

## Evidences

### Study #3257

**Projects:**

- P1664

**Part I: Public communications**

**Type:** OICR: Outcome Impact Case Report

**Status:** On Going

**Year:** 2019

**Tagged as:** New Outcome/Impact Case

**Title:** New Ethiopian Ministry of Agriculture data sharing policy supported by WLE/CIAT and GIZ to improve food production while building landscape health

**Short outcome/impact statement:**

WLE/CIAT, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and partners supported the Ethiopian Ministry of Agriculture to adopt a comprehensive data sharing policy. Currently, data sets, for example fertility trials, are scattered among many scientists and institutions, severely limiting the ability to target fertilizer recommendations to farmers. This will now change as the Ministry is working with stakeholders to collate datasets to develop national fertilizer recommendations. This policy will undoubtedly support the agricultural transformation agenda.

### Outcome story for communications use:

New data sharing policy in Ethiopia transforms the country's agricultural agenda

At heart, Ethiopia is still an agriculture-based society and economy. But low-fertility soils and uncertain climate conditions have threatened smallholders and poor farmers across the country. This means that Ethiopia is struggling to produce more food for a quickly growing population. And on increasingly degraded lands. Part of the solution lies in determining the appropriate type and amount of fertilizer for a given location.

Without national fertilizer recommendations, farms in Ethiopia wrestled to establish suitable fertilizer dosages. With partners supported by GIZ and Africa RISING, the CGIAR Research Program on Water, Land and Ecosystems (WLE), and the International Center for Tropical Agriculture (CIAT) approached the issue through big data analytics — a challenging method given that relevant datasets are scattered among institutions. Agriculture remains the least digitized sector. And while the CGIAR has an open data policy, as does the Food and Agriculture Organization of the United Nations, many key partners don't share their data.

So the team collected data from published literature, organizations, researchers and students on "crop response to fertilizer application" with the goal of making this information more accessible. The result was a "coalition of the willing" (CoW) created by soil and agronomy experts eager to share their data, or support data access. Next came a taskforce, which developed data sharing guideline and a way forward for the CoW. The members led by CIAT collated datasets and demonstrated the power of Big Data analytics at various national workshops. At one event led by CIAT and partners, international experts shared outcomes from Big Data analysis, generating awareness among Ethiopian Ministry stakeholders. Known as data-driven agronomy, this strategy could provide farmers with the data, observational information, and context to make smart crop management decisions. (6, 7)

Inspired by the activities of the CoW, Ethiopia's Ministry of Agriculture established a national taskforce to develop a soil and agronomy data-sharing policy for Ethiopia. A draft was presented at several CoW meetings with a finalized policy launched in June 2019. (3,4)

Supported by GIZ, CIAT is now leading the national Ministry and stakeholders in their effort to develop national fertilizer recommendations, an accomplishment that will support the country's agricultural transformation agenda. With access to more reliable and contextualized information, farmers will be able to make informed decisions. And Ethiopia can produce more food, while improving the health of its landscapes.

### Links to any communications materials relating to this outcome:

- <https://cgspace.cgiar.org/handle/10947/4488>
- <https://www.flickr.com/photos/waterlandeco/46941267214/>
- <https://www.flickr.com/photos/waterlandeco/49696932216/>
- <https://www.flickr.com/photos/waterlandeco/49696919081/>
- <https://www.flickr.com/photos/waterlandeco/49671917652/>

### Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : Yes

**Policies contribution:**

- 417 - Support of adoption of the Government of Ethiopia's Soil and Agronomic Data Sharing Policy

**Level of maturity of change reported:** Level 2

**Links to the Strategic Results Framework:**

Sub-IDs:

- Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use (Mitigation and adaptation achieved)
- Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research

Is this OICR linked to some SRF 2022/2030 target?: Too early to say

Comment: NA

**Geographic scope:**

- National

Country(ies):

- Ethiopia

Comments: <Not Defined>

**Key Contributors:**

Contributing CRPs/Platforms: <Not Defined>

Contributing Flagships:

- F1: Restoring Degraded Landscapes (RDL)

Contributing Regional programs: <Not Defined>

Contributing external partners:

- CABI - Centre for Agriculture and Biosciences International
- BMGF - Bill & Melinda Gates Foundation
- GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit / German Society for International Cooperation

International Cooperation

- EIAR - Ethiopian Institute of Agricultural Research
- EARCS - Ethiopian Agricultural Research Council Secretariat
- ILRI - International Livestock Research Institute
- MoANR - Ministry of Agriculture and Natural Resources (Ethiopia)

**CGIAR innovation(s) or findings that have resulted in this outcome or impact:**

Yes. This is an application of data-driven agricultural transformation (see references 9-13), a major thrust of the CGIAR Big Data Platform.

**Innovations:**

- 1334 - Application of Big Data Analytics to Consolidate Fertilizer Trial Data into a Farmer-Support Tool

**Elaboration of Outcome/Impact Statement:**

Agriculture is the engine of Ethiopia's economic growth. However, it is characterized by low productivity, low input use and limited capacity to respond to environmental shocks. The country is struggling to produce more for a fast-growing population on low-fertility soils under uncertain climatic conditions dominated by poor farmers. The sector must be transformed through the appropriate use of technologies such as the right type and amount of fertilizer for the right place at the right time (1).

Despite extended research on fertilizer application since the 1960s, Ethiopia still has no national-level fertilizer recommendations. Farmers therefore struggle to use the correct fertilizer dosages. WLE/CIAT and its partners supported by GIZ sought to tackle this problem through the use of Big Data analytics (9-13). However, little data were available because existing datasets are scattered among multiple institutions. Supported by GIZ and Africa RISING, WLE/CIAT began searching for data sets on 'crop response to fertilizer application' collected by different organizations, researchers, and students. The team mapped who has what data and in what format and created awareness related to data access and sharing. The team formed a "coalition of the willing" (CoW) – soils/agronomy experts willing to share their data and/or support data access. The CoW formed a taskforce to develop guidelines and influence policy. In addition, CIAT and its partners demonstrated the benefits of big data analysis by analyzing sample datasets and inviting international experts to share their experiences at a national workshop (6, 7). These efforts created awareness among Ministry stakeholders and led to the submission of datasets by some CoW members.

After three years, the CoW convinced the Ministry of Agriculture to create a national taskforce to support data sharing (2). The national taskforce conducted meetings aimed at developing a soils/agronomy data sharing policy. It engaged international experts, including CABI with Gates Foundation support, to review national and international policies and develop a soils/agronomy data sharing policy for Ethiopia. The draft policy was presented at CoW meetings for inputs.

The final new data sharing policy was launched in June 2019 (3, 4). The Ministry is working with stakeholders to collate datasets and conduct data mining to develop national fertilizer recommendations. CIAT is on the technical team leading this exercise. When implemented, this will undoubtedly support the agricultural transformation agenda (5). Currently, the Ministry has asked taskforce members to develop guidelines towards implementing the data sharing policy (6, 8).

**References cited:**

11a: Evidence: journal articles, reports, emails, media coverage etc.

1. Erkossa, T.; T.O. Williams; F. Laekemariam. 2018. Integrated soil, water and agronomic management effects on crop productivity and selected soil properties in Western Ethiopia. *International Soil and Water Conservation Research*. <https://doi.org/10.1016/j.iswcr.2018.06.001>
2. A letter from the Ministry of Agriculture (MoA) to notify taskforce membership to develop data sharing policy. [In Ethiopia data sharing folder at <https://tinyurl.com/yakkoh9s>]
3. Opening Speech by HE Dr. Kaba Urgessa when launching the soils/agronomy data sharing policy, which acknowledged CIAT's contribution in developing data sharing policy. [In Ethiopia data sharing folder]
4. Presentation by Ministry of Agriculture of the soil and agronomy data sharing policy. 18 October 2019. [In Ethiopia data sharing folder]
5. An e-mail communication from the Ministry that acknowledges CIAT role in developing data sharing policy and requesting support to develop guideline to implement the policy. [In Ethiopia data sharing folder]. Note: The policy is not published online yet, and also its content doesn't mention/acknowledge contributors. But when officially published, there will be acknowledgements.
6. 'Coalition of the Willing' for Improved Access and Sharing of Soils and Agronomic Data: Workshop Report. 5 – 6 December 2018, Addis Ababa. [In Ethiopia data sharing folder]
7. Towards agricultural transformation through digital solutions: update on the effort. 4 –6 December 2019. Robi Hotel, Adama & Lulseged Tamene on behalf of CoW and Geospatial Team. [In Ethiopia data sharing folder]
8. Tamane, L, on behalf of Coalition of Willing. 2019. Soils/ agronomy research in Ethiopia: Lessons and experience, presented at: Experts' consultation workshop on geospatial analysis and modeling to support agricultural transformation in Ethiopia. 14 June 2019. [In Ethiopia data sharing folder]
9. Jiménez, Daniel, Sylvain Delercea, Hugo Doradoa, James Cocka, Luis Armando Muñoz, Alejandro Agamezb, Andy Jarvisa. 2019. A scalable scheme to implement data-driven agriculture for small-scale farmers. *Global Food Security* 23: 256–266. <https://cgspace.cgiar.org/handle/10568/103626>.
10. <https://tinyurl.com/qvbopbu>. Without open data, there's no big data for smallholder agriculture
11. USAID Case Study Highlights CIAT's Data-Driven Agronomy Work. <https://tinyurl.com/yazm6uph/>
12. CGIAR Platform for Big Data in Agriculture Transforming rural livelihoods with the power. <https://blog.ciat.cgiar.org/cgiar-platform-for-big-data-in-agriculture/>
13. Zia Mehrabi, Daniel Jimenez & Andy Jarvis. 2019. Smallholders need access to big-data agronomy too. <https://www.nature.com/articles/d41586-018-02566-1>

14. Various reports and presentations at national workshops:

<https://www.slideshare.net/africa-rising/ar-ciat> Big data analytics to transform agriculture: experiences and progress.

<https://tinyurl.com/rh776m8e> Bringing big data to agriculture, and agriculture to big data.

11b: Promotional products: blogs, outreach materials (cannot be used as evidence but useful for promotion). Links/titles:

15. National TV broadcasting where Lulseged Desta was featured on digital agriculture particularly on agricultural advisory system: <https://www.youtube.com/watch?v=41kNIYcM4B0&feature=youtu.be>

16. National Radio broadcasting where Wuletawu Abera of CIAT was invited to discuss digital agriculture specifically on soil-specific fertilizer application. <https://tinyurl.com/ycl8oyr3>

**Quantification:** <Not Defined>

**Gender, Youth, Capacity Development and Climate Change:**

**Gender relevance:** 0 - Not Targeted

**Youth relevance:** 0 - Not Targeted

**CapDev relevance:** 0 - Not Targeted

**Climate Change relevance:** 0 - Not Targeted

**Other cross-cutting dimensions:** No

**Other cross-cutting dimensions description:** <Not Defined>

**Outcome Impact Case Report link:** [Study #3257](#)

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