ANNUAL REPORT

Photo: C. Smith (CIAT)

2020

CGIAR

RESEARCH PROGRAM ON
Climate Change, Agriculture and Food Security

CCAFS

Led by:

Alliance

Bioversity International

CIAT
International Center for Tropical Agriculture
Since 1967 Science to cultivate change

Flagship lead institutions

Flagship 1:
ILRI - International Livestock Research Institute

Flagship 2:
The Alliance – The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT)

Flagship 3:
UVM - University of Vermont

Flagship 4:
IRI – International Research Institute for Climate and Society, Earth Institute, Columbia University

Funders

CGIAR Trust Fund	ACIAR - Australian Centre for International Agricultural Research	Irish Aid
Ministry of Foreign Affairs of the Netherlands	New Zealand Ministry of Foreign Affairs and Trade	NORAD - Norwegian Agency for Development Cooperation
Swiss Agency for Development and Cooperation SDC	Thailand	United Kingdom Aid
Ministry for Europe and Foreign Affairs, France		

Participating CGIAR Centers

AfricaRice - Africa Rice Center	Alliance of Bioversity International and CIAT	CIFOR - Center for International Forestry Research
CIMMYT - International Maize and Wheat Improvement Center	CIP - International Potato Center	ICARDA - International Center for Agricultural Research in the Dry Areas
ICRAF - World Agroforestry	ICRISAT - International Crops Research Institute for the Semi-Arid Tropics	IFPRI - International Food Policy Research Institute
IITA - International Institute of Tropical Agriculture	ILRI - International Livestock Research Institute	IRRI - International Rice Research Institute
IWMI - International Water Management Institute	WorldFish	

Other key partners

CARE	IIRR - International Institute of Rural Reconstruction	IRI - Columbia University
UNIQUE Forestry and Land Use	University of Leeds	Utrecht University
UVM - University of Vermont	WUR - Wageningen University and Research	Women in Global Science and Technology

TABLE OF CONTENTS

ACRONYMS

A4NH	CGIAR Research Program on Agriculture for Nutrition and Health
ACGE	Agro-Chain Greenhouse Gas Emissions
ACIAR	Australian Centre for International Agricultural Research
AGNES	Africa Group of Negotiators Expert Support
AICCRA	Accelerating the Impact of CGIAR Climate Research for Africa
AWD	Alternate wetting and drying
AWGGCC	African Working Group on Gender and Climate Change
CARE	Cooperative for Assistance and Relief Everywhere
CBA	Community-based adaptation
CBI	Climate Bonds Initiative
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CCARDESA	Centre for Coordination of Agricultural Research and Development for Southern Africa
CIAT	International Center for Tropical Agriculture
CIFOR	Center for International Forestry Research
CIMMYT	International Maize and Wheat Improvement Center
CIP	International Potato Center
CIS	Climate information services
CLIFF-GRADS	Climate Food and Farming - Global Research Alliance Development Scholarships
COP	Conference of the Parties
CRAFT	Climate Resilient Agribusiness for Tomorrow
CRP	CGIAR Research Program
CRVA	Climate Risk Vulnerability Assessment
CSA	Climate-smart agriculture
CSC	Climate-Smart Cocoa
CS-MAP	Climate-Smart Maps and Adaptation Plans
CSV	Climate-Smart Village
DCAS	Digital climate advisory services
DCP	Department of Crop Production
EDACaP	Ethiopian Digital Agro-climate Advisory Platform
epIA	Ex-post Impact assessment
ERA	Evidence for Resilient Agriculture
EU	European Union
FFS	Farmer Field School
FLW	Food loss and waste
FP	Flagship Program
GCA	Global Commission on Adaptation
GCAN	Gender, Climate Change and Nutrition Integration Initiative
GCF	Green Climate Fund
GHG	Greenhouse gas
GIZ	German Corporation for International Cooperation GmbH
GRA	Global Research Alliance on Agricultural Greenhouse Gases
GSI	Gender and Social Inclusion
GTA	Gender Transformative Approach
HA	Hectares (ha
HDP Nexus	Humanitarian-Development-Peace Nexus

ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and communication technology
IDO	Intermediate Development Outcome
IDRC	International Development Research Centre
IFA	International Fertilizer Association
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IIRR	International Institute of Rural Reconstruction
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IP	Intellectual property
IRI	International Research Institute for Climate and Society
IRRI	International Rice Research Institute
ISC	Independent Steering Committee
ISI	International Scientific Indexing
IWMI	International Water Management Institute
LED	Low emission development
LP	Learning Platform
LTAC	Local Technical Agroclimatic Committee
MARD	Ministry of Agriculture and Rural Development (Vietnam)
MEL	Monitoring, evaluation and learning
MELIA	Monitoring, evaluation, impact assessment and learning
MRD	Mekong River Delta
MRV	Measuring, reporting and verifying
NAMA	Nationally Appropriate Mitigation Action
NARS	National Agricultural Research Systems
NDC	Nationally Determined Contribution
NGO	Non-governmental organization
NWO	Dutch Research Council
OICR	Outcome Impact Case Report
PICSA	Participatory Integrated Climate Services for Agriculture
PIM	CGIAR Research Program on Policies, Institutions and Markets
PMU	Program Management Unit
PNAS	Proceedings of the National Academy of Sciences of the United States of America
POWB	Plan of Work and Budget
R4D	Research for Development
RCEF	Rice Competitiveness Enhancement Fund
RLC	Radio Listening Club
RTB	CGIAR Research Program on Roots, Tubers and Bananas
SADC	Southern African Development Community
SDG	Sustainable Development Goal
SLO	System Level Outcome
SME	Small and medium-sized enterprise
SNV	Netherlands Development Organization
SOA	School-on-the-Air
SPaRC	Solar power as a remunerative crop

TB	Terabyte
UNFCCC	United Nations Framework Convention on Climate Change
UNIQUE	UNIQUE Forestry and Land Use GmbH
USAID	United States Agency for International Development
USD	United States Dollar
UVM	University of Vermont
VSLA	Village savings and loan association
WBCSD	World Business Council for Sustainable Development
WFP	United Nations World Food Programme
WLE	CGIAR Research Program on Water, Land and Ecosystems
WRI	World Resources Institute
WUR	Wageningen University and Research

EXECUTIVE SUMMARY

CCAFS made excellent progress in achieving its objectives throughout 2020. Reflecting greater political and media focus on the climate crisis, CCAFS argued that nothing less than a transformation of the food system is required, and outlined 11 key actions needed through our landmark report: "Actions to transform food systems under climate change". Launched with a virtual round-the-world relay event which started in Canberra and ended in Colombia. It involved more than 50 partner organizations through 13 sessions in different regions that were viewed by nearly 20,000 people. Thanks to our communications campaign, the 'Transformation' report is the most downloaded CGIAR publication of 2020.

Several independent impact and outcome studies were completed in 2020, with meta-studies showing how CCAFS contributed to the design and implementation of USD 3 billion in new climate-related investments, and contributed to 100 policy wins in recent years, and helped to foster the adoption of climate-smart agriculture (CSA) by approximately 1.2 million Kenyan farmers, resulting in significant welfare gains.

Studies on CCAFS initiatives showed us that changes in agricultural practices had increased cropping incomes by 15-24% for users of:

a) Climate informed advisories in Senegal reached 7 million farmers;
b) In Rwanda, gender gaps were all but eliminated in advisory services that reached more than 100,000 farmers;
c) Salinity intrusion forecasting systems in Vietnam's Mekong Delta were applied to up to 800,000 ha, reaching nearly half a million rice growers.

A study in Colombia recorded 40% of Colombian rice producers cultivating 276,000 ha as adopting improved rice varieties, with 57% using agro-climatic forecasts to increase yields by 0.6 tons/ha.

In the Philippines, the government adopted CCAFS outputs in its CSA programs, resulting in 1.89 million Philippine rice farmers receiving support on climate-smart rice production.

Advisories by government, non-governmental organization (NGO), and private sector institutions resulted in the scaling of 41 Local Technical Agroclimatic Committees (LTACs) in 10 Latin American countries, which involved the participation of 350 institutions.

CCAFS work with prominent multilateral organizations and initiatives brought a number of successes.

For instance, CCAFS made substantive contributions to: (i) An International Fund for Agricultural Development (IFAD) framework for programming investments that integrate climate change, gender, youth and nutrition (ii) A Global Commission on Adaptation (GCA) initiative to channel USD 7 billion of investment towards digital advisory services; and (iii) The Green Climate Funds' investment strategy for its Sectoral Guide on Agriculture and Food Security. Tackling greenhouse gas (GHG) emissions remains a priority for CCAFS—we helped eight countries improve measuring, reporting and verification (MRV) and produced 89 new emissions factors in smallholder agriculture. Vietnam reduced its emissions by an additional 1.5 $MtCO_2eq$/year through the scaling of low-emission technologies in rice production, while they increased their Nationally Determined Contribution (NDC) mitigation targets through agriculture by 16 $MtCO_2eq$ by 2030.

The private sector of is a key stakeholder in scaling CSA, and CCAFS helped shape new metrics on CSA published by the World Business Council for Sustainable Development (WBCSD), were CCAFS provided guidance on corporate value chains. CCAFS also developed indicators for the Agriculture Standards of the Climate Bonds Initiative (CBI) and the EU Taxonomy on Sustainable Finance.

CCAFS published 184 peer reviewed papers in 2020, with two of CCAFS management team members recognized in the 2020 Clarivate™ Highly Cited Researchers list for being in the top 0.1% of scientists by citation globally.

CCAFS continued to maintain several open access databases, including CCAFS-Climate, which had 121,579 file downloads. CCAFS also initiated new areas of research, e.g., launching CGIAR FOCUS Climate Security to leverage CGIAR science on food systems in a climate crisis for peace and security.

Part A: NARRATIVE SECTION

1. Key results

1.1 Progress towards Sustainable Development Goals (SDGs) and System Level Outcomes (SLOs) | Sphere of interest, with research results frequently predating the CGIAR Research Program (CRP)

CCAFS completed a number of impact studies in 2020. Meta-analyses pointed to CCAFS influencing more than USD 3 billion in climate-informed investments and contributed to over 100 policy wins.

Major new initiatives in 2020 will also bear fruit beyond 2022: CCAFS contributed to the agriculture sector planning of the Green Climate Fund (GCF), one of the largest funds for climate action available to that sector. Another example is CCAFS contribution to the USD 7 billion blueprint for investment in digital climate informed advisories. CCAFS also contributed to the WBCSD climate-smart metrics for corporate value chains. Prior to 2020, CCAFS and the CGIAR Research Program on Water, Land and Ecosystems (WLE) contributed to the design of a large scale solar development scheme in India, one of three components of a USD 50 billion investment documented in a new outcome study in 2020.

Millions of farmers have made positive changes to their practices as a result of CCAFS interventions. In Senegal, Rwanda, Kenya and Vietnam. At least 7 million more may have done so, but the evidence still needs to be collected for India, Nepal and The Philippines among other countries.

These activities
are expected to reduce poverty, but the evidence to demonstrate this still needs to be collected, chiefly through detailed poverty studies). However, a study in Kenya clearly demonstrates household welfare gains through greater adoption of CSA.

CCAFS expects to have major impacts on emissions reduction in agriculture, with metrics and food loss and waste (FLW) calculators prepared for the corporate sector. This work helps shape the mitigation objectives and standards in climate finance, improving the monitoring, reporting and verification of NDCs, and providing basic data (such as emissions factors) in GHG accounting.

CCAFS research partnerships helped to generate 1.9 $MtCO_2eq$ credits in Kenya agroforestry from 2010 to 2019, and saw a reduction of 1.5 $MtCO_2eq$ in emissions in Vietnam through the adoption of improved rice production technologies.

1.2 CRP progress towards outputs and outcomes (spheres of control and influence)

1.2.1 Overall CRP progress

Despite COVID-19 restrictions, much progress was made. Going virtual was not a problem since we have often conducted business virtually since 2010. One example of our ability to innovate in the face of the pandemic was the round-the-world virtual relay event to launch "Actions to transform food systems under a climate change", starting in Canberra—partnering with Australian Centre for International Agricultural Research (ACIAR)—and ending in Colombia, with ten virtual stops in-between. Thanks to this event and our accompanying digital campaign, the report became the most downloaded report of all CGIAR publications.

New investments and policy-action for CSA

A number of outcome and impact reports were completed in 2020, including some examining the entire CCAFS program. Analyses led by independent evaluators showed how CCAFS science (i) contributed to the design/implementation of new climate-related investments worth USD 3 billion; (ii) contributed to 100 policy-wins; (iii) contributed to uptake of CSA among approximately 1.2 million Kenyan farmers, resulting in value of their livestock holdings and crop yields increasing, with gains for household welfare. An outcome study for an approach to solar irrigation model showed how WLE and CCAFS informed a USD 50 billion government scheme in India.

Informing investments and policy engagement continued in 2020. As examples:

a) An outcome-study in Philippines showed how the government was adopting CCAFS outputs in its CSA relevant programs, resulting in 1.89 million Philippine rice farmers receiving support on climate-smart rice production.
b) CCAFS contributed to the GCF Sectoral Guide on Agriculture and Food Security.
c) Approximately 4 million farmers and rural households in India and Nepal have benefited through the scaling of CSA practices via the Climate-Smart Village (CSV) approach.
d) In at least 12 countries, policies and investment plans—including NDCs—continued to be guided by CCAFS scenarios and other methods.
e) A framework was developed for IFAD on programming investments that integrate climate change, gender, youth and nutrition.
f) Achievements on gender issues included mainstreaming gender in adaptation-planning in sub-Saharan Africa, a Gender-Agricultural-Profile for Ghana, and a Gender-Roadmap for the CSA Strategy of the Central America Integration System.

Climate information services (CIS)

An impact analysis in Senegal, where approximately 7 million rural people are getting climate-advisories as a result of the work of CCAFS and partners, showed that use of seasonal forecasts increased major crops' productivity and farm profitability, where incomes increased by 15%. In Rwanda, an impact analysis of more than 100,000 farmers who receive advisory services show they experienced a 24% increase in the value of crop production on average and such use of advisory services all but eliminated gender gaps.

Another impact study on Vietnam's Mekong Delta salinity intrusion forecasting system, showed that CCAFS science has been applied to the enhancement of rice production on 800,000 ha and 500,000 ha during the winter and spring seasons of 2019-2020 and 2020-2021 respectively. This had influenced the planting decisions of nearly half a million rice growers, helping them to increase annual rice incomes by 24%.

40% of Colombian rice producers cultivating 275,608 ha adopted improved rice varieties developed by CCAFS and partners, with 57% using agro-climatic forecasts to increase yields by 0.6 tons/ha.

There were many other examples of the effective rollout of CIS, including:

a) The use of CCAFS science by government, NGO and private-sector institutions in the scaling up of LTACs, which now number 41 across 10 countries. This necessitated the participation of 350 institutions across Latin America.
b) In Senegal, 500,000 pastoralists, fishers and farmers now receive digital advisory services.
c) In Ethiopia, some 13 to 15 million farmers now receive practical agro-climate advisories through radio.

Tackling greenhouse-gasses

CCAFS helped eight countries improve MRV for climate change mitigation, to better track NDC mitigation targets in agriculture. Most development countries still use default emission factors for agricultural activities, many of which are not appropriate for tropical agricultural systems. To improve MRV, CCAFS produced 89 new emissions-factors for smallholder agriculture and added them to the SAMPLES website.

Colombia has now a sustainable beef certification scheme supported by CCAFS, and CCAFS science informed updated mitigation commitments for livestock in the NDCs of Ethiopia and Kenya. Vietnam made additional reductions of 1.5 $MtCO_2eq/year$ in emissions by scaling up low-emission technologies in rice production, to which CCAFS' made contributions, while Vietnam's NDC mitigation targets in agriculture for 2030 were increased by 16 $MtCO_2eq$.

CCAFS is committed to capacity development, and a good example includes collaboration with the Global Research Alliance on Agricultural Greenhouse Gases (GRA), where the Climate Food and Farming - Global Research Alliance Development Scholarships (CLIFF-GRADS) program supported 88 students (33 of whom were women) to conduct PhDs.

Global-outreach and defining the global narrative on climate action

CCAFS made the case that the climate crisis can only be solved by transforming the food system, and proposed the 11 actions we believe are needed. The transformation report and its associated social media campaign reached over 56 million people online.

CCAFS was active in a number of significant global processes. For instance, CCAFS launched and leads the CGIAR FOCUS Climate Security, to leverage CGIAR science on food systems in a climate crisis for peace and security. This work aims to change the global narrative and develop a network of partners across the Humanitarian-Development-Peace (HDP) Nexus, but also informed work on the ground (e.g. CCAFS science informed USD 5.7 million USARO program to manage climate security risks in West Africa). Another example, is how CCAFS contributed to a GCA initiative targeting USD 7 billion in investments in digital climate advisory services (DCAS).

Private sector

The private sector is key to transforming food systems, and so CCAFS has multiple collaborations with stakeholders drawn from across it. For example, CCAFS helped shape the new WBCSD metrics for CSA, providing guidance on how corporate value chains can reduce GHGs by 50%, and increase the availability of nutritious food by 50% by 2030. CCAFS worked with Bayer, Yara and Olam amongst many others. African Improved Foods, an investment in Ethiopia and Kenya of more than USD 100 million, received CCAFS inputs. CCAFS helped develop indicators for the Agricultural Standard of the CBI.

Science

CCAFS published 184 peer reviewed papers in 2020, with two of CCAFS management team members recognized in the 2020 Clarivate™ Highly Cited Researchers list for being in the top 0.1% of scientists by citation globally.

CCAFS maintained several open-access databases, including CCAFS-Climate, with 121,579 files downloaded.

75 novel CSA practices were evaluated across the CSV network. Six innovations were recognized as being used by beneficiaries. This included an eight step-guide for setting up a CSV as part of the roll-out of CSVs.

Science-production was often linked to capacity-development, for instance, the CCAFS-NUI Galway Master program involved 45 students, 28 of whom were female.

1.2.2 Progress by flagships

Flagship Program 1 (FP1)

In 2020, policies and investment plans—including NDCs—continue to be guided by CCAFS scenarios and other methods, particularly in Costa Rica, Ghana, Mali, Kenya, Uganda and Zambia. Our recommendations were fed into policy processes, informing climate-smart food and nutrition security policies in another six countries.

CCAFS science supported the African Group of Negotiators Expert Support (AGNES), Kenya's CSA Implementation Framework and Multi-Stakeholder Platform. It assisted revisions to the Climate Change Strategy and Action Plan of the Southern African Development Community (SADC) and helped to develop Nigeria's National Action Plan on Gender and Climate Change.

For IFAD, CCAFS developed a framework for programming investments that integrate climate change, gender, youth and nutrition. Over the last decade, CCAFS science was found to have contributed to the design and implementation of new investments worth more USD 3 billion to build resilience and reduce GHG emissions.

Substantive scientific contributions were made in prioritizing the Global Commission on Adaptation's Action Track on Food Security and Rural Livelihoods, which aims to put 300 million small-scale farmers on pathways to enhanced resilience. New CCAFS science contributed to agricultural sector guidance for the GCF, novel analyses on new technology and food systems transformation to achieve the SDGs.

Relevance to COVID-19:

COVID-19 provided opportunities to trial different ways of working, notably in capacity development. A new project for 2020, funded by the German Corporation for International Cooperation GmbH (GIZ) before COVID-19 struck, 'SADC Futures' was modified from a participatory face-to-face workshop series to a virtual capacity development project, involving a training webinar series, a toolkit and an e-learning course on developing foresight capacity for climate resilient agricultural development in the SADC region. These SADC Futures continues to be accessed, showing that the legacy of this one-year project persists, and is now owned by the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA).

Some FP1 projects reported delays in—and rescheduling of—field work. However, a considerable proportion of planned primary data collection was able to be carried out remotely. Given the scale and severity of the pandemic, impacts on workplans were limited. Several new studies were undertaken related to COVID-19. The Expert Panel on Innovations to Build Sustainable, Equitable, Inclusive Food Value Chains at Cornell Atkinson Center for Sustainability incorporated CCAFS inputs, in a report containing an analyses of the impacts of COVID-19 on food systems as of late 2020, being published as a stand-alone piece in 2021. Another study summarized the global financial response to the pandemic in the first half of 2020, and compared this with the finance needed for adaptation by 2030, showing that behavioral responses to global challenges can be both massive and rapid. IFPRI and the Gender, Climate Change and Nutrition Integration Initiative (GCAN) undertook a set of surveys and analyses on

the effects of COVID-19 on rural women in Nepal, Senegal and five other countries, finding substantial effects on income insecurity and equity.

Flagship Program 2 (FP2)

FP2 published 113 peer-reviewed papers in 2020 including three on the nexus of food systems, climate and COVID-19.

FP2 informed significant policy decisions in various countries and regions, for instance: (i) Vietnam's Climate-Smart Maps and Adaptation Plans (CS-MAP) that manage salinity intrusion of up to 800,000 ha; (ii) A roadmap to implement a regional strategy for CSA in Central American, along with its gender component; (iii) A National Adaptation Plan (NAP) in Colombia; (iv) AGCF proposal in Tanzania; (v) Two local and three county-level adaptation plans in Guatemala and Kenya respectively.

Development organizations that adapted plans and investments—based on CCAFS science—include the World Food Programme (WFP) that used the CCAFS 'Transformation Initiative' report to guide its food systems programming. African Improved Foods invested between USD 130 million and USD 205 million in climate-smart and nutrition-sensitive value chains in Ethiopia and Kenya. The GCF's Agriculture and Food Security Sector Guidance Investment Strategy was designed by CCAFS.

CCAFS informed novel business models, such as the Rice Observatory for Latin America to scale CSA to 2 million ha. In India, the CSV approach was scaled with public and private investments of USD 42 million, while in Nepal they were scaled with USD 5.5 million. CCAFS helped shape the new WBCSD metrics for CSA, providing guidance on how corporate value chains can reduce GHGs by 50%, and increase the availability of nutritious food by 50% by 2030.

Seventy-five novel CSA practices were evaluated across the CSV network, with 46 assessed mitigation potential and 13 with gender dimensions assessed.

Approximately 4 million farmers and rural households in India and Nepal have benefitted through scaling CSA practices and technologies. In the Philippines, the government adopted CCAFS outputs in its CSA programs, resulting in 1.89 million Philippine rice farmers receiving support on climate-smart rice production, through support totaling USD 1.2 billion.

FP2 launched and leads CGIAR FOCUS Climate Security to leverage CGIAR science on food systems in a climate crisis for peace and security.

Relevance to COVID-19:

COVID-19 offers an unprecedented opportunity to change the way we use our natural resources, manage agricultural production and design our food systems. But at the same time the kinds of data and analytics that are now available to us have significantly improved our ability to understand such crises.

A new project launched with GIZ and CCARDESA in 2020 aims to: i) Harness the data and evidence available data to us to better understand the impact of COVID-19 on agricultural production systems, natural resources, biodiversity and local economies; ii) Inform policies and action in the SADC region; and iii) Derive a monitoring framework for COVID-19 to evaluate changes beyond the pandemic, which will lay a foundation for the creation of a 'SADC Crisis Monitoring Observatory'—an interactive digital platform providing near real-time analyses on COVID-19 data and other crises which affect agriculture sectors and markets.

Three papers were published: One relates to pollution caused by residue burning that could drive a COVID-19 resurgence in India; A second on the long-term impact of West African responses to COVID-19, particularly on food systems, and; A third one building more resilient food systems under COVID-19.

Flagship Program 3 (FP3)

FP3 produced 89 new emissions factors for smallholder agriculture in 2020, including for nutrient management (16), animal feeding (9) and paddy rice (64), bringing the total emission factors available in the SAMPLES' database to 434.

Colombia, Kenya, Ethiopia and Vietnam increased the ambition of their NDCs, namely in mitigation targets or improved inventories and low-emission strategies, based on CCAFS research. These countries plus China, Cuba, Ethiopia and Indonesia also improved their national mitigation accounting. Agriculture carbon projects implemented by Vi Agroforestry and ECOTRUST generated a total of 1.9 $MtCO_2eq$ GHG emission reduction credits from 2010 to 2019, also a result of CCAFS research.

To assess the impact of investments on mitigation in agriculture, FP3 developed indicators for CBI's Agriculture Standard, EU Taxonomy on Sustainable Finance, and Joint Multilateral Development Bank Methodology. A webinar was held on novel accounting for soil carbon for the finance community. FP3 also contributed to GCF's strategy.

Olam used the updated CCAFS Agro-Chain Greenhouse Gas Emissions (ACGE) calculator to identify threshing and harvesting as hotspots for food losses in rice-growing areas. The International Fertilizer Association (IFA) and Yara used fertilizer efficiency findings to adopt more sustainable nutrient management strategies in Sub-Saharan Africa.

Relevance to COVID-19:

A study was completed on the impact of COVID-19 on livestock in Colombia, emphasizing that the pandemic created disincentives for farmers to adopt sustainable intensification production methods, and will lead to greater reliance on digital services in the future. A study was also initiated in India on the impacts of COVID-19 on the availability of farm inputs and GHG emissions. The major ways we adapted to COVID-19 was in reduced fieldwork and travel. One survey for an impact study of Vi-agroforestry was delayed, but completed after travel restrictions were eased in Kenya.

To compensate, F3 focused on communications and engagements via virtual meetings. Strong partnerships with government, universities, private sector and other partners helped us to generate research outputs and outcomes. Project leaders applied pragmatic solutions using the data available from their partner organizations and other sources to meet data needs without being dependent on field travel. Scaling up the United States Department of Agriculture (USDA) Enhancing Capacity for Low Emission Development Strategies (EC-LEDS) research outputs with the help of national partners without field travel in Colombia, Kenya and Vietnam was an example of how we achieved successful outcomes despite the challenges of COVID-19. An impact survey of MRV was conducted online with the key national partners in eight countries (China, Cuba, Indonesia, Vietnam, Kenya, Ethiopia, Colombia, Brazil).

Flagship Program 4 (FP4)

Use of FP4 science by government, NGO, and private sector institutions resulted in:

(i) Scaling up to 41 LTACs in 10 countries across Latin America, involving 350 institutions;

(ii) Uptake of a picture-based crop monitoring tool and participatory design for index insurance in the R4 Rural Resilience Initiative (R4) program, reaching 230 villages in Ethiopia, with scope to reach millions of farmers;
(iii) Expansion of ag-Celerant business development platform, providing climate services in Niger and Senegal;
(iv) New partnerships established in South Asia to scale up flood-related insurance to more than 125,000 farmers;
(v) Agro-climatic advisory services disseminated to between 13 and 15 million smallholder farmers in Ethiopia through public-private partnerships;
(vi) Adoption of the CS-MAP tool by government of Vietnam in establishing a national policy on rice production which addresses drought, salinity intrusion and irrigation management.

FP4 science informed new investments in climate services, including a USD 18.4 million Islamic Development Bank program addressing the rice value chain in Niger, and a USD 5.7 million USARO program to manage climate security risks in West Africa, while FP4 also contributed to a GCA initiative channeling USD 7 billion of new global investments towards digital agricultural advisory services. FP4 achieved a high degree of engagement by women in the co-production and dissemination of climate services in Latin America and South East Asia, where we promoted the uptake of gender-specific services and guidance materials within several bilateral programs. Key evaluation studies based on climate services projects previously advanced in Senegal and Rwanda have revealed significant increases in production and income associated with the use of these services.

Relevance to COVID-19:

Several projects responded to COVID-19 in their activities, providing support to farmers to manage these additional risks. Across numerous Latin American countries, 150 local organizations and 10,000 farmers received recommendations to jointly manage COVID-19 and climate risks. Not only were capacities built-in to organizations and farmers to manage these risk, but we also generated recommendations on how to manage these risks and disseminated them through a variety of channels including bulletins, radio, local newspapers and social media.

Our approach was a multi-layered, allowing continuous monitoring of the situation locally, identifying relevant problems such as income reductions, food shortages, reductions in input access and asset loss for rural families. In Ethiopia, seasonal and intra-seasonal climate forecasts and advisories were provided to smallholder farmers amid the COVID-19 pandemic.

Forecasts and advisories were communicated to smallholders with COVID-19 status updates and awareness messages. IFPRI launched a phone survey to measure pandemic-related disruptions to agricultural production and food security as lockdowns went into effect, part of an ongoing impact evaluation of picture-based crop insurance in India. One of the articles resulting from this survey was published in World Development in December 2020.

This study has already been cited about 30 times and has been included in teaching curricula. Findings from another article, forthcoming in a special issue of Agricultural Economics, are highlighted in a forthcoming report on COVID-19 by the Global System for Mobile Communications Association (GSMA). CCAFS affiliates, including those from CIAT and Columbia University, contributed to an article on Climate Services Ecosystems in times of COVID-19 in the WMO Bulletin.

1.2.3 Variance from Planned Program for this year

A) Have any promising research areas been significantly expanded?

CGIAR FOCUS Climate Security was launched by CCAFS, partly through a deep partnership with WFP. Our message is clear: Without peace, there is no end to hunger, and without food security, peace cannot last. Peace and security need climate-informed action -without it, peacebuilding efforts will not succeed. CGIAR science, innovation, and technologies are critical in supporting global efforts to secure sustainable peace.

Recognition that one of the key levers for transforming the food system is sustainable finance. We believe we would have helped foster food system funds to the level of at least half a billion by the end of 2021.

Reducing meat consumption in many countries is regarded as one of the significant levers for transforming the food system, and a promising new research area for CCAFS is plant-based meat. This work was initiated based on investment trends and interest from our partners.

B) Have any research lines been dropped or significantly cut back?

None.

C) Have any Flagships or specific research areas changed direction?

No significant changes.

1.2.4 Altmetric and publication highlights

Publication highlights

CCAFS scientists produced 184 peer-reviewed articles in 2020, of which 87.5% (161) were published in ISI Journals and 78.8% (145) were confirmed Open Access (you can see the full list here). The total number of peer-reviewed articles was higher than in 2019 (139), the percentage of Open Access and ISI journals remained the same.

The most downloaded non-peer-reviewed CCAFS publication in 2020 was Actions to Transform Food Systems Under Climate Change. With 37,835 downloads to date, it was the most in-demand publication on CGSpace in 2020 of any CGIAR Centre or Research Program, in fact, it is the most downloaded CCAFS publication of all time.

CCAFS continued to build and maintain several open-access databases, including CCAFS-Climate and MarkSIM. In 2020, 121,579 files were downloaded from CCAFS-Climate, which contains down-scaled Global Circulation Models data (there were 18,813 total visits, of which 98.41% were new visitors, and downloads of 27.31 TB data). In 2020, CCAFS-Climate was cited 94 times (79 journal articles, 4 Book chapters, and 11 thesis and reports).

Altmetric highlights

Seven CCAFS publications achieved Altmetric scores above 500, the same number as in 2019. CCAFS has published 45 publications that have scored between 101-500. For all publications, social attention came primarily from mentions on Twitter (21,694), news articles (2,088), blog stories (1,225), policy (1,323), and Facebook (634).

The top-scoring publication of all years, with an Altmetric score of 2,567, remains "Options for keeping the food system within environmental limits" (Clark et al.) published in Nature, October 2018.

The second-highest scoring publication of all years, with an Altmetric score of 1,992, remains "Planetary boundaries: Guiding human development on a changing planet" (Richardson et al.) in Science,

published in 2015. "Natural climate solutions" (Shoch et al.) in PNAS, published in 2017, remained third with a score of 1,729.

Among the top 20 highest-scoring publications, Nature journals remained the most common (nine publications), followed by PNAS (four publications), and The Lancet Planetary Health (two publications).

1.3 Cross-cutting dimensions (at CRP level)

1.3.1 Gender

A) List any important CRP research findings

- A synthesis of CCAFS gender research identified four critical ingredients of gender equality in climate-resilient agriculture: Decision-making at household and community levels; Access to and control of resources such as information, technology, credit and land; Decreased workloads, and; Collective action for agency and voice.
- Gender, climate and agriculture mapping in India and Nepal identified "hotspots" where women experience high levels of climate risk including drought, excess rainfall and high temperatures—areas where climate action is most necessary.
- A Special Issue on "Gender Equality and CSA: Framework, Approaches and Technologies" (Climatic Change) highlights methods and frameworks for gender-responsive technologies, indicators, policy analysis and climate-risk management.
- Successful gender indicators need to go beyond simply tracking CSA adoption rates by women and men. They also need to measure the integration of approaches that take into account context, the enabling environment, norms and culture.
- In Bangladesh, women's empowerment led to a more diversified use of farmland away from cereal production to vegetables and fruits, improving dietary diversity.
- Progress is evident in the mainstreaming of gender into climate-related policy processes (particularly NDCs) but challenges remain in implementation.
- CCAFS provided support and technical advice on gender to the Nigeria National Action Plan on Gender and Climate Change, the Kenya Climate Smart Agriculture Implementation Framework (KCSAIF), as well as AGNES working papers on long-term strategy for East African countries.
- Gender and climate policy guidance materials included "Mainstreaming Gender into National Adaptation Planning and Implementation in sub-Saharan Africa", a Gender Profile of CSA in Ghana, and a Gender Roadmap for the CSA Strategy of the Central America Integration System.
- The Gender Empowerment Index for CSVs demonstrated that both women and men in CSVs in India experienced empowerment results from CSA adoption across economic, social, political and agriculture domains.
- A compendium of women's and civil society organizations that have been—or have potential to be—key partners for scaling out gender and social inclusion approaches and outcomes.
- A gender transformative approach to Climate-Smart Cocoa (CSC) outlines pathways for the private sector to promote gender transformation in their programs.
- The gender-agriculture-emissions nexus was explored, in terms of the reduction in women's labor contributions to rice cultivation and accompanying GHG mitigation, and co-benefits of the adoption of direct-seeded rice and machine transplanting technologies.
- Climate information platforms like Participatory Integrated Climate Services for Agriculture (PICSA) and Radio Listening Club (RLC) contributed to women's empowerment by increasing their participation in agricultural decision-making, and increasing their confidence in exercising options for livelihood management.
- Strategies for meeting women's climate information needs built on women's groups and networks with communication channels and content that responds to women's preferences.

B) What have you learned? What are you doing differently?

- Gender-sensitive CSA business models and financial mechanisms are needed to ensure that women also accrue benefits from climate finance.
- Local experiences in different regions demonstrate that collective action by women at both the local and the national levels—and women's leadership in community organizations—are important platforms for gender equality and women's empowerment.
- Women benefit more than men from climate information platforms such as PICSA and RLCs in farm decision-making, in effect narrowing the gender gap in use of climate information.
- Ensuring women's access to climate information via radio produces benefits, such as increased ability to cope with climate impacts and greater confidence in planning. However, more research is needed to assess women's empowerment in the use of CIS in relation to time burden, workloads and decision-making.
- CSA can promote empowerment if implemented while taking into account women's situation and preferences. Women's empowerment may, on the other hand, be a pre-requisite for adoption of CSA.
- The link between gender and GHG mitigation can be better assessed by integrating socio-economic surveys with emissions modeling tools, for example CCAFS' own Mitigation Options Tools, with bio-physical data. This approach can address the lack of sex-disaggregated data at the household level.

C) Have any problems arisen in relation to gender issues or integrating gender into the CRP's research?

- Research on the 'gender-agriculture-emissions' nexus is limited and researchers are still exploring avenues to better integrate gender issues into research on GHG mitigation in agriculture. The level of work on gender across regions and flagships has fluctuated over time, as a result of budget challenges.
- More systematic work could be done to analyze the evidence gaps, and assumptions on gender and CSA. More research is also needed on case studies of gender equality and how we can approach the issue in different contexts.
- Gender climate policy champions are key in order for research to be translated into policy and articulated in policy forums.

1.3.2 Youth and other aspects of social inclusion / "leaving no-one behind"

The CCAFS Youth and CSA Strategy analyzes the challenges and opportunities for youth in the context of climate change and agriculture, presenting a blueprint for targeting and equipping youth to increase their productivity, resilience and employment options.

The strategy highlights that trends in youth populations and employment rates necessitate approaches that build the agency of youth to navigate and negotiate opportunities for more sustainable futures. To understand the situation of young people, broader characteristics that influence local opportunities for employment—improved productivity, adaptive capacities and youth migration—need to be documented.

While structural and rural transformation will interact with conditions for CSA, social factors must be equally considered for their effect on the agency of young people to pursue options based in their own priorities and abilities. The social networks in which youth are often embedded mediate agency and their ability to secure resources—both of which will be important to support their ability to kickstart, participate in, and benefit from CSA initiatives. Socially inclusive and intersectional approaches provide a better understanding of the ways in which local and cultural contexts structure opportunities and

challenges in CSA for youth. In addition, young people's relationships within families influence agency, especially when they are economically dependent on their parents.

It is important to understand the intersectional connections of youth with gender and ethnicity, and to understand and address the contextual needs of specific groups in different locations. For example, in Colombia, the two-year Heirs of Tradition Program to train young farmers sponsored by Alquería, a Colombian dairy company, was valued by students for its relevance, technical support, paid internships and maintenance of long-term relationships. However, gender inequities and challenges arising from conflict were issues affecting inclusion.

Work with youth in Vietnam, Colombia and Kenya showed the value of training in agricultural and low-emission development as an entry point to becoming successful farmers. Informal markets (e.g. in the Kenyan dairy sector) can provide an entry point to youth for gaining experience. Recommendations to attract youth to the rice sector in Vietnam specifically included: (i) On-farm training at school; (ii) Exchange visits, trade fairs, competition on farming techniques; (iii) Farm business models with supportive policies; (iv) improved extension worker skills and knowledge for working with youth.

The CASCAID project targets youth through several of its digital agriculture activities. The agCelerant Academy provided training to 62 young development agents and input dealers known as 'agripreneurs' (22 of whom were female) on the use of digital tools to provide climate and crop disease advisories to farmers, track inputs of seed and fertilizer, deliveries and access to machinery services. These experiences show that building a new generation of young 'agripreneurs' who use digital tools to provide information to farmers—along with access to inputs and services—is key to ensuring market inclusion of smallholder farmers along, with access to finance and bridging digital technologies.

A) List any important CRP research findings

- In future, creating remunerative rural employment for youth that provide real alternatives to rural-urban migration will be critical.
- The impact of climate change on international migration is stronger for countries and communities with an economy based on agriculture.
- The incidence of migration is higher among the youth population of East Africa.
- We need improved understanding of how age and gender affect social risk and influence the vulnerability and adaptive capacity of communities.
- Investment in infrastructure that ensures the growth of the agribusiness sector and improves youth access to land is essential in encouraging young people to stay in rural areas.
- Understanding opportunities for youth requires understanding the interaction of local factors with employment and livelihoods options that affect productivity, adaptive capacities and migration.
- Agricultural value chains, both on- and off-farm, can offer promising career opportunities for young farmers if appropriate information and start-up resources are made available.
- Data from 579 randomly-sampled rice-producing households in Vietnam indicated several key challenges in engaging young farmers: drudgery in farm operations, labor-intensive technologies, low profit, inadequate access to land and credit, and lack of agricultural insurance schemes.
- In a survey of rice-producing farm households North, Central and South Vietnam, 40% of households in Bac Lieu Province—where farms are large with high levels of mechanization—were likely to encourage their children to go into farming. Only 20% of respondents in Ha Tinh and Thai Binh provinces were likely to do the same.

- Entry points for working with youth include information and communication technologies (ICTs), digital technologies, value chain approaches, collective action and social networks.
- Visioning with youth has been shown to be an effective way to explore radical transformation and more desirable future worlds that are characterized by environmental and human wellbeing. Gaming has the potential to be an effective platform for youth engagement in climate change policy and action.
- The collective agency of youth, whether through groups or virtual networks, is important for knowledge exchange and building social capital.
- Work on youth in Vietnam, Colombia and Kenya shows the importance of providing training in agricultural and low-emission practices to youth, as an entry point to becoming successful at farming. Similarly, informal markets (for example in the Kenyan dairy sector) provided an entry point for gaining experience.
- Recommendations to attract youth to the rice sector in Vietnam specifically include: (i) On-farm training at school; (ii) Exchange visits, trade fairs, competition on farming techniques; (iii) The availability of robust farm business models and supportive policy; (iv) Improved extension worker skills and knowledge.

B) What have you learned? What are you doing differently?

The need for food system transformation in the next decade highlights the necessity of more research on widening climate-change, agriculture and food systems decision-making and engagement processes to include youth.

Young people are more interested in farming when it offers an attractive livelihood and when they receive appropriate training and support. Work related to extension and farm services may be even more attractive. While there is a lot of talk about integrating youth into agribusinesses and employment in rural areas, more resources need to be dedicated to programming, financing or credit services for young farmers.

Understanding the needs of specific groups of youth by gender, ethnicity and location is essential. The lack of participation in decision making at household, community, national and global levels poses a bottleneck for expanding options for young people in rural areas—particularly for young women.

Capacity development in CSA and climate information is insufficient if youth are not integrated into value chains, have no access to resources, and do not participate in decision making in households and communities. Promoting the role of youth in digital extension and information access needs to be accompanied by business models that encourage the development of agri-business and value-chain related enterprises.

C) Have any problems arisen in relation to youth issues or integrating youth into the CRP's research?

Budget cuts have affected the reach of youth programming. Youth issues have only received attention comparatively recently, so different strategies and approaches to integrating youth into CSA were tried, and different roles for youth were experimented with, for instance as infomediaries and digital 'agripreneurs'. It emerged that capacity development and access to information and digital technologies are insufficient to promote more livelihood and agri-business opportunities for young farmers. Instead, a combination of different support services are required, such as financing, business development, connections with clients and suppliers and participation in household decision making.

1.3.3 Capacity development

Despite the obvious challenges posed by COVID-19 in 2020, a range of capacity development processes and training programs were conducted or supported. A total of 33,621 individuals participated in some form of short-term training, of which 9,986 were female. A total of 152 people (66 of whom were female) participated in long-term trainings. Of that total, 97 were in PhD programs, of which 35 were female.

Numerous trainings were conducted for policymakers, including an eight-week training for members of the Lao PDR Ministry of Agriculture and Forestry, as well as training for provincial and district extension officers in Vietnam. A training course on SADC Futures was developed and disseminated to more than 150 people from over 20 countries. Trainings also focused on NDC-related topics, including in Costa Rica for 350 stakeholders, which supported African organizations to implement NDCs. Many projects also developed relevant guidelines, handbooks and manuals.

Other capacity development activities engaged with the private sector or covered relevant topics. These included roundtables on financing agricultural small and medium-sized enterprises (SMEs), and a webinar attended by over 1,000 on accounting for soil carbon for the finance community.

Capacity development for students included the CCAFS-NUI Galway Master program, with 14 students (10 of whom were female) from Zambia, Tanzania, Sierra Leone, India, China, USA and Ireland who graduated in 2019-2020. A new class of 31 students (18 of whom were female) from 12 countries started the program in September 2020. Support was also provided to 88 students (including 33 women) to conduct PhDs through the Climate, Food and Farming (CLIFF) program.

Gender-related capacity development included a seminar for Zamorano Master' students (Central America) and development of a roadmap of key actions to implement a gender approach of the Regional Climate-Smart Agriculture Strategy (EASAC). In West Africa, training was provided to 62 young development agents and input dealers, 22 of whom were female. Gender-focused publications for capacity development were also produced in West Africa and Central America.

1.3.4 Climate change

All CCAFS work covers climate change.

2. Effectiveness and efficiency

2.1 Management and governance

There were no major changes in management or governance arrangements in 2019. Due to the COVID-19 pandemic, however, two Independent Steering Committee (ISC) meetings were organized virtually—as opposed to an in-person meeting—in the second half of the year. As a management team, we identified that the main COVID-related challenge was the lack of completion of the ex-post impact studies and outcome studies, due to the limitations on travel to field sites. This limited CCAFS ability to showcase its achievements through detailed studies in a period of transition. Efforts are put in place to finalize some studies in 2021.

The key challenges facing CCAFS as a team were: i) The uncertainty around the ending of the CGIAR Research Program and the transition towards OneCGIAR potentially leading to staff resignations; and ii) remaining over-stretched because of competing demands from partners and initiatives, with climate change Research for Development (R4D) an ever-more crowded space.

On the first challenge, the future configuration of OneCGIAR will be announced within the last year of the CRP. This could result in further staff resignations at the time when it is crucial to wrap up work and

properly finalize CCAFS programs. On the second challenge, CCAFS management defined priority activities and events for 2020. Other incoming requests were considered only in cases where the activity was perceived to be highly strategic.

2.2 Partnerships

2.2.1. Highlights of external partnerships

2020 saw continued collaboration with major global partners as the Global Center on Adaptation, the World Resources Institute (WRI) and the WFP through which CCAFS—together with these partners developed a blueprint for Digital Climate Advisory Services. Through further collaborations with the WFP, CCAFS contributed to the development of a network of partners across the humanitarian-development sector to effectively leverage CGIAR food systems and climate science for peace and security, led by the new CGIAR FOCUS Climate Security.

Private sector engagement continued to be a focus in 2020. A partnership with the WBCSD resulted in the development of the CSA metrics and a guide for the private sector. Meanwhile, collaboration with Impossible Foods led to the development of scenarios for plant-based meat production in developing countries.

Partnerships with international agencies were also a highlight in 2020, including supporting AGNES on gender and agriculture positions and submissions to the United Nations Framework Convention on Climate Change (UNFCCC) processes. Partnering with SADC, CCAFS also contributed to the SADC Futures program by developing capacity development materials, toolkits and an e-learning course on developing foresight capacity for climate-resilient agricultural development in the SADC region.

Further capacity development efforts were realized through a collaboration with the GRA with which a series of webinars was organized as part of the CLIFF-GRADS fellowship program.

2.2.2. Cross-CGIAR partnerships

Cross-CGIAR collaborations were facilitated through joint research:

- Picture-based insurance
- CSA practices and technologies across CSVs
- Ex-ante evaluation and decision support for climate-smart options, including joint development of feasibility maps of animal feed technology adoption in the East African highlands, and research on the suitability and priority setting of roots, tubers and bananas in the Great Lakes Region of East Africa.
- Synthesis of the interactions between climate change, nutrition and inequity
- Modelling of food security outcomes in agricultural systems models and joint scenarios modelling
- Coordination (e.g. joint proposal prepared to the EU on supporting a transition to agroecological practices through improved metrics, digital tools and incentives and private sector collaboration)

Highlights include the development and granting of the International Development Association (IDA)-funded project 'Accelerating the Impact of CGIAR Climate Research for Africa (AICCRA)', which is a major opportunity for CGIAR to showcase research that enhances access to CIS and validated CSA technologies in Africa. AICCRA is designed to be a cross-CGIAR project with the majority of CGIAR Centers involved in the management and implementation of the project.

Under the leadership of CCAFS, the CGIAR FOCUS Climate Security was launched on behalf of the CGIAR to address gaps in knowledge about climate change and food security for peace and security policies, which operates through a unique multidisciplinary approach.

2.3. Intellectual assets

Have any intellectual assets been strategically managed by the CRP (together with the relevant Center) this year?

While CCAFS does not have patents or plant variety protection (PVPs), the program takes the following actions to maximize the accessibility and impact of its intellectual property (IP):

i) Follow up on partners compliance with agreements and contracts, thus ensuring that all agreements and contracts (including confidentiality), comply with IP principles;
ii) Maintain a regularly updated IP portfolio which, in the case of CCAFS, includes lists of publications and databases;
iii) Ensure that partners adhere to prior informed consent principles; and
iv) Ensure that information is subject to confidentiality obligations from CCAFS and is appropriately managed.

Indicate any published patents and/or plant variety right applications (or equivalent)

Not applicable

List any critical issues or challenges encountered in the management of intellectual assets in the context of the CRP

None

2.4 Monitoring, evaluation, impact assessment and learning (MELIA)

CCAFS continued to play a key role in helping CGIAR Centers and CRPs work together in their monitoring, evaluation and learning. This included work related to the CGIAR Results Dashboard, and modifications to the Managing Agricultural Research for Learning and Outcomes (MARLO) platform to guide the Program Management Units of CRPs to focus on the content and synthesis of the information reported at different levels within the research program. CCAFS continued to play an integral role in the CGIAR community of practice on Monitoring, Evaluation and Learning (MEL).

An independent review of CCAFS was carried out in 2020, covering the years 2017-2019. A wide range of MEL studies were conducted (see Table 10). These included:

- Studies of the effectiveness of CCAFS's engagement and the use of its science in different contexts;
- Adoption studies of CSA technologies in several regions;
- Quantification of soil carbon sequestration potential in East African CSVs as a co-benefit of CSA adoption;
- Several studies of the impacts of COVID-19 on agricultural production and the pandemic's impacts on women in different contexts were undertaken.

A broad evaluation of the effectiveness of climate services in Rwanda was completed, together with lessons learned from other countries.

In relation to MRV, an internal impact study of science and capacity building indicated that eight countries (Brazil, China, Cuba, Colombia, Ethiopia, Indonesia, Kenya, Vietnam) improved their MRV, which will support better tracking of mitigation targets in their NDCs.

2.5 Efficiency

While COVID-19 impacted a number of ongoing activities, we focused on responding creatively to realize efficiency gains during this crisis. A key highlight was the flagship report "Actions to transform food systems under climate change" launched in 2020.

We designed a virtual relay launch event, which brought together over 50 speakers from around the world from Australia to Colombia, engaging over 18,000 viewers from over 100 countries. Accompanied by a digital communications campaign, the report become the most downloaded CGIAR product in 2020.

Such efficiency gains are also being delivered across other activities.

2.6 Management of risks to your CRP

CCAFS maintains a risk catalogue, and discussions are undertaken in the ISC.

Because CCAFS ends at the end of 2021, incentives for Centers and individuals to engage with CCAFS have reduced. CCAFS remains a coherent program supported by W1/W2/W3 and bilateral funds. So one risk is that Centers stop raising bilateral funds that support CCAFS, resulting in overall targets not being met. A second risk results from a lack of engagement is low productivity and loss of creativity to drive forward the with the CCAFS agenda in its final year. A third risk is that staff start looking elsewhere for jobs. Indeed, there were a number of resignations in 2020. We have mitigated these risks by actively engaging with Centers/individuals, and actively look for activities that excite staff to help them remain engaged.

In 2020 we organized a 'business unusual' launch event of the 'Actions to Transform Food Systems under Climate Change' report and implemented a major project proposal with multiple CGIAR Centers to the World Bank. In 2021, we will draft a book in a week with 100 partners that focuses on research for climate action—what can be achieved, how and where we should focus our efforts in the future.

COVID-19 disrupted daily practices on a global scale, and they also hampering standard CCAFS operations in 2020. But CCAFS staff and management demonstrated flexibility and ingenuity to partially mitigated this risk. Planned activities were executed where possible, if necessary through virtual platforms as opposed to in-person events. Alternatively, events were postponed until further notice. There was minimal affect on management operations from COVID-19, because management has—by and large—always been done digitally.

2.7 Use of W1-2 funding

W1/W2 funds were used to fund the core elements of the CCAFS strategy, as described in the 2020 Plan of Work and Budget (POWB) and Phase II proposal.

We argue that all CCAFS achievements are due to W1/W2 funds, CCAFS only use W3/Bilateral funds to support the overall strategy of CCAFS. W3/Bilateral projects are only accepted if aligned with the strategy and usually contribute to specific case studies in particular countries.

W1/W2 funds were equally relatively allocated to most of the CCAFS' Regional Programs (Latin America, East Africa, West Africa, South Asia and Southeast Asia), with a slightly higher allocation to East Africa, to build project portfolios across all flagship programs. W1/W2 funds were allocated to flagships as follows: FP1 23%, FP2 37%, FP3 21% and FP4 19%.

3. Financial summary

After updates to funding, a total of USD 22.853 million of W1/2 funds were planned for the years' activities. In this regard, CCAFS differed from the 2020 POWB.

The program started with a carryover of USD 3.45 million from 2019. From 2020 funds, USD 19.301 million were received, this amount included USD 0.93 million from Norway's W2 contribution and an estimated USD 19,600 of W2 funds from Thailand were also added on top of this amount in the program's annual budget. In addition, USD 1.1 million from Norway W2 funds, received in December 2019, were considered as part of the 2020 plan, given that activities of this extraordinary W2 contribution were only started in 2020 by CIMMYT and IITA exclusively.

In terms of flagships, W1 /2 funds were distributed as 23% FP1, 37% FP2, 21% FP3 and 19% FP4 that total 87% of available funds, the difference was allocated for management costs. A total of 47 projects were funded, 36 led by CGIAR program participants, four led by Flagship Leaders, five by Regional Program Leaders (Latin America, West Africa, East Africa, South Asia and Southeast Asia), and the remaining four were led by cross-cutting units (Gender and CSA partnerships) and the Program Management Unit (PMU).

The W3 and bilateral budget was kept at the same level of the POWB at USD 41.9 million, which combined with the updated W1/2 budget of USD 23.85 million) totaled USD 65.7 million.

Based on Centers' comfort letters on W1/2 expenditures (and preliminary expenditures in some cases) the level of expenditure of this funding source was USD 14.7 million, which translates to 62% of execution. The main reason for this low execution was the restrictions of COVID-19 worldwide that stopped many planned activities from being implemented. The difference unspent was added to the 2021 plan, as was the case with other CRPs and platforms.

In terms of W/3 bilateral execution, CGIAR centers reported USD 34.5 million, an amount below the expected contributions of these funding sources, and as with W1/2 expenditures, this low level of execution is assumed to derive mainly from COVID-19 restrictions.

Part B. TABLES

Table 1: Evidence on progress towards the CGIAR Strategic Results Framework targets (sphere of interest)

SLO target (2022)	Brief summary of new evidence of CGIAR contribution	Expected additional contribution before end of 2022	Geographic scope
1.1 Adoption: 100 million more farm households have adopted improved varieties, breeds, trees, and/or improved management practices.	No new evidence in 2020.	We expect 6 million households in India and Nepal to have benefitted from CSVs in India and Nepal. Estimates are that 4 million have already benefitted, but evidence reports still need to be done.	• Geographic scope: Multi-national • Countries: India, Nepal
	CCAFS employed the PICSA process to train and facilitate 111,835 farmers across all 30 of Rwanda's districts to understand and incorporate climate information into their management decisions. Participation in project interventions is associated with a substantial increase in the proportion of farmers that report changing crop, livestock and livelihood management practices. The main change in livelihood was increased scale of enterprises. Participating farmers use climate services to make decisions on the types of crops to grow (75%), the types of crop varieties to plant (58%), timing of planting and land preparation (75%) and when and how to prepare land (65%). Users experienced on average a 24% increase in the value of crop-production. Use of advisories all but eliminated gender gaps.		• Geographic scope: National • Countries: Rwanda
	Improved rice varieties adopted in combination with agro-climatic forecasts increased rice yield by 0.6		• Geographic scope: National

	tons/ha in Colombia. This covered 40% of Colombian rice producers cultivating 275,608 ha adopted improved rice varieties developed by CCAFS and partners.		• Countries: Colombia
	Previously we have documented 7 million households receiving climate-informed advisories as a result of CCAFS activities with partners. An impact evaluation study revealed that the use of seasonal forecast increased major crops' productivity and farm profitability. Millet and rice yields have increased by 22% and 19% respectively as an effect of using seasonal forecast information into farm management decisions. Aggregate farm profits increased income by 15% on average with an increase of 23% among men and 5% among women that used seasonal forecast implying differential incremental incomes of USD 56 and USD 11 for men and women respectively. The study points to the need for specific targeting of women.		• Geographic scope: National • Countries: Senegal
	Vietnam's Department of Crop Production (DCP) has been implementing the CS-MAP for the rice production in Mekong River Delta (MRD). To address salinity intrusion during the Winter-Spring season 2019-2020 and 2020-2021, cropping adjustments guided by CS-MAP were applied in more than 800,000 ha and 500,000 ha, respectively. This influenced the planting-decisions of nearly 0.5 million rice growers, helping them to increase annual rice incomes by 24%.		• Geographic scope: National • Countries: Vietnam

	Outputs and recommendations developed by CCAFS were used by key Philippine government agencies in reviewing, developing, and implementing national policies and key programs, including the Rice Competitiveness Enhancement Fund (RCEF). Through RCEF, the Philippine government allotted PhP60B (USD 1.2 billion) for climate-smart rice production, targeting 1.89 million rice farmers in 57 provinces of the country. Since the RCEF implementation in 2020, CCAFS innovations—i.e., CSV, school-on-the air (SOA)—are being used as platforms for implementing the program's components.	Evidence of reach produced in 2020, but evidence of impact of uptake of new practices still to be prepared.	• Geographic scope: National • Countries: Philippines (the)
	Follow-up work is underway to assess the adoption of CSA across the entire country, although the results of the present study suggest that 1.2 million farming households in Kenya have adopted CSA. In the study, 672 households were surveyed in nine counties scattered across all the agro-ecological zones of Kenya, and more than 35% of these households had adopted CSA to a significant extent. The results of the impact assessment show that adoption of both crop and livestock CSA practices had a statistically and economically significant positive impact on household income and welfare. CSA adoption increased households' total value of livestock holding by between USD 4,200 and USD 5,285 and increased the value of agricultural yield per household by between USD 886 and USD 1,068. The impact of CSA adoption on household welfare, as measured by household expenditure per capita per month, increased by between USD 4.44 and USD 7.79.	Adoption rate is currently being further studied.	• Geographic scope: National • Countries: Kenya

1.2 Exit poverty: 30 million people, of which 50% are women, assisted to exit poverty	No new evidence in 2020.	Millions of farmers are expected to have improved their livelihood status due to the changes in practices outlined under the SLO target 100 million more farm households have adopted improved varieties, breeds, trees, and/or improved management practices. However, the needed poverty analyses have not been undertaken. In addition, expected poverty reduction will come through CCAFS impact on investments by major agencies and through policy change. As indicated elsewhere CCAFS has influenced USD 3 billion in investments and has had at least 100 policy wins.	• Geographic scope: Multi-national • Countries: Ethiopia, India, Nepal, Philippines (the), Rwanda, Senegal, Vietnam
	Follow-up work is underway to assess the adoption of CSA across the entire country, although the results of this study suggest that more than 1.2 million farming households in Kenya have adopted CSA. In the study, 672 households were surveyed in nine counties scattered across all the agro-ecological zones of Kenya, and more than 35% of these households had adopted CSA to a significant extent. The results of the impact assessment show that adoption of both crop and livestock CSA practices had a statistically and economically significant positive impact on household income and welfare. CSA adoption increased households' total value of livestock holding by between USD 4,200 and USD 5,285. It increased the value of agricultural yield per household by between USD 886 and USD 1,068. The impact of CSA adoption on household welfare, as	The study focused on certain counties; follow up work looks at Kenya as a whole.	• Geographic scope: National • Countries: Kenya

	measured by household expenditure per capita per month, increased by between USD 4.44 and USD 7.79.		
2.1 Yield increase: Improve the rate of yield increase for major food staples from current < 1% to 1.2-1.5% per year	N/A		
2.2 Minimum dietary requirements: 30 million more people, of which 50% are women, meeting minimum dietary energy requirements	N/A		
2.3 Micronutrient deficiencies: 150 million more people, of which 50% are women, without deficiencies of one or more of the following essential micronutrients: iron, zinc, iodine, vitamin A, folate, and vitamin B12	N/A		
2.4 Women's nutrition: 10% reduction in women of reproductive age who are consuming less than the adequate number of food groups	N/A		
3.1 Water and nutrient efficiency: 5% increase in water and nutrient (inorganic, biological) use efficiency in agro-	N/A		

ecosystems, including through recycling and reuse			
3.2 Reduced GHG emissions: Reduce agriculturally-related GHG emissions by 0.2 Gt CO2-e yr–1 (5%) compared with business-as-usual scenario in 2022	CCAFS research partnerships contributed to significant mitigation. Research on institutional sustainability supported Vi Agroforestry and ECOTRUST to generate 1.9 $MtCO_2eq$ credits (2010 to 2019). IRRI research expanded low-emission practices in paddy rice in Vietnam via extension programs enhancing the capacity of 929,067 farmers in eight MRD provinces, and almost doubled the adoption area of low-emission practices to 163,418 ha, reducing emissions by 1.5 $MtCO_2eq$ compared to 2019 and increasing net income by 28%/ha compared to non-project farmers.		• Geographic scope: Multi-national • Countries: Kenya, Vietnam
3.3 Ecosystem restored: 55 million ha degraded land area restored	N/A		
3.4 Prevention of deforestation: 2.5 million ha of forest saved from deforestation	N/A		

Table 2: Condensed list of policy contributions in this reporting year (sphere of influence)

Title of policy, legal instrument, investment or curriculum to which CGIAR contributed	Description of policy, legal instrument, investment or curriculum to which CGIAR contributed	Level of maturity	Link to sub-IDOs	CGIAR cross-cutting marker score				Link to Outcome Impact Case Report (OICR) or link to evidence
				Gender	*Youth*	*Capacity dev.*	*Climate change*	
585 - Decision of Vietnam's Minister of Agriculture acknowledging alternate wetting and drying (AWD) suitability mapping methodology as one of the ministerial-level initiatives	The Minister of Agriculture recognized the scope of influence of the AWD suitability mapping methodology for low-emission rice production and that AWD can bring practical benefits to Vietnam's agriculture sector.	Level 1	• Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	0 - Not targeted	0 - Not targeted	1 - Significant	2 - Principal	OICR3787 OICR3086
586 - Vietnam's updated NDCs to the Paris Agreement, including new targets in agriculture	Vietnam has increased the unconditional and conditional targets for GHG mitigation in agriculture in its updated NDC to 6.8 $MtCO_2eq$ and 25.8 $MtCO_2eq$ respectively (the previous targets were 6.42 $MtCO_2eq$ and 10.21 $MtCO_2eq$ respectively).	Level 2	• Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	0 - Not targeted	0 - Not targeted	1 - Significant	2 - Principal	OICR3787
589 - Nationwide Adoption of the Protocol for Integrating Climate Risk Vulnerability Assessment	A memorandum from the Philippine Department of Agriculture instructing provinces to adopt the CRVA manual in updating their commodity investment plans	Level 1	• Enabled environment for climate resilience • Enhanced capacity to deal with climatic risks and extremes	0 - Not targeted	0 - Not targeted	2 - Principal	2 - Principal	OICR3788

(CRVA) in Province-Led Activities	and in establishing their agriculture and fisheries extension systems.		(Mitigation and adaptation achieved) • Enhanced institutional capacity of partner research organizations					
590 - Memorandum on the Implementation of a Unified School-on-the-Air (SOA) Program on Smart-Rice Agriculture in the Philippines	The memorandum from Philippine Department of Agriculture recognized the manual of operations as the official guide of the national SOA program under RCEF.	Level 1	• Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved) • Enhanced individual capacity in partner research organizations through training and exchange • Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	0 - Not targeted	0 - Not targeted	2 - Principal	2 - Principal	OICR3788
591 - Prime Minister's Directions on proactive implementation of measures to cope with the risk of droughts, waters shortages, and salinity intrusion in the dry season 2020-2021 in the MRD	The Prime Minister's Decree directs localities to implement drought adaptation measures crisis using the recommendations from the MARD (including the risk maps/CS-MAP on salinity intrusion).	Level 3	• Increased capacity for innovation in partner development organizations and in poor and vulnerable communities • Enhanced capacity to deal with climatic risks and extremes	0 - Not targeted	0 - Not targeted	2 - Principal	2 - Principal	OICR3790

			(Mitigation and adaptation achieved) • Improved forecasting of impacts of climate change and targeted technology development					
592 - The water release schedule for rice production in winter-spring 2020-2021 for the Red River Delta and Northern Midlands Region	A directive (based on CS-MAP recommendations) from the MARD instructing local authorities of water release schedule for rice production in winter-spring 2020-2021 in the region.	Level 1	• Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved) • Improved forecasting of impacts of climate change and targeted technology development • Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	0 - Not targeted	0 - Not targeted	2 - Principal	2 - Principal	OICR3790
593 - Deploying the production plan for winter-spring season 2019-2020 in the MRD region	A directive from the DCP instructing local authorities of provinces in MRD to implement the winter-spring production plan (including the planting calendar adjustment based on CS-MAP).	Level 3	• Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved) • Improved forecasting of impacts of climate change and	0 - Not targeted	0 - Not targeted	2 - Principal	2 - Principal	OICR3790

			targeted technology development • Increased capacity for innovation in partner development organizations and in poor and vulnerable communities					
599 - CCAFS and partners influenced more than USD 3.5 billion CSA investments globally	CCAFS and partners' three investment outcome pathways are associated with more than USD 3.5 billion CSA investments globally	Level 3	• Conducive agricultural policy environment • Increased resilience of agro-ecosystems and communities, especially those including smallholder	0 - Not targeted	0 - Not targeted	1 - Significant	2 - Principal	OICR3831
615 - CCAFS support to the revision of the SADC Climate Change Strategy and Action Plan	Through SADC Secretariat's climate change expert group, CCAFS contributed directly to the revision of the SADC Climate Change Strategy and Action Plan (2020-2030) with respect to agriculture, gender and youth	Level 2	• Conducive agricultural policy environment	1 - Significant	1 - Significant	1 - Significant	2 - Principal	OICR3823
639 - Enhanced resilience through the use of seasonal forecast	The use of seasonal forecast will enhance farmers' resilience by increasing farm productivity, profitability, and income.	Level 1	• Closed yield gaps through improved agronomic and animal husbandry practices • Gender-equitable control of productive	2 - Principal	1 - Significant	1 - Significant	2 - Principal	OICR3906 OICR2074

			assets and resources • Increase capacity of beneficiaries to adopt research outputs					

Table 3: List of Outcome/Impact Case Reports from this reporting year (sphere of influence)

Title of Outcome/Impact Case Report (OICR)	Link to full OICR	Maturity level
OICR2122 - Long-term engagement with Kenyan Agriculture and Environment Ministries leads to uptake of CSA practices among farmers	Link	Level 3
OICR2628 - Green growth policy in Colombia is advancing its implementation	Link	Level 2
OICR3787 - Vietnam has reduced additional 1.5 $MtCO_2eq$/year through outscaling low-emission technologies in rice production with IRRI-CCAFS' contributions and increases the agriculture sector's NDC mitigation target by 16 $MtCO_2eq$ by 2030	Link	Level 3
OICR3788 - Philippine government adopts CCAFS outputs and inputs in reviewing, developing, and implementing CSA-related policies and programs	Link	Level 2
OICR3790 - Vietnam's rice-producing regions cope with water shortage, drought, and salinity intrusion by applying the CCAFS CS-MAP	Link	Level 3
OICR3823 - CCAFS contributes to the revision of the Climate Change Strategy and Action Plan for the SADC	Link	Level 2
OICR3824 - Translating complex climate science into practical agro-climate advisories for 13-15 million smallholder farmers in Ethiopia	Link	Level 1
OICR3831 - CCAFS and partners' three investment outcome pathways are associated with more than USD 3.5 billion CSA investments globally	Link	Level 3
OICR3838 - Colombia has now a sustainable beef certification scheme supported by CCAFS/CIAT R4D on low-emission technologies which monitors more than 60.000 ha for beef production and forest conservation	Link	Level 1
OICR3839 - Eight countries improve MRV for climate change mitigation to better track NDC mitigation targets for agriculture	Link	Level 1

OICR3843 - CCAFS science informs updated mitigation commitments for livestock in the NDCs in East African countries: Ethiopia and Kenya	Link	Level 2
OICR3844 - Forty percent of Colombian rice producers cultivating 275,608 ha adopt improved rice varieties developed by CCAFS/Alliance and Rice Growers' Federation with Ministry of Agriculture support	Link	Level 3
OICR3904 - Rwanda Climate Services for Agriculture project demonstrates significant productivity, income, food security and women's empowerment benefits for 110,000 participating farmers	Link	Level 3
OICR3906 - Using seasonal forecasts has improved the livelihood of men and women farmers in Senegal	Link	Level 2
OICR3911 - Picture-based crop monitoring is adopted by 6 institutions to advance their agricultural insurance and finance services	Link	Level 2
OICR4036 - CCAFS' influence and reach in motivating actors to tackle climate change	Link	Level 3

Table 4: Condensed list of innovations by stage for this reporting year

Title of innovation with link	Innovation type	Stage of innovation	Geographic scope (with location)
1677 - Eight guide steps for setting up a Climate-Smart Village: A trainer's guide	Research and communication methodologies and tools	Stage 4: uptake by next user (USE)	Multi-national: Indonesia, Cambodia, Vietnam, Malaysia, Philippines (the), Myanmar, Thailand
1678 - Toolbox for tools, guidelines, and templates for monitoring, reporting, and verification of GHG calculation in rice	Research and communication methodologies and tools	Stage 3: available/ ready for uptake (AV)	Sub-national: Vietnam
1680 - Digital tool for mapping suitable areas for AWD adoption	Research and communication methodologies and tools	Stage 3: available/ ready for uptake (AV)	Sub-national: Vietnam
1683 - Manual of Operations for the Schools-on-the-Air on Smart Rice Agriculture	Research and communication methodologies and tools	Stage 4: uptake by next user (USE)	National: Philippines (the)
1699 - (WBCSD) Smarter metrics in climate change and agriculture Business guidance for target-setting across productivity, resilience and mitigation.	Other	Stage 3: available/ ready for uptake (AV)	Global
1700 - The Climate-Smart Village approach nominates to the GCIAR's 50 greatest innovations	Research and communication methodologies and tools	Stage 4: uptake by next user (USE)	Global
1716 - A rapid approach for informing the prioritization of degraded agricultural lands for ecological recovery: A case study for Colombia	Research and communication methodologies and tools	Stage 1: discovery/proof of concept (PC - end of research phase)	National: Colombia

1723 - The Agro-Chain Greenhouse Gas Emissions (ACGE) calculator for estimating total GHG emissions associated to a food product	Research and communication methodologies and tools	Stage 3: available/ ready for uptake (AV)	Global
1724 - Estimating the cost of adaptation to climate change in agriculture	Research and communication methodologies and tools	Stage 3: available/ ready for uptake (AV)	Global
1732 - agCelerant: world's first fully automated processing system providing concurrent detection of field-level agricultural events, monitoring of crop response, and production forecasts from combined field mobile, IoT and EO data streams	Research and communication methodologies and tools	Stage 3: available/ ready for uptake (AV)	Global
1741 - Quick appraisal monitoring and evaluation tool for the Local Technical Agroclimatic Committees (LTACs) in LAM	Research and communication methodologies and tools	Stage 3: available/ ready for uptake (AV)	Regional: Latin America & the Caribbean
1743 - AgroclimR: an Agro-Climate Seasonal Forecast tool	Research and communication methodologies and tools	Stage 3: available/ ready for uptake (AV)	Regional: Latin America & the Caribbean
1793 - Climate Risk Profile	Research and communication methodologies and tools	Stage 4: uptake by next user (USE)	Multi-national: Tanzania, the United Republic of, Nigeria, Kenya
1889 - Using satellites to make Flood Index Insurance scalable and helping farmers survive floods	Biophysical research	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national: India, Bangladesh
1909 - Prototype of scenario dashboard based on MAGNET modelling (case example Bangladesh)	Research and communication methodologies and tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
1912 - Improved climate-resilient rice varieties	Genetic (varieties and breeds)	Stage 4: uptake by next user (USE)	National: Colombia

Table 5: Summary of status of planned outcomes and milestones (sphere of influence-control)

FP	FP outcomes 2022	Sub-IDOs	Summary narrative on progress against each FP outcome this year	Milestone	2020 milestones status	Brief explanation	Link to evidence
FP1	FP1 outcome: # of policy decisions taken (in part) based on engagement and information disseminated by CCAFS	• Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	CCAFS scenarios guided the development of sector policies based on Costa Rica's NDC in 2020, with contributions also made to the NDCs of Ghana and Mali. Support continued to AGNES and the Kenya Climate-Smart Agriculture Implementation Framework and the Multi-stakeholder Platform. CCAFS science was used to revise the Climate Change Strategy and Action Plan for the SADC and the SADC Regional Indicative Strategic Development Plan for 2022-2030. Contributions were made to the development of the National Action Plan on Gender and Climate Change for Nigeria, approved in August 2020.	2020 - National and state level planners were trained in designing and monitoring climate-smart food and nutrition security portfolios that meet the criteria for climate finance, CSA and sustainable development; Guidelines were developed for climate-smart institutions and enabling policy environments that can effectively support responses to climate change	Complete	The milestones were essentially completed. During 2020, there was considerable interaction with AGNES and science-policy platforms in West and East Africa. Training was conducted on CSA mapping in Vietnam, the Philippines and Cambodia as well as on future scenarios and climate risk vulnerability assessment in the SADC region.	- Kenya - Kenya - SADC - SADC - SADC - Nigeria
	FP1 outcome: # of organizations and institutions in selected	• Optimized consumption of diverse	A state of the art multi-level scenarios methodology is being tested by downscaling scenarios to national and	2020 - New scenarios tools for devolved policy implementation	Complete	New tools have been developed and tested using integrated modelling work in Bangladesh, and results made available online to policy	- MAGNET dashboard - Lao PDR - Youth gaming examples

	countries/states adapting plans and directing investment to optimize consumption of diverse nutrient-rich foods, with all plans and investments examined for their gender implications	nutrient-rich foods	state levels and includes food and nutrition security modelling outputs. Online trainings were conducted in East Africa, Southeast Asia and Central America to assist gender- and nutrition-sensitive scenario-guided policy formulation, along with training manuals and a new results dashboard, which included results from Bangladesh.	are finalized and disseminated to key next users in selected countries		makers in Bangladesh. Other tools and training were provided to decision makers in Lao PDR, while gaming prototypes were also developed.	
				2020 extended to 2021 - Combined climate and food and nutrition security scenarios are used for multilevel policy development and implementation in selected countries and states, with four of these effecting relevant policy change that includes consideration to gender issues, with innovative accountability mechanisms in	Extended	There was some delay in implementing integrated modelling tools and linking these with food & nutrition security scenarios. Some work was completed in Bangladesh, and contributing work is underway in 2021 in Latin America.	- Bangladesh policy making - Crop diversification in Bangladesh to increase nutritional status

				devolved governance systems tested and evaluated.			
	FP1 outcome: # of countries/states where CCAFS priority setting used to target and implement interventions to improve food and nutrition security under a changing climate	• Improved forecasting of impacts of climate change and targeted technology development	Recommendations are feeding into several policy processes at the country-level, informing climate smart food and nutrition security policies. In 2020 these countries included Uganda, Kenya, Ethiopia, India, Honduras, Guatemala, El Salvador, Costa Rica and Colombia.	2020 - New sets of integrated assessment model outputs produced that utilize next generation climate model outputs	Cancelled	There are still considerable delays in accessing the "next generation" set of climate model outputs (CMIP6). Some analysis work has been done with CMIP6 data, but all this has to be redone as errors have been found by suppliers of the data. Given that robust data are expected in the third quarter of 2021, this allows little time for impact work to be undertaken. Even so, the outcome target will be achieved (although with CMIP5 and other climate data).	N/A
				2020 - Country level recommendations feed into a total of 13 national and state level policy processes in selected countries to inform climate-smart food and nutrition security policies.	Complete	Milestone essentially complete. Recommendations were fed into a range of different country processes including Uganda, Kenya, Ethiopia, Ghana, Zambia, India, Honduras, Guatemala, El Salvador, Costa Rica and Colombia. Part of this work included information from global studies on multiple cropping systems and updated analyses of current and future climate hazards for use in prioritization studies and initiatives such as the GCA and the GCF Sectoral Guide on Agriculture and Food Security, which are	- Seed systems in Uganda - Nutritional analyses of crop varieties in E Africa - Global Commission on Adaptation contributions - Multiple cropping data - High-resolution climate data for priority setting - Recommendations for Kenya - NDC updating in Ghana, Kenya, Uganda, Zambia

						informing national investments and priorities.	- Climate and livestock policy coherence/gap analyses in five countries
	FP1 outcome: # of national/state organizations and institutions adapting their plans and directing investment to increase women's access to, and control over, productive assets and resources	• Gender-equitable control of productive assets and resources	A synthesis was initiated to see how gender considerations were integrated in scenarios processes across all of CCAFS focus regions, which is to be completed in 2021. Studies on gender indicators in CSA policy formulation, on women's empowerment and its effects on crop diversification, and the effects of COVID-19 on rural women were completed and published. A framework was developed for IFAD on programming investments that integrate climate change, gender, youth and nutrition.	2020 - Gender- and youth-focused policy guidance for CSA is disseminated and taken into account in new policies informed by CCAFS science, while investment plans consider gender equity dimensions in 6 countries/states.	Complete	The milestone contributes directly to the outcome, which should be achieved by the end of 2021, and is to be synthesized in two studies on the integration of gender considerations in scenarios processes and in policy processes more generally. Studies on gender indicators in CSA policy formulation, on women's empowerment and its effects on crop diversification, and the effects of COVID-19 on rural women were completed and published. Guidance was developed with the International Development Research Centre (IDRC) for AGNES on mainstreaming gender into National Adaptation Planning and implementation in sub-Saharan Africa.	- Gender indicators in policy processes - Systematic review on climate change, nutrition and inequity - Women's empowerment and diversification - Rural women and Covid-19 challenges - AGNES gender mainstreaming - AGNES, closing the gender gap policy brief - Framework for integrated analysis of climate change, gender, youth and nutrition
	FP1 outcome: USD new investments by state, national, regional and global agencies, informed by	• Enabled environment for climate resilience	The outcome target has been achieved, and a recent study found that CCAFS research and partnerships over the last 10 years have influenced the investment decisions of a diverse range of investors globally. This has	2020 - Comparative analyses further strengthen the MEL frameworks and tools for tracking enabling policy	Complete	Several activities contributed to this milestone in 2020. New indicator sets were developed for tracking gender in policy processes. A new online tool was developed and tested for tracking the effects and outcomes of project activities at different scales. Contributions were	- Gender indicators in policy processes - Global Commission on Adaptation contributions - Green Climate Fund contribution

	CCAFS science and engagement		been achieved through multiple investment-oriented outcome pathways, with entry points for influencing public and private sector actors in a wide range of countries. The lessons distilled from these experiences—highlighted in the study—continue to guide future investment planning for resilient and climate-smart food systems.	environments. Innovative ICT tools are being developed and tested in selected states to support accountability mechanisms in institutions at multiple scales.		made to several high-level publications and research reports that sought to link nutrition- and transformative activities linked to the SDG framework, which will be used to for tracking progress in the future. This included new analyses of new technology and the enablers that may be needed for uptake at scale, that can lead to food systems transformation to achieve the SDGs.	- Food system innovation - Food system tech and the SDGs - Reconfiguring food systems
				2020 - Case studies from CSVs and enabling policy environments at multiple scales are increasingly supporting the scaling of CSA, and USD 250 million of new investments are being informed by CCAFS science.	Complete	Through active contribution from its West Africa Program, CCAFS science and engagement has informed the design of a World Bank funded, USD 480 million regional flagship program. The West Africa Food System Resilience Program (FSRP) isa 10-year program to strengthen the resilience of West Africa's food systems to shocks. It is led by ECOWAS, CILSS and CORAF. CCAFS has actively contributed to the design and development of the FSRP proposal document and to the production of a blueprint document for sound implementation planning. The work of CCAFS and partners over the last 10 years in research and engagement has influenced the investment decisions of a diverse	- WA investment project - CCAFS's three-pathway investment outcomes

						range of investors globally. This has been achieved via multiple investment-oriented outcome pathways, and entry points for influencing public and private sector actors in a wide range of countries.	
FP2	FP2 outcome: # policy decisions taken (in part) based on engagement and information dissemination by CCAFS	• Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	A USD 1.2 billion investment by the Philippines in climate-smart rice production targeted 1.89 million rice farmers in 57 provinces. Vietnam used CS-MAP to manage salinity intrusion in more than 800,000 ha and 500,000 ha respectively in the last two years. Honduras, Guatemala and Consejo Agropecuario Centroamericano (CAC) co-develop with CCAFS an implementation roadmap of a CSA regional strategy, specifically its gender component. CCAFS informed the National Climate Change Plan for Agriculture in Colombia and a GCF proposal in Tanzania. Two local and three county-level adaptation plans were developed in Guatemala and Kenya respectively.	2020 - National and sub-national agricultural entities in three countries investing and prioritizing CSA sensitive subnational adaptation plans developed with CCAFS support.	Complete	Technical assistance provided to the Philippines Department of Agriculture developed manuals and platforms for extension services to push for climate-resilient rice production. These included a memorandum on the Implementation of a Unified SOA Program on Smart-Rice Agriculture in the Philippines. The Honduran and Guatemalan ministries of agriculture and the Central America Agricultural Council were supported by CCAFS to co-develop a roadmap to implement a CSA regional strategy, specifically its gender component. In Colombia, CCAFS informed the National Climate Change Plan for Agriculture. In Vietnam, CCAFS synthesized CSA lessons for mainstreaming CSA within the National Target Program on New Rural Development's 2021-2030 Strategy, establishing multi-level coordination mechanisms for its implementation. Two local adaptation plans—including CSA—	- Philippine Government adopts CCAFS outputs and inputs in reviewing, developing, and implementing climate-smart agriculture-related policies and programs: link - Manual of Operations for the Schools-on-the-Air on Smart Rice Agriculture: link - Roadmap of key actions to implement the gender approach of the Climate-Smart Agriculture Strategy (EASAC) of the Central American Integration System (SICA) region: link 1, link 2, link 3 - A systematic review of Climate-Smart Agriculture (CSA) practices and its potential for adoption in the implementation of

						were developed in Guatemala (Santa Cruz and Isidro). In Kenya, data and analyses from the Evidence for Resilient Agriculture (ERA) meta-dataset supported government design of three county-level adaptation plans and informed the design of a GCF project led by the Union for the Conservation of Nature (IUCN) and the Tanzanian Government. The Vietnamese DCP of the MARD scaled the implementation of CS-MAP to major rice-producing provinces of South Central Coast and Red River Delta and Northern Midlands.	Nong thon moi in the 2021-2030 Strategy: link - Vietnam's rice-producing regions cope with water shortage, drought, and salinity intrusion by applying the CCAFS' Climate-Smart Maps and Adaptation Plans: link - In Colombia, science effectively informs policy processes: link - Vietnam CS-MAP - Kenya: Data Atlas for Climate-Smart Agriculture - Kenya CSA analysis powered by ERA - Kenya training Busia County - NDC training material (Module 2 featuring ERA)
	FP2 outcome: 15 development organizations, with the focus on investments for CSA activities, adapting their plans or	• Gender-equitable control of productive assets and resources	WFP is using the CCAFS Transformation Initative to guide their food systems thinking and programming. African Improved Foods uses CCAFS science to invest USD 130-205 million in climate-smart and nutrition-sensitive value chains in Ethiopia and	2020 - Monitoring and impact assessment of scale out of public, private sector and subnational initiatives co-investments on gender and	Complete	Subnational: • In India, an impact assessment study was carried out across three states focused on CSV/CSA scaling activities for a United States Agency for International Development (USAID) project using a phone-based end-line survey. The survey was conducted with 195 project farmers	- India: USAID project report - Gender Integration for Inclusive Adaptation to Climate Risks - Ghana Adoption study - Climate-Smart Cocoa: a gender transformative approach

	directing investment to increase women's access to, and control over, productive assets and resources		Kenya. CCAFS wrote the Agriculture and Food Security Sector Guidance Document of the GCF's investment strategy. Ethiopia started constructing a drinking water dam to benefit 100,000 people based on CCAFS water harvesting insights. In Ghana, the private sector and CCAFS examined challenges faced by women, men and youth in the context of CSC adoption, its remedies and clear pathways for companies to incorporate the Gender Transformative Approach (GTA).	socially differentiate interventions using the evidence of CSA technologies, practices and business cases.		capturing experiences across all categories of the CSA portfolio. Convergence and the intended spillover effects were highlighted, as was the likelihood of the program outcomes to persist in the near future. Private sector: • In Ghana: CSC adoption study carried out across two climatic impact zones (Cope and Adjust) to: i) Examine the key challenges faced by women, men, and youth in the context of CSC adoption; ii) Propose and give clear feasible remedies for the challenges identified by the various social groups with a special focus on women and youth, and: iii) Develop clear pathways for companies to incorporate the GTA in their programs. Results showed interesting insights on adoption rates amongst men and women for(IITA and Rainforest Alliance. • The WBCSD develops new metrics for CSA to guide global corporate productivity, resilience and mitigation commitments for 2030.	- WBCSD Smarter metrics for climate smart agriculture - The World Business Council for Sustainable Development develops new metrics for climate-smart agriculture to guide global corporate productivity, resilience and mitigation commitments for 2030: link
				2020 - Policy guidance on CSA adoption,incentives and investment	Complete	• Policy document and outreach materials detailing the use of the stepwise investment approach for CSC adoption shared with private	- Ghana: Policy document detailing the use of the stepwise investment approach for

				opportunities to increaseresilience and adaptive capacity of women and youth within the CSV framework.		companies. • Report on GTAs highlighting the challenges, as well as remedies to embolden vulnerable groups to adopt CSC. • CCAFS-NWO outputs about technical-financial packages enable women farmers and women-led SMEs to invest in CSA. •Capacity building training with respect to implementing NDCs in the agriculture sector across Africa, with specific modules delivered on private sector engagement for NDC implementation. • A trainer guide on 'Eight steps for setting up a Climate-Smart Village' in the Philippines. • A compendium of climate-resilient technologies and approaches launched by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture and CCAFS. • Official manual of operations for the national SOA projects on smart-rice agriculture developed by the Philippine Department of Agriculture and the Philippine Federation of Rural Broadcasters, with support from CCAFS. • CCAFS' Gender and Social Inclusion Learning Platform (GSI) provided	Climate-Smart Cocoa adoption by farmers and companies: link - Stepwise Climate-Smart Cocoa pilots in the cope and adjust climate impact zones: link - Africa: NDC and private sector engagement training: presentation, blog - Tanzania: Gender roles and climate-smart agricultural practices: evidence from rural Tanzania: link - Internal organization and performances of savings and loan associations - SEA: Eight guide steps for setting up a Climate-Smart Village: A trainer's guide: - Philippines' compendium - Manual of Operations for the Schools-on-the-Air on Smart Rice Agriculture

						technical advice on climate-resilient approaches to gender equality, transformation and increased adaptive capacity to IDRC's cohort of gender and climate change projects; • Contributions to strengthened language on gender and social inclusion in the theory of change of the IDRC-FCDO Climate and Resilience Framework Programme (CLARE), a project with approximately USD 150 million in support.	
	FP2 outcome: 15 sub-national public/private initiatives providing access to novel financial services and supporting innovative CSA business models	• Improved access to financial and other services	The Latin American Fund for Irrigated Rice (FLAR) and CCAFS developed the Rice Observatory for Latin America to inform digital CSA decisions across 2,000,000 ha. Improved rice varieties adopted by 40% of Colombian rice farmers (of which 57% used agro-climatic forecasts) combined with technical assistance increased yield to 0.6 tons/ha. The CSV approach is being scaled with public and private investments in India (42 million USD) and Nepal (5.5 million USD). WBCSD launched new metrics for CSA, providing guidance to	2020 - Farmer field schools (FFS) on climate change adaptation supported by private sector and NGO trainers.	Complete	• In Ghana total of 40 FFS supported by companies (Cargill, PBC) and NGOs (Agro Eco) used to support training of cocoa farmers in CSC and generating high-quality community-based adaptation (CBA) data to support the development of business models and novel financial packages. • In Kenya CCAFS is working with partners to integrate climate resilience into the FFS methodology, to promote climate-resilient agricultural practices in selected value chains and agribusinesses. A climate-resilient FFS Guidebook and associated crop-specific curricula were published. This is linked to a five-year Climate Resilient Agribusiness for Tomorrow (CRAFT)	- Adoption of Climate-Smart Cocoa practices in the adjust and cope climatic impact zones of Ghana - Cargill 2020 Annual CFI Progress Report - Inclusion of climate resilience into Farmer Field School methodologies is a novel approach in East Africa - Climate resilient farmer field schools handbook - Upscaling CSA with small-scale food producers organized via VSLAs: Financing for adoption, behavioral change and resilience in

			corporate value chains on how to reduce greenhouse by 50%, while increasing the availabilty of nutritious food by 50% to reach the SDGs by 2030.			project funded by the Ministry of Foreign Affairs in the Netherlands, and implemented by the Netherlands Development Organization (SNV) in partnership with CCAFS, Wageningen University & Research (WUR), Agriterra and Rabo Partnerships. • The new model implemented by CARE in Iringa, Tanzania, and tested by the CSASuPER project, bundles Villages Savings and Loan Associations (VSLAs) which provide agricultural finance with Farmer Field Business Schools (FFBSs), delivering agricultural knowledge to groups of small-scale women farmers. VSLAs are being supported with climate risk profiling and CBA analyses through the associated FFS.	rural Iringa Region, Tanzania
				2020 - Comparative analysis, enabling environments and implementation constraints of financial mechanisms across geographies and farmers typologies.	Complete	This stream of work evolved to focus on scaling sustainable finance, one of the 11 priority actions for transforming food systems outlined in the CCAFS flagship report on transforming food systems, developed and launched with over a 100 partners in June 2020. The online session "Unlocking billions in sustainable finance" was part of the "A New Era for Food and Climate" virtual relay event on 25 June.	- Scaling sustainable investments to transform food systems - Financing the Transformation of Food Systems Under a Changing Climate - DMS scoping study of Ethiopia for Teff, Wheat, Beans, and Lentils - DMS scoping study of Kenya on Beans, Maize, Sorghum and Lentils

						• Strategic partnership were established: - With responsAbility Investments AG (rA), to support the design of Climate-Smart Food Systems Funds; - With Tiserin Capital to help set up a USD 50 million impact investment fund focused on climate adaptation for SMEs in East Africa. • Scoping studies for DSM: Climate-Smart and Nutrition-Sensitive Investment Opportunities in Ethiopia and Kenya • Support provided by CCAFS to: - The Asian Development Bank to design an innovative blueprint investment model that could help mobilize private sector investment in sustainable rangeland management in Mongolia. - USAID in the design of a "Sustainable Land Use Finance" project in Ghana (USD 1.5 million). Specifically, the sustainable finance component will develop a blueprint investment model to avoid deforestation in supply chains. • Participation in a global environmental and cocial consultation, led by the United Nations Environment Programme (UNEP) to help private investors better understand how to integrate	- Investing in impacts to transform food systems in a changing climate - Transforming Food Systems Under a Changing Climate Financing the transformation of food systems under a changing climate: key messages - USAID project: Sustainable Land Use Finance for Self-Reliance (BAA for Sustainable Agriculture and Natural Resources Management in Africa)

						social and environmental issues into their investment strategies and impact frameworks.	
				2020, extended to 2021 - Synthesis of research on business models and approaches to business modelling across different biophysical and socio-economic contexts.	Complete	• Business model testing and advisory with Root Capital and Sustainable Food Lab to apply the Terra-i tool to their coffee portfolio, both in Honduras and more broadly. Root Capital seek a tool that will allow them to conduct a global scan over time of coffee-driven deforestation risk,identifying "hotspots" within their portfolio that requiring deeper diligence. Key research outputs: • A framework for establishing the business case for specific farm-level agricultural technologies developed, based on existing data from ERA. The framework focuses on the costs, benefits and risks of CSA adoption by smallholder farmers; • Two case studies in Kenya and Malawi to highlight opportunities, challenges, and lessons learned from building business cases for CSA. These give potential investors the tools to screen and select appropriate technologies and help de-risk investments where data is few and far between. • A paper on inclusive and adaptive business models for climate-smart	- Terra-i + Using machine learning to manage impacts of coffee production in Ocotepeque - Business model testing and advisory with Root Capital and Sustainable Food Lab - CSA is good for business: A framework for establishing the business case for climate-smart agriculture investments - Inclusive and adaptive business models for climate-smart value creation

						value creation, which seeks to operationalize and to assess the inclusiveness of a business model partnerships in terms of its organizational structures. This empirical paper draws from business models supported by Vuna Consulting that involve women and young smallholder farmers.	
	FP2 outcome: 50 site-specific targeted CSA options (technologies, practices and services) tested and examined for their gender implications	• Improved forecasting of impacts of climate change and targeted technology development • Increased household capacity to cope with shocks	• 75 CSA practices and technologies were implemented across 8 CSVs in LAM, EA, WA and SEA, 46 with mitigation potential and 13 evaluated for their effects on the three CSA pillars and on gender related dimensions (participation in decision making; participation in CSA implementation; access/control over resources; labor). • CSA monitoring Framework was implemented in 4 CSV (Honduras, Guatemala, Senegal and Ethiopia). The top practices most implemented were: Improved Cookstoves (7700 HH); Improved Seeds (2385 HH) and Farmer Managed	2020 extended to 2021 - Synthesis on CSA options being evaluated in CSVs, database and evidence for the adaptive capacity and environmental footprint of multi-commodity CSA technologies and practices in crop-livestock mixed food systems	Complete	• 2019 and 2020 Inventories of the CSA practices implemented across the CSV network published • Mapping of CSVs where CSA practice testing is linked to climate services delivery. • Documentation of CSA options evaluated across the CSVs (2017-2020). • CSV-specific online pages developed to present the monitoring of results for the ten countries, including adoption trends and (gender-disaggregated) perceived effects on households, livelihoods, food security and reduced vulnerability to climate shocks. • Analyses published for Senegal and Ethiopia. • Synthesis of the temporal and spatial trends over a two-year implementation period in Central America.	- Synthesis and key insights from the implementation of the gender sensitive CSA monitoring framework in Central America: temporal and spatial dynamics. Link - Summary of the scope and reach of CSA monitoring framework implementation across the CCAFS CSVs (2017-2020) in Colombia, Bangladesh, Nicaragua, Senegal, Guatemala, Honduras, Uganda, Ghana, Ethiopia, Nepal: link.- Global inventory: CSA options implemented and evaluated across the CCAFS Climate-Smart Villages AR4D sites: 2019

			Natural Regeneration (1448 HH). Results are published online and data is archived in DATAVERSE.			• Associated databases and files published in DataVerse. • The Gender Empowerment Index for CSVs developed to measure gender impacts of CSA approaches. Development of gender indicators for monitoring and evaluation of CSA based on experience in MAP-Norway. • MBs thesis evaluated the productive performance and contribution to households' incomes of improved small ruminants in Kenya's CSV. • Season-wise crop management, soil and environmental data collected and analyzed in in Bangladesh, India and Nepal. • In Colombia and Peru: assessment of environmental footprint for maize and rice (905.15 and 2080 tons CO2 equivalent per ha, respectively). Suitable and resource-efficient nutrient management practices identified in Colombia for an optimized application, which can reduce by 15% the GHG emissions, without affecting crop-yields.	- LAM sites: 2020 Inventory - A Compendium of Key Climate Smart Agriculture Practices in Intensive Cereal Based Systems of South Asia - Preliminary analyses: Evidence on the adoption level and perceived household level impacts of the top CSA options been tested in the Doyogena (Ethiopia) CSV: link - [...] in Kaffrine (Senegal) CSV: - Online visualization of the results of the CSA monitoring framework 2017, 2018, 2019, 2020: Ghana, Honduras 2018, Honduras 2020, Colombia 2018, Colombia 2019, Nicaragua 2018, Guatemala 2018, Uganda 2018, Nepal 2018: Nawalparasi, Bardiya, Mahottari, Bangladesh 2018: Barisal: Khulna,

							Ethiopia 2019, Senegal 2019 - Dataverse archiving: LAM sites (link 1, link 2, link 3, link 4), SA sites (link 1, link 2, link 3, link 4, link 5), WA sites (link 1), EA sites (link 1) - GEI- CSV index (Does climate-smart village approach influence gender equality in farming households? A case of two contrasting ecologies in India): link - Development of new modules of CSA monitoring App Training materials - CCAFS Climate-Smart Village Approach: Is CSA practice testing linked to climate services delivery? - Thesis
				2020 extended to 2021 - State of the art on the evidence base and lessons learned across time-scales and geographies of adaptation	Complete	• Info note on lessons learned from a local 17-year initiative on cassava-based soil conservation measure on sloping land as a CSA practice in Van Yen District and Yen Bai Province, Vietnam. The recommendations push for institutional level strategies on how this can be replicated in	- Synthesis and key insights from the implementation of the gender sensitive Climate-Smart Agriculture monitoring framework in Central

				benefits of a range of CSA practices in collaboration with FP3 and AFS-CRPs.		areas with similar biophysical and socio-economic conditions. • Synthesis and key insights from the implementation of the gender sensitive CSA monitoring framework in the Olopa (Guatemala) and Santa Rita (Honduras) CSVs: temporal and spatial dynamics. • COVID-19 delayed data collection; new outputs expected in 2021 (CCAFS-EU-IFAD project in EA and WA) focusing on the changes observed across time in smallholder farmers adaptive capacities across the WA CSVs (comparison between CCAFS baseline and the CSA monitoring and midline surveys).	America: temporal and spatial dynamics: link - Lessons learned cassava based conservation
	FP2 outcome: Six million farm households receiving incentives (training, financial, programmatic, policy-related) for adopting CSA related practices and technologies that potentially reduce production risks with increased	• Reduced smallholders production risk	Approximately four million farmers and rural households in India and Nepal benefitted from scaling CSA practices and technologies in 2020. Additionally, 4,000 smallholder farmers in Ethiopia, Kenya, Uganda and Tanzania have improved livelihoods and strengthened capacity to adapt to climate change. CCAFS and SNV worked with CRAFT to catalyze EUR 34 million in 36 climate-informed business	2020 - New generation of support tools, approaches and guidelines for CSA targeting and prioritization, with local adaptation and investment planning developed, with 'hands-on' tools training workshop for subnational governments, development	Complete	• ERA informs more than USD 1 billion in investment plans in Mali, Cote d'Ivoire, Ghana, Burkina Faso and guides evidence-based policy, programming and capacity building in Africa (OICR). • This work also: Informed the adaptation portfolio of the Gates Foundation o The design of three county adaptation plans in Kenya o The design of GCF projects with the Government of Tanzania	- ERA OICR - ERA-based Data Atlas for Kenya - SA resource use efficiency - Revised State Action Plan on Climate Change for Telangana State in India - NDC training material with 50+ participants: (Module 2 featuring ERA): event, video - CSA training manual (Nepal) - GEI-CSV

	benefits for women		cases, targeting 237,250 smallholder farmers in Kenya, Tanzania, and Uganda. CCAFS informed a USD 1.2 billion investment by the Philippine government in climate-smart rice production, targeting 1.89 million rice farmers in 57 provinces of the country.	agencies and grower associations.		○ Built capacity for NDC implementation across Africa • In South Asia: CCAFS, IWMI and National Agricultural Research Systems (NARS) partnered to develop a web-based tool for technology characterization and suitability mapping for CSA. • District-level adaptation plan for resilient farming in the Adilabad district of Telangana, India. • Designing profitable, resource-efficient and environmentally sound cereal based systems for the Western Indo-Gangetic plains. • Integrated ecological niche-water balance modeling approach developed and applied in Burkina Faso to evaluate the potential for rice expansion under AWD. • High level Iraqi stakeholders trained on the assessment of climate vulnerability and identification of optimal adaptation strategies in agriculture and water resources sectors to prepare the Biennial Update Report (BUR) to be submitted to UNFCC. Link • The Gender Empowerment Index for CSVs was developed to measure gender impacts of CSA approaches,	

						in terms of both women and men's empowerment.	
				2020 - Recommendations for sub-national policies and adaptation plans to provide incentives mechanisms for broad CSA adoption, training and capacity building products developed to sensitize government extension services and establishing information networks.	Complete	• In Niger, CSV models adapted from a village-level to a commune-level with the development of local CSA plans in six communes. • Application of the CSA prioritization tool and scenario process in Mali, Niger, Burkina Faso. Gender profile of CSA in Ghana • In the Philippines, the national SOA protocol developed under the extension service component of RCEF to provide a learning program in rice producing provinces, initially serving 300,000 rice farmers enrolled within two years. • Support to Agricultural Ministries and national level institutions from Guatemala and Honduras for the implementation of the regional CSA strategy, specifically its gender strategic component. • Capacity building activities and materials shared with main actors of rural development (incl. NARS, technical services, universities, development projects, private sector, banking and insurance, farmers organization, NGOs, collectives, and individual farmers) on:	- Prioritizing value chains for climate-smart agriculture (CSA) promotion in Mali, Niger and Senegal: link 1, link 2, link 3, link 4 - Manual of Operations for the Schools-on-the-Air on Smart Rice Agriculture - Ghana Gender profile - Towards gender-informed adaptation planning in the Sudanian zone of Mali: analysis of climate change vulnerability - Introduction to Climate-Smart Agriculture: Busia County, Kenya

						○ Climate risk profiling and CSA in West Africa ○ Climate-smart rice cultivation in Southeast Asia ○ Digital CSA in South Asia and Latin America and on CSA and gender in Latin America. ○ In Vietnam, assessment study on the use and impact of the training materials on climate-smart rice cultivation (over 12,000 trainings for 17,000 extension staff and 75,800 farmers in 2020). • In Kenya, training was provided to support the development of county level adaptation plans.	
FP3	FP3 outcome: # of low emissions plans developed that have significant mitigation potential for 2030, i.e. will contribute to at least 5% GHG emissions reduction or	• Reduced net GHG emissions from agriculture, forests and other forms of land-use (mitigation and adaptation achieved).	CCAFS research and partnerships supported improved NDCs in at least four countries (Colombia, Ethiopia, Kenya and Vietnam). This included technical advisory capacity, sustainable investment criteria and strategies and a certification scheme for the scaling of significant mitigation. IRRI research	2020 - Lessons learned on Nationally Appropriate Mitigation Action (NAMA) and low emission development (LED) implementation and finance shared with	Complete	• A working paper on cost of transition to low-emissions dairy: mitigation options and finance in Kenya includes NAMA and LED implementation and finance in Kenya and brief analysis of gender. See here. • CGIAR centers in Vietnam, with CCAFS as the main focal point, helped to translate the country's NDC goals into full-pledged LED	Mitigation options and finance for transition to low-emissions dairy in Kenya CCAFS supports Vietnam in achieving agricultural mitigation targets

	reach at least 10,000 farmers, with all plans examined for their gender implications		expanded low-emission practices for paddy rice in Vietnam via extension programs for 929,067 farmers that almost doubled the adoption area of low-emission practices to 163,418 ha and reducing emissions by 1.5 $MtCO_2eq$, compared to 2019. A paper on the feasibility of large-scale mitigation concluded that more realistic targets are needed that recognize what is feasible, based on current incentives.	country and global partners, including lessens related to the gender impacts.		projects for paddy rice and agroforestry. • Ambition Meets Reality: Achieving GHG Emission Reduction Targets in the Livestock Sector of Latin America. • Challenges to implementing Vietnam's NDC.	Achieving GHG emission reduction target in the Livestock sector of LA Analysing the challenges in implementing Vietnam's NDC
				2020 - Methods for MRV of agricultural emission reductions developed with focal countries and donors	Complete	• China's Ministry of Ecology and Environment partnered with CCAFS to develop provincial guidance for Tier 2 MRV of livestock. The guidelines were shared in seven training events with 1,300 participants to build capacity at the provincial level. The Tier 2 guidelines include mitigation actions such as low protein feed, biogas utilization and manure management. • IRRI built a Measurement, Reporting and Verification Toolbox describing the tools and guidelines for GHG emissions calculation along the rice value chain, including IRRI's GHG calculator and AWD suitability	Tier II MRV of livestock emissions in China MRV Platform for Agriculture

						mapping tools, a cost-benefit analysis tool (co-developed with UNIQUE), and a new reporting tool (currently piloted in the MRD), which contribute to planning and MRV of GHG mitigation projects and plans. • Kenya's State Department of Livestock used Tier 2 emissions factors developed by ILRI in their most recent GHG inventory of the livestock sector. • CIMMYT produced a framework for rapid national analysis of mitigation priorities in the land sector, applied to Mexico and analysis of optimal nitrogen fertilizer applications for minimizing emissions. • WUR further developed their emissions calculator for food loss in the supply chain and worked with Olam and Bayer to identify emissions hotspots. • ILRI provided training in GHG emissions measurement in East Africa.	Inventory practice: operational planning for a Tier 2 inventory in Kenya Improved GHG emission factors for livestock in East Africa Rapid analysis of country-level mitigation options from AFLOU in Mexico Agro-Chain greenhouse gas Emissions (ACE) calculator ILRI News: training on measurement of GHG emissions from livestock systems
	FP3 outcome: # of organizations adapting their plans or directing investment to	• Improved capacity of women and young people to participate	In collaboration with the CCAFS Sustainable Finance team, this work was planned in 2020 but is being initiated in 2021 with Sagana, Catalyst at Large and Chi Impact. The	2020 extended to 2021 - Lessons learned and best practices on increasing women's and	Extended	• Technical and financial support to the Kenya Dairy Board and the Kenya Ministry of Environment led to the integration of gender equity into the Kenya Dairy NAMA, and ongoing development of a gender	Social implications for low emissions dairy in Kenya "Breaking Even" under intensification? Gender

	increase women's participation in decision-making about LED in agriculture	in decision-making	main product will be a roadmap for practical implementation for relevant stakeholders. The roadmap gives investors and other stakeholders clear guidance on how to incorporate a gender-smart investment approach into decision-making process that advance climate mitigation objectives, and will be focused in priority geographies.	men's participation in NAMAs and LEDs disseminated.		strategy for the Dairy Board. Both of these initiatives continue, with expected completion in 2021. • Several articles, policy briefs and outreach videos have been published to inform women's and youth's engagement in LED for livestock in East Africa. • A major study is being implemented in 2021 to identify a roadmap for gender-smart investment in mitigation based on the opportunity to collaborate with the CCAFS Sustainable Finance team.	trade-offs for women milk marketers in Kenya Terms of reference
	FP3 outcome: # of policy decisions taken (in part) based on engagement and information dissemination by CCAFS	• Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	Colombia, Kenya, Ethiopia, and Vietnam used mitigation research outputs in their updated inventories and NDCs. The Minister of Agriculture in Vietnam also recognized the scope of the AWD suitability mapping methodology for low-emission rice production and that AWD can bring practical benefits to Vietnam's agriculture sector. CCAFS research and partnerships also supported use of FLW calculator by private companies (Olam and Bayer) and integration of agricultural criteria	2020 - Improved capacity at municipal, state and national levels for commodity sustainability standards and implementation of mitigation technologies	Complete	• CCAFS, together with other CGIAR programs in Vietnam, supported the updating of Vietnam's NDC for the agriculture sector by helping to shortlist 15 adaptation and 10 mitigation options. Vietnam's MARD included AWD suitability mapping developed by IRRI-CCAFS in a ministerial-level initiative. Policy makers were trained to use digital tools for planning and evaluating mitigation options. The National Agricultural Extension Center's training program increased the capacity of 17,000 extension staff in sustainable rice production. IRRI helped update Vietnam's national GHG inventory by estimating region-specific methane emission.	CCAFS supports Vietnam in achieving agricultural mitigation targets Supporting the development and implementation of Vietnam's NDC in the agriculture IRRI, CCAFS, CCAC boost GHG mitigation in Vietnam to reach NDC targets Enhancing capacity for low emission

			for finance assessment by the CBI, EU Taxonomy for Sustainable Finance, and Multilateral Development Banks (MDBs).			• Six research outputs were scaled up to facilitate the implementation of LED strategies for agriculture in Colombia, Kenya, and Vietnam. The key achievements include: ○ The use of activity data for a national GHG inventory in Colombia, agriculture sector inputs to Colombia's NDC, dairy sector inputs to the Subsidiary Body of Scientific and Technological Advice (SBSTA) and Vietnam's NDC ○ Recognition of CSA county plans by Kenya's updated NDC ○ The use of these research outputs offers large GHG mitigation co-benefits in crop, livestock, and agroforestry systems of all the countries.	development strategies in the agriculture
	FP3 outcome: # of agricultural development initiatives where CCAFS science is used to target and implement	• More efficient use of inputs	CCAFS science on precision nutrient management practices and tools has informed the IFA and Yara's strategies towards sustainable crop nutrient management in Sub-Saharan	2020 - Analysis of farmers' incentives and barriers to adoption, to increase input efficiency and	Complete	• Barriers to adoption of mitigation technologies were examined for women, men and youth in three provinces in Vietnam. • For livestock in Latin America, strategies and bottlenecks for the implementation of technologies in	A comparative analysis of gender and youth issues in rice production Achieving GHG emission reduction target in the Livestock sector of LA

	interventions to increase input efficiency		Africa. A CCAFS and WUR partnership has further developed the emissions calculator for food loss in the supply chain and worked with Olam and Bayer to identify food loss and emissions hotspots. CCAFS-CIMMYT conducted on-farm research on precision nutrient management (PNM) in collaboration with state departments of agriculture and agriculturaluniversities in India. Some state governments such as Punjab, Haryana, Uttar Pradesh and Bihar integrated PNM in their regular state agricultural programs.	reduce FLW while also reducing emissions		LAC to achieve the NDCs while reducing enteric methane emissions were identified in seven countries, alongside partners from a variety of institutions. The main hotspots of negative environmental impacts of dual-purpose cattle farms in Colombia, and proposed mitigation options and their cost-effectiveness. We identified options to reduce the carbon footprint for meat and milk production by adopting improved pastures and better agricultural management practices. • A working paper on the cost of transition to low-emissions dairy was produced, which looked at mitigation options and finance in Kenya LED implementation, along with a brief analysis of gender. FLW incentive analysis will not be conducted, due to an increased emphasis on working directly with companies to deliver impact.	Mitigation options and finance for transition to low-emissions dairy in Kenya
				2020 - Technical and policy guidance on more efficient management options with mitigation co-benefits (including impacts on	Complete	• CCAFS continued to provide technical and policy guidance on efficient management options. We did meta-analyses to identify profitable, efficient resource-use and environmentally sound systems. In North-Western India, technical guidance was provided	Designing profitable, resource use efficient and environmentally sound cereal based systems for the Western Indo-Gangetic plains

				women) synthesized and disseminated to focus countries, supply chains and donors.		on residue management, direct-seeded rice and other CSA technologies. • Two agricultural development initiatives used CCAFS-WUR science to increase input efficiency: • Piloting of the Maize Nutrient Manager (MNM) mobile phone app • A large demonstration experiment in Iringa, Tanzania, which is part of Ilula Orphan Program. The experiment demonstrates how yield gap closure and low emissions can be combined. • WUR also developed their emissions calculator for food loss in the supply chain and worked with Olam and Bayer to identify food loss and emissions hotspots. • In Indonesia, WUR supported practice guidelines about improved feed and manure practices in collaboration with the local, West Java and umbrella	Portfolios of Climate Smart Agriculture Practices in Smallholder Rice-Wheat System Climate change mitigation options among farmers in South Asia Maize-Nutrient-Manager: A mobile phone application for field-specific, balanced nutrient management advisory Results from the fertilizer demonstration experiment with maize at Farm for the Future Tanzania in Iringa Food loss measurements in the rice supply chain of Olam Nigeria

						dairy cooperative and other partners, including Friesland Campina. A national seminar was held on improved feed and manure practices. In China, a policy guidance webinar was held for the Ministry of Agriculture, regional authorities and dairy processing companies.	Effects of feeding and manure management interventions on technical and environmental performance of Indonesian dairy farms Sustainable Intensification of Dairy Production Indonesia
				2020 - Review of existing policies and programs and synergies with other policy domains (e.g. animal health, food security, feed hygiene and safety, trade) to support scaling up of LED	Cancelled	No demand for this work. Meanwhile interest in other new topics, such as alternative meat, is growing.	No evidence
FP4	FP4 outcome: Eight of million farm households with improved access to capital, with increased benefits for women (millions)	• Improved access to financial and other services	CCAFS increased access to weather index insurance and associated capital, promoting tools and public-private partnerships that facilitate the scaling of insurance and finance services. Building on the successful implementation	2020 - Expansion of improved weather index insurance, and implementation of index-based flood insurance by a public-private partnership in SA.	Complete	In the South Asia flood insurance project, new partnerships with private companies has expanded flood-related insurance to farmers in India and Bangladesh. The project is also building recommendations on how to reach women. The picture-based insurance tool previously advanced under FP4 (P1609-	- Scaling of bundled solutions in India - Round table discussion with policymakers to develop recommendations on scaling IBFI in Bangladesh

			of a flood insurance program that previously reached 11,000 households in India and Bangladesh, CCAFS developed new partnerships with Weather Risk Management Ltd and Green Delta Insurance Company to provide flood-related insurance to more than 125,000 farmers in both countries. Picture based insurance tools, previously advanced by CCAFS, have now been adopted by six major institutions, creating opportunities to strengthen crop insurance, financing and agro-advisory services to millions of farmers.	Strategy to further scale up adoption, overcome constraints to adoption by women, and increase farmer satisfaction		Building a Global Agricultural Insurance Community of Practice: From Evidence to Scale and Sustainability) has now been adopted by six major institutions, creating opportunities to strengthen crop insurance, financing and agro-advisories for millions of farmers.	- How hi-tech insurance is helping farmers survive floods - Developing recommendations on how to reach women with flood insurance - Picture-based crop monitoring is adopted by 6 institutions to advance their agricultural insurance and finance services - Adoption study (working paper) on digital crop insurance solutions - Crowd-sourcing tools unlock insurance scaling, supporting an expansion to 230 villages in Ethiopia
				2020 extended to 2021 - Weather-related insurance mainstreamed into at least one national strategy to increase participation of smallholder farmers, women, youth in financial	Extended	While there has been significant progress on adoption of insurance programs in Ethiopia, India, and Bangladesh, none have been mainstreamed into a national strategy yet. Hence this milestone has been extended until next year.	- Round table discussion with policymakers to develop recommendations on scaling IBFI in Bangladesh - How hi-tech insurance is helping farmers survive floods - Developing recommendations on

				markets and commercial agricultural value chains.			how to reach women with flood insurance - Crowd-sourcing tools unlock insurance scaling, supporting an expansion to 230 villages in Ethiopia
	FP4 outcome: 40 of institutions or major initiatives that use CCAFS research outputs for services that support farm households' management of climatic risks	• Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved)	Technical advisory committees have been scaled up to 41, across ten Latin American countries, incorporating around 350 institutions working with tailored agro-climatic products. R4 Ethiopia incorporated IFPRI's picture-based crop monitoring approach for index insurance into operations, using a participatory design to scale up the insurance scheme to 230 villages. Key evaluation studies based on climate services projects previously advanced in Senegal and Rwanda have revealed significant increases in production and income associated with the use of these services. In Ethiopia, through a partnership with the FANA Broadcasting Corporate, the CCAFS-	2020 - Services piloted in 2017 are strengthened, scaled up, evaluated: agro-climatic information system in SEA, strengthened advisory services and public-private business models in WA, expanded communication channels for rural climate services in LAM.	Complete	Technical advisory committees introduced in Latin America have been scaled up to 41 in ten countries, encompassing more than 350 institutions. R4 Ethiopia incorporated IFPRI's picture-based crop monitoring approach for index insurance into their operations, as well as key evaluation studies in Senegal and in Rwanda. In Ethiopia, agro-advisory services of the EDACaP platform (which is supported by CCAFS) were successfully disseminated to 13-15 million smallholder farmers. In Vietnam, the scale-up of CIS has continued with provincial and district partners, and DeRISK has engaged directly with national and sub-national actors in Vietnam, Laos, Cambodia.	- Scale up in Latin America - Blogpost on strengthening climate services for agriculture in Latin America - Scaling-up climate services with users in Latin America - Crowd-sourcing tools unlock insurance scaling, supporting an expansion to 230 villages in Ethiopia - Rwanda Climate Services for Agriculture project demonstrates significant productivity, income, food security and women's empowerment benefits for 110,000 participating farmers - West Africa: agCelerant feedback loops implemented with

			supported Ethiopian Digital Agro-climate Advisory Platform (EDACaP) agro-advisory services platform was disseminated to 13-15 million smallholder farmers.				continuous farm-level monitoring
				2020 - Additional institutions or major initiatives mainstream climate risk management services, incorporating CCAFS outputs. Services developed in prior years will be strengthened, scaled up, evaluated.	Complete	Technical advisory committees introduced in Latin America have been scaled up. In Vietnam, scale up of climate information services has continued with provincial and district partners. R4 Ethiopia incorporated IFPRI's picture-based crop monitoring approach for index insurance into their operations.	- Scale up in Latin America - Blogpost on strengthening climate services for agriculture in Latin America - Scaling-up climate services with users in Latin America - Crowd-sourcing tools unlock insurance scaling, supporting an expansion to 230 villages in Ethiopia - Rwanda Climate Services for Agriculture project demonstrates significant productivity, income, food security and women's empowerment benefits for 110,000 participating farmers - West Africa: agCelerant feedback loops implemented with

							continuous farm-level monitoring
	FP4 outcome: USD new investments by state, national, regional and global agencies, informed by CCAFS science and engagement	• Enabled environment for climate resilience	DeRISK launched a project to scale the CCAFS supported CS-MAP tool to address irrigation water shortage and better manage reservoirs in Vietnam. In West Africa, CCAFS supported the agCelerant business development platform, as part of the implementation of a USD 18.4 million Islamic Development Bank Rural Rice Value Chain Program in Niger. It also supported a USD 5.7 million USARO program to assist decision-makers in assessing and managing climate security risks. With CCAFS engagement and support, the Global Center on Adaptation advanced the process of developing a Blueprint for Digital Agricultural Advisory Services, targeting USD 7 billion in new investments globally.	2020 - CCAFS evaluation of climate services in Rwanda, additional cost-benefit analyses, methods, guidance mainstreamed into climate service investment strategy, by at least one major funder in Africa.	Complete	In West Africa, CCAFS supported the agCelerant business development platform, which was adopted in the implementation of the USD 18.4 million Islamic Development Bank Rural Rice Value Chain Program in Niger, and a USD 5.7 million USARO program to assist decision-makers to assess and manage climate security risks. Uptake of evidence from Rwanda evaluation has been delayed due to delays in holding final events around project because of COVID-19.	- Market-ready innovation is selected for value chain orchestration targeting 17 million smallholders, influencing public-private development agendas, and providing a vehicle for hyperlocal risk control services: link - CCAFS makes substantial contributions to Global Commission on Adaptation's Year of Action, raising profile of adaptation and shaping initiatives, including launched at Climate Adaptation Summit: link

	FP4 outcome: 20 of development organizations adapting their plans and directing investment to increase women's access to, and control over, productive assets and resources through gender-sensitive climate-based advisories and safety nets	Gender-equitable control of productive assets and resources	CCAFS increased awareness and adoption of gender-inclusive implementation and advancing gender-specific project performance metrics. Specifically, work in Latin America achieved high engagement with women in the co-production and dissemination of agro-climatic information in Guatemala, and PICSA interventions in Honduras. Work on climate services continued in Mexico. Work in Southeast Asia similarly engaged the development of gender-sensitive services, and gender-specific guidance materials incorporated into three bilateral programs (Support for the implementation of the Paris Agreement-HaTinh, Infoact, DeRISK) that were implemented in Vietnam. The Investment Blueprint for DCAS calls for a gender dimension to new investments in advisory services, and so is expected to influence several hundred	2020 - Additional development organizations, including one additional CCAFS region, adapt climate service and insurance implementation strategy and resources to increase women's participation in decision-making.	Complete	LAM achieved high engagement of women in the co-production and dissemination of agroclimatic information in Guatemala, and PICSA interventions in Honduras. Although first introduced in 2019, activities in Chiapas, Mexico, continued, marking the adoption of climate services work in North America as one additional region. Work in Southeast Asia similarly has targeted women's engagement, the development of gender-sensitive services and gender-specific guidance materials, which was incorporated in three bilateral programs in Vietnam. The Investment Blueprint for DCAS advocates for a gender dimension to new investments in advisory services, expected to influence perhaps several hundred million dollars in investments.	- Guide on gender in climate-smart agricultural initiatives in Honduras - Guide on gender in climate-smart agricultural initiatives in Guatemala - Presentation on LTAC in CA (webinar gender and climate services) - Technical Agroclimatic Bulletins produced by the Chiapas LTAC in Chiapas, Mexico, in 2020 - OIRC3854: Climate-informed agriculture and participatory scenario planning (PSP) cascades to provincial plans and GCF-proposal for five provinces in Vietnam - Workshop report on climate services profiles and scaling framework to support a climate services strategy - Checklist: Gender-inclusive actionable agro-advisories - CCAFS makes substantial contributions to Global Commission

			million dollars of investments.				on Adaptation's Year of Action, raising profile of adaptation and shaping initiatives, including launched at Climate Adaptation Summit: link
	FP4 outcome: # of policy decisions taken (in part) based on engagement and information disseminated by CCAFS	• Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	Vietnam's DCP adopted CCAFS CS-MAP to establish national policy on rice production in the MRD. Over the past year, cropping adjustments were applied over more than 1.3 million ha to address drought, salinity intrusion and irrigation management. The World Bank announced a USD 60 million investment with CCAFS under the AICCRA initiative. This investment was responsive to the Agriculture Action Track of the Global Commission on Adaptation, supported by CCAFS.	2020 - Based on assessment of current FP4 project portfolio and opportunities, an adjusted project portfolio will target analyses and engagement to inform at least seven additional policy decisions within three years	Complete	1) Vietnam's DCP has adopted the CCAFS CS-MAP tool for establishing national policy regarding rice production in the MRD. 2) The World Bank announced a USD 60 million investment with CCAFS under the AICCRA initiative. 3) Guatemala and Honduras have been advancing the National Framework for Climate Services (NFCS) formulation that aims to coordinate, facilitate and strengthen collaboration between institutions to advance climate services in the country.	• CCAFS makes substantial contributions to the Global Commission on Adaptation's Year of Action, raising profile of adaptation and shaping initiatives, including launched at Climate Adaptation Summit: link • OICR 3790: Vietnam's rice-producing regions cope with water shortage, drought, and salinity intrusion by applying the CCAFS' CS-MAP: link
				2020 extended to 2021 - Rwanda mainstreams climate services, and adaptive government decision processes	Extended	While several countries mainstreamed climate services and adaptive government decision processes and farmer policies into the agriculture sector, this work did not progress as much as intended in Rwanda, due to a delay in the final	- Link

				and farmer policies into the agriculture sector		event for the project because of COVID-19.	

Table 6: Numbers of peer-reviewed publications from current reporting period (sphere of control)

	Number	Percent
Peer-reviewed publications	**184**	**100.0%**
Open Access	**145**	**78.8%**
ISI	**161**	**87.5%**

Table 7: Participants in capacity development activities (1)

Number of trainees	Female	Male
In short-term programs facilitated by CRP	9,986	2,3635
In long-term programs facilitated by CRP/PTF	66	86
PhDs	35	62

(1) Link to evidence: CCAFS Annual Report 2020: CapDev Indicator (Annex)

Table 8: Key external partnerships

Lead FP	Brief description of partnership aims	List of key partners in partnership	Main area of partnership
FP1	"SADC Futures"—capacity development materials, toolkits and an e-learning course on developing foresight capacity for climate-resilient agricultural development in the SADC	• The Southern African Development Community • Centre for Coordination of Agricultural Research and Development for Southern Africa • Deutsche Gesellschaft für Internationale Zusammenarbeit / German Society for International Cooperation • University of Leeds	• Capacity development • Policy
FP1	Supporting the AGNES on gender and agriculture positions and submissions to UNFCCC processes	• African Group of Negotiators Expert Support • African Working Group on Gender and Climate Change	• Capacity development • Policy
FP2	CGIAR FOCUS Climate Security: Developing a network of partners across the humanitarian-development sector to effectively leverage CGIAR food systems and climate crisis for peace and security	• World Food Programme • International Organization for Migration • Wageningen University & Research	• Policy • Delivery
FP2	WFP is CGIAR's perfect impact pathway along the humanitarian-development nexus serving more than 100 million beneficiaries in over 80 countries and investing more than 8 billion USD	• World Food Programme	• Delivery • Policy
FP2	WBCSD is the perfect interlocutor to reach a broad range of private-sector partners. CCAFS supported WBCSD in the development of the CSA metrics and guide for the private sector	• World Business Council for Sustainable Development • University of Vermont • Ceres	• Delivery • Policy • Capacity development
FP3	Scenarios of plant-based meat production in developing countries, co-led with Impossible Foods and involving IIASA, USAID and Limestone Analytics	• Impossible Foods	• Research

FP3	As part of the CLIFF-GRADS PhD fellowship program we partnered in developing a series of 12 webinars for PhD students, involving scientists from across the CGIAR	• Global Research Alliance on Agricultural Greenhouse Gases	• Capacity development
FP4	Collaboration on Blueprint for Digital Climate Advisory Services	• World Resources Institute • World Food Programme • Global Center on Adaptation	• Research • Policy

Table 9: Internal cross-CGIAR collaborations

Brief description of the collaboration	Name(s) of collaborating CRP(s), Platform(s) or Center(s)	Optional: Value added, in a few words
Joint activities and publications on the interactions between climate change, nutrition and inequity, the modeling of food security outcomes in agricultural systems models, and joint scenarios modeling. This work is being jointly synthesized with GCAN in 2021.	A4NH, IFPRI	Scientific benefit
Collaboration under Learning Platform 1 (LP1) of CCAFS, “Ex-ante evaluation and decision support for climate-smart options", under FP1. In 2020 this work included joint development of feasibility maps of animal feed technology adoption in the East African highlands, and suitability/priority setting research related to roots, tubers and bananas in the Great Lakes Region of East Africa. Several publications are in process.	RTB, CIAT, ILRI, Livestock	Scientific and integration benefit
CCAFS, the Alliance, ICRAF and IWMI are joining forces under AICCRA flagship 2 core work. The Alliance and IWMI will collaborate closely in sustainable finance. This is a crucial topic for CGIAR, R4D and to achieve the SDG goals. Sustainable finance has to be closely linked to our impact pathway and theories of change. Additionally, close collaborations will take place between the core FP2 AICCRA team and regional and country-level work led by ICRISAT, IITA, AfricaRice and ILRI.	IWMI, ICRAF, ICRISAT, ILRI, IITA, AfricaRice, CIAT	Scientific and scaling benefits
FP2 launched CGIAR FOCUS Climate Security on behalf of CGIAR. The centers most involved in the agenda are ICARDA, IWMI, IFPRI, CIMMYT and the Alliance, others may follow at a later stage.	ICARDA, IWMI, IFPRI, CIMMYT, CIAT	Scientific benefits
In 2020, FP2 learning Platform on Participatory evaluation of CSA practices and Technologies across the Climate-Smart Village Network involved: the Alliance, ICRISAT, ILTI, ICRAF. In the scaling site in South Asia the inter CRP collaboration includes: WLE, MAIZE, WHEAT, FISH and RICE.	ILRI, A4NH, WLE, Maize, Wheat, Fish, Rice, CIAT, ICRISAT, ICRAF	Scientific benefits

A joint proposal was prepared to the EU on supporting a transition to agroecological practices through improved metrics, digital tools and incentives and private sector collaboration.	FTA, WLE	Brought together climate change and agroecology expertise
Collaboration on insurance learning platform through P1609, including on picture-based insurance project.	PIM	

Table 10: Monitoring, evaluation, learning and impact assessment (MELIA)

Studies/learning exercises planned for this year (from POWB)	Status	Type of study or activity	Description of activity/study	Links to MELIA publications
S2278 - Surveys to evaluate required boundary conditions for large scale adoption of AWD and their matching prevailing conditions	Completed	Ex-post adoption study	An ensemble ecological modeling approach combining Random Forest and Maxent was calibrated and validated for assessing the suitability of irrigation schemes in Burkina Faso to AWD. Results of the GIS-based ensemble ecological niche modeling approach indicated that about 2.11 million ha of land can potentially be irrigated in Burkina Faso. The whole dry season was found suitable for AWD in all irrigated schemes, while 25-100% of the wet season was suitable for AWD. Soil percolation was the main driver of irrigated scheme suitability for AWD in the wet season.	Link
S2284 - The effects of AWD on water use, rice production and weed infestation are evaluated in four irrigated rice systems	Completed	Other MELIA activity	The effects of AWD on water use, rice production and weed infestation are evaluated in four irrigated rice systems during four growing seasons.	The paper is in preparation
S2927 - Lessons learnt in CCAFS Flagship 4 Phase II (working paper)	Completed	Synthesis (secondary) study	This review of work conducted under FP4 of CCAFS aims to document some of the challenges, opportunities and lessons learned in the past five years of research and implementation. An approach to quantifying lessons learned was developed, based on the climate services value chain and the institutions, assumptions and scaling strategies employed in the projects. Interviews with Project Leads offered insight into nuances and context-specific learning on implementing impactful projects.	Link
S2951 - Adoption of climate-smart agricultural technologies in Lushoto Climate-Smart	Completed	Ex-post adoption study	Using data from Lushoto in Tanzania, this study explores the drivers of adoption of agricultural technologies and practices, taking into account the complementarity among agricultural technologies and heterogeneity of the	Link

Villages in north-eastern Tanzania			farm households. The technologies include diversification of improved resilient crop varieties, inorganic fertilizer, and pesticides and/or herbicides. The results show that—conditional on the unobservable heterogeneity effects—household adoption decisions on diversification of multiple stress-tolerant crops, inorganic fertilizer, and pesticides and herbicides are complementary. The results also confirm the existence of unobserved heterogeneity effects leading to varying impact of explanatory variables on adoption decisions among farmers with similar observable characteristics.	
S2952 - Soil Carbon Sequestration Potential of Climate-Smart Villages in East African Countries	Completed	Other MELIA activity	This study evaluated the soil carbon sequestration potential of these CSVs compared to the control land use that did not have CSA practices. At the one-meter depth, soil carbon stocks increased by 20–70%, 70–86%, and 51–110% in Kenya, Tanzania and Uganda CSVs, respectively, compared to control. Consequently, CSVs contributed to the reduction of emissions by 87–420 Mg CO_2 eq ha–1. In the topsoil (0–15 cm), CSVs sequestered almost twice more soil carbon than the control and subsequently, emissions were reduced by 42–158 Mg CO_2 eq ha–1 under CSVs.	Link 1 Link 2
S2994 - Adoption study (working paper) on digital crop insurance solutions that build on insights from agricultural research-for-development	Completed	Ex-post adoption study	We tested a prototype for using smartphone images of insured fields (or 'picture-based insurance') to monitor crops and manage basis risk in R4 insurance policies. We found that the proposed prototype in which R4 agents send images of crops in their communities is feasible. We found that crop losses are not only caused by droughts, which are covered by R4 index insurance products, but also by pests and disease, which are not easily captured by index insurance. Despite limited smartphone penetration and challenges in internet coverage, the near-surface remote sensing approach appears valuable and feasible in the R4 Rural Resilience Initiative in Ethiopia.	Link
S3169 - Gender equality outcomes from Rwanda Climate Services for Agriculture project	Completed	Other MELIA activity	This report presents results from a qualitative evaluation of the Rwanda Climate Services for Agriculture project, carried out in October 2019. Data collection was carried out via qualitative methods, including focus group discussions and key informant interviews. Results show that both women and men, with little variation among treatment categories, report using similar	Link

			channels for accessing weather and climate information. The project may have contributed to gender-specific benefits favoring women. Women who had participated in project interventions reported benefits including increased ability to cope and increased confidence in planning more substantially in comparison to women who had not.	
S3791 - CCAFS impact assessment of national policy engagement in Kenya on uptake of climate-smart agriculture technologies and practices	Completed	Program/project adoption or impact assessment	This study assessed the impact of engagements by CCAFS at policy and household levels in Kenya. Specifically, the study assessed the extent to which CCAFS engagement contributed to the observed changes in terms of shaping policy and CSA coordination among others. At the household level, the study assessed the factors influencing the uptake of CSA practices among smallholder farmers and the subsequent impact of the CSA practices on agricultural yield, livestock holding and welfare of households. The study used a mix of qualitative and quantitative approaches.	Link
S3803 - Assessment of adoption and impact of management innovations in agriculture carbon project	Completed	Ex-post Impact Assessment (epIA)	This working paper presents the results of an impact assessment of management innovations that were introduced in agricultural carbon projects in East Africa. It evaluates the effect of project design, management, and monitoring transfer of responsibilities to local communities on the performance of agricultural carbon projects. The assessment included the economic, social, and environmental impacts of the projects on smallholder farmers. The agriculture carbon projects implemented by Vi Agroforestry and ECOTRUST have received a total of 1,951,437 tCO_2e GHG emissions reduction credits from 2010 to 2019. In Vi Agroforestry, 29,500 farm households in 1,725 farmers groups benefited from the implementation of the projects.	Link
S3815 - Growing vegetables: A promising option for livelihood improvement and climate change adaptation	Completed	Program/project adoption or impact assessment	This was a novel initiative coordinated by East-West Seed Knowledge Transfer (EWS-KT), the Alliance of Bioversity International and CIAT, the World Vegetable Centre (WorldVeg) and the National Agricultural Research Organisation (NARO) of Uganda. The initiative introduced and tested a portfolio of commercial and traditional vegetables in Hoima district, Uganda, to help resource-poor farmers to cope better with climate change through increased availability and diversity of climate-smart varieties. Second, the pilot project	Link 1 Link 2

			aimed to strengthen farmers' capacity to make better use of vegetable crop diversity for multiple livelihood purposes. The pilot generated good results.	
S3819 - Rwanda Climate Services for Agriculture: Evaluation of farmers' awareness, use and impacts	Completed	Program/project evaluation/review	Climate services are important in helping smallholder farmers manage climate-related risks and adapt to climate change. USAID funded a four-year project (2016-2019)—Rwanda Climate Services for Agriculture. Climate services were disseminated directly to over 111,000 farmers across Rwanda through different channels. This report presents analyses of the project end-line survey of 1,525 households across 15 of Rwanda's districts, in order to assess the influence of PICSA training and LCs on awareness, access and uptake of climate services by smallholder farmers, and their impact on household welfare (crop productivity, income, food security) on a quasi-experimental sampling design with a non-participant control sample.	Link
S3820 - Rwanda Climate Services for Agriculture: Farmers willingness to pay for improved climate services	Completed	Program/project evaluation/review	This willingness-to-pay (WTP) study is part of the evaluation of the Rwanda Climate Services for Agriculture projects and aims to understand how Rwandan farmers value improved characteristics of agricultural climate services introduced to them in a choice experiment (CE) setting; estimate how PICSA and RLCs influenced perceived value, and provide insights into how the products and services can be improved. Data were collected in November 2019 from 1,525 households in each intervention category: PICSA, RLC only, PICSA and RLC, and a control group from sectors where interventions were not implemented.	Link
S3840 - COVID-19 and the bovine livestock sector in Colombia: Current and potential developments, impacts and mitigation options	Completed	Synthesis (secondary) study	The COVID-19 crisis is affecting the bovine livestock sector in Colombia. First impacts and short-term mitigation measures are already visible in all links of the beef and dairy value chains. This document serves as a guide to understand current developments, impacts and mitigation measures related to the COVID-19 pandemic. It also provides an outlook on potential future impacts and suggestions for mitigation options that can help policy and decision-makers in preparing the sector better for future crises.	Link

S3909 - The effects of Smart-Valleys on soil moisture and rice yield in four inland valleys assessed	Completed	Other MELIA activity	The water-harvesting and yield improvement potential of the Smart-Valleys approach was evaluated in four inland valleys that belong to different agro-ecological zones and had different soil characteristics. The Smart-Valleys approach increased soil moisture and rice yield in all inland valleys compared to the adjacent non-developed sites. Besides, soil moisture decreased less rapidly in the Smart-Valleys sites and mitigated the effects of end-of-season drought on rice yield. Averaged across sites, Smart-Valleys increased soil moisture by 12% and rice yield by 21%. Adoption of the approach was observed around the demonstration sites.	A paper is at the final stage for submission to Field Crop Research.
S4049 - CCAFS Investment-Oriented Outcome Pathways: Lessons and New Directions	Completed	epIA	The study explored how CCAFS' work has influenced the investment decisions of others and what strategies are being pursued to reach a diverse range of investors globally. Outcomes and lessons from case studies and project outcomes of investment-focused research projects implemented over the last 10 years in many countries were examined. Multiple investment-oriented outcome pathways and entry points for CCAFS teams to influence public and private sector actors were explored through specific project experiences. Future work can build on the valuable lessons learned to date about how to influence a wide range of investors.	Link
S4050 - Impact assessment of CCAFS support to the 7th Five Year Plan in Bangladesh	Completed	epIA	CCAFS's future scenarios project has involved the use of multi-stakeholder regional and national scenarios to explore key socio-economic and uncertainties for food security, environments and livelihoods under climate change through integrated qualitative-quantitative scenarios describing futures up to 2050. The team has supported the Government of Bangladesh since 2014, building long-standing, effective collaborations with the government, civil society and academic stakeholders. This enabled strategic planning and research to explore the feasibility of strategies, plans and policies toward improved food security, environments and livelihoods under different socioeconomic and governance conditions. Broad inputs have been made to the Government of Bangladesh's Five Year Plan.	Link

S4092 - Outcome evaluation of climate-smart research on solar-powered irrigation in India	Completed	Other MELIA activity	In seeking to learn, improve and be more accountable, WLE has carried out three outcome evaluations in recent years, of which this is the third. The first two were on resource recovery and reuse in Ghana and Sri Lanka, and on WLE's water and soil outcomes in Ethiopia. This evaluation concerns a significant policy outcome, specifically the CRP contribution to the incorporation of an approach to solar irrigation—solar power as a remunerative crop (SPaRC)—in two government programs: the Indian government's USD 50 billion Kisan Urja Shakti evam Utthan Mahabhiyan (KUSUM) initiative and the Gujarat State government's Suryashakti Kisan Yojana (SKY) scheme. The intention of KUSUM, the bigger of the two programs, is to help 2 million farmers adopt SPaRC by 2022 in expectation of much wider adoption thereafter. The IWMI-Tata Water Policy Research Program (ITP) has worked on SPaRC since 2012 with support from WLE and CCAFS, among others. WLE and CCAFS decided to jointly commission this evaluation to better document and understand their respective contributions to the outcome, as well as to gain a sense of the likely impact of SPaRC under different adoption and usage scenarios. The primary intended users of the evaluation are decision-makers in WLE and CCAFS who are interested in better understanding how CGIAR research and other forms of intervention contribute to policy outcomes. Intended users also include staff from donor organizations, staff from other CRPs, and national partners and stakeholders working to scale up beneficial technologies and institutions. More generally, the report's findings and conclusions will be relevant to anyone who wants to better understand mechanisms by which research can contribute to developmental impact. In addition, as part of an Outcome Evaluation of Climate-Smart Research on Solar-Powered Irrigation in India, a simulation model was constructed with the objective of developing a scenario-building model of the main factors influencing adoption, major costs, benefits and risks associated with solar-powered irrigation. The main focus of the evaluation was on the SPaRC model, also known as KUSUM-C under the KUSUM initiative of the Government of India. The main objectives of the simulation modeling component were to: (i) project income and environmental benefits of the SPaRC scheme over the next 20 years; (ii) identify variables to which benefits are particularly sensitive; (iii) run scenario analysis for different values	Link 1 Link 2

			of sensitive variables; (iv) pinpoint what further research or actions could help to enhance adoption and outcomes, and what variables should be closely monitored; and (v) provide a learning tool that can be used to compare what actually happens with projections over time and can be continuously updated.	

Table 11: Update on actions taken in response to relevant evaluations

Name of the evaluation	Recommendation number (from evaluation)	Text of recommendation	Status of response to this recommendation	Concrete actions taken for this recommendation	By whom (per action)	When (per action)	Link to evidence
CGIAR Research Program 2020 Reviews: Climate Change, Agriculture and Food Security	6	A stronger feminist and political science perspective could enable CCAFS to engage more effectively on equity through affirmative measures, including transformative change thinking.	Ongoing	To date CCAFS gender work has focused on the analysis of the gender dimensions of CSA and unpacking the assumptions involved, e.g. relating to labor-saving technology and women's empowerment. Conceptual frameworks and gender-transformative approaches have been developed and promoted with significant contributions to CCAFS research, policy and investment. This work provides a solid basis for integrating a stronger gender equality and empowerment perspective into CCAFS work, including the transformative change agenda.	CCAFS GSI	2021	Link 1 Link 2 Link 3
CGIAR Research Program 2020 Reviews: Climate Change, Agriculture	7	Engage systematically in the COP26 process and event to capture opportunities to influence decision-makers.	Ongoing	CCAFS is co-chairing the COP26 campaign on, 'Transforming Agricultural Innovation for Climate, Nature and People', part of the sustainable agriculture work under the Nature theme of the United Kingdom Presidency. In addition, we are also engaged in other COP26 related processes including the Koronivia Joint	CCAFS LP6/PMU	2021	Link 1 Link 2

and Food Security				Work on Agriculture, National Adaptation Plans, Gender Action Plan, NDCs of different countries, Adaptation Research Alliance, Just Rural Transition, Race to Zero and Race to Resilience.			
CGIAR Research Program 2020 Reviews: Climate Change, Agriculture and Food Security	1	Synthesize significant outcomes and evidence to create a credible contribution claim for the end of the program, to continue informing internal reflection and adaptive management, and to improve external reporting.	Ongoing	Currently, approximately 20 impact and outcome studies are underway of CCAFS's work, due for completion in 2021 (many delayed in 2020 due to COVID-19), along with several syntheses planned for the final year of the CRP. We will expand these activities to include a high-level synthesis of significant outcomes, and work towards creating a credible contribution claim by the end of 2021.	CCAFS FP1	2021	Link 1 Link 2 Link 3 Link 4 Link 5

Table 12: Examples of W1/2 use in this reporting period (2020)

Specific examples	Broad area of use of W1/2
CCAFS Flagship 1: Evaluation of and learnings from CCAFS-wide investment impact pathways.	Other MELIA
CCAFS Flagship 1: Investment prioritization at national, regional and global levels for multiple organizations, using CCAFS and partner science.	Research
CCAFS Flagship 2: Launch of CGIAR FOCUS Climate Security: developing a network of partners across the HDP nexus to leverage CGIAR food systems and climate science for peace and security.	Partnerships
CCAFS Flagship 2: Continued implementation of the CSA monitoring framework in the CSVs in Honduras, Guatemala and Ethiopia; mainstreaming into partners' own development projects in Guatemala, Colombia and India and online publication of 2018-2020 results for 10 countries.	Other MELIA
CCAFS Flagship 3: Soil carbon and finance: how soil carbon accounting could improve to support investment-oriented actions promoting soil health and carbon storage.	Partnerships
CCAFS Flagship 3: Development and use of the ACGE calculator for estimating total GHG emissions associated with FLW.	Research
CCAFS Flagship 4: Substantial contributions to the Global Commission on Adaptation's Year of Action, raising the profile of adaptation and shaping initiatives, including launched at Climate Adaptation Summit.	Partnerships
CCAFS Flagship 4: Picture-based crop monitoring is adopted by six institutions to advance their agricultural insurance and finance services.	Partnerships
CCAFS Latin America: Implementation of impact assessments on technology adoption in Colombia and CSA regional policy in Central America, and outcome harvesting on scaling of LTACs in 11 countries.	Other MELIA

CCAFS Latin America: Guidelines for gender-sensitive implementation of CSA for Guatemala and Honduras, and analysis of gender inclusion in agriculture and climate-related policies in Central America.	Research
CCAFS West Africa: Promoting CSA implementation in Ghana through science-policy dialogue platforms.	Capacity development
CCAFS West Africa: Solar-powered supplemental irrigation for improved water use efficiency of dry cereals in the Mali CSV, and managing local fodder species for a competitive gender-sensitive goat value chain in the Ghana CSV.	Research
CCAFS East Africa: Review of policies and frameworks on climate change, agriculture, food and nutrition security, including their integration in East African countries (Ethiopia, Tanzania, Kenya, Uganda and Tanzania).	Policy
CCAFS East Africa: Adoption and impact of CSA on incomes, assets and soil carbon sequestration in East African CSVs.	Research
CCAFS South Asia: Scaling of CSA practices, technologies, institutions and policies in South Asia.	Research
CCAFS South Asia: Developing and applying new approaches in CIS for risk management.	Research
CCAFS Southeast Asia: Scaling climate-smart crop adaptations and suitable crop management options in the South-Central Coast and Red River Delta.	Research
CCAFS Southeast Asia: Multi-crop model framework for seasonal paddy rice yield forecasting and risk assessment in Vietnam and the Philippines.	Research
CCAFS Learning Platform 5 / GSI: Synthesis of gender-responsive rural climate services.	Other MELIA
CCAFS Learning Platform 5 / GSI: CCAFS Youth Strategy and related research on youth and migration and role of youth in rice production.	Research
CCAFS Learning Platform 6: Capacity development for various partners for uptake of CCAFS research, e.g. with FCDO, WBCSD.	Capacity development

CCAFS Learning Platform 6: Developing the global initiative for Transforming Food Systems Under Climate Change with over 100 partners.	Partnerships

Table 13: CRP financial report

	Planned budget 2020*			Actual expenditure*			Difference*			Comments
	W1/W2	W3/Bilateral	**Total**	W1/W2	W3/Bilateral	**Total**	W1/W2	W3/Bilateral	**Total**	
FP1 - Priorities and Policies for CSA	4,665,892	6,039,062	**10,704,954**	2,669,344	6,443,204	**9,112,548**	1,996,548	404,142	**1,592,406**	Among Flagships, 20% and 19% of W1/W2 and W3/Bilateral expenditures respectively come from FP1.
FP2 - Climate-Smart Technologies and Practices	7,728,543	22,166,040	**29,894,583**	4,629,442	13,058,687	**17,688,129**	3,099,101	9,107,353	**12,206,454**	Largest expenditures from both funding sources come from FP2 projects. 36% from W1/W2 and 38% from W3/Bilateral.
FP3 - Low Emissions Development	4,413,195	4,710,465	**9,123,660**	2,901,461	7,407,962	**10,309,423**	1,511,734	2,697,497	**1,185,763**	FP3 contributes as the second flagship with the largest expenditure of W1/W2 funds (23%). On W3/Bilateral, it only contributes with 21% of total W3/Bilateral expenditures from Flagships.

FP4 - Climate Services and Safety Nets	3,920,612	8,850,740	**12,771,352**	2,695,135	7,545,785	**10,240,920**	1,225,477	1,304,955	**2,530,432**	FP4 represents 21% of total W1/W2 expenditures among Flagships. For W3/Bilateral funds, it contributed with 22%.
Strategic Competitive Research Grants	-	-	**-**	-	-	**-**	-	-	**-**	Strategic Competitive Research Grants are allocated within Flagships during planning and execution.
CRP Management & Support Cost	3,124,741	102,000	**3,226,741**	1,816,976	102,000	**1,918,976**	1,307,765	-	**1,307,765**	12.4% of W1/W2 expenditures come from the Program Management Unit.
CRP total	23,852,983	41,868,307	**65,721,290**	14,712,358	34,557,638	**49,269,996**	9,140,625	7,310,669	**16,451,294**	

(1) Figures in USD.