



# Digital Climate Advisory Services (DCAS) for smallholder resilience

Opportunities and challenges to scale to 300 million farmers

## Contents

- ① **Why is investment in Digital Climate Advisory Services (DCAS) for farmers needed? | 3**
- ② **Key success factors for DCAS business models | 4**
- ③ **The role of Public Private Partnerships (PPPs) | 7**
- ④ **Next steps | 9**

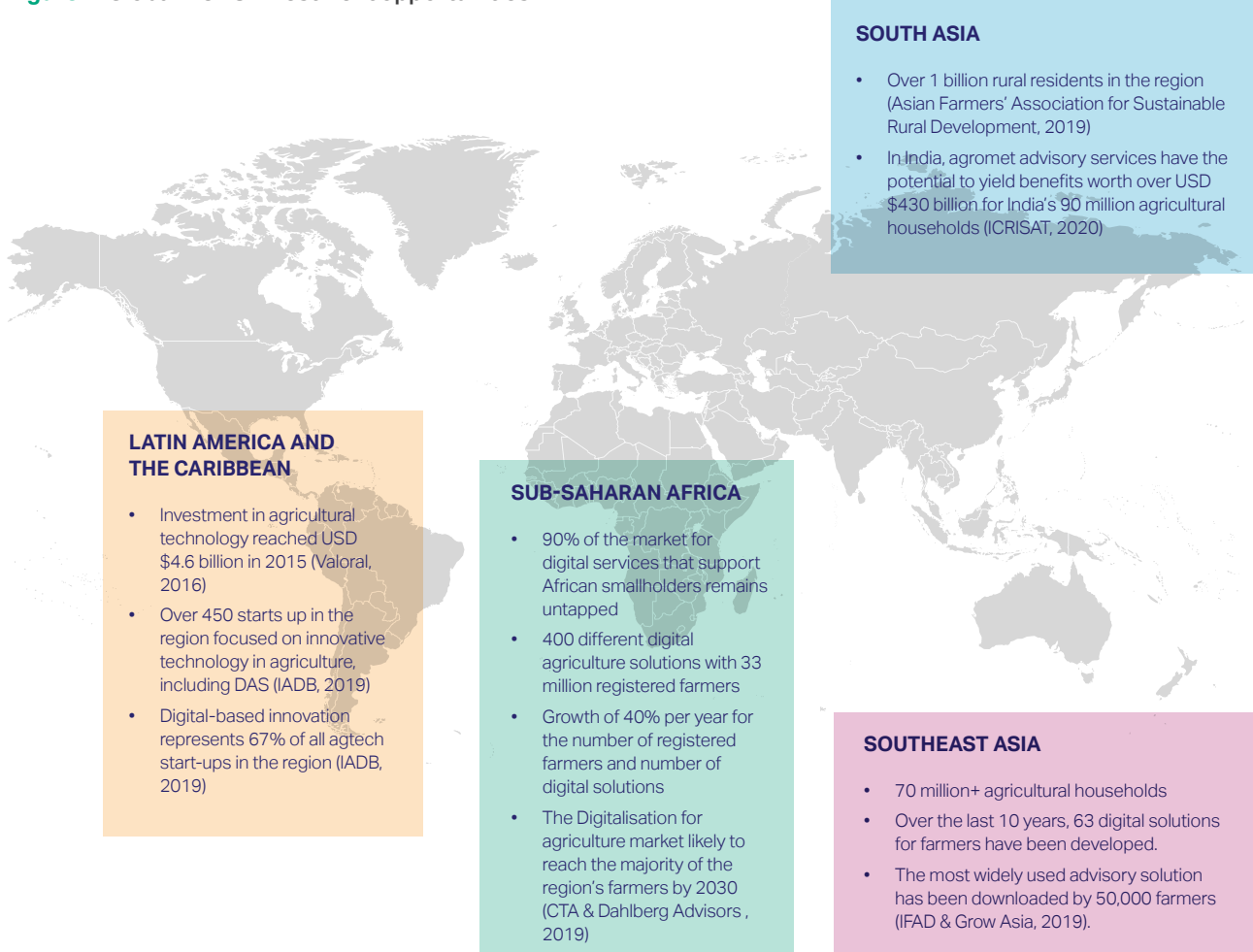
# ① Why is investment in Digital Climate Advisory Services (DCAS) for farmers needed?

**Around 30% of global crop production is threatened by climate change impacts and over 300 million small-scale farmers do not have access to climate advisory services to help them respond to this threat. To serve this farmer population, billions of dollars of investment are needed in DCAS by 2030.**

Much of this finance will need to come from the private sector, creating significant opportunities for business, as highlighted in Figure 1 below. The adoption of digital technologies in agriculture and rural areas could generate a value of USD \$800 billion by 2050.<sup>1</sup>

**Digital advisory services bundled together with financial and other services have the potential to increase smallholders' income by 57% and productivity by 168%.<sup>2</sup>**

**Figure 1:** Global DCAS investment opportunities



## ② Key success factors for DCAS business models

**To scale up investment, it is important that effective business models are in place to channel financing and achieve lasting impact.**

### **SOME KEY ELEMENTS OF SUCCESSFUL BUSINESS MODELS FOR DCAS INCLUDE:**

- **User-centric delivery models** that reach non-functionally or digitally literate farmers. This allows for DCAS solutions to reach much larger segments of the market either through intermediaries or direct to farmers.
- **Strong focus on last mile challenges**, including partnerships for offline farmer outreach (e.g., community radio, in person training) and support for local entrepreneurs to provide the physical inputs

and services DCAS advice calls for. For a DCAS solution to succeed it generally requires a strong set of partnerships to achieve farmer and cooperative engagement at scale.

- **A focus on the most responsive segments of the farming population**, including youth and proactive identification of early adopters. Achieving a foothold with these segments of the customer base helps achieve more efficient and faster growth in market penetration.
- **Achieving efficiencies through specialization** by companies focusing on specific sections of the DCAS value chain. There are a growing number of specialized organizations who can deliver

specific elements of each DCAS solution (e.g., data hosting and management), achieving economies of scale with multiple proponents using their solutions.

- **Bundling services together** appears to now be industry standard practice and can help enhance the value proposition for farmers. This includes combining DCAS services with financial and insurance services, market information, health applications and more. This bundling process can also help achieve economies of scale in the costs of platform management and marketing, making each service more affordable and/or financially sustainable.





### CASE STUDY: Delivering DCAS at scale within Olam's Supply Chain<sup>3</sup>

The **Olam Farmer Information System (OFIS)** is a digital system that provides farmers with personalised farm development plans. Over 550,000 farmers in over 30 countries are registered to OFIS and it has the potential to positively influence the 4.7 million-strong farmer network that Olam engages with.

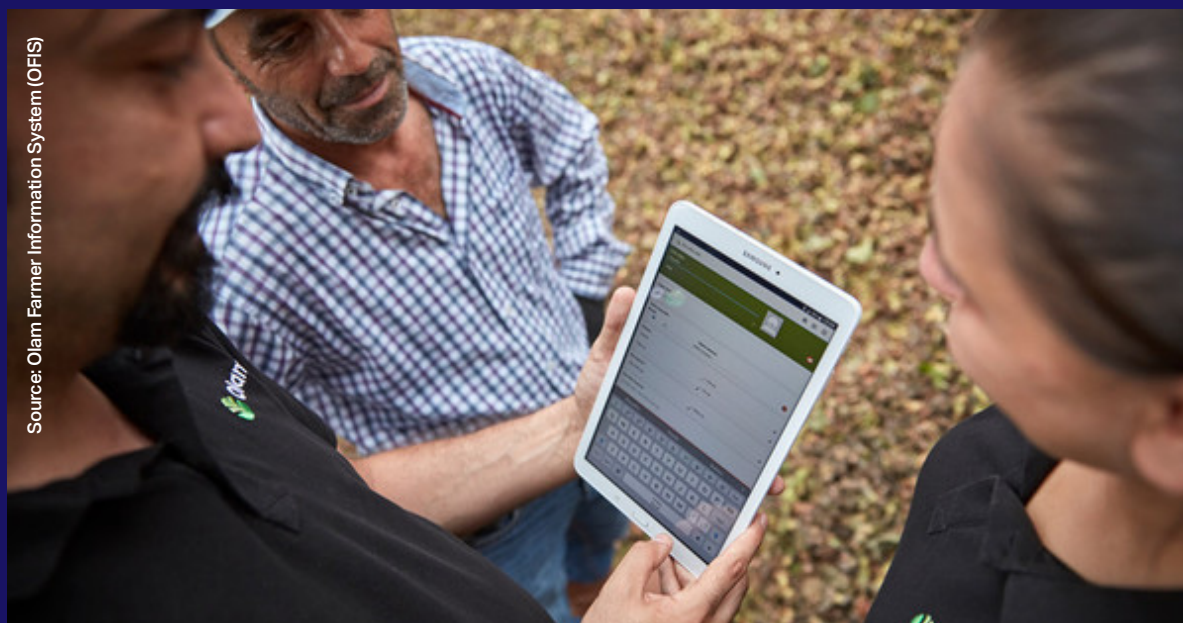
The system collects farm-level data through survey tools and maps the GPS data points where the farms are located, as well as calculating average yields, the number of trees on the farm and other information. These datasets are then fed directly into the Farm Development Plan module, which provides a personalised 5-year plan for each farmer.

This plan offers recommendations for how farmers can maximise farm productivity as well as highlighting and mitigating risks. For example, it provides recommendations on fertiliser usage, farm rehabilitation, and Good Agricultural Practice (GAP) support. Recommended interventions are costed for each farmer, giving them the opportunity to review, and if necessary, revise the feasibility of the plan. In addition, the system can be used to monitor and remediate child labour activity and training the farmers against child labour practices.

In addition to above, Olam's digital platform Olam Direct, through apps and SMS provides direct access to price and market information to 90k+ farmers across 11 countries.

In addition, Olam can also communicate with farmers on information such as weather, agronomic advice and safety guidance. The platform provides farmers the ability to transact seamlessly with Olam thus eliminating middlemen and realizing a fair price for their produce. The additional income helps farmer to reinvest in sustainable agricultural practices.

These digital innovations not only improve the transparency of Olam's supply chain but also enable farmers to make efficiency gains and understand the impact that these resources are having on their farms.



Source: Olam Farmer Information System (OFIS)

It is important to note that the nature and scale of challenges to DCAS success and penetration vary geographically, especially in function of the digital literacy and readiness of specific regions.

### MAIN OBSTACLES FACING THE GROWTH OF SUCCESSFUL BUSINESS MODELS FOR DCAS INCLUDE:

- **A lack of DCAS standards and regulation by government.** This has meant that sub-standard services have gone onto the market around the world, and when they don't provide effective solutions this erodes customer trust. The cumulative effect of this can make it difficult for credible service providers to succeed in these markets.
- **Limited data and evidence** of the additional value commercial DCAS can provide for B2B/B2C customers and real or perceived high transaction costs.<sup>4</sup>
- **Large segments of the farmer market not suited or engaged** in commercial DCAS provision, particularly those without an intermediary or aggregator willing to pay for DCAS.<sup>5</sup>
- In some markets there are **low levels of farmer trust** towards DCAS and a reluctance to share information, with a preference for receiving advisory services face-to-face.
- **Infrastructure challenges** such as coverage of mobile networks and supply networks for the inputs and materials required.
- **Last mile engagement challenges.** Purely commercial models may be transactional in nature without addressing last mile engagement but working with NGO or CSO delivery

partners to help with last mile engagement brings additional costs to a business unless these partners have other financing sources (or Public Private Partnership support).

### COLLECTIVE ACTIONS NEEDED TO OVERCOME THESE CHALLENGES INCLUDE:

- **Developing regulatory frameworks that maximizes consistency across countries/regions.** With many countries at an early stage in regulatory development for DCAS, there is an opportunity to facilitate greater interaction between governments and potentially enhance the consistency of regulatory frameworks. This could aid regional level investment and cross-border DCAS replication, along with improved quality of DCAS provided for farmers and cooperatives.
- **Local Micro, Small, Medium Enterprises (MSME) impact investment and capacity development to provide last mile services.** There is an opportunity to support the growth of local level entrepreneurs, MSMEs and cooperatives to provide the services and products called for by DCAS. They typically rely on organic growth but may benefit from technical assistance and impact investment (via local intermediaries such as Microfinance Institutions (MFIs)) to support this growth and increase success rates. An example of how this model is being taken forward is the e-farmers' Hub supported by the Syngenta Foundation for Sustainable Agriculture (SFSA).
- **Investment opportunities (e.g., with blended finance) with co-benefits to deliver the required infrastructure.** Much of the investment needed is not DCAS-specific, and relates to broader economic growth (e.g., mobile network coverage). In some rural areas a purely commercial case for these investments may be more difficult to make, but donors, DFIs or impact investors may be able to offer concessional finance as part of a blended finance structure to help make these marginal investments happen. Improvements in supporting infrastructure can also reduce costs to serve and make DCAS delivery more accessible to end users.
- **Strengthening financial sustainability of farmer cooperative DCAS solutions.** Farmer cooperatives can hold valuable data for DCAS services and be an important partner in expanding the coverage of weather station infrastructure and delivering the services that DCAS call for to their members (such as market information, input access etc.). They can also play an important role in expanding the coverage of PPP DCAS programs. There are opportunities to reduce the net costs of accessing DCAS for cooperatives by better recognizing and valuing these services and potentially providing discounted access in exchange for them.
- **Assessing the resilience and value of DCAS under natural disaster conditions and severe disruption.** Once the COVID-19 crisis has subsided it may be useful to review how DCAS services have performed in these circumstances and if they have helped farmers respond. It will also be beneficial to examine how different DCAS business models have fared, where the financial resources to pay for them are severely reduced during an economic downturn. This could have important lessons for the resilience and long-term scalability of different models.

# 3 The role of Public Private Partnerships (PPPs)

**Public-Private Partnerships (PPPs) will play a key part in the growth of DCAS, harnessing national and regional government programs and combining the technical skills and mandates of public and private sector organizations. They also present the opportunity to generate revenue to enhance the financial sustainability of government programs.**

## KEY ELEMENTS OF SUCCESSFUL PPPs INCLUDE:

- **Agreed clear set of principles and vision** in place for how public goods are achieved and balanced with private interest;
- **Sufficient time and space for trust-building** between government and the private sector, there is a strong role for an intermediary to provide 'neutral' facilitation;
- **Key contractual points agreed upfront** such as on Intellectual Property (IP), commercial rights etc;
- **Open and fair competition for service provision**, with detailed performance standards;
- **Strong coordination mechanisms** between government agencies;
- **A progressive approach** to digital public service provision in public policy;
- **A well-defined role** for civil society and community organizations; and
- **The use of differential pricing and cross-subsidization** to help achieve public goods.

### CASE STUDY: Using PPPs to deliver farmer DCAS outreach at scale<sup>7</sup>

Digital Green is a global development organization that together with the Governments of India and Ethiopia has delivered large-scale digital agricultural advisory services using multiple media channels including video, radio and mobile. Digital Green's model involves farmers in content development, but the content is also carefully curated, screened, and triangulated with input from professional agronomists. Their advisory videos are simple, easy to comprehend, and locally relevant.

In India, Digital Green partnered with the Government of India's National Rural Livelihoods Mission (NRLM), a flagship program aiming to reduce poverty and increase gainful employment across millions of rural households. They worked with state-level officials to train over 12,500 frontline workers to use their approach for the promotion of sustainable agriculture & nutrition practices to over 15,200 villages across the country.

In Ethiopia, the organization has reached 443,000 farmers working closely with the Ministry of Agriculture at the national, regional, district and village levels.

They build the capacity of subject-matter specialists to produce localized videos within districts and at the village level train government extension officers to screen videos among their communities. With the integrated use of cost-effective video and interactive voice response (IVR) extension agents are reaching more farmers with accurate, timely and localized messages.

At a global scale Digital Green's services have reached 2.3 million farmers, indicating the scale that can be achieved via their delivery model.

## THE MAIN OBSTACLES FACING THE GROWTH OF PPPs INCLUDE:

- **A lack of government coordination and resources to manage PPPs effectively.** It can be difficult for government agencies to coordinate effectively on delivering DCAS PPPs for a variety of reasons, ranging from political tensions between ministries to lack of capacity of staff to engage beyond the demands of their day-to-day work.
- Finding ways not to 'pick-favorites' in service provision and **maintain a level playing field;**
- Making these **services financially sustainable**, whilst maintaining the focus on **public goods;** and
- **Overcoming challenges related** to poor infrastructure and mobile network coverage.

## COLLECTIVE ACTIONS NEEDED TO OVERCOME THESE CHALLENGES:

- **Achieving widespread farmer engagement in DCAS through PPPs, working with lead farmers and early adopters/youth in agriculture** - The scale of coverage of public extension services can be an important opportunity to boost farmer uptake of DCAS developed by private companies, and enhance the impact of the recommendations they provide. For example

EcoFarmer in Zimbabwe (developed by the telecoms company Econet Wireless) provides the 'Dial-a-Muduemni (extension officer)' service delivered in partnership with the Ministry of Agriculture to over 700,000 registered farmers, to complement its digital services and help the Ministry expand its extension coverage. Where in-person engagement is needed, the cost efficiency of these efforts can be further improved through focusing training efforts on supporting young farmers and early adopters to then raise-awareness amongst their communities.

- **Supporting governments to initiate and manage PPPs effectively, and enhance intra-government coordination** – dedicated support could be provided to government staff to deepen their understanding of PPP design and management, along with support for coordination between government ministries on the topic of DCAS for farmers. Partnerships could also be developed with initiatives already supporting PPP development in target regions to provide further guidance and support for governments on this topic.
- **Strengthening the financial sustainability of PPPs** – many PPPs cannot sustain themselves indefinitely due to

public budget constraints and political changes. Innovative cross-subsidization models such as the Mexican Ministry of Agriculture forecasting network could be used here, to use income from premium services to support PPPs over time. There are other lessons from private DCAS delivery that can also strengthen the financial sustainability of PPPs. For example, the approach used in the form of farmer peer-to-peer DCAS services (such as WeFarm, Connected Farmer) could be integrated into PPPs to reduce the burden on government extension officers and enable farmers to provide advice to one another directly.

- **Catalyzing the involvement of third sector and academic organizations in PPP implementation** – there are often NGOs, civil society organizations, thinktanks and academic institutions that have the mandate to support farmers and cooperatives or put their own research into action, which could contribute to the success of PPPs with their resources and expertise. However as mentioned above, simply managing the relationship with a single private sector organization can be challenging for governments, so they may not have the capacity or resources to engage these other actors effectively. External support for this process could help improve the integration of these other actors into PPPs and improve their effectiveness.



## 4 Next steps

**The business sector has a vital role to play in scaling up the deployment of DCAS through individual action and public-private partnerships. Collective action is also critical to address any obstacles.**

Through its Food and Nature Program area, WBCSD will continue supporting this agenda through a series of activities, including, but not limited to:

- Further analyzing and building the evidence of the business case for DCAS in key countries, alongside regional WBCSD programs, farmer groups, businesses and partners;
- Promoting the role of business-led DCAS in building farmer resilience in public sector policy fora such as the UNFCCC;
- Continuing the delivery of the Farm of the Future knowledge series with webinars during the course of 2021 to further understand and address the obstacles highlighted in this paper; and
- Responding to member requests for further analysis on topics of shared interest in DCAS.



# Endnotes

- <sup>1</sup> FAO (2019). Digital technologies in agriculture and rural areas – Status report. Available online: <http://www.fao.org/3/ca4985en/ca4985en.pdf>
- <sup>2</sup> CTA & Dahlberg Advisors (2019). The Digitalisation of African Agriculture Report, 2018-2019. Available online: <https://cgspace.cgiar.org/handle/10568/101498>
- <sup>3</sup> All information in this case study is derived from the Olam website (<https://www.olamgroup.com/sustainability/reimagine/olam-farmer-information-system.html>) and 2017 Annual Report ([https://www.olamgroup.com/content/dam/olamgroup/files/uploads/2018/04/Olam-Annual-Report-FY17-Strategy\\_Report\\_2017.pdf](https://www.olamgroup.com/content/dam/olamgroup/files/uploads/2018/04/Olam-Annual-Report-FY17-Strategy_Report_2017.pdf)).
- <sup>4</sup> ISF and SwissRe (2020) Strategies for supporting sustainable and climate-smart advisory services. Available online: <https://media.swissrefoundation.org/documents/Strategies+for+Supporting+Sustainable+and+Climate-Smart+Advisory+Services.pdf>
- <sup>5</sup> Ibid.
- <sup>6</sup> Syngenta Foundation for Sustainable Agriculture website. Available online: <https://www.syngentafoundation.org/agriservices/whatwedo/digitalsolutions/e-farmershub>
- <sup>7</sup> All information in this case study is derived from the Digital Green website, specifically the Global impact (<https://www.digitalgreen.org/global-impact/>), India (<https://www.digitalgreen.org/india/>), and Ethiopia (<https://www.digitalgreen.org/ethiopia/>) webpages.
- <sup>8</sup> Spore Magazine (2017). Data and insurance – EcoFarmer: bundling information and financial services. Available online: [https://medium.com/@Spore\\_Magazine\\_54746/data-and-insurance-ecofarmer-bundling-information-and-financial-services-2b0e8ea4f44a](https://medium.com/@Spore_Magazine_54746/data-and-insurance-ecofarmer-bundling-information-and-financial-services-2b0e8ea4f44a)

## ACKNOWLEDGEMENTS

This report expands on WBCSD findings as part of the process of creating an Investment Blueprint for DCAS to reach 300 million smallholders farmers. In particular, it focuses on the challenges and opportunities for the private sector to implement financially sustainable business models for DCAS, and the collective action needed to accelerate this. This report won't be possible without the support of all the partners involved in the development of the DCAS Investment Blueprint, and the WBCSD members that have dedicated time and resources to share their case studies.

## DISCLAIMER

The Investment Blueprint for Digital Climate Advisory Services report will be published in Spring 2021, with coordination and contributions from the by the Global Commission on Adaptation, World Resources Institute, World Food Programme, the International Research Institute for Climate and Society at Columbia University and the WBCSD.

This publication has been developed in the name of WBCSD based on inputs from WBCSD memberships and other stakeholders involved in a WBCSD led working group on the financial sustainability of DCAS and the role of PPPs to support the creation of the Blueprint. Any reference to findings or insights from the Investment Blueprint work is preliminary.

Like other WBCSD publications, it is the result of a collaborative effort by WBCSD staff, experts and executives from member companies. A wide range of members reviewed drafts, thereby ensuring that the document broadly represents the perspective of the WBCSD membership. Input and feedback from members and interviewees was incorporated in a balanced way. This does not mean, however, that every member company or interviewee agrees with every word.

## ABOUT WBCSD

WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world. We help make our member companies more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies.

Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD \$8.5 trillion and 19 million employees. Our global network of almost 70 national business councils gives our members unparalleled reach across the globe. Since 1995, WBCSD has been uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues.

Together, we are the leading voice of business for sustainability: united by our vision of a world where more than 9 billion people are all living well and within the boundaries of our planet, by 2050.

Follow us on [LinkedIn](#) and [Twitter](#)

[www.wbcd.org](http://www.wbcd.org)

## COPYRIGHT

Copyright © WBCSD, January 2021.

**World Business Council  
for Sustainable Development**

Geneva, Beijing, Delhi, London, New York, Singapore

[www.wbcsd.org](http://www.wbcsd.org)

