environmental and socio-economic impacts, financing, and multi-stakeholder collaborative structures.

The private sector can benefit to a high degree from more than a decade of “investments” in climate adaptation, fuelled by public and philanthropic funding. Many institutional initiatives have been established and development projects have been implemented around the world. In many cases supported or enabled by Government policies, National Determined Contributions (NDCs) action plans, or through community-based and public land management initiatives.

Second, the private sector can benefit from strong local development capacity with local knowledge and change agents for environmental sustainability and livelihood improvements.

The current landscape of how the agricultural sector is being financed suggests that public finance will continue to play important roles in supporting the transformation of agriculture and food systems, and in particular to catalyse a green transition of the sector. It also suggests that there is scope to increase the contributions of the private sector, including investors, value chain finance and non-financial actors. The non-financial actors are digital service providers, agritech and agri-business companies, cooperatives and agro-service providers.

Private actors are at the forefront of climate change and have many opportunities to contribute to climate resilience and sustainability of food systems. Three distinct avenues for investments have been selected as the most suitable and effective in relation to the purpose of this study report. They are showcased in sections 6.3-6.5.

Figure 3 provides an overview of how each avenue relates to the food ecosystem (entry point) and which private investor group(s) are considered as being principal to each investment type.

While there are overlaps and synergies between development, business opportunities and investor groups below, they target and exemplify the need for action towards specific segments of the development framework and financial ecosystem. Furthermore, they emphasize how multi-stakeholder and cross-sector collaboration is both a necessary and effective means to achieve development impacts and investment targets.

**FIGURE 3:** Overview of the three avenues of business opportunities presented in this report, their food system entry points and principal investor target groups.

Development and business opportunity	Food ecosystem level	Principal private investor groups
Blended financed development programmes with a focus on nature-based solutions (section 6.3)	Systemic	Development Financial Institutions Impact Investors Commercial Investors
Sector, supply chain and assets derisking (section 6.4)	Sector/supply-chain	Food sector companies (downstream)
New technological solutions (section 6.5)	Farms/"last mile"	Technology hardware and service companies Venture Capitalists

The individually presented solutions and applications can cross-fertilize each other and most often appear as interdependent and combined solutions, e.g., nature-based solutions. While these solutions all provide contributions to protect investments, section 7 describes how climate adaptation could or should be recognised as a mainstream factor to risk-based due diligence of investments.

## 6.2: Climate risks and adaptation opportunities for agriculture

The effects of climate change are already placing agriculture, forestry, fisheries and aquaculture under stress and increasingly hindering efforts to meet human needs for food and other ecosystem services. Climate change is causing crop losses due to extreme weather events and heat stress, and increased vulnerability to already vulnerable groups due to an increased competition for land, energy and water<sup>35</sup>. In the mid- to long-term (2022-2050) it is further projected that these impacts will increase and cause more severe effects on humans. In the absence of adaptation measures, some of these effects are most likely to cause:

- Unsuitability of current areas for food production.
- Reduction of labour capacity, animal health, and dairy and meat production due to heat stress.
- Reduction of the effectiveness of pollinator agents.
- Reduction in air, soil and water quality, with negative effects on yields.
- Increased biotic stress on crops, forests and livestock, and eventually ecosystem degradation due to changes in occurrence and distribution of pests, weeds and diseases.

35. IPCC, 2022a: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

- Reduction in food safety due to increased numbers of toxigenic fungi, plant and animal pathogens, and harmful algal blooms.

A large number of adaptation strategies for addressing the current and projected impacts of climate change are already well-known and/or in use, and assessed to be effective solutions at farm level. These include:

- Ecosystem-based approaches (nature-based solutions): e.g., crop diversification, land restoration, agroecology and agroforestry, and collective resource management.
- Farm management: e.g., altered timing of key farm activities such as planting or stocking, and on-farm storage solutions.
- Seeds and crops management: e.g., seed development, switching varieties/species, and crop data and analytics.
- Livestock management: e.g., breeding to increase heat stress tolerance, species switching, technologies for heat reduction.
- Water management: e.g., catchment and harvesting, water-efficient irrigation technologies, and high-precision laser land-levelling to reduce run-off.
- Application of climate services, i.e., weather and climate information products and services<sup>36</sup>.

Some of these options are already implemented or can be independently implemented and accomplished by incremental changes with no or little need for external financial input. However, in order to make a systematic sustainable transformation in time and leave no one behind, massive external inputs are needed in terms of technology development, knowledge sharing, financial innovation and business development. Section 6.5 showcases new technologies as an investment avenue, with digital climate services presented in more detail.

### 6.3: Investments in blended financed development programmes with a focus on nature-based solutions

#### 6.3.1: Nature-based solutions for adaptation in agriculture

There are a number of indices pointing to nature-based solutions (NBS) as a key entry point for scaling up private investments in agriculture and climate adaptation. The potential multiple social and environmental benefits of these services, including climate resilience and mitigation, their cost-efficiency compared to “grey” infrastructure, and opportunities for generating revenue streams through ecosystem services suggests that they have an important role to play together with other measures in tackling climate change.

#### Nature-based solutions definition

Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine eco-systems, which address social, economic and environmental challenges effectively and adaptively while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.

*Definition adopted by the UN fifth Environmental Assembly (UNEA) resolution in March 2022.*

36. IPCC, 2022a: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

37. <https://wedocs.unep.org/bitstream/handle/20.500.11822/39752/K2200677%20-%20UNEP-EA.5-Res.5%20-%20Advance.pdf?sequence=1&isAllowed=y>

The resolution adopted by the United Nations Environmental Assembly in March 2022<sup>37</sup> officially testifies and recognises the importance of nature-based solution as an essential, efficient and effective action with multiple social, environmental



and economic sustainability benefits. This includes addressing “biodiversity loss, climate change, land degradation, desertification, food security, disaster risks, urban development, water availability, poverty eradication, inequality and unemployment, as well as social development, sustainable economic development, human health and a broad range of ecosystem services”. NBS are further recognised as an effective means of respecting social and environmental safeguards, including promoting indigenous and tribal rights, leadership and engagement of local communities.

NBS have already been recognised by governments as an effective action in relation to climate change, both mitigation and adaptation. More than two thirds of the Signatories to the Paris Agreement have included NBS in their commitments. In addition, the adaptation priorities with linkages to NBS in the updated NDCs have increased by 89% compared to the first submissions.

NBS have long been adopted by local and international NGOs and Government institutions as a sustainable and integrated approach to strengthen climate resilience and develop agricultural practices and rural livelihoods<sup>38</sup>. The knowledge and experience of these stakeholders therefore serves as a solid foundation for scaling up solutions and geographic span. Furthermore, it can help to reduce the perceived and real risks for private companies and investors to engage.

NBS are made up of both approaches and ecosystem-based services and technologies, which can be applied as an overall climate adaptation strategy to effectively reduce the hazards posed to farming and rural livelihoods by climate change, enhance climate resilience, and create social and economic benefits.

Food production, including wild food, is highly dependent on healthy ecosystems. These are a direct source of ecosystem services to agricultural production and protection such as pollination, irrigation water, and soil formation. Therefore off-farm **ecosystem protection and restoration** of agricultural catchment areas are essential for a sustainable and climate resilient agriculture. These measures provide healthy resource inputs such as water and nutrients, and protect from climate related hazards such as storms, floods, landslides, fires etc. Initiatives include reforestation and deforestation, and restoration of wetlands and mangroves.

**Climate smart and conservation agriculture** includes a wide range of integrated agricultural practices that are nature and ecosystem based.

A key example is **Agroforestry**:

Agroforestry is a collective name for land-use systems and technologies where woody perennials are used on the same land-management units as agricultural crops and/or animals.

There are three main types of agroforestry systems:

1. **Agrisilvicultural** systems are a combination of crops and trees
2. **Silvopastoral** systems combine forestry and grazing of domesticated animals on pastures, rangelands or on-farm.
3. The three elements, namely trees, animals and crops, can be integrated in what are called **agrosilvopastoral systems** and are illustrated by home gardens involving animals as well as scattered trees on croplands used for grazing after harvests. *(Definition adapted from FAO)*

38. Kapos, V., Wicander, S., Salvaterra, T., Dawkins, K., Hicks, C. 2019. The Role of the Natural Environment in Adaptation, Background Paper for the Global Commission on Adaptation. Rotterdam and Washington, D.C.: Global Commission on Adaptation.

Annex A lists 25 detailed cases of nature-based solutions with the majority aimed at benefit-ting food security and rural livelihoods.

Agroforestry accumulates carbon in woody vegetation and soil, and offers multiple benefits such as increased land productivity, diversified livelihoods, reduced soil erosion, improved water quality, and more hospitable regional climates.

### **6.3.2: Investments in NBS**

NBS initiatives have traditionally been funded by the public sector, philanthropic donors, and impact investors. However, there is evidence of growing interest and opportunities for private investors. This is supported by a study by the Global Commission on Adaptation, recommending attention to and increasing private investments in NBS for adaptation<sup>39</sup>. Specifically, investments would apply a blended finance structured approach to mobilize market based private investments.

An analysis by Finance Earth<sup>40</sup> has identified 200 NBS projects, of which 88 unique transactions were selected, and of these 28 targeted agriculture directly. These represent a total transaction value of USD 1.5 billion and are perceived as offering market rate returns, with targeted performance ranging from 2-12% IRR. Half of the projects were using a blended finance structure with grant finance to de-risk the investments.

Among the 88 analysed projects, institutional investors, including banks, private equity investors and thematic funds, have provided capital to 60% of these transactions. The second type of commercial investor, corporates, including water companies, consumer goods companies and raw materials producers, provided capital to 26% of the projects. The other types of financial providers were public sector organisations, development finance institutions, NGO/charities, and philanthropic donors.

The predominant types of investment instruments among the 88 projects included specialised funds providing debt, equity, or a combination, concessionary and commercial debt facilities, corporate/commercial bonds, and impact bonds (e.g., “green bonds” or “Sustainability linked bonds”).

A further analysis of 86 funds targeting NBS, representing a total value of more than USD 12 billion, reveals a huge gap between committed capital and deployment of capital into projects. This gap, on the other hand, indicates that the bottle neck for increasing private investments is not only investor appetite, but also resources for maturing and developing impact projects.

### **6.3.3: Business models for NBS**

As shown above and exemplified in cases in the report, NBS offer commercial investment opportunities while enabling them to directly and positively impact nature and society, and target climate mitigation and adaptation strategies. However, the underlying business models that drive financial returns are essential for properly understanding the risks and value of the investment opportunities. Two major business model types appear in NBS investment projects. The most common types are “Sale of Products and Services” and “Cost Benefits”. Sales models generate revenue through the sale of commodities, ecosystem services and other services. Cost benefit models generate revenue through capturing a portion of operational or capital cost savings to beneficiaries. Transactions also show that it is common to develop and use several revenue streams to produce strong financial returns.

#### **Sale of Products and Services from NBS**

Products and services from NBS can have many sources, including:

39. The global commission on adaptation, 2019. Adapt now: a global call for leadership on climate resilience

40. Finance Earth, 2021. A Market Review of Nature-Based Solutions

- **Commodities** – e.g., timber, agricultural produce and water.
- **Payments for ecosystem services**, including carbon credits, nutrient and biodiversity credits, incentive payments from a beneficiary/user of an ecosystem to the provider of an ecosystem service, ecotourism offerings and area management, and/or rental income.

Commodity sales like timber, agricultural produce and clean water represent the most common revenue stream for investments in NBS and are a well-known asset class in the financial market.

The voluntary carbon credit market is the second most prevalent source of income in the projects analysed by Finance Earth<sup>41</sup>. A greater proportion of projects in the years to come are expected to be funded solely from carbon offset sales. Research by University College London forecasts a factor 60 increase in the revenue stream from carbon offsets by 2030 compared to 2020. The total mitigation potential for the supply side<sup>42</sup> of the agriculture, forestry and land use sector is estimated to be 11.3 Gt CO<sub>2</sub>-eq./year<sup>43</sup>, with contributions from:

- Reduction of deforestation, loss and degradation of peatlands, coastal wetlands and grass-lands (4.0 Gt CO<sub>2</sub>-eq/year)
- Agriculture - Carbon sequestration (3.4 Gt CO<sub>2</sub>-eq/year), including agroforestry (0.8 Gt CO<sub>2</sub>-eq/year), soil carbon management in croplands and grasslands, and biochar (2.6 Gt CO<sub>2</sub>-eq/year)
- Increase in afforestation, reforestation, peatland restoration, coastal wetland (incl. man-groves) restoration (2.1 Gt CO<sub>2</sub>-eq/year)
- Improvements in forest management and fire management (1.2 Gt CO<sub>2</sub>-eq/year)
- Improvements in enteric fermentation, manure management, nutrient management, and rice cultivation (0.6 Gt CO<sub>2</sub>-eq/year)

However, it is important to add that today's voluntary carbon credit market has challenges which need to be addressed in order to sustain its reliability and meet the increasing demands for off-setting carbon. Research by McKinsey<sup>44</sup> to address these issues and the scaling up of the carbon market mentions, among other varying accounting and verification methodologies; low liquidity, scarce financing, inadequate risk-management services, and limited data availability.

41. Finance Earth, 2021. A Market Review of Nature-Based Solutions

42. The total mitigation potential, including the demand side (shift to sustainable healthy diets, reduce food waste, and enhanced and improved use of wood products), is 13.6 Gt CO<sub>2</sub>-eq/year

43. IPCC, 2022b: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

Average mitigation estimates for 2020-2050 available at <100 USD/t CO<sub>2</sub>. The total technical potential is estimated to be 108% higher.

44. Carbon credits: Scaling voluntary markets | McKinsey



#### CASE: Café Selva Norte, Northern Peru

Urapí Sustainable Land Use is transforming 20,000 hectares of deforested and degraded land in Northern Peru into productive agroforestry systems through the sustainable development of the coffee value chain, reinforcing and empowering cooperatives and their producers.

A number of producer cooperatives receive funding to provide loans to their membership of small-holder coffee producers in exchange for the producers transitioning their activities to best-practice climate-smart agroforestry – including the acquisition of a processing



plant. This is secured by a total investment of USD 14.5 million and with an overall expected internal rate of return of 12%.

During its 15 years life the project aims to benefit 3,000 small-holder farmers, restore 8,250 ha land, conserve 200,000 ha forest and reduce CO<sub>2</sub> by a total of 3.8 million tonnes CO<sub>2</sub>-e. Coffee plantations are often old and unproductive as well as poorly protected against the effects of climate change, leading to declining yields and low income for producers. They have little or no access to affordable long-term credit to renovate, expand or improve processes or infrastructure on their farms, and a lack of knowledge and poor management practices to adapt to climate change. This often leads into a vicious circle of migratory agriculture, deforestation, soil erosion and a preventable loss of income.

The three investment activities are recovered through repayment of the loans by the producers (including interest), through the sale of coffee, agroforestry products (e.g. timber revenues later in the project), and carbon credits, with dividends paid out of the commercial returns of the processing plant (resulting from fees paid for the services provided by the mill).

### Cost Benefits

Cost benefit models allow users or beneficiaries of ecosystem services to invest in their development to reduce operational or capital costs to generate revenue. For example, through environmental impact bonds, where the coupon payment is exchanged with a payment return as a share of cost savings or outcomes of a certain impact target. Projects which benefit larger groups of people, communities or nature protection are examples of cost benefit models. E.g. mangrove forest expansion have proven to provide more cost-efficient and effective storm damage protection than industrial infrastructure (while providing many other additional benefits)<sup>45</sup>.

#### 6.3.4: Blended finance to de-risk impact investment

Blended finance is still a relatively new financing approach in the development co-operation land-scape. In general, though, it is perceived as highly necessary, appropriate and effective for catalysing investments in sustainable development in developing countries.

#### Blended Finance definition

OECD defines blended finance as “the strategic use of development finance for the mobilisation of additional finance towards sustainable development in developing countries”.

The catalytic development finance from public institutions or philanthropic donors is used to reduce the investment barriers for private investors, thereby creating investable opportunities in developing countries. In food and agriculture, blended finance is also often deployed to reduce transaction costs and address the poor economics of investment that often prevail in parts of the sector.

Blended finance requires projects that generate revenues to repay and remunerate private investors at a risk-return at a minimum equal to market rate. It can therefore mobilize private investments in bankable and near-bankable transactions.

Convergence<sup>46</sup> suggests four archetypes of funding structures between public and private finance, with a crossover of structures occurring in practice:

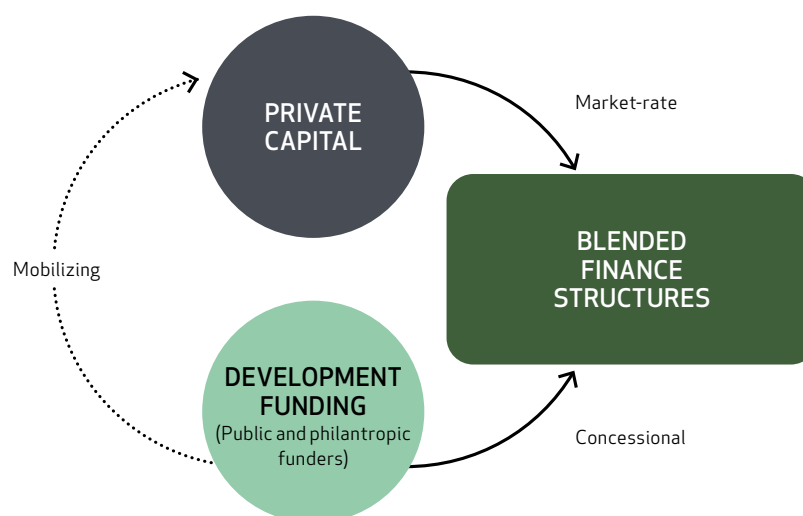
45. The M40 blended finance fund from Earth Security is such an example - The M40 Initiative - Earth Security

46. Convergence ([www.convergence.finance](http://www.convergence.finance)) is the global network for blended finance. Convergence generates blended finance data, intelligence, and deal flow to increase private sector investment in developing countries and sustainable development.

1. **Concessional finance** – Public or philanthropic funding on below-market terms within the capital structure to lower the overall cost of capital or to provide an additional layer of protection to private investors.
2. **Risk insurance** – Public or philanthropic investors provide credit enhancement through guarantees or insurance on below-market terms.
3. **Technical assistance** – A grant-funded technical assistance facility can be utilized pre- or post-investment to strengthen commercial viability and developmental impact.
4. **Design** – Grant funding from public or philanthropic funders to design or structure projects to attract private capital to sustainable development at scale.

**FIGURE 4: Illustration of the general blended financial model**

SOURCE: "CONVERGENCE"



### Blended finance in agriculture is underrepresented

Convergence curates the world's largest database of blended finance transactions targeting developing countries. The nearly 680 closed transactions in the database have mobilized USD 160 billion of total finance. An analysis by Convergence<sup>47</sup> in 2021 on blended finance in food systems reveals that the sector is under-represented in the database, with only 127 or 18% of the global transactions in numbers for projects concerning parts of or the whole food value chain. For the "growing" target group alone, including smallholders, there has only been 80 transactions or 12% of the total transactions. This is much less than other sectors. 20% or 15% of the food value chain transactions have a climate resilience dimension, and a small share of transactions relate to agro-forestry, fisheries and aquaculture. In addition to the low proportion of transaction numbers, the blended finance transactions for agriculture are smaller than in other sectors.

38 blended finance transactions were less than USD 25 million in size, causing agriculture transactions to have a smaller median transaction size than other sectors (USD 38 million versus 57 million for the average blended finance transaction).

Compared to the overall blended finance market, blended finance transactions in agriculture rarely achieve levels of scale in financial terms. This suggests that mobilizing private capital into the sector from investors with large investment capacity may require portfolio approaches and/or standardization and consolidation of existing structures, as well as risk mitigation instruments.

47. Convergence, 2022. Blended Finance for Food Systems

48. Convergence, 2021a. Blended finance for climate report: how to increase private investment climate for finance in developing countries.

Consultations as part of the FCDO-led COP26 Blended Finance Platform, including more than 20 donors interested in blended finance solutions for climate change, more than 70 institutional investors interested to allocate private investment to the SDGs and Paris Agreement (e.g., the net-Zero Asset Owners Alliance and the Global Investments for Sustainable Development Alliance), and more than 20 asset owners.



**ONE ACRE FUND**

### CASE: One Acre Fund

The One Acre Fund (OAF) is a non-profit organization that supplies smallholder farmers in East Africa with asset-based financing and agriculture training services to reduce hunger and poverty.

The business model consists of lending smallholder farmers a package of farming inputs, such as seeds and fertilizer, worth approximately USD 80, delivering the package to rural access points, and then providing effective farmer training and market linkages. Within its target countries, OAF also drives significant improvements throughout the entire agriculture ecosystem by utilizing its extensive farmer network to prove the business case for commercial businesses to serve smallholder farmers for the first time.

OAF's impact activities for small-holder farmers increase climate resilience mainly by: 1. Providing farmers with optimal seed varieties based on local climates and inputs for an increasingly diverse mix of crops, including inter-cropping, 2. Provision of disaster-related loan forgiveness through crop insurance, 3. Ensuring improved soil health for long-term yield productivity, and 4. Providing agricultural training on climate smart techniques, and emerging climatic, pest, or disease-related challenges.

Loans from Ceniath, MacArthur and A-Z impact Foundation will create a longer-term layer of subordinated debt, up to 10 years in duration. This layer of subordinated debt is designed to reduce risk for other lenders and will allow for One Acre to attract larger, more flexible senior debt and lines of credit - potentially reaching USD 100 million or more - and create a scalable and flexible capital structure. Ultimately, access to this financing will enable OAF to scale more easily from serving nearly 1 million smallholder farmer families today to 4 million by 2030.

### 6.3.5: Unleashing the potential of private investments for agriculture climate finance

Based on a multi-sector and stakeholder consultation among donors, institutional investors and asset owners, held by Convergence in 2020-21<sup>48</sup>, four blended finance structural approaches were identified which demonstrate the potential to meet private investor preferences and can work well for donors. All the structures blend development-focused funds allocated on catalytic, below-market terms to mobilize private investment allocated on market terms. i.e., the development-focused funds are allocated to create a "market equivalent" investment opportunity for private investors:

**Blended Finance Structure 1:** Blends private debt investment and development funds (e.g., ODA from development agency monies) in a fund, which in turn provides debt to bankable projects located in (high risk) developing countries. An example of a blended



finance structured fund is the WaterCredit Investment Fund<sup>49</sup>. This is the first to put microfinance tools to work in the water and sanitation sector. WaterCredit helps bring small loans to those who need access to affordable financing and expert resources to make household water and toilet solutions a reality.

**Blended Finance Structure 2:** Blends private equity investment and development agency monies in a fund, and the fund in turn provides equity capital to bankable projects located in (high risk) developing countries. The Danish Green Investment Fund<sup>50</sup> is an example of a blended finance structure type of fund. It is an independent state loan fund with the purpose of co-financing economically viable projects that facilitate and support sustainable development within environmental savings, renewable energy sources, or resource efficiency.

**Blended Finance Structure 3:** This is an aggregation vehicle where private and development funds are co-invested, and a fund manager allocates investment capital to multiple Structure 1 or Structure 2 blended finance vehicles. This is required for mobilizing institutional investors who are seeking vehicles above USD 500 million. The Sarona Frontier Markets Fund<sup>51</sup> with a blended finance 3 structure is a fund that invests in frontier and emerging market private equity funds, which in turn invest in small to midmarket companies. The fund spans global growth markets in Asia, Africa, Latin America and Emerging Europe.

**Blended Finance Structure 4:** Development agency monies and private investment are pooled in a company/entity, and that company/entity extends guarantees to support:

- Bankable projects in (high risk) developing countries and/or
- Near-bankable projects by providing credit enhancement for all or some risks, and all or a portion of debt obligation.

Aceli Africa<sup>52</sup> is an example of blended finance structure 4. It is a catalytic market facility offering concessional financing in the form of financial incentives to lenders that then provide commercial financing to agricultural small to medium enterprises (agri-SMEs) in Sub-Saharan Africa.

Achieving levels of scale in blended finance in agriculture requires funds that can finance a large number of providers, due to the nature of agriculture<sup>53</sup>. Achieving levels of scale will also be helped by investing in funds that support innovative business models in food and agriculture, especially by targeting key nodes within the sector or specific value chains that can de-risk the entire sector and signal possibilities for the wider market (see section 5.4).

Despite the fragmentation and limits of most economic units of small-scale farmers in the sector, development impact does not necessarily contradict economies of scale in financial terms. Large-scale impact may be achieved through large investment unit-size approaches that deliver major knock-on effects on food systems as well as through investments that indirectly catalyse major financial flows by solving major pain points in food and agricultural markets and/or in the financial ecosystem around the sector.

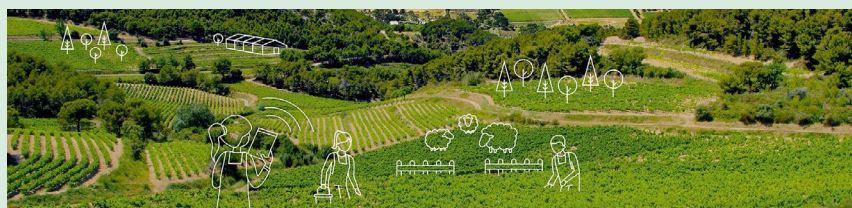
49. <https://water.org/solutions/watercredit/>

50. About the fund (gronfond.dk)

51. <https://www.saronafund.com/>

52. <https://aceliafrica.org/>

53. SAFIN, 2021. Deploying blended finance to mobilize investment at scale in food and agriculture. Working paper 8



### CASE: The Land Degradation Neutrality Fund (LDN Fund)

The LDN initiative provides long-term financing (debt/equity) for profit-generating sustainable land management and restoration projects worldwide, to avoid, reduce or reverse land degradation. Land degradation neutrality is a state whereby amount and quality of land resource, necessary to support ecosystem functions and services and enhance food security, remains stable or increases within specified temporal and spatial scales and ecosystems.

The initiative has been operated by the French responsible investment firm Mirova since 2017 and has secured a final size of USD 208 million, with more than 60% of the capital derived from private investors. As of December 2021, the fund has realised 9 investments in 11 countries within agroforestry and forestry.

The fund's impact targets for its 15 years fund life are 350,000 ha under sustainable land management, 70,000 jobs created and 25 million tonnes CO<sub>2</sub> sequestered or avoided.

The Land Degradation Neutrality Technical Assistance Facility (LDN TAF) is the grant-making arm of the LDN Fund and is managed by IDH, the Sustainable Trade Initiative. The LDN TAF can provide grants and repayable grants to (potential) LDN investment projects. The aim is to improve technical quality and strengthen environmental and social impacts, strengthening project design and enabling the investment project to meet the LDN 20 investment criteria for commodities from coffee and cocoa to timber and ArtemisiaFund investment criteria. By the end of 2021 the LDN TAF had contracted TA projects with 17 partners.

Furthermore, the most effective blended finance vehicles that have demonstrated success can be funded with catalytic development funds to attract private investment to achieve scale. Levels of scale can also be amplified through replication and adaptation of a limited set of structure archetypes, and by integrating similar thematic or geographical approaches into sizeable facilities and platforms.

The sector community of practitioners and experts in the Smallholder and Agri-SME Finance and Investment Network (SAFIN) has built a strong evidence base around mobilization and impact of blended finance in the agricultural sector. The network suggests four types of blended solutions<sup>54</sup> that appear to be designed with a focus on balancing scale of mobilization with scale of impact:

1. **Integrated, multi-instrument financial schemes** designed to strengthen local financial institutions, mobilize funding and risk-sharing resources and incentivize them to grow their agriculture portfolios – to address not only risk but also costs and pipeline development.
2. **Financing and/or de-risking large-scale infrastructure** or company investments with potential for large-scale transformative impact on livelihoods, environmental sustainability or nutrition.
3. **Targeting innovation and disruptive business models** in agriculture and food

54. SAFIN, 2021. Deploying blended finance to mobilize investment at scale in food and agriculture. Working paper 8

systems – including value chain-embedded companies and technology or service providers.

4. **Market development platforms and programmes** designed to expand or deepen financial investment offerings for investors in the sector and/or to generate investable assets. These platforms combine an analysis of investment opportunities with the facilitation of partnerships and the design and execution of financial solutions around these opportunities.

#### 6.4: Collaboration and financing by companies to de-risk their sector, value chain and assets from climate change

The second avenue for the private sector to invest in climate adaptation is through companies in the food value chain. The negative effects of climate change on agricultural outputs and patterns are already disrupting the global food supply chain. Without climate financial interventions, this will increase. However, there still seems to be a gap between the general understanding of risks and of how they affect the physical risks of companies. In the global risks perception survey by World Economic Forum<sup>55</sup>, the top four severe risks – climate action failure, extreme weather, biodiversity loss and natural resources crisis – will all adversely affect food production in a 5-10 year horizon. Conversely, of around 900 companies in the food and beverage sector reporting to the Carbon Disclosure Project<sup>56</sup>, only around 50% have identified climate-risks as having or expected to have substantive impact on their business, and only around 20% of these (10% of all companies) identify supply-chain risks as substantive.

Although the risk awareness by companies today is relatively low, downstream value chain actors such as traders and retailers have strong incentives and potential to directly contribute to climate de-risk the supply chains of food products. Companies can invest both directly with producers and/or cooperatives or indirectly through NGOs.



##### CASE: A Sustainable Rice Sector

Rice is the third-largest crop globally in terms of area harvested, and is the main food staple of 3.5 billion people. However, rice uses 40% of the world's irrigation water and is responsible for 10% of global emissions of the green-house gas methane. By 2050 the global production of rice in a business-as-usual scenario is expected to decrease 15% due to climate change.

One billion livelihoods are dependent on rice farming, with most rice grown on farms of less than 1 hectare. These farmers have little or no access to credit, training, or agricultural

55. [https://www3.weforum.org/docs/WEF\\_The\\_Global\\_Risks\\_Report\\_2022.pdf](https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2022.pdf)

56. <https://www.cdp.net/en/research/global-reports/global-climate-change-report-2018/climate-report-risks-and-opportunities>



extension services, which creates barriers to wide-scale adoption of climate-smart, sustainable best practice in rice production.

The global rice sector is extraordinarily fragmented, calling for rice value chain actors to integrate their efforts and resources to help farmers lift production, increase climate resilience and reduce environmental impacts.

The Sustainable Rice Platform (SRP) with over 100 institutional members has produced a global voluntary standard for sustainable rice production and outreach mechanisms that contribute to increasing the global supply of affordable rice, improving rice producers' livelihoods, and reducing the environmental impact of rice production.

Earth Security, an impact investment developing entity, has proposed a number of opportunities for rice value-chain actors to improve sustainability of rice production through improved flow of finance to sustainable practices based on public-private and value-chain collaboration. Service providers can provide credit for goods to give farmers access to affordable, higher quality inputs such as seeds, supporting mechanised harvesting and drying processes. Farmers can access group loans, digital platforms and create conditions for the delivery of pooled financial products and bundled services by becoming members of cooperatives. Investment in the milling sector and replacing obsolete processing units could significantly reduce postharvest losses. More formal relationships between smallholders and processors can help create a virtuous cycle in which value chain actors have the reliable source of income needed to invest in upgrading their operations, increasing yields and incomes.

A series of contractual arrangements along the value chain can help lower risks and increase access to capital. For example, traders and retailers can develop sustainable sourcing contracts to buy sustainable rice from farmer cooperatives. This can ensure quality and traceability, and developing brand value from sustainable rice linked to a lower environmental footprint and fairer trade.

Earth Security proposes to address financial gaps to scaling sustainable rice by: 1. Creating a digital finance platform to enable smallholders to access government credit and insurance programmes, 2. Issuing a 'rice bond' to finance sustainable value chains, and 3. Leveraging international climate finance to attract private sector investment for climate-smart rice production.

A principal tool available for value chain climate resilience management, collaboration and action is "Business ADAPT"<sup>57</sup>. This tool enables businesses to gain a better understanding of climate-related risks throughout their value chains, identify where emerging market opportunities exist, take into account community needs, and develop plans that are integrated throughout the enterprise and receive the support of communities and civil society. Furthermore, the guide will help the financial services and insurance sectors understand how to engage with the companies they invest in or insure to manage risk, maximize returns, and minimize future losses.

The tool follows a step-by-step climate resilience framework inspired by existing good practice risk management models, and with additional focus and questions for three sectors, including the Food, Beverage, and Agriculture sector. Business ADAPT provides a solid framework for companies to invest in climate resilience initiatives with the value chain stakeholders, including suppliers, NGOs, government and communities.

57. [valuechainclimateresilience.pdf](#)

developed by companies, including Starbucks, Green Mountain Coffee Roasters, Swiss Re, Calvert Investments, Earth Networks and Levi Strauss, and organizations engaged in the Partnership for Resilience and Environmental Preparedness (PREP).



#### CASE: Amru Rice

Amru Rice Cambodia Co. (AR), established in 2011, is the largest Cambodian producer and exporter of organic rice in accordance with international certification standards.

Amru works closely with agricultural cooperatives in Cambodia utilizing a contract farming format to improve farmers' livelihoods and bring positive social change to communities. In 2021 Amru had contracts with 12,000 farmers through 82 farmers cooperatives which produced 25,000 Metric Tons organic rice.

The contractual partnerships help farmer producers harness their assets, labor, own-investment and expertise while making efficient use of public-sector services (infrastructure, enabling environment, state funds and seed capital). The partnerships are locally-owned, aligned with country goals, and market-driven with projects led by the private sector. The initiatives are rooted in viable business cases, multi-stakeholder structured and integrated in full value chains that benefit all actors in the agriculture system, while being globally connected and supported by an international network of solidarity and support.

The business and partnership model is limited to an assured supply of an agreed volume of organic rice by poor farmers and assured purchase by Amru based on an agreed market price. A premium of 25%-35% is returned to the cooperatives based on compliance and profit from trade. Amru or partner NGOs provide training and technical services to the contracted farmers.

Amru's business model has further influenced the sector and created wider market effects beyond the Amru-cooperatives ecosystem. Farmers have been trained in organic certification standards, a farmer-led Inspection and Control System has been established, a BlocRice app has enabled farmers to track transactions and has led the promotion of Sustainable Rice Platform standards and practices in Cambodia.

#### CASE: Fresh Fruit Nexus

The Fresh Fruit Nexus partnership aims to improve the livelihoods of the most vulnerable groups, living in and surrounding refugee settlements in Northern Uganda, through the establishment of a sustainable business model with positive adaptation effects for the local farmers. Smallholder farmers are being trained to grow certified organic fruit and vegetables for export.

The multi-stakeholder approach and partnership incorporates the indispensable expertise of three distinct partners: the Danish company Nordic Fruit offers knowledge of the global market and the cooling chain needed for successful export; the Ugandan company Lishe provides essential understanding of the local market and conditions for organic climate friendly farming; the Danish NGO DanChurchAid ensures community mobilization and local engagement.

The approach increases the climate resilience of local farmers through new skills, safe employment, and steady income. It also represents an investment for the companies Lishe and Nordic Fruit to strengthen their business and supply-chain, and make a profit while enabling more sustainable and responsible sourcing opportunities.

The partnership is funded by the DANIDA Market Development Partnerships program.

## 6.5: Private investments in new technological solutions

As alluded to in section 6.3 and 6.4, a vast array of both new and adopted technologies and business models can be applied and scaled up to increase climate resilience in agriculture. Among all these, the key technology development that could create the greatest sustainability transformation, in particular for smallholder farmers, is digital climate services. These services are particularly effective in combination with complementary services like financing, input supply, market access, and insurance. Digital climate services offer crucial opportunities to build resilience.

### Digital climate services definition and business models

Digital climate services are tools and platforms that integrate climate information into agricultural decision-making. They involve the production, translation, transfer and use of climate knowledge and information in climate-informed decision-making and climate-smart policy and planning.

### Digital climate services examples of business models in the agri-business value chain

- Solutions that are sold to agribusinesses, insurers or banks that pay for their customers' access.
- Solutions applied within commercial operations and supply chains of agribusinesses.
- Services that help digital climate services operate effectively, including platforms, data managers, or cloud-based support.
- Services that integrate with digital climate services to provide solutions for building resilience, including mobile banking and finance, insurance, input services, health services, market access and prices information, record keeping, product verification and traceability, and shared assets management.
- Services to help integrate climate information into existing training, extension services, farmer field schools etc.
- Services that link farmers to buyers and finance, advice, and other services.

### Types of information

- Weather and climate forecasts
- Agroclimatic information
- Smart advisory, e.g., advice on the types of crops to grow and the appropriate application of inputs
- Pest and disease management
- Early warning system advisories

*Adopted from Ferdinand et. al., 2021.*

Furthermore, the potential co-benefits of climate services are evident, in particular

for productivity increase<sup>58</sup>, resource efficiency, climate mitigation, empowerment of farmers and rural communities, and other socio-economic livelihood improvements. In addition, the scalability potential of digital technologies and services, and the climate service integration synergies with other business areas provides a more investable business case. Lastly, a high penetration of digital climate services could possibly create a positive linkage to private investments at larger scale, e.g., through blended finance NBS, as described earlier.

#### CASE: Esoko

Esoko is a Ghanaian franchise model company that provides farmers with climate-informed agricultural advisories plus a range of other services, including market intelligence, a farmer helpline, and access to finance and insurance. Esoko helps farmers, agribusinesses and development organizations reach rural communities with services and solutions that help improve their livelihoods in more than 20 countries in Sub-Saharan Africa. Over a short period, it has reached more than 1.2 million farmers.

With small-scale farmers as its primary focus, Esoko uses multiple data sources, including open government data, to guide farmers in improving their farming operations and obtaining better prices. This is achieved by improving accessibility to relevant information through automated alerts sent via short message service (SMS), voice messages, and call centers. Financial sustainability is achieved through a farmer subscriber model and a multitiered revenue model in which data collected by Esoko (e.g., market prices) are provided to farmers and resold to business clients.

Globally, it is estimated that more than 300 million smallholder farmers have limited or no access to digital climate services and are not reaching the last mile. The investment required by public and private actors to build resilience for smallholders via digital climate services by 2030 is estimated to be USD 7 billion<sup>59</sup>.

A prerequisite for reaching the last mile of climate services to farmers is a service framework that is coherent and interlinked with an effective chain of service. The FAO Global Outlook<sup>60</sup> highlights the gaps, needs and investment opportunities region by region to meet its targets in a framework of four key areas: a collection and monitoring of weather and agronomic information; co-production and co-design of tailored services; communication of services to the last mile and participatory engagement for climate-informed actions.

To showcase this, key private centered investment opportunities for Sub-Saharan Africa have been identified to be:

- Installation of automated weather stations and radar across the continent.
- Weather, water and climate monitoring and weather forecasting, as well as modeling of crops, water, forests, and other sectors and combining this with climate projections.
- Digitalization of historical data to ensure usability of services and applications, e.g., forecasting, climate projections.
- ICTs, including the development of mobile applications, SMS or other communication services that are considered essential in the digital agricultural transformation.
- Addressing the resource limitations of National Meteorological Hydrological Services and many agricultural extension services.

58. Returns on investment for digital climate service providers range from 1-to-10 to 1-to-70. Returns to farmers in the form of productivity or income average 30 percent and 25 percent, respectively. Ferdinand et. al., 2021.

59. Ferdinand, T., E. Illick-Frank, L. Postema, J. Stephenson, et. al. 2021. "A Blueprint for Digital Climate Informed Advisory Services: Building the Resilience of 300 Million Small-Scale Producers by 2030." Working Paper. Washington, DC: World Resources Institute. Available online at [doi.org/10.46830/wriwp.20.00103](https://doi.org/10.46830/wriwp.20.00103).

60. FAO. 2021. Global outlook on climate services in agriculture – Investment opportunities to reach the last mile. Rome. <https://doi.org/10.4060/cb6941en>



- Increase of equitable access to communication channels and scaling up of the number of recipients of climate services and agronomic advisories through private sector partnerships.
- Efficient and scalable solutions for sustainable and climate-resilient agricultural practices and enhanced climate information data, including climate services to the last mile. ■

#### **Digital advisory services for sustainable and resilient agriculture in India – A business case**

An analysis by the World Business Council for Sustainable Development (WBCSD) of the prospects for scaling up digital climate advisory services in India shows a clear business case both from a farmer and company perspective. However, it is clear that in India, like in many similarly developed countries, the market is stimulated, but needs maturing to reach the scale and impact required.

India is to a large extent already a digital nation with developed entrepreneurship and innovation in the private sector. There is significant investment into agri-technology, with up to USD 1 billion annually from venture capitalists. India is among the top three countries receiving investments for technologies in food and agriculture. More than 600 agriculture-technology start-ups in India have emerged in the last few years. Furthermore, the government encourages digitalization with a vision of creating a USD 1 trillion digital economy by 2025.

However, there are definitely barriers to mature the market further and a need for a strengthened framework, as noted by FAO. Some of the avenues proposed for business to contribute to this development are through:

- A. Corporate investments and handholding. Investing in agri-technology companies and agri-fintech companies, opening their supply chains for experiments and testing of innovations.
- B. More effective collaboration. Trust building through public-private partnerships and delivery models that are inclusive of all user groups.
- C. Data sharing and more effective use of available data. Developing an open, shared data framework and its related principles to aggregate various agriculture data to drive innovation and collaboration.
- D. Partnering with SMEs and grassroots institutions. These organizations often understand the local and cultural context during the last mile, and are able to bridge gaps such as socioeconomic and gender divides within farmer communities, and help build trust in the system.

(WBCSD, 2021).



Photo: Jumba Martin



## 7: Mitigating social and environmental risks related to private investments

This chapter provides an insight into how private investments in communities can potentially cause unintended risks related to smallholders and other rights-holders, namely vulnerable groups including women, youth, and indigenous peoples. The aim is to outline the globally accepted due diligence frameworks put in place to help mitigate these risks, to show why local context, including possible local conflicts and relations, must be considered, and to provide a case for adequate stakeholder mapping.

In every context of development actions and/or business operations aiming to create positive impact, in this case by increasing climate resilience of smallholder farmers, there are risks of adverse and unintended impacts notwithstanding the high potential for co-benefits and positive spill-over effects of climate adaption actions in agriculture suggested in this report. A large number of resources (principles, methodologies and assessment tools) are available to project developers, businesses and investors to assess and incorporate preventive actions to mitigate these risks, as well as provide a framework for remediation if adverse impacts do occur. These resources are based on fundamental principles for human rights, labour rights, environmental protection and good governance, all incorporated in the Sustainable Development Goals<sup>61</sup>.

The UN Guiding Principles on Business and Human Rights (UNGPs) provide the parameters under which all private sector actors must conduct themselves regarding the protection of human rights in all business activities, including the climate-human rights nexus most pertinent in the context of private investment in climate adaptation. The UNGPs have fostered a global, common understanding of international standards for Responsible Business Conduct (RBC) and have shaped the development of due diligence frameworks established by organizations like the OECD<sup>62</sup>.

The OECD Due Diligence Guidance for Responsible Business Conduct seeks to aid businesses in their implementation of the guiding principles while aiming to further a widely recognized risk-based due diligence framework among stakeholders and governments. Derived from the OECD Guidelines for Multinational Enterprises, this particular guidance is intended to be adaptable to a variety of due diligence processes, depending on the context of the business and the potential risks within their work. The Six Steps of Due Diligence outline the OECD guidelines for businesses to follow while also incorporating the UN principles<sup>63</sup>

61. These include:

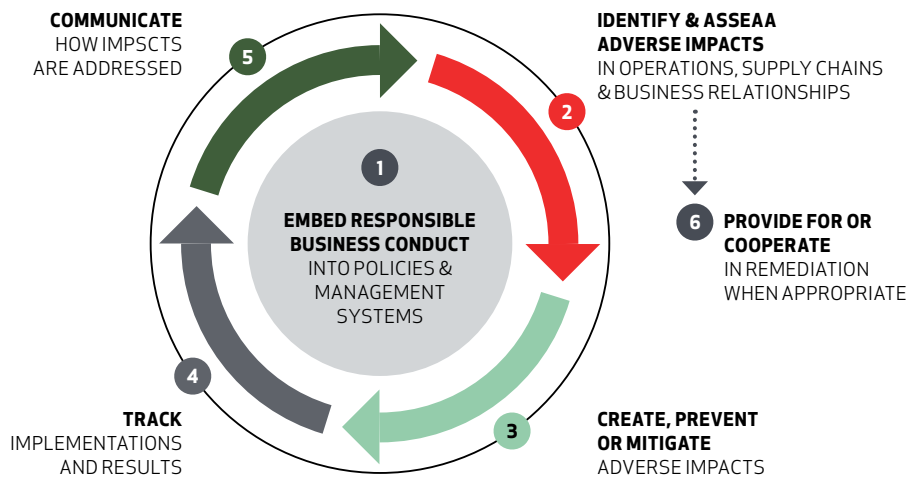
UN Global Compact  
UN Guiding Principles on Business and Human Rights  
ILO Tripartite Declaration of Principles concerning Multinational Enterprises

62. [guidingprinciplesbusinesshr\\_en.pdf](https://www.oecd.org/due-diligence/guiding-principles-business-human-rights/) (ohchr.org)

63. Due Diligence

OECD Guidelines  
National Contact Point OECD Guidelines  
OECD Due Diligence Guidance for Responsible Business Conduct - OECD

**FIGURE 5: The Six Steps of Due Diligence<sup>64</sup>**  
SOURCE: OECD 2018



While these frameworks provide clear steps to be taken to reduce the risk of rights violations, there always remains a possibility of potential risk when commercially engaging in development initiatives.

### Maladaptation

In relation specifically to carrying out climate adaptation measures, there is a risk of maladaptation. This is defined as “Any changes in natural or human systems that inadvertently increase vulnerability to climatic stimuli; an adaptation that does not succeed in reducing vulnerability but increases it instead.” Maladaptation can result in three types of outcomes

1. Rebounding vulnerability: short term adaptations that decrease adaptive capacity and hinder future choices.
2. Shifting vulnerability: larger-scale adaptation actions that produce spill-over effects in other locations.
3. Eroding sustainable development: adaptation strategies which increase emissions and deteriorate environmental conditions and/or social and economic values.

The following strategies and measures are suggested to reduce the probability of maladaptation<sup>65</sup>.

### Environment

- i. Prevent negative effects on ecosystem services in situations (e.g., habitat degradation, pollution) that increase exposure to climate hazards.
- ii. Avoid increasing pressure on other socio-ecological systems.
- iii. Ensure protective role of ecosystems as natural buffer zones is sustained against current and future climate-related hazards, such as storms, floods, and sea level rise.
- iv. Provide some duplication and ensure flexibility of adaptation strategies to reduce risk associated with uncertainties about climate change impacts and ecosystem response (e.g., agrobiodiversity to reduce pest outbreaks).

### Socio-cultural

- v. Consider local social characteristics and cultural values that could affect risks and environmental dynamics.

64. OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf

65. IPCC, 2022a: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change



- vi. Support local skills and knowledge related to climate-related hazards.
- vii. Support capacity-building for new skills needed by local communities.
- viii. Uphold Human Rights Environmental Due Diligence (HREDD) laws to ensure that private sector actors are held accountable for their actions that could cause potential risk to individuals and the environment<sup>66</sup>.

#### Political-Economic

- ix. Consider the political dynamics and power imbalances and create inclusive processes to involve the most vulnerable and disadvantaged groups in decisions.
- x. Work to reduce socioeconomic inequities, poverty and food insecurity.
- xi. Support livelihood diversification.
- xii. Focus on the impacts of adaptation on the poorest, structurally disadvantaged and vulnerable groups, and take power imbalances into account.
- xiii. Work across the full supply chain to consider linkages and possible ripple effects.

#### Stakeholder Engagement

Engaging all relevant stakeholders is critical to guarantee a holistic and exhaustive analysis of actual and potential risks that may occur when partaking in any development-business initiative and, as such, should be taken into consideration in the context of private investment in climate adaptation. The active inclusion of all stakeholders involved at each step of the process should be prioritized, with special attention paid to the most vulnerable rights-holder groups - namely women, youth, and indigenous peoples - and the specific challenges that they face. Indigenous groups are particularly vulnerable to climate adaptation initiatives and it is important to understand the difficulties they may face in terms of claiming their indigenous rights, particularly in the context of states that do not formally recognize individual groups as indigenous if they are nomadic and lack a fixed geographical location to claim.

An assessment of different stakeholders should be conducted in line with the UNSDG principle of “leave no one behind” (LNOB) to ensure the inclusion of all rights-holders and the safeguarding of their individual agency<sup>67</sup>. In particular regard to indigenous peoples, the principle of Free, Prior and Informed Consent (FPIC), a right which has been recognized by the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), that ensures the active involvement and consultation of indigenous communities in development processes, must be incorporated into any discussion involving indigenous groups as rights-holders<sup>68</sup>. ■

66. 20220701-SR-Environment-ExecutiveSummary.pdf (ohchr.org)

67. UNSDG  
Leave No One Behind

68. Free, Prior and Informed Consent  
Indigenous Peoples  
Food and Agriculture Organization  
of the United Nations (fao.org)





## 8: Main findings and Recommendations

### 8.1: Main findings

As has been argued in this report there is a very clear need for options that can help smallholder farmers adapt to climate change to retain jobs and food production in the future. A failure to invest in small-scale agriculture will lead to a slow but steady decrease in production, with devastating effects on local and regional food systems and national economies more widely. Conversely, investing in climate resilience has the potential to create multiple economic, social and environmental benefits, with multistakeholder partnerships emerging as a clear option to increase investments. Increased private investments also increase the need to ensure that social and environmental risks are considered, in line with the UNGPs.

Increasing the flow of private capital into climate adaptation in small-scale agriculture faces some significant barriers. First, the general lack of understanding of how the decisions we make are affected by climate change are accompanied by a lack of data that can provide the empirical evidence needed by decision makers. Next, seen broadly, the policy frameworks in place across low-income countries lack specific strategies that target climate adaptation and incentives that attract private investments. Furthermore, there is a tendency for investments in adaptation to have a more complex long term business case that includes returns that are of social and public good. Moreover, in addition to the issues connected to climate mitigation more broadly, small holder farmers in developing countries have a long history of difficulties in attracting investments from the private sector based on market terms: smallholder farmers are a risky investment for investors, involve high transactional costs, and give limited returns.

The above findings do paint a rather bleak outlook for smallholder agriculture and climate adaptation. However, as this study has argued, blended finance does create a realistic avenue for increased private investments in adaptation and smallholder farmers, with the potential over time to reach considerable scale.

Climate-smart-agricultural solutions for smallholders and adaptation do exist. However, due to the risks mentioned above, private investors will be hesitant to engage in projects that target the most vulnerable groups who are hit the hardest by climate change. Blended finance presents a solution that can help mitigate this risk by bringing together public and private finance and knowledge to mature projects and make them commercially viable. Blended finance projects have the potential to innovate small-holder farming through new technologies that increase production and its stability, which down the line creates a stronger investment case for financial institutions to provide loans and insurance on purely commercial terms.

The recommendations listed below are directed at relevant stakeholders and how they can contribute towards successful blended finance approaches.

## 8.2: Recommendations and roles

### 8.2.1: NGOs

- NGOs should further explore options to engage more in blended finance structures because they are well positioned to develop and implement blended finance projects through their in depth local knowledge and access to local authorities and communities that can help develop and de-risk projects.
- NGOs are well positioned to ensure RBC so that social and environmental impacts are integrated into blended finance structures. NGOs can strengthen the capacity of smallholders and reduce the risk related to their involvement in projects with the private sector.
- NGOs should strive to build expertise in financing to better bridge the gap between the metrics of NGOs and the private sector - one specific option is cross-sectoral working groups that could help harmonize adaptation metrics across sectors. NGOs can play a key role in engaging the private sector that, in many cases, fails to see the potential in options for investments in climate adaptation and/or climate resilient agriculture in low-income countries.
- NGOs can develop specific strategies for private sector engagement and continue to build the body of knowledge addressing the need for adaptation and the investment potential to inform decision making.

### 8.2.2: Private companies and Investors

- Mainstream climate risk into investments to ensure that investments follow the relevant UNGP guidelines to mitigate risk related to negative environmental and social impact.
- Incorporate climate adaptation into investments in order to reduce the risk related to climate change impacts.
- Adapt and use available instruments and products that use a multistakeholder approach to better incorporate the need for climate adaptation through partnerships with the public sector and development community.

### 8.2.3: Development Finance Institutions

- Develop strategies that target climate adaptation and unlock its potential through early-stage finance, first-loss capital and more.
- Bridge the gap between the private sector and development community in climate adaptation investment, ensuring that adaptation is considered.

### 8.2.4: Role of Public and Private donors

- Develop strategies that include specific targets on climate adaptation.
- Donors should engage more systematically in blended finance approaches that can help mobilize private capital in climate adaptation and work towards bridging the finance gap.
- Develop vehicles and instruments for blended finance/multistakeholder approaches that build on the metrics of both the public and private sector.

### 8.2.5: Public Authorities

- Develop clear and coherent policy frameworks that mainstream climate adaptation into decision making.
- Develop support and incentive structures that will increase investments in climate adaptation from the private sector. ■



## 9: Knowledge sources

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Danida  
Confederation of Danish Industries (DI)  
DCA  
Earth Security  
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