



Digital Green  
ANNUAL REPORT 2020





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## Our commitment to building resilient communities

As we reflect on the year, it seems only natural—and imperative—that we must double down on our efforts to deliver information to farmers via an increasing array of digital solutions and that we must accelerate technological innovations so that farmers can better connect to markets. No one could have imagined how significantly nearly every aspect of life would change for ourselves and the farmers we serve as a result of the COVID-19 pandemic. The early lockdowns caught farmers between planting seasons, unable to sell their harvest through normal marketing channels or plan for the following season. We are thankful that our network of partners, community members, and technology enabled us to quickly pivot some of our programming to respond with safe and effective farmer-first solutions.

The COVID-19 pandemic also exposed the absence of deliberate investments in the systems that enable smart technology for farmers and amplify their voices. Neglecting a community's design needs can further marginalize its members, particularly women—or worse, result in exploitation, starting with their data. The shock of the pandemic reminded us that more shocks are coming, especially as climate change accelerates and its impacts continue to be disproportionately experienced by the world's poorest communities. In the years ahead, even more of our work needs to focus on supporting individual and collective agency and resilience, so that we're ready to respond to whatever comes next. Amidst these challenges, we at Digital Green remain committed to bridging gaps, developing resilient communities and food systems, and empowering smallholder farmers around the world.

**Rikin Gandhi**

Co-Founder & Executive Director



## OUR MISSION

Empower smallholder farmers to lift themselves out of poverty by harnessing the collective power of technology and grassroots-level partnerships.

## OUR APPROACH

Digital Green partners with governments, private agencies and, most importantly, rural communities themselves to co-create appropriate and participatory digital solutions to improve agricultural, health, and nutrition outcomes. We believe in listening to people and data, and understanding local context and culture to build community-centered technology solutions for the challenges and opportunities they see as most vital. We work to ensure that every digital solution is developed and implemented in a manner that's nutrition-sensitive, climate-resilient, and inclusive. Throughout this process, we continually test, learn, iterate, and evaluate to ensure that farmers and their families end up with the best possible products and outcomes to improve their livelihoods and increase their incomes.



SINCE 2008,  
WE HAVE REACHED  
**2.3 MILLION**  
**FARMERS**  
**AND TRAINED**  
**46,000**  
FRONTLINE WORKERS  
IN 18 COUNTRIES





## OUR SOLUTIONS

### Community Video+

Our partners have used our community-based video method to create over 6,500 locally relevant videos in over 50 languages. Topics include improved agricultural, health & nutrition, and conservation practices. In-person video screenings are supplemented with Interactive Voice Response (IVR), SMS, and WhatsApp reminders and reinforcement messages. Our response to the COVID-19 pandemic included the dissemination of COVID-19 awareness and safety messages.

Our YouTube channel had 15.5 million views and 61.8K new subscribers in FY20

#### IMPROVING MATERNAL AND CHILD NUTRITION

“I’m a lactating mother with a 7-month-old baby; it was difficult to feed my baby nutritious food, as there were many myths and taboos associated with some types of food. I began to watch the videos shown by the local health worker every fortnight in our *Anganwadi* (health) centre, and started discussing the video content with my husband and other family members. They started to join me for the video screenings, which then motivated them to take better care of my and my baby’s food and health.

We planted a variety of vegetables in our backyard, and started using pot manure (instead of chemical fertilizers and pesticides) to prevent pests and diseases. Now we have peas, papaya, banana, greens, and other vegetables in our garden. We are selling our extra produce in the local market, and get eggs and meat from our poultry farm and milk from cows. The videos we have been watching have been changing the lives of myself, my family and our village.

—GOLAPA MAHANTA, CHAKRADHARPUR, ODISHA, INDIA



### Innovation Lab

In regions where smartphone ownership is higher among farmers, we’re testing out farm management tools, as well as different ways to engage them directly—like moderated WhatsApp groups—so that farmers have access to diagnostic tools, expert advice, and other information when they need it most.

### Training Courseware

Through our mobile training courseware, agricultural extension agents access video-based courses that incorporate assessments. Our partners are increasingly interested in offering virtual training courses to their frontline workers, so that they can continue to strengthen knowledge and build their skills from anywhere. Nearly 11,000 frontline workers have taken courses through this mobile platform.

### Market Access

We designed and operated Loop, a produce aggregation and transport service that saved farmers time and money, and sent their produce into higher-value markets. We’ve been re-imagining the concept in the COVID-19 market context to help producers support collectivization and more easily connect to buyers of environmentally sustainable produce.

### FarmStack

The data generated by farmers and the organizations that serve them can be used to develop high quality, localized, and impactful decision-support and market access content and services. FarmStack is an open-source, interoperable data protocol that enables farmers and organizations to share data to solve problems to make better decisions—all while protecting their privacy.



## OUR IMPACT

### Strengthening extension systems

This year, we celebrated a decade of collaboration with the Ministry of Rural Development and National Rural Livelihoods Mission in India and five years of collaboration with Ethiopia's Ministry of Agriculture and Regional Bureaus of Agriculture to scale our community video approach. The strong partnerships and dialogue that we've developed have enabled us to continue innovating to safely and effectively reach farmers with a diverse range of digital technologies during increasingly challenging times.

- In FY20, we reached over **1 million farmers** with videos on agriculture, conservation, and health and nutrition.
- Over **60% of farmers** adopted at least one new practice, with adopting farmers implementing an average of 5 new improved practices.
- The video-enabled extension approach costs \$3 per practice adopted, while traditional extension costs \$24 per practice adopted, an **8-fold efficiency gain**.
- Our partners have invested **\$21.5 million** (direct and in-kind) in scaling and sustaining the community video approach

Participating paddy farmers in India experienced yield gains of up to 45% and income increases of up to 17%.



### USING VIDEO TO TEACH NATURAL RESOURCE MANAGEMENT

In Ethiopia, Dedo Woreda, the district where Genet Gebre works, has high levels of soil degradation and erosion, deforestation, and biodiversity loss—as well as declining food production.

Genet is committed to helping farmers implement natural resource management practices that can improve their soil and crop productivity. Many of these methods, however, run counter to traditional practices and have been difficult to promote without the means to illustrate their benefits.

Genet was trained to use videos about natural resource management to facilitate discussion among farmers, and found the approach to be effective and efficient. For example, after a video about planting tree seedlings, all of the farmers in the group suggested planting eucalyptus, which is a tree they have traditionally planted because it is fast

growing and can be used for fuel or construction. Genet was then able to discuss the adverse effects of eucalyptus on the local ecosystem, including groundwater depletion, soil degradation, and suppression of native species with the whole group—as a result, many of the participants decided to plant tree seedlings that were more beneficial than eucalyptus.

Genet says she is inspired by the success she's had using videos to help farmers understand how improving the soil can help them to increase their food production.

“The videos are highly accepted and attended by farmers. When we started screening the video topics, farmers were skeptical of the benefits they might obtain. There are no longer any doubts. I now have their trust and confidence.”

—GENET GEBRE, DEVELOPMENT AGENT, OROMIA, ETHIOPIA





## OUR IMPACT

### Connecting farmers to markets

Our farm-to-market logistics service, Loop, served 25,565 farmers who sold 104,000 metric tons of produce valued at \$16.3 million. Loop's mobile apps for farmers, transporters, and buyers provided easy access to the service, and the market price prediction and transport load optimization algorithms helped to increase farmers' profits by 18%. In addition to greater earnings, Loop farmers appreciated the time savings, which averaged 4-6 hours on each trip to market. The tech innovations and user interface learnings from Loop are now being applied to other market linkage challenges that farmers face.



“Loop has made things easy for me. I hand over my vegetables to Loop in the morning and receive the money at home.” —SHIVJI PRASAD, BIHAR, INDIA

“We are assured of timely arrival of the produce from farmers and timely sale of the produce. We, too, profit when farmers are able to make a profit.”

—NEELAM MAHTO (GADDIDAR/TRADER),  
BIHAR, INDIA



Supporting donors in FY20: **Bill & Melinda Gates Foundation, Cisco**



### MANAGING MARKET TRANSACTIONS AND PROFITS

After observing the complicated ways farmers track their finances on paper, Digital Green developed KisanDiary, an app-based digital ledger that works like farmers do—with crops and seasons. With more than 25,000 installations, and available in four languages, KisanDiary helps farmers save time and optimize their balance sheets by gathering crop-specific data that can be used to calculate farmer income and profitability.



“On my farm, I cultivate 4-5 different types of vegetable crops. I used to maintain paper records but would confuse myself with missed entries. Now I have KisanDiary, where I record expenses for manure and labor immediately. It's easy to access all details in one place, and I also get crop advisories and market price information. KisanDiary is helping me a lot and is making my life easier.”

—NAVEEN KUMAR, TURUVANAHALLI, BENGALURU RURAL, INDIA



OUR IMPACT

Enabling the wider agricultural ecosystem



The challenges farmers face only continue to increase—fortunately, so is the amount of data that can be used to enhance their overall resilience. We’re developing FarmStack, which is a protocol that will enable data integration and exchange among public and private agencies working in the agricultural sector—so that they can use that data to create new tools, solutions, and content for farmers—while codifying data protection and privacy safeguards. Making sure farmers have robust data protections in place will further enable market access and digital participation.

Following the completion of pilots that demonstrated the potential for combining multiple datasets, including weather forecasts and soil conditions in India, we kicked off the development of FarmStack’s back-end architecture and the design of use cases in the Ethiopia dairy and wheat sectors.

In October 2019, Digital Green launched a five-year effort to develop the FarmStack platform with and for the Government of Ethiopia’s Ministry of Agriculture.

“The Ministry has been collaborating with Digital Green with the video-based extension approach since 2012, and with the Agricultural Transformation Agency (ATA)’s farmer’s hotline since 2014. However, there is a need to strengthen the existing approach and create more digital channels; the Ministry is committed to operationalize and scale up the platform needed to do this.”

—ATO GERMAME GARUMA, AGRICULTURAL EXTENSION DIRECTOR GENERAL OF THE MINISTRY OF AGRICULTURE, GOVERNMENT OF ETHIOPIA

Supporting Donors in FY20: Bill & Melinda Gates Foundation, UK FCDO, Walmart Foundation

LOCALIZED DATA = MORE EFFECTIVE ADVISORIES

In Andhra Pradesh, India, Digital Green integrated soil and weather information to help farmers prioritize key practices to maximize their cashew yields. Unpredictable weather conditions have exacerbated cashew flower drop and tea mosquito infestation in recent years, which have taken a toll on cashew production.

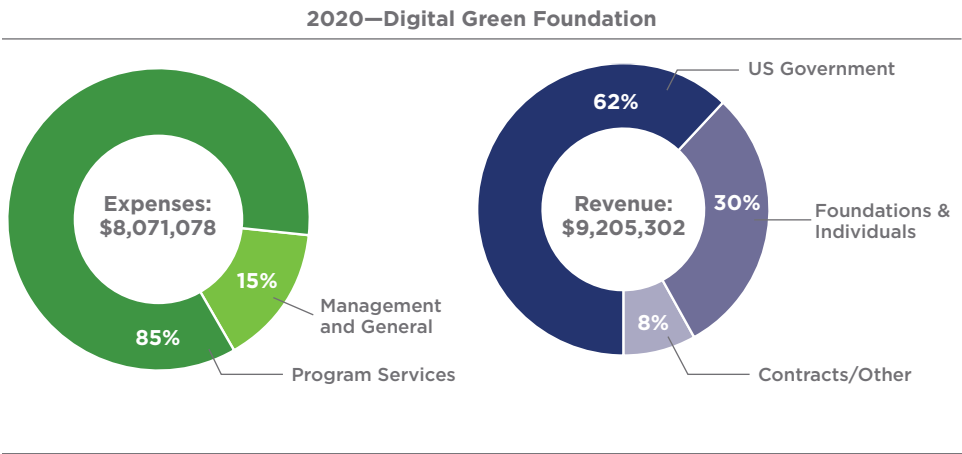
Biddika Yellaiah is a farmer in a tribal area located in the Srikakulam District. After collecting soil samples from his field, Biddika received the results, along with a customized set of practices to improve the resilience of his plants. Biddika received advisory messages through multiple channels—video screenings, the local Farmer Field School, his extension agent, and pre-recorded audio reminders sent to his phone—and eagerly implemented all of the practices on his farm. Two of those practices were specifically recommended to prevent cashew flower drop and tea mosquito infestation, while others boosted overall plant and soil health.

Biddika’s efforts paid off! Right before harvest, his trees were brimming with bunches of high-quality cashew nuts and he was looking forward to a bumper crop. Biddika eagerly shared his experience with fellow farmers in his village.





FINANCIALS



2020—Digital Green Foundation	
Assets—total:	\$8,120,606
Liabilities—total:	\$2,186,293
Net Assets—total:	\$5,934,313

Notes: Based on final FY20 DGF consolidated audit report prepared by GRF CPAs & Advisors



LEADERSHIP TEAM



**Rikin Gandhi**  
Co-Founder & Executive Director



**Giovanna Masci**  
Vice President, Internal Operations



**Alesha Miller**  
Vice President, Strategy & Partnerships



**Kebede Ayele**  
Country Director, Ethiopia



**Krishnan Pallassana**  
Country Director, India



**Razak KM**  
Director of Technology

BOARD

DIGITAL GREEN FOUNDATION

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University of Michigan

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World Wildlife Fund

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Georgetown University

**Christan Merz**  
GIZ

**Ria Shah**  
Athira Solutions

PARTNERS

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Hewlett Packard Enterprise Foundation  
Mulago Foundation  
PepsiCo  
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United States Agency for International Development  
Walmart Foundation  
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GOVERNMENT PARTNERS

INDIA

Andhra Pradesh Department of Agriculture and Cooperation  
Bihar Rural Livelihoods Promotion Society (JEEViKA)  
Department of Agriculture and Farmers' Empowerment, Govt. of Odisha  
Integrated Child Development Services  
National Health Mission Assam  
National Health Mission Chhattisgarh  
National Health Mission Jharkhand  
National Health Mission Uttarakhand  
National Rural Livelihoods Mission  
Odisha Livelihood Mission  
State Nutrition Mission Jharkhand  
State Rural Livelihood Mission Chhattisgarh

ETHIOPIA

Agricultural Transformation Agency  
Amhara Regional Bureau of Agriculture & Natural Resources  
Ethiopian Institute of Agricultural Research  
Ministry of Agriculture (Government of Ethiopia)  
Oromia Regional Bureau of Agriculture & Natural Resources  
Oromia Forest and Wildlife Enterprise  
Oromia Environment, Forest and Climate Change Authority  
Oromia Regional Bureau of Finance and Economic Cooperation  
SNNPR Regional Regional Bureau of Agriculture & Natural Resources  
Tigray Regional Bureau of Agriculture & Rural Development

KENYA

Kenya Agricultural and Livestock Research Organization  
Kenya Plant Health Inspection Services  
Makueni County Government

RWANDA

Ministry of Agriculture and Animal Resources  
Rwanda Agriculture and Animal Resources Development Board

KNOWLEDGE + IMPLEMENTATION PARTNERS

Arghyam  
CARE  
Centre for Media Studies  
Centre for Youth and Social Development  
CGIAR Platform for Big Data in Agriculture

Dalberg  
Ekjut  
Environment and Coffee Forest Forum  
Global Forum for Rural Advisory Services  
IDEO.org  
IDInsight  
International Food Policy Research Institute  
International Maize and Wheat Improvement Center (CIMMYT)  
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Mahila Kisan Sashaktikaran Pariyojana  
One Acre Fund  
Precision Agriculture for Development  
Societal Platform  
University of London / SOAS  
Voluntary Association for Rural Reconstruction and Appropriate Technology

TECHNOLOGY PARTNERS

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OnionDev (Gramvaani)  
OpenTEAM





# Digital Green

[digitalgreen.org](http://digitalgreen.org)  
[contact@digitalgreen.org](mailto:contact@digitalgreen.org)

## India

Avanta Business Centre,  
Office no. 1208 B  
12th Floor, Ambadeep Building, KG  
Marg Connaught Place  
New Delhi, India - 110006  
+91 11 41881037

## Ethiopia

6th Floor, Waryt Building  
Haile Gebresilasie Street  
Addis Ababa, Ethiopia  
+251 116 672960

## United States

650 California Street  
7th Floor  
San Francisco, CA 94108  
+1 415-965-7880