

Evidences

Study #3611

Contributing Projects:

- P1604 - Digitally integrated approaches for managing climate risk and increasing food security

Part I: Public communications

Type: OICR: Outcome Impact Case Report

Status: Completed

Year: 2021

Title: A user-centered, digitally integrated, and scalable system support climate information generation, use, and exchange within the Central American Integration System (SICA) encompassing 200+ institutions and reaching 180 000 farmers.

Short outcome/impact statement:

CCAFS scientists have developed a user-centered, digitally integrated, and scalable system to support climate information generation, use, and exchange within the SICA (Central American Integration System), which is co-developed with stakeholders from the regional level through to the mesoscale and local level encompassing 200+ institutions in Central America and reaching ca. 180,000 farmers. This information includes historical climate information, climate forecasts and reports on the likely crop response to the climate for specific conditions in time and space.

Outcome story for communications use:

The agricultural sector in Central America (CA) is highly vulnerable to climate variability. The region has been suffering from the effects of long periods of drought and rainstorms that derivate in recurrent crop losses. As an example, the 2020's cyclonic season affected 7.3 million people who had already been suffering the impact of the economic recession caused by the COVID-19 pandemic and extreme poverty. To continue promoting agricultural development in vulnerable areas it is imperative to manage climate risks with the incorporation of climate information as a prerequisite. Understanding this need, CCAFS scientists have developed a user-centered, digitally integrated, and scalable system to support information generation, use, and exchange within the SICA (Central American Integration System), which is co-developed with stakeholders from the regional level (CA Climate Outlook Forum-CACOF) through to the mesoscale and local level.

In close alliance with CCAFS, the Central America Council (CAC), the Regional Committee of Hydraulic Resources (CRRH), and other regional institutions have co-establishing a regional agricultural discussion group (RADG), linked to the CACOF (ref.2). In the RADG, eight ministries of agriculture of SICA (i.e., the Technical Group on Climate Change and Comprehensive Risk Management -GTCCGIR) analyses the implications of the regional climate outlook over crops systems based on a combination of expert knowledge and cutting edge digital techniques (e.g., crop modeling knowledge), producing tailored agronomical recommendations disseminated to decision-makers (e.g., through regional agroclimatic bulletins). A new forecast system (i.e., NextGen) developed by IRI-CCAFS scientists has been successfully adopted by the meteorological services and stands out in this workflow producing a high-performance climate outlook with local relevance but regional coverage.

The co-developed CRM system bridge across scales. 200+ participants institutions on the about 40 Local Technical Agroclimatic Committees (LTAC) in CA are connected with the RADG using its inputs and providing feedback (ref.8). They are translating the regional knowledge to a national and local context, generating recommendations and capacities in support of decision making for different organization types, extension agents (e.g., 300+ public sector agents in Guatemala), and above all the farmers (180,000+, ref.9). The LTACs has promoted a dense network of institutions rolled out throughout CA, that exchanges high-quality agroclimatic information as well as recommendations, then incorporating them in decision-making and productive practices, ultimately influencing a national political sphere (e.g., LTAC's officialization, National Framework for Climate Services -NFCS in Guatemala and Honduras) which makes cross-scale CIS sustainable.

Links to any communications materials relating to this outcome:

- <https://tinyurl.com/y6frxwax>
- <https://tinyurl.com/y5cqmgw9>
- <https://tinyurl.com/y6du8ars>
- <https://tinyurl.com/y6r6ahh7>
- <https://tinyurl.com/yyyed3m4>
- <https://tinyurl.com/y3r5s5pt>
- <https://tinyurl.com/y4yska8j>
- <https://ccafs.cgiar.org/news/agroclimatic-information-build-resilience-panama>
- <https://tinyurl.com/2jc2oluz>

Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : Yes

Policies contribution:

- 650 - National Framework for Climate Services (NFCS) development for Guatemala and Honduras
- 824 - The Ministry of Agriculture, Livestock and Nutrition (MAGA) led the Local Technical Agroclimatic Committees (LTAC) officialization in Guatemala

Stage of maturity of change reported: Stage 2

Links to the Strategic Results Framework:

Sub-IDs:

- Enhanced adaptive capacity to climate risks (More sustainably managed agro-ecosystems)
- Increase capacity of beneficiaries to adopt research outputs

Is this OICR linked to some SRF 2022/2030 target?: No

Description of activity / study: <Not Defined>

Geographic scope:

- Regional

Region(s):

- Central America

Comments: <Not Defined>

Key Contributors:

Contributing CRPs/Platforms:

- CCAFS - Climate Change, Agriculture and Food Security

Contributing Flagships:

- FP4: Climate services and safety nets

Contributing Regional programs:

- LAM: Latin America

Contributing external partners:

- MAG - Ministerio de Agricultura y Ganadería (El Salvador)
- CDRO - Asociación de Cooperación para el desarrollo Rural de Occidente
- USAC - Universidad de San Carlos de Guatemala
- CRS - Catholic Relief Services
- CASM - COMISIÓN DE ACCIÓN SOCIAL MENONITA
- GREPALMA - Gremial de Palmicultores de Guatemala
- URL - Universidad Rafael Landívar
- CIMMYT - Centro Internacional de Mejoramiento de Maíz y Trigo / International Maize and

Wheat Improvement Center

- COPECO - Comisión Permanente de Contingencias (Honduras)
- Helvetas
- MIDA - Ministerio de Desarrollo Agropecuario (República de Panamá)
- MAG - Ministerio de Agricultura y Ganadería (Costa Rica)
- SAG - Secretaría de Agricultura y Ganadería (Honduras)
- CRRH - Comité Regional de Recursos Hidraulicos
- ANACAFE - Asociación Nacional del Cafe
- MAGA - Ministerio de Agricultura, Ganadería y Alimentación (Guatemala)
- MAG - Ministerio Agropecuario (Nicaragua)
- SADER - Secretaria de Agricultura y Desarrollo Rural (México)
- WFP - World Food Programme
- CIV - Ministerio de Comunicaciones, Infraestructura y Vivienda (Guatemala)
- IRI - International Research Institute for Climate and Society
- CAC - Consejo Agropecuario Centroamericano
- ASORECH - Asociación Regional Campesina Chorti

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

N/A

Innovations:

- 1911 - Assessment tool to identify the effects of COVID-19 on food security
- 1741 - Quick appraisal monitoring and evaluation tool for the Local Technical Agroclimatic

Committees (LTACs) in Latin America (LAM)

- 1742 - R-CPT interface for the automation and improvement of seasonal forecasts
- 1743 - AgroclimR: an Agro-Climate Seasonal Forecast tool for Central America
- 1739 - Tailored outreach communications for farmers in Guatemala and Mexico
- 1248 - Competencies for Climate Risk Management: making climate-smart agriculture

operational

- 1139 - NextGen seasonal forecast system

Elaboration of Outcome/Impact Statement:

The agricultural sector in Central America (CA) is highly vulnerable to climate variability. The region has been suffering from the effects of long periods of drought and rainstorms that derivate in recurrent crop losses. As an example, the 2020's cyclonic season affected 7.3 million people (ref.1) who had already been suffering the impact of the economic recession caused by the COVID-19 pandemic and extreme poverty. To continue promoting agricultural development in vulnerable areas it is imperative to manage climate risks with the incorporation of climate information as a prerequisite. Understanding this need, CCAFS scientists have developed a user-centered, digitally integrated, and scalable system to support information generation, use, and exchange within the SICA (Central American Integration System), which is co-developed with stakeholders from the regional level (CA Climate Outlook Forum-CACOF) through to the mesoscale and local level.

In close alliance with CCAFS, the Central America Council (CAC), the Regional Committee of Hydraulic Resources (CRRH), and other regional institutions have co-establishing a regional agricultural discussion group (RADG), linked to the CACOF (ref.2). In the RADG, eight ministries of agriculture of SICA (i.e., the Technical Group on Climate Change and Comprehensive Risk Management -GTCCGIR) analyses the implications of the regional climate outlook over crops systems based on a combination of expert knowledge and cutting edge digital techniques (e.g., crop modeling knowledge; ref.3-4), producing tailored agronomical recommendations disseminated to decision-makers (e.g., through regional agroclimatic bulletins; ref.5). A new forecast system (i.e., NextGen) developed by IRI-CCAFS scientists has been successfully adopted by the meteorological services and stands out in this workflow producing a high-performance climate outlook with local relevance but regional coverage (ref.6).

The co-developed CRM system bridge across scales. 200+ participants institutions on the about 40 Local Technical Agroclimatic Committees (LTAC) in CA are connected with the RADG using its inputs and providing feedback (ref.7-8). They are translating the regional knowledge to a national and local context, generating recommendations and strenghtening capacities in support of decision making for different organization types, extension agents (e.g.,300+ public sector agents in Guatemala), and above all the farmers (180,000+, ref.9-10). The LTACs has promoted and empowered a dense network of institutions rolled out throughout CA, that exchanges high-quality agroclimatic information as well as recommendations, then incorporating them in decision-making and productive practices (ref.9), ultimately influencing a national political sphere (e.g., LTAC's officialization, National Framework for Climate Services -NFCS in Guatemala and Honduras) which makes cross-scale CIS sustainable.

References cited:

- [1] [D32487] Navarro-Racines et al. (2021). Modelación de Cultivos para generar Servicios Agroclimáticos (Aquacrop V6.0) (<https://tinyurl.com/y3owgb26>)
- [2] [27629] Navarro-Racines C, et al. 2020. Desarrollo de un instrumento de monitoreo y evaluación para las Mesas Técnicas Agroclimáticas (MTA). CCAFS Working paper No.352. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). (<https://hdl.handle.net/10568/111714>)
- [3] [D9656] Martínez-Barón et al. (2021). Strengthening the climate services chain in Central America. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). (<https://hdl.handle.net/10568/114111>)
- [4] [D26944] Goddard et al. (2020). Climate Services Ecosystems in times of COVID-19 In: WMO at 70 - Responding to a Global Pandemic. WMO Bulletin 69(2):39-46. (<https://hdl.handle.net/10568/111389>)
- [5] [D25027] Giraldo-Mendez et al. (2021). Local Technical Agroclimatic Committees (MTA): A detailed guide for implementing, Step-by-Step - Second Edition. Cali, Colombia: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). (<https://hdl.handle.net/10568/114943>)
- [6] [D19655] CIAT. (2019). Prediction Models for Better Decisions. International Center for Tropical Agriculture (CIAT), Cali. CO. 2 p. (<https://hdl.handle.net/10568/100169>)
- [7] United Nations Office for the Coordination of Humanitarian Affairs. (2020). Tormenta Tropical Eta & Huracán Iota: Seis Semanas Después. ReliefWeb (<https://tinyurl.com/y6ssph4z>)
- [8] [D32482] CCAFS, FAO. 2021. Chapter 3 Regional outlooks: Latin America and the Caribbean. In FAO, Global outlook on climate services in agriculture: Investment opportunities to reach the last mile. Rome. (<https://doi.org/10.4060/cb6941en>)
- [9] [D32786] CRRH, CAC, Alianza Bioersity-CIAT, CCAFS.2021. Recopilación de Boletines de Centroamérica: "Clima y Agricultura", 2020-2021. CCAFS Brief. Wageningen, Países Bajos: Programa de investigación del CGIAR sobre Cambio Climático, Agricultura y Seguridad Alimentaria (CCAFS). (<https://hdl.handle.net/10568/116221>)
- [10] [D19847] Giraldo et al. (2020). Outcome Harvesting: Assessment of the transformations generated by Local Technical Agroclimatic Committees In Latin America. CCAFS Working Paper No.299. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). (<https://hdl.handle.net/10568/108492>)

Quantification:

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)

Number: 2.00

Unit: Regional institutions

Comments: 2 regional institutions (CAC, CRRH) adopt CRM approaches and integrate across-scales

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)

Number: 200.00

Unit: institutions

Comments: Actual count based on 2020 outcome harvesting study and the application of an M&E instrument designed for LTACs. References as follows: [D19847] Giraldo et al. 2020. Outcome Harvesting: Assessment of the transformations generated by Local Technical Agroclimatic Committees In Latin America. CCAFS Working Paper No.299. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <https://hdl.handle.net/10568/108492>; [27629] Navarro-Racines C, et al. 2020. Desarrollo de un instrumento de monitoreo y evaluacion para las Mesas Tecnicas Agroclimaticas (MTA). CCAFS Working paper No.352. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <https://cgspace.cgiar.org/handle/10568/111714>

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)

Number: 180000.00

Unit: # Farmers

Comments: Actual count based on 2020 outcome harvesting study, the application of a M&E instrument designed for LTACs and attendance list reports. References as follows: [D19847] Giraldo et al. 2020. Outcome Harvesting: Assessment of the transformations generated by Local Technical Agroclimatic Committees In Latin America. CCAFS Working Paper No.299. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <https://hdl.handle.net/10568/108492>; [27629] Navarro-Racines C, et al. 2020. Desarrollo de un instrumento de monitoreo y evaluacion para las Mesas Tecnicas Agroclimaticas (MTA). CCAFS Working paper No.352. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <https://cgspace.cgiar.org/handle/10568/111714>

Gender, Youth, Capacity Development and Climate Change:

Gender relevance: 1 - Significant

Main achievements with specific **Gender** relevance: LTAC have an explicit gender component, which has led to producing gender-sensitive climate information.

Youth relevance: 1 - Significant

Main achievements with specific **Youth** relevance: RADG and the LTAC approach sought to strengthen participants' capacities by conducting training workshops on agro-climatic information and tools which are used to inform crop management decisions. To build skills, it also focused on empowering members of the committees by assigning alternating roles and tasks among participating organizations.

CapDev relevance: 2 - Principal

Main achievements with specific **CapDev** relevance: RADG and the LTAC approach sought to strengthen participants' capacities by conducting training workshops on agro-climatic information and tools which are used to inform crop management decisions. To build skills, it also focused on empowering members of the committees by assigning alternating roles and tasks among participating organizations.

Climate Change relevance: 2 - Principal

Describe main achievements with specific **Climate Change** relevance: By enhancing farmers capacity to understand and access agro-climatic information, they are able to make better decisions, thus increasing their resilience in the face of climate variability and climate change.

Other cross-cutting dimensions: No

Other cross-cutting dimensions description: N/A

Outcome Impact Case Report link: [Study #3611](#)

Contact person:

Julian Ramirez-Villegas, Senior Scientist, CCAFS, CIAT, j.r.villegas@cgiar.org

Carlos Navarro-Racines, Senior Research Associate, CCAFS, CIAT, c.e.navarro@cgiar.org