CGIAR Research Program on Water, Land and Ecosystems (WLE)

2020 Plan of Work and Budget (POWB)

RESEARCH PROGRAM ON Water, Land and Ecosystems

CGIAR

LED BY: IWMI International Water Management Institute

IN PARTNERSHIP WITH: Bioversity International; CIAT International Center for Tropical Agriculture; FAO; ICRISAT International Crops Research Institute for the Semi-Arid Tropics; CIFOR; CIP International Potato Center; RUAF Foundation; ICARDA Science for resilient livelihoods in dry areas; IFPRI International Food Policy Research Institute; World Agroforestry; ILRI International Livestock Research Institute; WorldFish

CGIAR Research Program on Water, Land and Ecosystems (WLE)

Led by the International Water Management Institute (IWMI), WLE is a collaboration between CGIAR centers, the Food and Agriculture Organization of the United Nations (FAO), the RUAF foundation, and several national, regional and international partners. Through these partners, we provide evidence and solutions on natural resource management to influence key decision makers, including governments, international development organizations, and financiers. Leadership of the program's flagships is as follows:

Flagship 1: International Center for Tropical Agriculture (The Alliance[1]), World Agroforestry (ICRAF)

Flagship 2: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Water Management Institute (IWMI)

Flagship 3: IWMI, RUAF[2]

Flagship 4: International Food Policy Research Institute (IFPRI), IWMI

Flagship 5: Bioversity International (The Alliance), WLE

International Center for Agricultural Research in the Dry Areas (ICARDA) is also an active member of the program.

[1] The Alliance is The Alliance of Bioversity International and CIAT (as of 1 January 2020)

[2] RUAF is a global partnership on sustainable Urban Agriculture and Food Systems

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Acronyms

ALWM	Agriculture, Land and Water management
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CoSAI	Commission on Sustainable Agricultural Intensification
CRP	CGIAR Research Program
CSP	Cost Sharing Percentage
FinPlan	Finance Plan
FISH	CGIAR Research Program on Fish Agri-Food Systems
FP	Flagship Program
FTA	CGIAR Research Program on Forests, Trees and Agroforestry
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
ICAR	Indian Council of Agricultural Research
IDO	Intermediate Development outcomes
iSDA	Innovative Solutions for Decision Agriculture
MAR	Managed Aquifer Recharge
MELIA	Monitoring, evaluation, learning and impact assessment
MUFPP	Milan Urban Food Policy Pact
NGO	Non-governmental organization
PPP	Public-private partnerships
PREDICTS	Projecting Responses of Ecological Diversity in Changing Terrestrial Systems
RICE	CGIAR Research Program on rice agri-food systems
RRR	resource recovery and reuse
SAI	Sustainable Agricultural Intensification
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goals
SIDA	Swedish International Development Cooperation Agency
SMO	CGIAR System Management Office
SoLAR	Solar irrigation for Agricultural Resilience
TBC	to be confirmed
ToC	Theory of Change
UNEP	United Nations Environment Programme
USAID	U.S. Agency for International Development
WASH	water, sanitation and hygiene

1. Adjustments / Changes to Theories of Change (ToC)

Our program-level ToC is reassessed annually to accurately reflect new information (e.g. new bilateral projects) and new understanding (e.g. of how WLE delivers outcomes and impacts). 2020 adjustments applied across WLE's flagships (FPs) include:

- A focus on three 'foundational' impact pathways: (1) transdisciplinary innovation; (2) policy influence; (3) brokering practices and technologies and enhancing implementation capacity.
- Encouraging WLE interventions to address both equity and sustainability.
- Recognizing WLE's role as producer of knowledge *and* 'innovation broker'.
- Recognizing WLE's role must be to identify and harness positive feedback loops to amplify change within complex systems.
- Actions to harness synergies between researchers and policy and development actors to carry out collaborative work.

Further specific adjustments include:

- Based on the independent evaluation of WLE in Ethiopia, WLE will adopt 'outcome trajectories'[3].
- Generating robust, cross-scale data and evidence on gender inequality and social inclusion ensuring that they inform food, water and environment policies, investments and innovations.
- Funding of two new projects with a strategic, explicit focus on gender, and additional funding allocated to an ongoing project on migration focusing on youth, gender and social inclusion.

WLE updated Flagship milestones to better capture progress towards outcomes, particularly those with strong gender or climate change cross-cutting dimensions, including:

- ***FP1 - RDL (Restoring Degraded Landscapes):*** generating robust evidence on how landscape restoration initiatives can minimize gender inequality and social exclusion; support gender capacity enhancement; and, building partnerships for scaling up land and water restoration initiatives.
- ***FP2 - LWS (Land and Water Solutions for Sustainable Intensification):*** piloting business models for sustainable and socially inclusive agriculture, land and water management (ALWM) solutions, with a focus on gender equality and inclusion, and scaling through public sector investments.
- ***FP3 - RUL (Sustaining Rural Urban Linkages):*** strengthening evidence of gender-responsive[4] water, sanitation and hygiene (WASH) and urban agriculture in East African refugee settlements; supporting policy outreach on gender-responsive urban agriculture; expanding gender-responsive Milan Urban Food Policy Pact (MUFPP) indicators to 200 signatory cities.
- ***FP4 - VCR (Managing Resource Variability, Risks, and Competing Uses for Increased Resilience):*** *enhancing* capacity on gendered vulnerabilities in marginalized farming communities; bringing

[3] OTs describe a changing pattern of interactions between actors that deliver streams of outcomes over time. Key to OTs is path dependency, in which what happens before influences what is happening now and what will happen in the future.

[4] *Gender-responsive* research meets both women's and men's different needs, priorities and constraints. These approaches ensure that both women and men will benefit and there is harm done through research, programs or policy. *Gender transformative* research strives to examine, question and change the root causes of gender inequity and unequal power relations, to transform gender relations to be foster greater equity.

policy attention to gender equality and social inclusion dimensions of wetlands management through multi-agency partnerships in Myanmar.

- ***FP 5 - ESA (Enhancing Sustainability across Agricultural Systems):*** launching of the Sustainable Agricultural Intensification Commission with strong Southern participation and a focus on social inclusion.

2. Plans and Expected Progress Towards Outcomes

Flagship 1: Restoring Degraded Landscapes (The Alliance, ICRAF, IFPRI, ICARDA) finds solutions for restoring agricultural lands. In 2020, WLE will focus on synthetic and scaling opportunities to influence key fora.

Better-informed and gender-responsive landscape restoration policies, approaches and interventions

- Promote tools and information on seed systems that use genetic diversity to support landscape restoration, plus food security and nutrition benefits (Uganda, Nepal, Uzbekistan).
- Co-design business models that mobilize private funds for sustainable and inclusive landscape restoration, and sustainable intensification (Kenya, Peru).
- Develop capacities and information platforms for gender-responsive and locally led restoration (Ethiopia, Peru), and to improve gender equity in restoration initiatives in at least two countries (Cameroon, Peru).
- Provide evidence on integrated land use planning and management through the United Nations Convention to Combat Desertification's (UNCCD) Science Policy Initiative (co-lead on land degradation neutrality report, review of Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, special issue on ecological restoration), the 20x20 Restoration Initiative and African Forest Landscape Restoration Initiative (AFR100).

Policies, strategies and interventions investing in practices that rehabilitate or protect soil fertility and soil carbon

- Review and disseminate factors underlying success and failure of restoration, leading to more effective, evidence-driven projects (Colombia, Ethiopia).
- Develop and disseminate tools that use big data analytics for planning integrated soil fertility management in degraded landscapes (Ethiopia).

Strengthening monitoring and evaluation of land restoration and the assessment of land degradation risks

- Pilot a monitoring, evaluation, learning and impact assessment (MELIA) framework that monitors changes in gender equality and social inclusion in land restoration in the Promise of the Commons initiative, India, with the CGIAR Research Program on Forests, Trees and Agroforestry (FTA). Develop a methodology for targeting land restoration, and monitoring progress, through evidence and human centered design in Makueni District, Kenya.
- Launch of Farming Decisions under Uncertainty, with Innovative Solutions for Decision Agriculture (iSDA) and Probability Management.org, to democratize tools for representing and communicating risk in land restoration decision-making.
- Expanded use of soil spectroscopy – a rapid, low-cost tool to assess soil health, target soil and

crop management recommendations, and monitor outcomes – through:

- A global soil property prediction service, with U.S. Department of Agriculture and the Global Soil Laboratory Network of the Global Soil Partnership, that builds on a public soil spectral library.
- Capacity development for seven additional African countries (Guinea, The Gambia, Mali, Niger, Rwanda, Senegal, Sierra Leone, South Africa), including their participation in the new global spectral library initiative.
- Farm soil testing services through private sector business pilots with iSDA in Kenya, Ghana.
- Application in a new European Union-funded project to resample and map African soil properties, and a new soil properties map of Africa at 30m resolution through iSDA.

Flagship 2: Land and Water Solutions for Sustainable Intensification (IWMI, ICRISAT, IFPRI, ICARDA) provides evidence on how to deliver sustainable and socially inclusive ALWM solutions at scale. WLE will identify key synthetic and scaling opportunities to build greater influence and outreach (e.g. via Stockholm World Water Week, new communities). The annual science meeting will focus on irrigation (small to large irrigation schemes).

Ensuring soil/land and water management interventions enhance inclusive, productive and sustainable livelihoods in watersheds (India, Ethiopia, Mali, Jordan, Tanzania, Pakistan, Afghanistan, Tajikistan).

Demonstration of successful models of scaling sustainable, inclusive intensification will focus on soil/water management technologies such as contour bunds and check dams, and on governance systems in India and Ethiopia, to provide evidence for watershed management policy and implementation. Gender-disaggregated household and plot level data collection from diverse irrigation schemes in Ethiopia, supported by remote sensing, will build understanding of community and intra-household decisions in different agro-ecologies. A workshop series in India will strengthen gender-responsive watershed management strategies and stakeholder/researcher capacities.

Scaling inclusive and gender equitable solutions in smallholder farmer led irrigation

Upscaling irrigation and agricultural water management technologies, including solar irrigation (Ethiopia, Ghana, Tanzania, India), through partnerships such as IWMI-TATA-CCAFS Water Innovations Technologies Program Jordan, and the Innovation Laboratory for Small Scale Irrigation. A new project supported by Swiss Agency for Development and Cooperation (SDC) in Bangladesh, India, Nepal and Pakistan will pilot and scale-up ALWM business models in different agro-ecological, institutional, political and economic settings through private-sector and public-private partnerships.

Roll out of tools to revitalize medium and large-scale irrigation systems (Zimbabwe, Ethiopia, MENA, Pakistan, India, Myanmar)

Building on pilots, further implementation will align with government programs. In Zimbabwe, the farmer-friendly water/nutrient monitoring tools (Chameleon and Full Stop) developed in collaboration with an Australian Centre for International Agricultural Research (ACIAR)-funded project, will be applied with the Ministry of Irrigation in 30+ irrigations schemes. The irrigation asset management system (SAMS), which enhances management through performance assessment, will be further developed by integrating parts of the Online Irrigation Benchmarking Services (OIBS) tool and remote sensing data (e.g. spatially explicit water accounting outputs).

Flagship 3: Sustaining Rural Urban Linkages (IWMI, ICRAF, The Alliance, RUAF Foundation) assesses urban food security challenges and innovative ways to turn urban [food] waste into business opportunities for a circular economy, from waste reduction to resource recovery and reuse (RRR).

Scaling out gender-responsive agricultural intensification options in six refugee camps in East Africa

Based on innovations tested by IWMI, ICRAF and CIAT for soil rehabilitation, low-space farming, water reuse and energy generation for over 200,000 refugees by 2021, activities will aim to ensure that gender equality and social inclusion become key priorities through outreach, including via local radio channels.

Assisting cities to build more climate resilient and gender-responsive urban food supply chains

A new partnership of FAO, IWMI and RUAF will target five cities to build more climate resilient urban food supply chains. In a related study, the three institutions will address the challenges and impacts of urban food waste, which contributes significantly to greenhouse gas emissions. Entities (e.g. restaurants, hotels, retailers, markets, households) across the urban food supply sector (e.g. in Colombo) will be trained in waste minimization options. CIAT will lead a focus on understanding carbon, energy and water footprints of key commodities as well as their exposure to climate risks in and around Cali.

Supporting international public goods and intermediate outcomes

In 2020, IWMI will support the update of FAO's normative guidelines on Water Quality and Wastewater Use in Agriculture. It will also advise the World Bank and BMGF (Bill & Melinda Gates Foundation) on their investments in the sanitation sector in South Asia.

Flagship 4: Managing Resource Variability, Risks and Competing Uses for Increased Resilience (IWMI, IFPRI) reduces risks and loss to farming communities from water-related disasters and finds better ways of maximizing the opportunities that competing uses of land, energy and water can provide. Identifying opportunities for strategic influence will be key in 2020.

Expanding work to Africa on integrated water risk management

Drought and flood monitoring tools developed in South Asia will expand to four African countries (Burkina Faso, Ethiopia, Ghana, Zambia) and link with IWMI's Water Secure Africa Initiative, and will use the Open Data "Cube" (Digital Earth Africa) to build applications. This work also complements a new UK Economic and Social Research Council initiative supporting adaptation to drought in Kenya and South Africa.

Collaborating with partners (including Oxfam, Agrievolution Alliance), pilot projects in Bangladesh and India will demonstrate the effectiveness of bundling index-based weather insurance products with other risk management options (e.g. weather advisories, seed distribution). WLE will further analyze gender equity, social inclusion and other structural barriers to accessing and benefiting from weather insurance, and engage with insurance companies, governments and donors.

Evaluating Managed Aquifer Recharge (MAR) in Gujarat, India to assess the impacts on water risks across scales. Understanding of MAR impacts on water resources at the basin scale will be enhanced through finalizing and applying a performance assessment tool for individual MAR structures.

Identifying on-the-ground solutions to better manage trade-offs across the water-energy-food nexus

Groundwater work on: i) collaboration with the African Ministers' Council on Water (AMCOW) and others to roll-out the Pan-Africa Groundwater Program; ii) upscaling groundwater governance tools in India, and expanding to Africa; iii) assessment of land use changes to understand the value of groundwater in irrigated agriculture in Africa; iv) testing groundwater management systems in Lao PDR and Myanmar.

Partnerships with the CGIAR Research Programs on Fish and Rice Agri-Food Systems (FISH, RICE) will: i) identify opportunities and constraints of integrating fisheries within irrigation schemes (with FAO and Charles Sturt University), and the water implications of upscaling aquaculture; and ii) how fish, rice and water management innovations can be scaled to contribute to more sustainable and healthier food systems.

New initiatives include: i) studying environmental flows in the Limpopo transboundary basin, building on Inner Niger Delta work; ii) scaling-out an integrated, multi-sectoral, eco-regional approach for a water tower (Bale Mountains, Ethiopia); iii) working with community, state and regional government partners to pilot more gender-responsive strategies to wetlands management in Myanmar.

The Water Accounting + model will be tested alongside the African Open Data "Cube" and national level datasets, to better understand basin-scale water use and availability, use-efficiency and productivity in Burkina Faso, Ethiopia, Ghana and Zambia.

The water-energy-food nexus work will disseminate its Africa solar irrigation assessment results; and move from capacity building on energy modeling in Ethiopia to research and policy through new partnerships, such as with Power for All.

Flagship 5: Enhancing Sustainability across Agricultural Systems (The Alliance, ICRAF, IWMI, IFPRI) develops, tests and integrates approaches and tools that help address potential trade-offs and synergies in agricultural transformation and natural resource management.

Building evidence on sustainable agricultural intensification, through:

- Launch of the Commission on Sustainable Agricultural Intensification (CoSAI) on '*Promoting innovation for transformative change in SAI*'. All Commissioners will be selected from the Global South and chaired by Dr. Ruben Echeverria. Early products may include a review of global reports, panels and initiatives, and a review of innovation metrics. Outputs will be communicated to the OneCGIAR research strategy process, with the intention to evolve into a cross-CGIAR initiative. The Commission will be at EAT Forum and the IUCN World Conservation Congress.
- The Sustainable Food project is compiling evidence and performing meta-analyses of farm and landscape level diversification practices that help manage various environmental risks. New partnerships with the UN Sustainable Development Solutions Network (UNSDSN), UK's Projecting Responses of Ecological Diversity In Changing Terrestrial Systems (PREDICTS) and United Nations Environment Programme (UNEP) will incorporate agricultural sustainability practices in PREDICTS and other decision-support tools.
- Innovative business approaches for natural resource management will continue, targeting public and private sector initiatives enhancing sustainable management of land and water as potential users, and will feed into CoSAI.

Increasing decision-makers' access to tools, evidence and expert advice that better support managing trade-offs.

- An interactive guide (including decision-support tools and trade-off analysis frameworks) will be co-developed with decision-makers from at least three countries (Ethiopia, Uganda, Rwanda), and disseminated.
- This material will be used to develop course and training materials for researchers and decision-makers from at least 10 institutions on managing trade-offs. These will build upon WLE decision-support tools, case studies, and the 2019 survey on evidence-based decision-support.
- Demonstration of WLE decision support tools at international events and establishment of new co-learning partnerships interested in using the tools (national and local governments, Food and Land Use Coalition, and other major international fora).
- Improving decision-analysis accessibility for project managers, researchers and other non-specialists, by making available excel-based templates and applications, including a portfolio approach to national targeting of climate smart agriculture options in Cameroon and Tanzania.
- Analyzing future pathways for sustainable intensification across scales by applying an integrated assessment model to analyze options for land and water management in support of transformation of food, land and water systems.

Enhancing the cost-efficiency of natural and agricultural resource interventions by anticipating and minimizing negative trade-offs that degrade landscapes, through:

- WLE decision support tools used in at least three agricultural/natural resource management programs (Indian Council of Agricultural Research (ICAR)/India, Sustain, Train, Educate and Promote (STEPUP)/Uganda, USAID in Southern Africa), for trade-off and risk-return analysis. For example, Bayesian Networks will provide evidence to secure environmental flows in both surface and groundwater in the Limpopo Basin.

Table 2A: Planned Milestones

FP	Mapped to sub-IDO	2021 Outcome	2020 Milestone	Relation-ship to proposal mile-stone	Means of verification	Cross-cutting markers (0=not targeted; 1=significant; 2=principal)				Risk to reaching miles-tone	For medium or high risk; main risk
						Gender	Youth	Cap Dev	Climate change		
F1	Increased resilience of agro-ecosystems and communities, especially those including smallholders	F1 Outcome: 1.1: Better informed landscape restoration policies, approaches and interventions [related WLE sub-IDO indicator: Number of countries in which governments, agencies and local stakeholders invest in research-based strategies and programs targeting adoption of restorative and preventative practices against land degradation]	2020 - Stakeholder capacities and information platforms are developed, leading to more feasible, gender-responsive and locally-led restoration projects in productive landscapes in at least 2 countries (Ethiopia, Peru)	New/ changed	Report on co-development of sustainable business models. Dissemination and validation meeting reports with stakeholders.	1	1	1	1	Medium	External environment (political, economic, legal, market)
F1	Increased resilience of agro-ecosystems and communities, especially those including smallholders	F1 Outcome: 1.1: Better informed landscape restoration policies, approaches and interventions [related WLE sub-IDO indicator: Number of countries in which governments, agencies and local stakeholders invest in research-based strategies and programs targeting adoption of restorative and preventative practices against land degradation]	2020 - Sustainable and socially inclusive models for landscape restoration and sustainable intensification are co-designed with private sector partners in at least two countries (Peru, Kenya)	New/ changed	Dissemination and validation meeting reports with stakeholders.	2	0	1	1	Low	
F1	Increased resilience of agro-ecosystems and communities, especially those including smallholders	F1 Outcome: 1.1: Better informed landscape restoration policies, approaches and interventions [related WLE sub-IDO indicator: Number of countries in which governments, agencies and local stakeholders invest in research-based strategies and programs targeting adoption of restorative and preventative practices against land degradation]	2020 - Capacity enhancement to improve gender equity in restoration initiatives in at least two countries (Cameroon, Peru, Ethiopia)	New/ changed	Dissemination and validation meeting reports with stakeholders.	2	0	1	0	Low	
F1	Increased resilience of agro-ecosystems and communities, especially those	F1 Outcome: 1.1: Better informed landscape restoration policies, approaches and interventions	2020 - National and sub-national gender-responsive strategies for restoration are improved and deliver food security and	New/ changed	National and sub-national strategies, Dissemination and validation meeting	1	1	1	0	Medium	External environment (political, economic, legal, market)

	including smallholders	[related WLE sub-IDO indicator: Number of countries in which governments, agencies and local stakeholders invest in research-based strategies and programs targeting adoption of restorative and preventative practices against land degradation]	livelihoods co-benefits, by the better use of local agrobiodiversity in at least three countries (Uganda, Nepal, Uzbekistan)		reports with stakeholders.						
F1	Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use (Mitigation and adaptation achieved)	F1 Outcome: 1.2 Policies, strategies, and interventions investing in practices that rehabilitate or protect soil fertility and soil carbon. [related WLE sub-IDO indicator: Number of countries where climate financing, national strategies and programs invest in research-based practices to build soil fertility and soil carbon, providing food security, adaptation and mitigation benefits]	2020 - Policy makers better understand the success and failure factors of restoration efforts, leading to more effective, evidence-driven land restoration projects in Colombia and Ethiopia	New/ changed	Published reports relevant to Colombia and Ethiopia; Evidence of dissemination: blogs and info briefs on engagement activities; Government response to findings.	0	1	1	1	Medium	External environment (political, economic, legal, market)
F1	Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use (Mitigation and adaptation achieved)	F1 Outcome: 1.2 Policies, strategies, and interventions investing in practices that rehabilitate or protect soil fertility and soil carbon. [related WLE sub-IDO indicator: Number of countries where climate financing, national strategies and programs invest in research-based practices to build soil fertility and soil carbon, providing food security, adaptation and mitigation benefits]	2020 - Tool developed and utilized by Ethiopian Ministry of Agriculture for 'sound' fertilizer recommendation using big data analytics to make informed decisions on integrated soil fertility management in degraded landscapes	New/ changed	Published report relevant to Ethiopian use of fertilizer; Government response to fertilizer recommendations	0	1	1	0	Medium	External environment (political, economic, legal, market)
F1	Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research	F1 Outcome: 1.3 Strengthen approaches to the monitoring and evaluation of land restoration and the assessment of land degradation risks. [related WLE sub-IDO indicator: Number of countries that adopt and have trained staff in land restoration surveillance, planning and verification frameworks]	2020 - Incorporation of up-to-date and accurate spatial assessments at relevant scales into decision dashboards for enhanced engagement with evidence around land degradation, soil health and land restoration in Kenya	New/ changed	Publication of up-to-date data for 2020	0	1	1	0	Low	
F1	Increased capacity of partner organizations, as evidenced by rate of investments in	F1 Outcome: 1.3 Strengthen approaches to the monitoring and evaluation of land restoration and the	2020 - WLE monitoring, evaluation, learning and impact assessment (MELIA) framework and	New/ changed	MELIA framework relevant to India published online	2	2	0	0	Low	

	agricultural research	assessment of land degradation risks. [related WLE sub-IDO indicator: Number of countries that adopt and have trained staff in land restoration surveillance, planning and verification frameworks]	methods, which explicitly considers changes in gender equality and social inclusion, piloted in the context of the Promise of the Commons initiative in at least one state in India								
F1	Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research	F1 Outcome: 1.3 Strengthen approaches to the monitoring and evaluation of land restoration and the assessment of land degradation risks. [related WLE sub-IDO indicator: Number of countries that adopt and have trained staff in land restoration surveillance, planning and verification frameworks]	2020 - Capacity to use soil-plant spectral technology to assess soil health and target land restoration interventions developed in at least five additional countries in Africa (Guinea, The Gambia, Mali, Niger, Senegal, Sierra Leone), Asia (China, India, Vietnam), and Latin America (Haiti), and farm soil testing services extended to farmers through private sector partnerships in Kenya and Ghana.	New/ changed	End of year report on scaling initiatives	0	1	2	0	Low	
F2	Reduced smallholders production risk	F2 Outcome: 2.1 Policy and practice informed by more effective agricultural land and water management solutions and investment options [related WLE sub-IDO indicator: Number of countries in which AWLM solutions have been adopted into policy, practice and/or investment]	2020 - 3-5 sustainable and gender inclusive business models for agriculture, land and water management (ALWM) solutions piloted with the private sector in at least 3 countries (India, Ethiopia, Ghana, Pakistan, Nepal, Bangladesh).	New/ changed	ALWM pilot reports	1	0	1	1	Medium	External environment (political, economic, legal, market)
F2	Reduced smallholders production risk	F2 Outcome: 2.1 Policy and practice informed by more effective agricultural land and water management solutions and investment options [related WLE sub-IDO indicator: Number of countries in which AWLM solutions have been adopted into policy, practice and/or investment]	2020 - Sustainable and socially inclusive agriculture, land and water management (ALWM) solutions for landscape/ watershed management are integrated in public sector investments in two countries (Ethiopia, India)	New/ changed	ALWM pilot reports, such as project reports and academic publications	1	1	1	1	Medium	External environment (political, economic, legal, market)
F2	Agricultural systems diversified and intensified in ways that protect soils and water	F2 Outcome: 2.2. Improved management of new and revitalized medium to large scale irrigation schemes [related WLE sub-IDO indicator: Number of medium and large	2020 - National governments combine on-farm and scheme performance tools to improve irrigation efficiency at scheme level in at least 3 countries (India, Zimbabwe,	New/ changed	National-level documentation indicating implementation of tools; Ex-ante IA reports; Workshop reports.	1	0	1	0	Medium	External environment (political, economic, legal, market)

		irrigation systems revitalized for increased sustainability and productivity]	Ethiopia, Myanmar, Sri Lanka, countries in Central Asia)								
F2	Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research	F2 Outcome: 2.2. Improved management of new and revitalized medium to large scale irrigation schemes [related WLE sub-IDO indicator: Number of medium and large irrigation systems revitalized for increased sustainability and productivity]	2020 - Recommendations and tools to support inclusive water governance are tested/ implemented by national governments in at least 2 countries (Myanmar, Zimbabwe)	New/ changed	Workshop reports; Pilot test reports; National-level documentation indicating implementation of recommendation and tools.	1	1	1	0	Medium	External environment (political, economic, legal, market)
F3	Conducive agricultural policy environment	F3 Outcome: 3.1. Improved capacity of urban stakeholders to implement evidence-based policies and practices in support of urban food security and resilience. [related WLE sub-IDO indicator: Number of cities with increased capacity and evidence for stakeholders and policy makers to implement urban and peri-urban agriculture related policies, strategies and/or farming system innovations]	2020 - Ten towns or cities create Urban Food Policies or Strategies with WLE facilitation, leading to improved food security and resilience in urban areas	New/ changed	Published Urban Food Policies or Strategies	0	1	1	0	Medium	External environment (political, economic, legal, market)
F3	Conducive agricultural policy environment	F3 Outcome: 3.1. Improved capacity of urban stakeholders to implement evidence-based policies and practices in support of urban food security and resilience. [related WLE sub-IDO indicator: Number of cities with increased capacity and evidence for stakeholders and policy makers to implement urban and peri-urban agriculture related policies, strategies and/or farming system innovations]	2020 - Recommendations for gender sensitive Milan Urban Food Policy Pact (MUFPP) indicators provided to global MUFPP secretariat to inform its works across all 200 signatory cities	New/ changed	Report submitted to MUFPP secretariat	2	0	1	0	Low	
F3	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	F3 Outcome: 3.2 Increased business capacities in nutrient, water and energy recovery from domestic and agro-industrial waste for intensified food crop production [related WLE sub-IDO indicators: Increased number of business	2020 - In collaboration with Sri Lanka's regulatory agencies, guidelines for organic fertilizer production developed and 100 private sector producers and farmers trained in their use	New	Published guidelines for organic fertilizer; Capacity development report	0	0	2	0	Low	

		schools, training courses and start-up trainees with RRR business capacity]									
F3	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	F3 Outcome: 3.2 Increased business capacities in nutrient, water and energy recovery from domestic and agro-industrial waste for intensified food crop production [related WLE sub-IDO indicators: Increased number of business schools, training courses and start-up trainees with RRR business capacity]	2020 – Roll out of free Resource, Reuse and Recovery (RRR) online course available based on WLE research and publications	New	Course published online Course use analytics	0	1	2	0	Low	
F3	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	F3 Outcome: 3.2 Increased business capacities in nutrient, water and energy recovery from domestic and agro-industrial waste for intensified food crop production [related WLE sub-IDO indicators: Increased number of business schools, training courses and start-up trainees with RRR business capacity]	2020 - Three new WLE facilitated public-private partnerships (PPP) on waste use for resource recovery operating in Ghana supporting alternative options for increased food and energy production	New	PPP set-up reports; Resource, Reuse and Recovery (RRR) plant info briefs	0	1	1	0	Medium	External environment (political, economic, legal, market)
F3	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	F3 Outcome: 3.2 Increased business capacities in nutrient, water and energy recovery from domestic and agro-industrial waste for intensified food crop production [related WLE sub-IDO indicators: Increased number of business schools, training courses and start-up trainees with RRR business capacity]	2020 - The Food and Agriculture Organization (FAO) adopts WLE revised water quality guidelines (starting with Central Asia)	New	Revised FAO guidelines on water quality	0	0	1	1	Low	
F4	Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved)	F4 Outcome: 4.1. Strong evidence underpinning implementation of solutions that increase water supply for agricultural production, livelihoods and ecosystems, and that decrease losses from water variability extremes [related WLE sub-IDO indicator: Number of countries in which stakeholders and policy makers implement approaches that increase water supply for agricultural production under conditions of water variability]	2020 - Tested WLE gender-responsive solutions for mitigation of, and adaptation to, flood and drought risks (including nature based solutions, insurance, pre-event forecasting and post-event monitoring), where possible bundled with complementary solutions from other CRPs (e.g. fisheries and seed options) to enhance adaptive capacity and build resilience to multiple climate risks, further along the pathway to scaling in at least 5	On Going	Impact assessments, publications on flood and drought solutions	1	0	1	2	Medium	External environment (political, economic, legal, market, climate)

			countries (India, Myanmar, Nepal, Vietnam, Sri Lanka)								
F4	Enhanced capacity to deal with climatic risks and extremes (Mitigation and adaptation achieved)	F4 Outcome: 4.1. Strong evidence underpinning implementation of solutions that increase water supply for agricultural production, livelihoods and ecosystems, and that decrease losses from water variability extremes [related WLE sub-IDO indicator: Number of countries in which stakeholders and policy makers implement approaches that increase water supply for agricultural production under conditions of water variability]	2020 - Enhanced awareness and increased capacity within government, NGOs and private sector (in India, Nepal, Bangladesh, Myanmar) to better manage gendered vulnerabilities in marginalized farming communities, associated with climate hazards and unequal access to resources.	On Going	Capacity building workshop reports; Training materials published online; Report on how to manage gendered vulnerabilities	2	1	2	1	Medium	External environment (political, economic, legal, market)
F4	More productive and equitable management of natural resources	F4 Outcome: 4.2. Policy advice on improved water resource infrastructure planning and management adopted, leading to enhanced ecosystem services and increased resilience [related to WLE sub-IDO: Number of countries with demonstrable investment by donors, MDBs and Governments in landscape-based solutions to manage increased water variability]	2020 - At least one government (Ethiopia) in Sub-Saharan Africa uses energy tools to inform national investment plans for electrification while also considering irrigation development plans.	On Going	Impact assessment, national investment plan indicating the use of WLE energy tools	0	0	2	1	Medium	External environment (political, economic, legal, market)
F4	More productive and equitable management of natural resources	F4 Outcome: 4.2. Policy advice on improved water resource infrastructure planning and management adopted, leading to enhanced ecosystem services and increased resilience [related to WLE sub-IDO: Number of countries with demonstrable investment by donors, MDBs and Governments in landscape-based solutions to manage increased water variability]	2020 - At least 1 multilateral agency (Asian Development Bank) and 1 River Basin Organization (Mekong River Basin Commission) and 2 regional programs (Nile Equatorial Lakes Subsidiary Action Program and Southern African Development Community) invest in further development and capacity building of WLE approaches and tools (e.g. Water Accounting Framework; e-flows simulation; groundwater management) that facilitate greater understanding of inter-sectoral trade-offs associated with	New	Evidence of funding to implement tools and/or Investment plans from a relevant organization	0	0	2	1	Medium	External environment (political, economic, legal, market)

			different water management options.								
F5	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	F5 Outcome: 5.1 Enhanced capacity of key institutions to more effectively design, monitor and manage relevant policies and programs for delivery against critical SDGs at landscape level	2020 - A gender-responsive interactive roadmap on WLE landscape decision-support tools is co-developed with decision-makers from at least 3 countries (Ethiopia, Uganda, Rwanda) and is made available online	On Going	Interactive roadmap published online; Workshop reports	1	1	1	1	Low	
F5	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	F5 Outcome: 5.1 Enhanced capacity of key institutions to more effectively design, monitor and manage relevant policies and programs for delivery against critical SDGs at landscape level	2020 - Gender-responsive WLE landscape decision support tools are demonstrated at 2 international events and adopted by key partners (national and local governments, Food and Land Use Coalition and other major international fora) to facilitate co-learning	On Going	Decision support tool presentations; Workshop reports; Relevant documentation from partners indicating the adoption of support tools	1	1	1	1	Medium	External environment (political, economic, legal, market)
F5	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	F5 Outcome: 5.1 Enhanced capacity of key institutions to more effectively design, monitor and manage relevant policies and programs for delivery against critical SDGs at landscape level	2020 - Commission on Sustainable Agricultural Intensification launched with strong Southern engagement, and dialogues conducted during at least 2 high-level events.	New/ changed	Info brief; Workshop report; Relevant documentation of dialogues	0	1	1	1	Low	
F5	-Increased capacity for innovations in partner research organizations -Enhanced individual capacity in partner research organizations through training and exchange	F5 Outcome: 5.2. Decision makers in at least two countries using WLE tools to improve designs and outcomes of at least two major agricultural and related natural resource intervention programs to deliver against critical SDGs	2020 - Researchers and decision-makers from at least 10 institutions are trained on how to better bridge evidence and decision-makers related to sustainable agricultural landscapes and natural resource management	New/ changed	Training report; Post-training outcome survey	0	0	2	0	Low	
F5	-Increased capacity for innovations in partner research organizations -Enhanced individual capacity in partner research organizations through training and exchange	F5 Outcome: 5.2. Decision makers in at least two countries using WLE tools to improve designs and outcomes of at least two major agricultural and related natural resource intervention programs to deliver against critical SDGs	2020 - The use of WLE decision support tools in at least 3 agricultural or natural resource management programs, supports trade-off and risk-return analysis and contributes to the identification and implementation of sustainable and inclusive options	New/ changed	Relevant documents from natural resource management (NRM) programs indicating the use of decision support tools	1	1	1	1	Low	

Table 2B: Planned Evaluations/Reviews, Impact Assessments and Learning Exercises

CRP	FP	Status	Planned studies/learning exercises in the coming year	Geographic scope	Who is commissioning this study?
WLE	F1	On Going	Using farmers' varieties of durum wheat to improve food security and enhance resilience	Ethiopia	The Alliance of Bioversity International and CIAT
WLE	F1	On Going	Using genetic diversity to manage shocks, improve livelihoods	Uzbekistan	The Alliance of Bioversity International and CIAT
WLE and FTA	F1	On going	Land restoration tool compendium	Global	CGIAR Research Programs on Water Land and Ecosystems and on Forests Trees and Agriculture
WLE	F2	On Going	Suitability maps for solar based irrigation	Sub-Saharan Africa	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
WLE	F4	On Going	Enhancing Drought Monitoring and Early Warning through stakeholder decision-making processes	India and Sri Lanka	International Water Management Institute (IWMI), Indian Council of Agricultural Research (ICAR), Agricultural University
WLE	F2	New	Outcome evaluation of climate-smart research on solar-powered irrigation in India conducted under the CGIAR Research Program on Water, Land and Ecosystems (WLE), CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and the CGIAR System Management Office (SMO)	India	CGIAR Research Program on Water Land and Ecosystems (WLE), CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), CGIAR Systems Management Office (SMO)
WLE	TBC	NEW	Outcome evaluation: two/three further topics to be confirmed	TBC	CGIAR Research Program on Water Land and Ecosystems (WLE)
WLE	all	New	Annual WLE Reflection Workshop	Program	CGIAR Research Program on Water Land and Ecosystems (WLE)

Table 2C: Planned major new collaborations (CGIAR internal, or with non-CGIAR collaborators

Name of CRP or non-CGIAR collaborator	Brief description of collaboration (give and take among CRPs/PTFs/non-CGIAR collaborator) and value added (e.g. scientific or efficiency benefits)
CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and the CGIAR System Management Office (SMO)	WLE and CCAFS have both made a significant contribution to the development of solar irrigation technology in India. The evaluation will identify levels of contribution. The CRPs will also collaborate with the SMO to test a methodology to report against the new 'Projected Benefits' common reporting indicator (CRI).
International Institute for Applied Systems Analysis (IIASA; Lake Victoria Basin Commission	Aligned with an initiative recently funded by the Austrian Development Agency (ADA), a major partnership with the Lake Victoria Basin Commission, and policy makers across 5 East African countries will work to capture the potential benefits from up-scaling local and regional land and water management practices in rainfed and irrigated agricultural systems considering tradeoffs to the ecosystem.
Futurepump (irrigation equipment, i.e. pumps for solar powered irrigation)	IWMI and Futurepump won the CGIAR Inspire Challenge (USD 100,000) in October 2019. The partnership works on innovative ways to analyse solar pump data including machine learning approaches
Swiss Agency for Development and Cooperation (SDC) and Solar Irrigation for Agricultural Resilience (SoLAR) partners	This new regional partnership initiative brings together government officials and representatives from public and private sector from Bangladesh, India, Nepal and Pakistan, to promote solar irrigation, water saving agricultural practices and groundwater governance for climate-resilient agriculture.
WASAG (Global Framework on Water Scarcity in Agriculture) partners	WLE FP2 is organizing a technical workshop with WASAG representatives from government, international organizations, development finance institutions, NGOs, academia and practitioners on 'Can Water Productivity Improvements Save Us from Global Water Scarcity?' (working title).
UN Sustainable Development Solutions Network (UN SDSN), the Projecting Responses of Ecological Diversity In Changing Terrestrial Systems (PREDICTS) of the UK Natural History Museum, United Nations Environment Programme (UNEP)	The WLE funded 'Sustainable Food' project is compiling evidence of farm and landscape level actions that will use biodiversity to manage risk in food production. This initiative brings in new partnerships with the UN Sustainable Development Solutions Network (UN SDSN), the Projecting Responses of Ecological Diversity In Changing Terrestrial Systems (PREDICTS) of the UK Natural History Museum and the United Nations Environment Programme (UNEP).
Commission on Sustainable Agricultural Intensification	Commissioners are being recruited from outside the CGIAR and from the Global South, which should stimulate a set of new and interesting partnerships around innovation in agricultural systems.

3. Financial Plan for the coming year, including use of W1/2

The 2020-2021 Revised CGIAR Finance Plan (FinPlan)[5] indicates that the W1/W2 allocation to WLE in 2020 will be **$9.2m**, net of Cost Sharing Percentage (CSP). The Systems Management Office has advised CRPs to budget below this amount, as actual donor contributions may be less than planned/expected. WLE will, therefore, assume a 2020 W1-2 budget of **$8.46m** (92% of the target), before factoring in funds to be carried forward.

Significant funding will be carried forward from 2019 into 2020-2021, due to a Swedish International Development Cooperation Agency (SIDA) W2 contribution in late 2019. This brought WLE's 2019 W1/W2 allocation to $10.47m - $2.2m more than the original 2019 planned spend of $8.2m. The 2020 budget is enhanced further by an unexpected budget increase in 2018, which was carried over into 2019, and allocated to new initiatives including the Sustainable Food initiative (FP5); partnerships with FISH and RICE CRPs in Myanmar (FP4) on the topic of gender transformative wetlands management and gender dynamics in landscape restoration (FP1). Launched in mid-2019, these initiatives will carry out most of their expenditures in 2020-21. The new funding from SIDA enables WLE to move forward with increasing the budget for the Commission on SAI (as approved by the WLE Independent Steering Committee (ISC), which will receive an additional $540k over 2020-21, bringing the total budget to $1.5million. WLE is also finalizing plans for the remaining SIDA Funding. These are likely to include a set of collaborative initiatives, which aim to bring together and synthesize key results across Flagships, enabling better translation of WLE achievements into policy and practice. Any new investments must be highly outcome focused and demonstrate user demand. Following preliminary review by the ISC, this work is expected to be up and running by the second quarter of 2020.

Supporting gender-responsive and gender transformative approaches is a key focus for 2020, with a larger Gender and Inclusion team in place to support this. Consultants at the Royal Tropical Institute, Amsterdam, are supporting a shift in focus from gender inclusive to gender transformative projects. WLE communications will focus on three workstreams: the Commission on SAI; climate/smallholder resilience; and synthesis work. WLE will invest in reaching high impact media, bringing a human element to WLE success stories, supporting researchers to reach milestones, and expanding researcher communication capacity. The Monitoring Evaluation and Learning stream has commissioned an outcome evaluation on solar powered irrigation, jointly with CCAFS and the CGIAR SMO (See Table 2B) and plans to commission two further outcome studies in 2020. WLE's drive toward outcomes and impact will be further enhanced through hosting an expert in scaling, jointly funded by GIZ.

[5] Revised 21 January 2020. Not yet approved by the System Management Board.

Table 3: Planned Budget

Figures in USD 000's

	Est Carry forward for use in 2020	W1-2 2020	W3/ bilateral	Center Funds	Total Funds	Comments on major changes
FP1	0	1,885	7,535	433	9,854	
FP2	0	1,691	9,215	0	10,906	
FP3	0	1,018	2,422	0	3,439	
FP4	0	1,493	1,714	0	3,207	
FP5	0	589	266	98	952	
FP5 SAI Commission	502	126	0	0	628	SAI Commission total budget 2019-2021 increased to $1.5m.
FP1 New Initiatives	67	76	0	0	145	Gender Dynamics in Land Restoration provisionally approved in 2019. Supports F5.
FP3 New Initiatives	70	78	0	0	147	Engagement with FAO on water quality. Approved in 2019.
FP4 New Initiatives	90	100	0	0	190	Transformation of rural landscapes for sustainable and nutritious food systems in Myanmar. Approved in 2019.
FP5 New Initiatives	69	76	0	0	145	Sustainable Foods and business plans in natural resource management. Approved in 2019.
Collaborative / synthetic research (to be allocated)	810	0	0	0	810	Funds to be allocated to research by the end of the first quarter 2020. They will be reported on in the relevant FP(s) at end of year
Management & Support	0	1,329	0	0	1,329	Includes Monitoring and Evaluation and Communications
Total Working Budget (net of CSP)	**1,609**	**8,460**	**21,152**	**531**	**31,753**	
For later allocation if funds confirmed		*752*			*752*	W1/W2 Budget is below target allocation, as per SMO advice. If there is a strong indication that the FinPlan allocation is likely to be met, these funds will be allocated.
Total CGIAR Finplan budget (net of CSP)	**1,609**	**9,212**	**21,152**	**531**	**32,504**	

Budget explanatory notes:

- Financial reporting for 2019 has not been completed, therefore carry-forward funds are estimated
- The carryforward budget provided above is intended for use **in 2020**. Remaining 2018-2019 funds will be carried forward for use in 2021
- All W1/W2 figures are net of CSP
- All Gender-related funding is included in Flagship budgets
- This budget includes confirmed bilateral, W3 and Center funding as of January 2020. Incoming information suggests that the total bilateral funding will increase
- As requested, we note that the bilateral contribution from WLE's Core non-CGIAR partner, RUAF (FP3), will be approximately $200k in 2020.