



Credit: Georgina Smith, CIAT

2018 Plan of Work and Budget (POWB): CGIAR Research Program on Water, Land and Ecosystems (WLE)

Led by IWMI

~ in partnership with Bioversity International, CIAT, ICARDA, ICRAF, ICRISAT, IFPRI
and the RUAF Foundation

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Acronyms

A4NH	CGIAR Research Program on Agriculture for Nutrition and Health
AFR100	African Forest Landscape Restoration Initiative
AFS	Agri-Food system
ATA	Agricultural Transformation Agency
AWARD	African Women in Agricultural Research and Development
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CD	Capacity Development
CDE	Centre for Development and Environment (University of Bern)
CGIAR	A Global Agricultural Research Partnership
CIAT	International Center for Tropical Agriculture
COP	Conference of Parties (to a UN Convention)
CRP	CGIAR Research Program
DA	Decision Analysis
E04SD	European Space Agency's Earth Observation for Sustainable Development
ESA	Enhancing Sustainability Across Agricultural Systems
FAO	Food and Agriculture Organization of the United Nations
FinPlan	CGIAR Financial Plan
FISH	CGIAR Research Program on Fish Agri-food Systems
FP	Flagship Program
FTA	CGIAR Research Program on Forests, Trees and Agro-Forestry
GCRF	Global Challenges Research Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLF	Global Landscape Forum
GREAT	Gender-Responsive Researchers Equipped for Agricultural Transformation
GRIPP	Groundwater Solutions Initiative for Policy and Practice
GYI	Gender, Youth and Inclusivity
IA	Intellectual Assets
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry Centre
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
i-CRP	Global Integrating Program
IDO	Intermediate Development Outcome
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
ILSSI	International Lab for Small Scale Irrigation
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
ISC	Independent Steering Committee
IWMI	International Water Management Institute
KMC	Knowledge Management and Communications
LIVESTOCK	CGIAR Research Program on Livestock
LSHTM	London School of Hygiene and Tropical Medicine
LWS	Land and Water Solutions for Sustainable Intensification (WLE Flagship Program)
MARLO	Managing Agricultural Research for Learning and Outcomes
MC	Management Committee
MCC	Millennium Challenge Corporation
MEL	Monitoring, Evaluation and Learning
MOOC	Massive Open Online Course
NRM	Natural Resources Management
OCP Group	Office Chérifien des phosphates

PIM	CGIAR Research Program on Policy Institutions and Markets
PMU	Program Management Unit
POLIMI	Politecnico di Milano
POWB	Plan of Work and Budget
Ramsar	Ramsar Convention on Wetlands
RDL	Regenerating Degraded Landscapes (WLE Flagship Program)
RICE	CGIAR Research Program on Rice Agri-Food Systems
RRR	Resource Recovery and Reuse
RTB	CGIAR Research Program on Roots Tubers and Bananas
RUL	Sustaining Rural-Urban Linkages (WLE Flagship Program)
SDG	Sustainable Development Goal
SLM	Sustainable Land Management
SSA	Sub-Saharan Africa
SLO	Systems-level Outcomes
ToC	Theories of Change
UNCCD	United Nations Convention to Combat Desertification
UPA	Urban and Peri-urban Agriculture
VCR	Managing Resource Variability, Risks and Competing Uses for Increased Resilience (WLE Flagship Program)
WLE	CGIAR Research Program on Water, Land and Ecosystems

A. Expected Key Results

1.1 Adjustments/ Changes to Your Theories of Change:

CGIAR Research Program on Water, Land and Ecosystem's (WLE's) overarching program level theory of change (ToC) from the Phase 2 proposal remains valid. Some further adjustments will be made to ensure greater focus and specificity during 2018. Flagship level results frameworks will also be updated to ensure that the outputs and milestones continue to reflect the expected impact pathway. Any adjustments are being reflected in WLE's results framework. Specifically:

- No adjustments to the ToC have been made to Flagship Program 1 (FP1): Regenerating Degraded Landscapes (RDL) nor Flagship Program 2 (FP2): Land and Water Solutions for Sustainable Intensification (LWS).
- In Flagship Program 3 (FP3): Sustaining Rural-Urban Linkages (RUL), Cluster of Activity (CoA) 3.3 (Integrated Urban Water Management) has been taken offline, due to an adjustment in the bilateral pipeline.
- In Flagship Program 4 (FP4): Managing Resource Variability, Risks and Competing Uses for Increased Resilience (VCR), the number of outcomes was reduced from three to two to align more directly with clusters of activity.
- The ToC for Flagship Program 5 (FP5) on Enhancing Sustainability across Agricultural Systems (ESA) has been revised as part of the resubmitted FP5 Proposal, which was approved for W1/W2 funding by the System Council in November 2017. FP5's ToC now focuses on improving the approaches and tools that enable more effective management of landscape level impacts of agricultural and natural resource management interventions. The revised approach requires much closer co-working with decision-makers, as well as with other CGIAR Research Programs (CRPs). A focus on the landscape scale makes better use of WLE's value added to other CGIAR work on sustainable agricultural intensification that focuses largely at the field level.

1.2 Expected Progress Towards Intermediate Outcomes and SLOs

At a portfolio level, WLE continues to discover and test solutions that build more sustainable food and agriculture systems, and which strengthen resilience to climate and environmental change. WLE's focus is on Systems Level Outcome 3 (SLO3), but there is a growing body of work targeting SLO1, and we expect increasing insights relevant to SLO2, as shown in the contribution to sub-IDOs in Table A. Key highlights from across WLE are grouped below in a way that illustrates contribution to IDOs/cross cutting areas (quoted in '**bold**') and SLOs (quoted in parentheses).

Land and Ecosystem Solutions:

Syntheses of effective soil and land restoration solutions for uptake by policy makers and investors (FP1, FP3) to '**enhance and protect natural capital**' and deliver '**enhanced benefits from ecosystem goods and services**' for enhanced resilience and livelihoods (SLO1) through improved natural resources (SLO3). Highlights will include:

- Ready-to-invest land restoration business cases and tools will be presented and promoted in policy and investment fora (potentially AFR100 [African Forest Landscape Restoration Initiative], UNCCD [United Nations Committee to Combat Desertification], others).

- Development and roll out of a new toolkit, based on ongoing work that adapts Decision Analysis (DA) techniques to natural resource management applications, that better supports planning and performance measurement of land restoration initiatives.
- Waste-based soil rehabilitation processes will undergo field trials to support 18,000 ha of privately owned vegetable farms and tea, coconut and rubber plantations.

Water and Ecosystem Solutions

Knowledge on technical, management and policy ‘levers of change’ around improved water management (FP2, FP3 and FP4) will be promoted widely to contribute to ‘**more sustainably managed agroecosystems and enhanced natural capital**’ (SLO3) and ‘**increased resilience of poor to climate change and other shocks**’ (SLO1). Highlights will include:

- Two African medium/large sized irrigation schemes will use a new irrigation benchmarking system to deliver new data on links between irrigation performance and farmer incomes, equity and ecosystem services. This system aims to improve design and management, and thus enhance wider roll out.
- At least three national or regional governments and/or investors will be supported to more sustainably manage surface and groundwater resources in collaboration with the multi-stakeholder Groundwater Solutions Initiative for Policy and Practice Partnership (GRIPP).
- Knowledge on groundwater (groundwater mapping) and experience gained with solar irrigation technology from India will be brought together to advance and guide the appropriate uptake of solar irrigation in Africa, including a report on solar business models for Ethiopia.
- Ethiopia’s Agricultural Transformation Agency (ATA) will use baseline data, field layout technical support and other WLE research on solar pump irrigation to pilot and out scale solar pump based irrigation in eight districts and on 100 farms.
- Ethiopia’s Ministry of Agriculture and Natural resources will adapt WLE satellite based irrigated area mapping to improve monitoring and planning of irrigated agriculture in Ethiopia, covering an estimated total area of about 1 million hectares.
- Supporting adoption and replication of water quality oriented solid and liquid waste management solutions in small towns, through World Bank and Government of India advisory services (including technical support, policy guidance, guidelines etc.).

Risks, Tradeoffs and Ecosystem Solutions

Insights on better management of risks and trade-offs (FP4 and 5) associated with the use of natural resources and ecosystem services to deliver ‘**increased resilience against climate shocks**’ (SLO1) and ‘**enhanced benefits from ecosystem goods and services**’ (SLO3) particularly at landscape levels.

Highlights will include:

- Further development and implementation of flood and drought early warning and impact assessment tools (including crop health forecasting in droughts; inundation extent and duration during floods) in conjunction with government agencies in India and Sri Lanka, as well as Insurance and Reinsurance companies (e.g. Agriculture Insurance Company of India (AIC), SwissRe) and the UN Sendai Framework for Disaster Risk Reduction.
- Guidance on how to overcome socio-economic and cultural barriers to uptake of Index Based Flood Insurance schemes for marginalised and most vulnerable (e.g. women) farmers. Based on WLE/CCAFS ongoing work in this area, guidance will engage government and insurer partners to result in better protection for otherwise marginalised groups.
- Eastern Nile, Mekong and Niger Basins, and their national and sub-national agencies, understand cross-sectoral nexus challenges across the water, energy and food sectors and deliver better water management and more efficient resource allocation.
- Extension of innovative landscape level approaches (e.g. managed aquifer recharge) that reduce flooding risk and provide additional water storage for irrigation from India to Vietnam.

- Supporting sustainable, resilient urban food systems by facilitating five cities to implement the Milan Urban Food Policy Pact and completing further in-depth and focused food and farming system analysis in a minimum of seven cities (Nairobi, Quito, Colombo, Cali, Palmira and two African Cities).
- Uptake of evidence developed around application of nature based solutions for risk management, (e.g. managing ecosystems to reduce flooding), through a year-long campaign on the International Year of “Nature Based Solutions for Water” focusing on major international events (e.g. World Water Forum, World Water Week, IPBES meetings and Ramsar Conferences of Parties) and international and local media.

Inclusivity and Capacity Solutions

The launch of a series of gender tools, and further pursuit of evidence around specific gender and youth dimensions of our solutions, will begin to contribute towards improved ‘**equity and inclusion**’. Highlights will include:

- Identifying constraints to women benefitting from index based flood insurance schemes with view to identifying opportunities and requisite measures that will allow for greater involvement of women in such schemes.
- Launch and culmination of a series of gendered and social inclusion studies and tools will begin to influence key deliver partners, including work with the Millennium Challenge Corporation (MCC) on potential gendered benefit streams in sectoral investments (VCR).

Capacity building highlights will include:

- Business models for resource recovery from fecal sludge promoted through ongoing free Massive Open Online Courses (MOOC) for entrepreneurs of both gender across Africa, Asia and Latin America, and other Resource, Recovery and Reuse (RRR) contributions to university curricula.
- Training of national scientists in seven African countries on low cost soil / plant health measurements using innovative tools based on dry spectroscopy to enable better assessment of land restoration schemes.

1.3 Obtaining Evidence on Relevant Outcomes and Impacts

WLE is now prioritizing and planning for impact assessments and outcome case studies to be implemented over the coming years, which appropriately reflect the scope and depth of WLE. It is expected that this exercise will be finalized by July 2018 and during this time discussions will also be held with SPIA to scope out any potential relevant collaborations.

The list provided in [Table B](#) has examples of studies already ongoing as part of both Windows 1- 2, and bilaterally funded projects (e.g. impact of Index based Flood Insurance work in South Asia, impact of land restoration practices aimed at increasing hydropower productivity in Malawi); and potential studies which may begin in 2018 or in later years (e.g. impact of Sustainable Groundwater in Africa initiatives, Biophysical and socio-economic synthesis of the effectiveness of land restoration efforts in Kenya).

1.4 Plans by Flagship

Flagship 1 (Restoring Degraded Landscapes): Restoring Degraded Landscapes (RDL) finds solutions for restoring agricultural lands that have been mismanaged or overexploited, and measures that will protect agricultural land from degradation. RDL plans for 2018 include:

- Continuing to scale approaches and tools for land restoration by stepping up engagement in national and global dialogues, for example, through an intensified engagement with AFR100, Initiative 20x20 and official representation on the UNCCD Committee of Science and Technology.

- Engaging directly in land restoration initiatives through building in RDL evidence to support compilation of business cases and intervention designs in Ethiopia, Kenya and Uganda. This evidence arises from assessments of the effectiveness of land restoration projects in Kenya, Tanzania and Ghana; studies on the gendered impacts of restoration projects in Columbia, Peru, and Tanzania; and an in depth review of factors assessing success and failure of projects in Ethiopia. RDL will continue to highlight the importance of genetic diversity in land restoration and adoption of biodiverse land restoration solutions. RDL will also enter into new collaborations across the CGIAR Research Program on Forests, Trees and Agro-Forestry (FTA) and the CGIAR Research Program on Policies, Institutions and Markets (PIM) to bring together other evidence on forests and tenure arrangements into a cross CGIAR piece on what works for land restoration.
- Emphasis on soil health and soil organic carbon will continue with assessment of carbon sequestration potentials in grassland and agricultural systems of East Africa, a review of biophysical models to simulate soil organic carbon dynamics, and an East Africa Soil Carbon Expert Workshop in Nairobi in April. RDL will also continue to deepen collaboration with CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and CGIAR Research Program on Livestock (LIVESTOCK) around soil carbon in rangeland degradation/restoration.
- Developing new approaches to restoration assessment and monitoring, by applying the Decision Analysis Framework for Planning and Performance Measurement of Land Restoration Initiatives to the UNCCD Land Degradation Neutrality initiative and its Target Setting Program. Setting up a pilot test of this Framework in a land restoration project will be explored with WLE FP5 Enhancing Sustainability in Agricultural Systems (ESA) and FTA.
- Continuing development of soil-plant spectroscopy to improve targeting and monitoring for improved soil restoration in croplands through capacity development in Africa and Asia, the development of new applications in fertilizer and manure quality analysis, and new online tools to make the technology easier to manage and apply by labs. Low cost soil and plant testing developed through these methods will also help take to scale sustainable agronomic solutions in partnership with One Acre Fund.

Flagship 2 (Land and Water Solutions): Land and Water Solutions (LWS) develops and applies solutions for managing land and water in rainfed and irrigated agricultural systems that are sustainable at landscape scale. Plans for 2018 include:

- A strong focus on gender aspects of land and water solutions to provide more effective advice on how to ensure that smallholder and medium-to-large scale irrigation developments in Sub-Saharan Africa are more equitable. LWS will also continue to invest in improving understanding of the sustainable intensification opportunities and gains from watershed or ‘terroir’ approaches. In Africa, Mali and Ethiopia are the focus of these efforts that support landscape scale regeneration, rural livelihood building and agricultural production improvements. Further opportunities for achieving multiple livelihood and sustainability benefits in medium to large-scale irrigation developments using co-designed, participative approaches with a focus on market participation will also be explored.
- Several other initiatives will support inter- and intra-CRP collaborations. This will include hosting a special session at [Tropentag](#)¹ on ‘Land Restoration and Migration’ focused on the Sahel. A scientific workshop is also planned for LWS, other relevant WLE and CRP researchers aligned with the joint conference on [Global Water Security for Agriculture and Natural Resources](#) in October in Hyderabad, India.
- LWS has set aside resources at flagship level to support *ex-ante* impact assessment. One potential direction is to assess the influence that IWMI and ICRISAT have had on policies over the last 20-30 years on watershed policy in India.

¹ The Annual Interdisciplinary Conference on Research in Tropical and Sub-Tropical Agriculture, Natural Resource Management and Rural Development.

- LWS is working out how to continue to engage with the Food and Agriculture Organization of the United Nations (FAO), and it is likely that the best approach is to focus on very specific engagements around certain topics or in specific regions. During 2018, collaboration will continue on specific products and activities for the benefit of both partners.
- LWS has developed and is now piloting in Ethiopia a new methodology for mapping irrigated area in sub-Saharan Africa using remote sensing technology. Based on interim results, the Ethiopian Ministry of Agriculture and Natural Resources stated, “above all it is a call for policy makers in the sector to adapt the approach.”
- After a baseline survey to support Ethiopian solar irrigation investments, LWS is supporting piloting and scaling in Ethiopia, building on the research and partnerships established through the Africa Rising/LIVES projects.

Flagship 3 (Rural-Urban Linkages): Rural-Urban Linkages (RUL) aims to maximize urban food security, identify new business opportunities for young women and men from resource reuse and recovery, and minimize the footprint of urbanization. Plans for 2018 include:

- In-depth and focused food and farming system analysis for urban and peri-urban areas, field trials for waste-based soil rehabilitation, advisory services (including technical support, policy guidance, guidelines etc.) for adoption and replication of resource oriented solid and liquid waste management in small towns.
- RUL has produced a suite of business models for resource recovery and reuse which will be published in a book in 2018, paving the way for the application of green circular economy and urban resilience solutions. Academic, private sector and government partnerships on promoting and realizing the business models will be explored. Researchers are advising and supporting initiatives to roll out models in India, Sri Lanka, Ghana, and elsewhere.
- New significant proposals are being formulated (Resource Recovery and Reuse (RRR) in Refugee camps in Eastern Africa, and standards for institutionalizing RRR in funding organizations), which, if successful, might allow a revision of milestones for 2019-2022.

Flagship 4 (Variability, Risks and Competing Uses): Variability, Risks and Competing Uses (VCR) aims to reduce risks and losses that farming communities suffer from water-related disasters by managing water variability, minimizing damage and maximizing opportunities, and managing competing uses of water, land and energy. Plans for 2018 include:

- Continued significant focus on: i) up-scaling index based flood insurance; ii) development of tools, institutions and approaches to help manage flood and drought risks, including monitoring systems and contingency planning; iii) innovative landscape approaches (e.g. managed aquifer recharge) to mitigate adverse flood and drought impacts; iv) assessment of options for managing the benefits derived from flooding; v) conjunctive management of surface and groundwater to reduce trade-offs associated with competing uses of water in transboundary basins; vi) approaches to enhance benefits from surface water storage; vi) evaluation of public health implications of water storage (e.g. malaria enhancement) and possible environmental approaches for mitigation.
- VCR will identify solutions across the water-energy-food nexus at various scales, ranging from irrigation systems to the national level and large river basins.
- Publishing substantial work on the potential impacts of groundwater depletion on food security and on energy-irrigation linkages.
- Enhancing collaboration with the small-scale fisheries flagship of the CGIAR Research Program on Fish Agri-food Systems (FISH) with a particular emphasis this year on fisheries within human-made water storage and conveyance systems.

Flagship 5 (Enhancing Sustainability across Agricultural Systems): Enhancing Sustainability across Agricultural Systems (ESA) supports development decisions and investments for more sustainable agricultural landscapes by developing user-friendly approaches and tools to assess and manage scale effects of agricultural interventions on selected Sustainable Development Goal (SDG) targets. Plans for 2018 include:

- Embarking on the first stage of development of a decision support approach and tool that provides insights on sustainable intensification at multiple scales (i.e. landscape beyond the farm). A synthetic review of decision support tools and approaches which can assess cross scale impacts on sustainability of various crop/farming system choices will be carried out in conjunction with an evidence review of the political economy of landscape level decision-making within a select set of specific agricultural landscapes (e.g. mixed crop – Uganda, rice – South East Asia). These deliverables also have broader relevance to ongoing processes (e.g. CGIAR Independent Science and Partnership Council (ISPC) Science Forum, October 2018) and various other ongoing discussions around research to impact in 2018. This will feed the early stage of the development of an approach and tool in 2018.
- Continued focus on refining the Decision Analysis (DA) approach developed during Phase 1, and developing new applications, and testing the DA tools within one/two specific landscapes and watersheds (in collaboration with FP1 (RDL)).
- New partnerships with Agri-food Systems (AFS) CRPs will be established (currently in discussion with CGIAR Research Program on Roots, Tubers and Bananas (RTB), CGIAR Research Program on Rice Agri-food Systems (RICE) and FTA), and a workshop held to design and develop, in close co-working with potential end-users, two case studies (as per above Uganda, SE Asia) where the decision-support framework and tools will be piloted in 2019.

1.5. Cross Cutting Dimensions

1.5.1 Gender, Youth and Capacity Development

WLE Gender, Youth and Inclusion (GYI) continues to inform practice through strategic research, testing of new strategies and uptake support, to increase women's access to productive resources and strengthen their participation as decision makers.

This year, the GYI Theme will build on and improve the model tested in 2017, which appointed a gender focal person to each flagship. Together with the GYI Coordinator, they will develop synthesis papers that bring out key issues from the Flagships, such as: i) role of women and youth in restoring degraded landscapes, ii) urban agriculture as a potential factor in rural out migration of youth, iii) role of women and youth in the medium scale irrigation schemes in sub-Saharan Africa, iv) summarizing the gender dimensions of Indian watershed implementation programs. FP4 (VCR) is actively contributing to developing new methodologies to address gender in the water variability and competing use space, and in 2018, will continue a study on gendered outcomes of index-based flood insurance and identification of entry points for such insurance products to benefit women.

Other key studies planned include:

- A study on *Gender Differences in Land Management and Land Degradation in Uganda* (FP1: RDL)
- Work with *Millennium Challenge Corporation on gender and social inclusion in economic analysis tools* (FP4: VCR)
- A study on *The role of gender in resource reuse and recovery for energy interventions* (FP3: RUL)
- A study on the *Nexus between Irrigation, Nutrition, Health, and Women's Empowerment* in northern Ghana (FP2: LWS)

The GYI Theme will build on several of the activities started in 2017, including the increased focus on migration and its links with gender and youth, in connection with the WLE-IWMI established Migration, Agriculture and Resilience: Initiative for Sustainability ([MARIS](#)) network, through a series of stakeholder

dialogues in Africa and Asia. The expected outcome is a series of reports and policy briefs/position statements that will be shared with donors and governments to encourage more inclusive and sustainable migration interventions, CRP collaborative concept notes and funding ideas under the GYI umbrella for 2018. These are the result of the continuous cross flagship/CRP/Center dialogues that WLE has been encouraging since the start of Phase 2.

The cross-cutting themes of GYI and Capacity Development (CD) are exploring collaboration opportunities with two Africa-based institutions that focus on gendered capacity building and gender research training, namely AWARD and GREAT. With these two institutions, WLE is planning to develop gender research capacity building activities that will fit the needs of male and female social and biophysical scientists involved in WLE.

WLE now primarily delivers its CD work through advising decision-makers, which strengthens policies, programs and planning, as well as institutions. In addition, WLE has placed more emphasis this year on tools, methods, apps and online platforms that are aimed at providing open access data, information and advice, which is a form of capacity strengthening, because it provides the means by which institutions can improve their planning and implementation, as well as monitoring and regulation.

WLE continues to invest in the capacity of future scientists, such as hosting, training and mentoring interns, graduate students, and post-docs from countries such as Burkina Faso, Niger and Ethiopia. Some 'downstream' training with development of materials for farmers and local subject matter specialists (e.g., extension), does take place, (e.g. the "On-farm practices for the safe use of wastewater in urban and peri-urban horticulture" manual currently pending approval by FAO), but this is less of a primary focus, noting the results of the CGIAR level evaluation on CD which suggested CG's comparative advantage is at a higher level.

The optional [Table C](#) on cross cutting deliverables has been completed, however results are not considered entirely representative, as indicated in the explanatory note.

1.5.2 Open Data and Intellectual Assets

In 2018, WLE will finalize and launch its data platform, allowing access to WLE data through one portal, while sharing data across partner centers and the CGIAR platform. This will bring more organized and accessible data to decision-makers and researchers to help them respond to critical policy and research questions. WLE is putting in place a distributed subsidiarity approach in which WLE partners manage their own data and data storage. WLE aggregates and harvests data from these existing data sources, using a simple and easily accessible system. We will continue to collect metadata and datasets from researchers to populate the platform.

WLE follows all policies and procedures of the lead center (IWMI) on Intellectual Assets (IA) management and information, and knowledge dissemination to ensure compliance with the CGIAR Principles on the Management of Intellectual Assets and global Open Access. WLE Partner Agreements contain clauses on Intellectual Assets that are in compliance with the CGIAR Principles on the Management of IA.

2. Planning for CRP Effectiveness and Efficiency

2.1 CRP Staffing in 2018

As described in section 3.2, WLE's Management Committee (MC) will continue to strive to build strong collaboration both within the CRP and with partners, in order to deliver the added value of WLE. To note:

- WLE will continue to ensure an efficient Program Management Unit (PMU), with clear roles and responsibilities based on agreed work plans, with an operational model reviewed on a regular basis to facilitate value for money.
- An adjustment has been made to the WLE GYI Coordination role position to build in greater cross-working and engagement in GYI from WLE partner Center specialists. The WLE GYI Coordinator now works alongside GYI Focal Points for each flagship, to which specific WLE resources have been assigned. The GYI Coordinator will hold responsibility for portfolio level issues, whilst also providing close support to the Gender Focal Points, who will work directly with Project Leaders on integration, as well as Flagship level syntheses and other Flagship level GYI deliverables.
- Following a significant investment in Monitoring Evaluation and Learning (MEL) over the last three years, WLE has now put in place solid MEL foundations, with evaluations and assessments set to begin this year. Given this, following a similar model employed by some other CRPs, WLE has created efficiencies by moving MEL staffing to a consultancy basis in 2018. This allows the resources available for MEL to be divided between externally commissioned evaluations and a lighter touch coordination.
- At Flagship level, now that Flagship 5 is in receipt of W1/W2 funding, the staffing of the Flagship will evolve from the temporary arrangement in 2017. The WLE Program Director retains Flagship Leadership, with support from a core team of FP5 contributors from Bioversity, ICRAF, IFPRI and IWMI. Staffing, and in particular, options for leadership will be reassessed in 2018.
- Staffing for the coordination of the other Flagships remains as described in the proposal, although whilst Jennie Barron remains co-Leader of LWS, she is now based at the Swedish University of Agricultural Sciences (SLU).
- In the PMU, Adam Hunt has joined the team as the new Communications, Engagement and Knowledge Management Coordinator.
- If WLE were to receive additional resources this year or in future, these would be used to significantly improve communications and engagement to be able to more effectively showcase and make accessible the wealth of knowledge across the CRP.

2.2 Financial Plan for 2018, including use of W1/W2

According to the 2018 CGIAR Finance Plan (FinPlan), the W1/W2 allocation to WLE would be \$8.9m, under 'stretch funding' conditions ([see Table E](#)). Following the advice of the FinPlan to budget at 15% below this figure, WLE has planned its work on the basis of \$7.6m of W1/W2. This more conservative budgeting approach will not only help WLE to reverse the trend in recent years of having to apply funding cuts late in the year, but also, of the \$7.6m, \$200,000 has been maintained as a competitive grant fund, the criteria for which will be designed to further incentivize strategic results. Should CGIAR "stretch funding" materialize, these criteria will be applied to the allocation of the additional funds.

The 2018 total W1/W2 of \$7.6m is similar to the 2017 budget, yet from this year, Flagship 5 is receiving W1/W2, which means adjustments have had to be made across all Flagships. WLE's strategy has been to review Flagship 5's planned results and restrict activities to two lower cost areas, whilst also building on Phase 1 work and relevant existing work ongoing in the AFS CRPs.

This year, particular emphasis will be placed on Flagship level, cross-project work. Activities funded are described throughout the document, but include:

- Synthesis of gender dimensions of India watershed implementation programs (LWS) and gender and irrigation developments in SSA (LWS).
- Providing tools and options for improved management, benefit generation and sustainability in revitalized and new irrigation systems development (LWS).

- RDL will bring together its work on land restoration, for example through developing business cases and intervention designs in Ethiopia, Kenya and Uganda, and through synthesis of the effectiveness of land restoration projects in Kenya, Tanzania and Ghana.
- Continued development of RUL tools and curricula e.g. MOOC, RRR and Urban Linkages publications.
- In VCR, W1/W2 will support, inter alia, conjunctive management of surface and groundwater to reduce trade-offs associated with competing uses of water in transboundary basins, and approaches to enhance benefits from surface water storage.
- The newly oriented Flagship 5 is largely supported by W1/W2 funding in 2018, beginning with a synthesis of knowledge on decision support for enhanced sustainability in agricultural landscapes, and an evidence review of the political economy of decision-making. Stronger partnerships with RTB, RICE and FTA will also be forged.

W1/W2 resources will be invested in outreach, through which WLE aims to build awareness of, and capacity for, credible solutions, which can attract development financing. CGIAR partnerships are key, as described in [Table G](#) and section 2. Key investments are described throughout this document, but include:

- A year-long “Nature based solutions for water” campaign via international events and media.
- Sessions on behalf of the CGIAR at the EAT forum (WLE).
- Intensified engagement with AFR100 (RDL).
- New representation on the UNCCD Committee of Science and Technology (RDL).
- Hosting a Tropentag session on ‘Land Restoration and Migration’ (LWS).

All Flagships will invest in coordination activities this year to bring out the best results from the wealth of research within, such as:

- The second meetings of the Flagship teams for RDL and LWS, the latter of which will align with ASABE-ISAIE (American Society of Agricultural and Biological Engineers – Indian Society of Agricultural Engineers) joint conference on Global Water Security for Agriculture and Natural Resources.
- Initiating MEL plans is also high priority e.g. ex-ante modelling to explore the potential and assumptions of the Flagship impact pathway (LWS).
- Studies will be conducted on gender impacts of restoration projects in Columbia, Peru, and Tanzania, and on factors assessing success and failure of restoration projects in Ethiopia.

W1/W2 funds the Gender, Youth and Inclusivity theme, through the activities described in section 1.5, as well as maintaining the Program Management Unit’s (PMU). The PMU works to enhance program coherence, value for money and the impact of flagship research through: Management; Knowledge Management, Engagement and Communications; Monitoring, Evaluation and Learning.

W1/W2 continues to finance catalytic activities that leverage bilateral investments and enhance the value and impact of research evidence derived from across the portfolio. Based on the research portfolio for the year ahead, 72 % of WLE’s research agenda in 2018 is expected to be supported by W3/bilateral funding. New proposals are being developed to attract further funds for key areas of research, e.g.:

- To BEAF (German Advisory Service on Agricultural Research for Development) - RRR in Refugee camps in Eastern Africa; standards for institutionalizing RRR in funding organizations.
- Partnership with University of Reading on a Global Challenge Research Fund (GCRF) proposal to create an inter-disciplinary research hub on soils, which will deliver solutions for the management of soil resources on a globally significant scale to improve sustainability of food production, particularly in regions where fragile and degraded soils present a constraint to development.
- RDL partnering with European partners through the World Soils Information (ISRIC) on responses to European Commission Horizon 2020 calls.

2.3 Collaboration and Integration

2.3.1 New Key External Partnerships

Program level and Flagship 5 (ESA):

- Discussions are taking place with international initiatives such as the Food and Land Use Economy Initiative (FOLU) to explore potential collaboration.
- A partnership with the Center for Development and Environment (CDE), University of Bern, Switzerland is under discussion. CDE can bring a wealth of experience in research – policy approaches, and social learning in conjunction with decision support for sustainable land and natural resource management.
- There is also a much stronger emphasis on working with end users, who are working on delivery of more sustainable agricultural landscapes, than the original focus on international networks and partnerships from the original proposal.
- Flagship 5 will also continue collaboration with the BRIDGE initiative, which seeks solutions that support health, development and environmental outcomes.
- WLE is also in discussion with GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) to secure an expert to be assigned to the Scaling Task Force from the Centre for International Migration and Development (CIM) to support FP5's work on scaling.

Flagship 1 (RDL):

- A new, innovative not-for-profit company "Innovative Solutions for Decision Agriculture" is being created to scale WLE advances in soil-plant spectroscopy and data-driven approaches to influencing investment and policy decisions in soil health and fertilizer use. The founders are Rothamsted Research, ICRAF and the International Institute of Tropical Agriculture (IITA). The company will build on advances made under the Africa Soil Information Service and aims to build scalable digital applications for improving the management of soils and croplands that enable governments, companies, non-commercial organizations and farmers to achieve higher returns.
- Exploring strategic partnerships with private investors, Africa Innovations Institute (AFRII) (Uganda) and Eco-Planet Bamboo (Kenya) towards developing a "client-driven" business case for financing land restoration in Southern Uganda
- Strengthening partnership with the fertilizer businesses, and the OCP Group in particular, a global market leader of phosphate fertilizer. OCP is planning to step up support for soils and fertilizer research in African laboratories for the smallholder farming sector. In particular, a global market leader of phosphate fertilizer. OCP is planning to step up support for soils and fertilizer research in African laboratories for the smallholder farming sector.
- CIAT and ICRAF have become officially recognized technical partners of AFR100. RDL has appointed a dedicated focal point for AFR100 to strengthen visibility and reach of WLE through engagement in official AFR100 partnership meetings, and gain insights from AFR100 country focal points on their perception of barriers and opportunities for achieving AFR100 goals.

Flagship 2 (LWS):

- The Zimbabwean National Department of Irrigation, within the Ministry of Lands, Agriculture and Resettlement, has been taken on as a major partner for the scaling phase of the Sub-Saharan Africa irrigation work in collaboration with ACIAR.
- Aligned with a major new bilateral initiative funded by the GCRF, the University of Cambridge, and University of East Anglia, the MS Swaminathan Research Foundation will bring a new focus on bringing a more socially and environmentally sensitive 'Green Revolution 2' to India which prioritizes gender, diversity and behavior change communication.
- Across multiple agro-ecologies in Ethiopia, GIZ is an important partner for testing Integrated Watershed Management technologies and practices with local communities.

- Agricultural Transformation Agency (ATA) has approached IWMI for technical support on a solar pump baseline survey impact assessment in Ethiopia.

Flagship 3 (RUL):

- In support of RUL's outcome on 'Increased business capacities in nutrient, water and energy recovery from waste', IWMI signed memorandums of understanding with two municipalities and two private sector partners in Sri Lanka to produce and test waste based fertilizers this year.
- New partnerships with municipalities are also being pursued under RUL's city region food systems work, for example with CONQUITO, the Economic Development Agency of the Metropolitan District of Quito and the Universidad Nacional de Colombia.

Flagship 4 (VCR):

- With DHI-GRAS through the European Space Agency's Earth Observation for Sustainable Development (E04SD). E04SD is a new ESA initiative which aims at increasing the uptake of Earth Observation based information in regular development operations at the national and international level. DHI-GRAS, as an implementation agency for this initiative, will work with IWMI on the assessment of watershed vulnerability in Lao PDR as part of an ADB funded initiative.
- Exploring opportunities for collaboration with Deltares, the London School of Hygiene and Tropical Medicine (LSHTM), which spearheads such work under A4NH, and Politecnico di Milano (POLIMI) to extend its work on water storage and malaria. LSTMH will bring links to health science expertise, with potential to enhance resources mobilization efforts. POLIMI complements IWMI water management expertise (including modelling), which is important for situating potential changes in dam operating practices in a broader context. Deltares brings the link to ecosystem health and can also support resource mobilization initiatives.
- The GRIPP initiative plans to extend its partnership network in relation to sustainable groundwater management, though greater consideration is now being given to assess exactly what potential new partners can contribute to the GRIPP consortium.
- In Central Asia, VCR will collaborate with the Tashkent Institute of Irrigation in Uzbekistan and the Tajik Agrarian University in Tajikistan to organize joint conferences and seminars for dissemination of results in relation to improving water use efficiency and water management in transboundary basins.
- Preliminary moves to collaborate with non-typical private sector companies will be initiated and followed-up on in 2018. This includes: i) estudioOCA, an international landscape architecture and sustainable urban design studio on possible initiatives on urban wetlands; and ii) Natel Energy, a company specializing in innovative hydropower designs that seek to complement WEF nexus solutions and restore natural infrastructure.
- Collaboration with the Food, Energy, Environment and Water (FE2W) network will continue as well as relationships with US universities through collaborating on large proposals under the US NSF INFEWS funding program.

2.3.2 New Contribution to and from Platforms

The GYI theme will continue its strong engagement with the CGIAR Collaborative Platform for Gender Research, as noted in Section 2.3. WLE will be one of the contributing partners for the platform's 2018 scientific conference in Addis Ababa in September this year, and will continue to engage with the CGIAR and wider Gender in Agriculture community through webinars, online discussions, opinion pieces and social media posts.

Data will be shared across the new WLE data portal with the Big Data platform. Discussions among the respective communications teams are exploring opportunities to enhance the use of data in storytelling and engage journalists with CGIAR data.

2.3.3 New Cross-CRP Interactions

WLE is placing considerable emphasis in the coming year on furthering existing and fostering new partnerships with other CRPs. There are several new areas of collaboration, which build on the commitments elaborated in the Phase 2 Proposal, and are described in full in [Table G](#). These collaborations fall into the following categories:

- *Pooling evidence across CRPS for greater policy engagement and influence:* e.g. bringing together FTA's work on forest restoration, WLE's on soil and land restoration and watershed management, and PIM's on institutional and governance arrangements for better decision-support.
- *Responding to new demands for knowledge on specific inter-CRP areas:* e.g. initiating work with A4NH on links between water, food and disease; and with FISH on how to better exploit opportunities for integrated fish and water management; and providing advice on soil health to MAIZE and RTB, using the newly developed soil-plant spectroscopy technologies.
- *Advancing understanding of new approaches to integrated natural resource management:* e.g. improving the evidence on potentials for carbon sequestration through rangeland management with LIVESTOCK, and on circular economy approaches such as the use of wastewater in aquaculture with FISH.
- *Delivering insights on wider scale impacts of crop and farming system level interventions on sustainability:* e.g. developing an approach and framework that better enables management of trade-offs at landscape scales with RTB and RICE.

2.3.4 Expected Efforts on Country Collaboration

The approach adopted by WLE FP 5 has collaboration across other CRPs at the heart of its approach. Ethiopia, Uganda and Myanmar are being considered as possible case study collaboration countries for FP5. These have been selected because of the presence and clustering of other CRPs/Centers in these countries.

WLE remains ready to participate in CGIAR country collaboration efforts as they emerge, such as came into place last year with the need to register CGIAR activities with the Government of Kenya.

2.4 Monitoring, Evaluation, and Learning

2018 promises to be an exciting year as WLE implements plans for robust monitoring, evaluation and learning, described in [Table H](#). All Flagships will review their results frameworks and finalize indicator reference sheets, with reflection workshops on ToCs expected to be held for two Flagships. Based on an exercise to identify evaluations, outcome stories and impact assessments appropriate to the CRP Theory of Change, it is expected that the first WLE thematic evaluation will be initiated this year.

A simple mechanism for performance-based management will be put in place, closely following the process, as well as the timetable, to be adopted by the CGIAR. The annual report process this year will include outcome story selections to provide evidence that change is happening, data collection and development to foster institutionalization and internalization of learning processes. Learning will also be a focus within the Management Committee, with the end of the year MC meeting to include a "360" type review. A joint assessment of the tools and methods adopted to enhance integration across the Global Integrating Programs (i-CRPs) is in process of discussion and may take place before the end of the year.

For the first time, WLE will use Managing Agricultural Research for Learning and Outcomes (MARLO) for reporting. The new system will allow Flagship Leaders to improve oversight of contributing projects, based on annual reporting against the results framework. WLE will continue to provide coaching for

MARLO users and improve the quality of the data collected, engaging with the multi CRP “MARLO family” to continuously review and enhance the system for all users.

3. CRP Management

3.1 Management of Risks to Your CRP

IWMI has recently updated its Risk Management procedures to more effectively manage the potential outcomes of risks and apply timely mitigation measures. In line with these procedures, WLE undertakes a detailed self-assessment annually, which is subject to regular internal as well as 6 monthly review by the IWMI Board. The majority of the risks faced by WLE are classified as minor or moderate and can be managed with low level actions. Those in the moderate category include:

- Identifying appropriately skilled new members for the ISC;
- Application of a clear staffing plan to ensure that gender and MEL related targets are delivered on and monitored;
- Dedicating sufficient time and resources to MARLO development and data entry to ensure that research impacts and progress are well recorded.
- Political-social instability in some countries of WLE’s work, e.g. Ethiopia, Burkina Faso and Zimbabwe. Researchers follow the security and safety advisories of their Centers on these matters, and WLE applies adaptive management as needed.

The risk that has the potential for more serious impacts to WLE relates to financial resources. The program is currently operating in the context of lower W1/W2 funding (11% less than budgeted in the Phase 2 Proposal, if CGIAR stretch funding targets are met, or 24% less if these targets are not met). WLE is now planning conservatively to manage this risk, but it remains important to highlight:

- Whilst the CGIAR SMO is taking important steps in streamlining many aspects of CRP management, the associated administrative transactions remain high, and proportionately much higher for the smaller CRPs, such as WLE. In 2018, WLE will continue carefully examine how to better allocate WLE resources to key planning, financial management, reporting, monitoring, learning tasks, and to identify where further efficiencies can be made. Measures have already been taken, for instance, adjusting how the GYI and MEL positions are structured. However, new measures take time to settle in, and at the outset, need to be carefully monitored to ensure that delivery is maintained.
- The added value of a Globally Integrating CRP, such as WLE, is to ‘integrate’ work across the CGIAR, bringing together relevant areas of research across from across other CRPs and Centers for greater critical mass, or to reduce duplication across the System. However, as the W1/W2 resource gets tighter there is a tendency for Centers to prioritize Center-only research, as opposed to cross-Center research. WLE has W1/W2 allocation criteria that incentivize collaboration, however, this remains a challenge. In addition, a CRP’s W1/W2 funds should be used strategically, either to provide the ‘glue’ which helps bring together and promote evidence and the higher level messages that bilateral funds cannot do alone, or help support new and/or more innovative research, for which it is harder to generate bilateral funds. Again, WLE applies criteria to allocate W1/W2 in these areas, but it is a challenge to cover all of them, effectively.

WLE is fortunate to have four supportive Windows 2 donors, and has one of the highest W2:W1 ratios. WLE strives to respond to these donors’ needs and requests as far as possible and is implementing ‘contact strategies’ for each W2 country (which doesn’t mean approaching the donor direct). Continued efforts to diversify funding sources also must remain a key strategy for WLE. This does bring its own risks however, including the opportunity costs of investing senior staff time in partnership and proposal development, all in a more competitive funding environment.

3.2 CRP Management and Governance

Independent Steering Committee (ISC)

- WLE is pleased to welcome Peter White, COO of the WBCSD (World Business Council for Sustainable Development) to the ISC.
- A number of members will reach the end of their terms this year and staggered approach to rotation will be implemented, with the Chair, Johan Rockström and two other members, expected to step down after this year's face-to-face meeting in June 2018.
- IWMI's new Director General since late 2017, Claudia Sadoff, has already taken up her seat as an ex-officio member of the ISC.

Management committee (MC)

- WLE's MC will focus efforts this year on Monitoring, Evaluation and Learning (section 2.4), as well as on collaboration with partners across the CGIAR (section 2.3) and in engaging in strategic efforts to bring added value to the breadth of knowledge across the program to achieve the results described in [Table A](#).
- For the first time, the Management Committee will engage in a "360" style review exercise in its meeting in the last quarter of 2018, in order to better incorporate a culture of feedback loops into the program and ensure that we learn from past experiences.

Project Management Unit (PMU)

- The PMU begins the year with agreed workplans to support the Flagships, tackle MEL, and build support for our solutions through Knowledge Management and Communications (KMC). MARLO will be fully operational, with WLE an active member of the MARLO family, which is striving for timely completion of the MARLO's reporting module as well as improvement on the planning side. The PMU team is providing active support and training to WLE project leaders in order to improve the quality of the data entered on the system.
- A WLE operational plan, a compendium of best practice and procedures, will be compiled based on management lessons and experiences, and in order to streamline future operational decision making.
- KMC developed its first comprehensive strategic plan for more effective research promotion and uptake. New directions include synthesis products (e.g. landscape toolkit, knowledge brief on gender), enhanced media engagement, development of brand new key messages and potential use of new tools such as multimedia stories and podcasts.

Table A: Planned Milestones

Table A1: 2022 CRP outcomes mapped to sub-DOs with contributing budget

FP	Mapped and contributing to Sub-DO	2022 CRP outcomes for each FP	2018 Budget W1/W2 (USD 000s)	2018 Budget W3/Bilateral (USD 000s)
F1	Increased resilience of agro-ecosystems and communities, especially those including smallholders	1.1 Better informed landscape restoration policies, approaches and interventions	816	4,963
	Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use	1.2 Policies, strategies, and interventions investing in practices that rehabilitate or protect soil fertility and soil carbon	432	858
	Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research	1.3 Strengthen approaches to the monitoring and evaluation of land restoration and the assessment of land degradation risks	741	1,019
F2	Reduced smallholders production risk	2.1 Policy and practice informed by more effective agricultural land and water management solutions and investment options	1,379	7,648
	Agricultural systems diversified and intensified in ways that protect land and water	2.2. Improved management of new and revitalized medium to large scale irrigation schemes	425	3,014
F3	Conducive agricultural policy environment	3.1. Increased capacity and evidence for male and female stakeholders and policy makers to implement urban and peri-urban agriculture (UPA) related policies and farming system innovations	332	400
	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	3.2 Increased business capacities in nutrient, water and energy recovery from domestic and agro-industrial waste for intensified food crop production	843	1,595
	Enhanced capacity to deal with climatic risks and extremes	4.1. Risks associated with water variability mitigated	686	1,621

F4	More productive and equitable management of natural resources	4.2. Uptake of solutions and investment options better able to address tradeoffs across competing water-energy-food needs	935	2,225
F5	Increased capacity for innovation in partner development organizations and in poor and vulnerable communities	5.1: Decision makers are better able to access relevant evidence, tools and expertise to design and manage natural resource management (NRM) and agriculture programs that deliver more effectively against multiple SDG targets across scales	388	808
	Agricultural systems diversified and intensified in ways that protect land and water	5.2: NRM and agricultural development programs that apply WLE approaches and use tools are more cost-effective and avoid negative trade-offs between SDGs across scales	388	1,385

Table A2: Planned milestones by flagship and assessment of risk to achievement

FP	2022 CRP outcomes for each FP	Milestone*	Means of verification	Assessment of risk to achievement
F1	1.1 Better informed landscape restoration policies, approaches and interventions.	2018 - Synthesis report of factors affecting success and failure of restoration initiatives (enabling factors and incentive schemes) leading to recommendations for the design of new restoration initiatives.	Synthesis Report	Low
		2018 - Innovative investment packages and restoration pilots that implement incentives and enabling conditions for the adoption of sustainable and equitable restoration interventions in progress in 3 countries.	Dedicated brief milestone report summarizing the cases and adding proofs (correspondences, photos, news outlets etc.) for RDL scientists' attribution. Clear attribution to RDL impact may be a challenge in some countries.	Medium
	1.2 Policies, strategies, and interventions investing in practices that rehabilitate or protect soil fertility and soil carbon.	2018 - Knowledge products (reviews, tools, methods, maps, statistics, and other noteworthy research outputs) on soil carbon sequestration in East Africa are presented/discussed with key stakeholders at two international conferences.	RDL presence at East Africa Soil Carbon workshop; Global Landscape Forum (GLF) "Restoring Africa's Degraded Lands" event in Nairobi (Aug.), GLF in Bonn (Dec.); International Conference on Agricultural GHG Emissions and Food Security	Low
		2018 - Predictive models to quantify the potential for soil carbon sequestration under differing management in tropical soils and landscapes developed and submitted for open-access publication in an international peer-reviewed journal.	Technical report and model code or functions open-access	Low
		2018 - At least two Kenyan county governments include methodological guide and farm-level decision support systems on estimating and measuring soil carbon and fertility at various scales into their soil and landscape restoration planning and monitoring.	Published county government soil and land restoration plans; stakeholder workshop reports documenting related commitment approved by the county governments.	High
		2018 – Understanding of gender, social and economic barriers to, and drivers of adoption of, soil conserving management practices gained in two countries, and insights shared with policymakers in these countries.	Peer-reviewed journal publication	Low

	1.3 Strengthen approaches to the monitoring and evaluation of land restoration and the assessment of land degradation risks.	2018 - Decision Analysis Framework for Planning and Performance Measurement of Land Restoration Initiatives applied to UNCCD Land Degradation Neutrality case study and one land restoration project and improved based on feedback from stakeholders.	Journal article, Workshop reports. Risk depends on FP5 identification of land restoration project and workshop planning.	Medium
		2018 60 National scientists (20% women) trained and supported in applying low cost soil and plant health measurements using dry spectroscopy for targeting and monitoring land restoration in 8 countries (Ethiopia, Ghana, Kenya, India, Malawi, Nepal, Nigeria, and Tanzania).	Training course reports	Low
		2018 - Online tool set for management, analysis and application of soil-plant infrared spectroscopy data, including Africa soil property prediction, tested with 8 national labs, and improved based on feedback (Ethiopia, Ghana, Kenya, India, Malawi, Nepal, Nigeria, and Tanzania).	Tool available online	Low
F2	2.1 Policy and practice informed by more effective agricultural land and water management solutions and investment options	2018 -Phase 1 and 2 gender tools refined to enable application by policy and investment actors in 2 countries, and the implications of Phase 1 and Phase 2 gender analyses communicated through presentations to policymakers and investors at 3 events.	Revised gender tools; Travel reports and presentations	Medium
		2018 - At least 3 LWS investment options/ business models refined and shared with public and private sector institutions in 2 countries	Revised business models; Workshop reports and presentations	Medium
	2.2. Improved management of new and revitalized medium to large scale irrigation schemes	2018 - Two African medium or large-sized irrigation schemes monitoring irrigation performance and showing increases in farmer incomes, gender equity and ecosystem services delivery.	Evaluation reports/impact assessments from irrigation schemes	Medium
		2018 - Synthesized knowledge around technical, management and policy “levers of change” used in triggering new opportunities for scaling of at least 5 farm/field level innovations in irrigated systems in 2 countries	Scientific Publications, reports and presentations	Medium
F3	3.1. Increased capacity and evidence for male and female	2018 - 2 additional cities adopt a monitoring system for UPA/City Region Food Systems (CRFS) related innovations (for a total of 5 cities).		Medium

	stakeholders and policy makers to implement urban and peri-urban agriculture (UPA) related policies and farming system innovations		City reports, data repository system/institutional agreement to put data collection in place	
		2018 - 5 cities implement Milan Urban Food Policy Pact with WLE Facilitation	City reports, city food strategy/program, and/or project reports on adopting Milan Actions	Medium
		2018 – 7 reports providing in-depth and focused food and farming system analysis in a minimum of 7 cities (Nairobi, Quito, Colombo, Cali, Palmira and 2 African Cities)	Research reports (minimum one per city)	Medium
	3.2 Increased business capacities in nutrient, water and energy recovery from domestic and agro-industrial waste for intensified food crop production	2018 - Private Sector Facilitates field trials for waste-based soil rehabilitation established in Sri Lanka, including 18,000 ha under coconut, tea and rubber.	Research reports.	Low
		2018 – 16 Business models for resource recovery from fecal sludge promoted through ongoing free Massive Open Online Courses (MOOC).	MOOC and curricula provider report and public MOOC/curricula information.	Medium
		2018 - FAO Adopts revised handbook on wastewater management for irrigation	FAO publication records.	Low
		2018 - Gender and Resource Recovery case studies referenced by stakeholders	Citation index.	Low
		2018 - Advisory services (including technical support, policy guidance, guidelines etc.) for adoption and replication of resource oriented solid and liquid waste management in small towns (up to 8000) established for World Bank and Government of India.	Reports on technical support, policy guidance, and guidelines developed.	Low
	4.1. Risks associated with water variability mitigated	2018 - Index Based Flood Insurance business model published	Business Model published. Report on equity considerations published	Low
		2018 - Regional flood and drought forecast and early warning tool developed for India/Sri Lanka with associated protocols distributed to relevant government agencies.	Publication of tools. Workshop reports with national and regional government agencies	Low
	4.2. Uptake of solutions and investment options better able to address tradeoffs across competing water-energy-food needs	2018 Groundwater information for Africa is used by 2 governments in their planning processes	Statements by government agencies. Video documentations. Workshop Reports	Medium

		2018 - 2 or more tools for addressing tradeoffs across the water-energy-food nexus published	Publication of tools, workshop reports with national and regional government agencies.	Low
		2018 - Capitalizing on the international focus on “nature-based solutions for water” in 2018, contribute to international dialogue through participation at 3 or more awareness raising events (e.g. World Water Forum, World Water Week, IPBES Conference of the Parties (COP) and Ramsar COP) and at least 5 communications pieces/products that highlight nature-based solutions that contribute to reduced trade-offs and sustainability.	Documentation of events. Published communication pieces	Low
F5	5.1: Decision makers are better able to access relevant evidence, tools and expertise to design and manage natural resource management (NRM) and agriculture programs that deliver more effectively against multiple SDG targets across scales	2018 - Publication of an approach and framework for supporting decision makers to manage better trade-offs arising at scale from field level farming activities	Publication of tool	Low
		2018 - Publication of refined decision analysis approaches for a better fit to NRM/sustainable agriculture decision making at the landscape scale	Publication of tool	Low
	5.2: NRM and agricultural development programs that apply WLE approaches and use tools are more cost-effective and avoid negative trade-offs between SDGs across scales	2018 - Work plans finalized for 3 new partnerships in three different farming systems (RTB, RICE, FTA)	Finalized Work Plans	Medium

Table B: Planned Studies for Relevant Outcomes and Impacts

WLE has started investigating which evaluations and impact assessments to be implemented during the course of the CRP. The 2018 list of studies confirmed to date are listed first. However, there are several other areas currently under discussion which WLE aims to pursue, and aims to confirm a sub-set of these by July. Longer term plans are also mentioned below (2018-2022), however, these are still subject to adjustment or replacement.

Planned topic of study	Geographic scope	Relevant to Sub-IDO, or SRF target if appropriate	Comments
2018 Studies (confirmed)			
RDL: Determine the effect of land restoration options on the sustainability of livelihoods of farmers	Colombian and Peruvian Amazon	Enhanced conservation of habitats and resources	Early stage impact assessment. Part of the “Sustainable Amazonian Landscapes” project led by CIAT and funded by IKI-BMUB. As a first stage evaluation, the aim is to capture immediate impacts on yields, income, qualitative well-being indicators and soils characteristics.
LWS: Impact of irrigation on women’s empowerment and nutrition outcomes, through Innovation Lab for Small Scale Irrigation (ILSSI) and Sustainably intensified production systems impact on nutrition' (SIPS-IN)	Ethiopia, Ghana, Tanzania	Reduced smallholders production risk	While not designed as an impact assessment, ILSSI (2014 – 2018) assesses within limits imposed the impacts of small-scale irrigation on women’s empowerment of small-scale irrigation on dietary diversity (and other nutrition indicators). SIPSIN further tests the impacts of small-scale irrigation on anemia and malaria with actual measurements of both. Some of the small-scale irrigation interventions that are included in the analysis were designed and developed by CGIAR and others not.
LWS: Integrated Land and Water Management for Adaptation to Climate Variability and Change (ILWAC) – Results and Impacts Evaluation Assignment	West Africa	Resilience to climate change and other shocks	The evaluation will assess results and impacts of the ILWAC projects supported under the World Bank’s Danish Trust Fund in West Africa including: the identification of key lessons learnt; documentation of best climate-resilient practices for scaling up; verification and dissemination of key results within national stakeholders in Africa; and, collaboration to generate a knowledge product for publication. Led by IWMI with CIAT and IFPRI collaboration.
VCR: Impact of irrigation on agricultural productivity, nutrition and health and women's empowerment	Northern Ghana	Reduced smallholders production risk	This is a motor pump randomized control trial in northern Ghana that is ongoing.

VCR: Assessment of the impact of sustainable land management practices on water security and gender	Two watersheds in Ethiopia	Reduced smallholders production risk	This is a small study to assess the impact of sustainable land management practices on water security and gendered outcomes, embedded in the “REACH Improving Water Security for the poor” project led by IFPRI. The study uses a household survey applied to two watersheds, one with substantial land management interventions and one without substantial interventions. The subsequent analysis uses econometric approaches to understand the impacts of the interventions on water security at the household level and separately for women in the households.
VCR: The impact of Index based Flood Insurance work in South Asia	South Asia	Increased household capacity to cope with shocks	Ex-post evaluation, comprising both qualitative and quantitative assessments with the participation of women and men, land owners and landless groups, large and small farmers and insurance receivers and non-receivers.
RDL/VCR: Study to assess the impact of a series of land restoration practices in the upper and middle Shire river basin aimed at increasing hydropower productivity in Malawi.	Shire River Basin, Malawi	Increased resilience of agro-ecosystems and communities	MCC's Compact for Malawi focuses on energy security. A small amount of funding was provided to 14 NGOs to implement a series of Sustainable Land Management (SLM) activities and women's empowerment activities for SLM, which in turn would enhance hydropower productivity. IFPRI will contribute in minor form to a qualitative evaluation of the initiative. IFPRI's key activity is to review the data protocols and assess the potential impact of improved land management on hydropower productivity, using modeling tools (Remote sensing of land use change and a Soil and Water Assessment Modeling tool (SWAT)). On-going until 2021.
Potential (not yet confirmed) studies for 2018-2022			
RDL: Biophysical and socio-economic synthesis of the effectiveness of land restoration efforts in Kenya	Kenya	Land, water and forest degradation (Including deforestation) minimized and reversed	A significant amount of evidence and data on the impact of land restoration pilots in the Upper Tana Watershed in Kenya have been gathered. These data are mainly biophysical in nature. This assessment would focus on the socio-economic impact of landscape restoration on incomes and livelihoods of farmers.
RDL: Study of impacts of RDL, assessing WLE impact and Phase 1 work, in Ethiopia	Ethiopia	Improved capacity of women and young people to participate in decision-making	This would be a global meta-analysis synthesizing socio-economic constraints to land restoration. This activity would analyse the WOCAT (World Overview of Conservation Approaches and Technologies) and other available databases of SLM technologies to assess the different types of costs and other constraints to implementation. This evaluation would build on various review papers on land degradation, research carried out under WLE in the past, as well as the vast evidence of past and ongoing SLM projects in Ethiopia. Program level evaluation.
LWS: Ex-post evaluation of Comprehensive Assessment (CA) of Water Management in Agriculture (2003-2008)	Global	Agricultural systems diversified and intensified in ways that protect soils and water & Reduced	The CA program was led by IWMI with many partners and constituted an attempt to synthesize available knowledge on the water and food nexus and provide credible recommendations on future policies and investments. Its impacts and value added have never been formally assessed. The CA built on and consolidated the earlier pioneering work done by IWMI on mapping global water supply and demand,

		smallholders production risk	refining the concepts of “irrigation efficiency” and “water accounting” within a river basin systems perspective, and developing and applying the concept of “water productivity”.
RUL: Impact assessment of RUL’s aim to draw attention to RRR feasibility studies and business models/thinking	Global	Increased capacity for innovations in partner development organizations (Sub-IDO)	Conceptual target to bring business models into the RRR discussion in the waste and sanitation sector. An evaluation could start in 2019/2020, given the recent initiation of this work. Program level evaluation.
RUL: Impact assessment of RUL’s aim to draw attention to informal wastewater irrigation	Global South	Increased capacity for innovations in partner development organization (Sub-IDO)	Conceptual target to bring the benefits and risk mitigation options of informal wastewater irrigation into the attention of UN agencies, policies, and strategies. Program level evaluation.
RUL: Policy Impact in Ghana and Sri Lanka to facilitate RRR	Ghana and Sri Lanka	Enabling environment improved (IDO)	IWMI influencing fertilizer subsidy program in Ghana and Sanitation policy in Sri Lanka.
VCR: Impact of Sustainable Groundwater in Africa initiatives	Africa	Reduced smallholders production risk	Review the impact of the wealth of sustainable groundwater initiatives in Africa, eg Groundwater futures in Sub Saharan Africa, Sustainable Groundwater in Africa, amongst others)
ESA: An assessment of the utilization of the MESH model in large scale restoration investments	Multi-national	Increased capacity for innovations in partner research organizations	Bioversity with WLE and its partners has invested heavily in the development of an ecosystem service framework and now the MESH tool, which has been designed to support decision analysis and evaluation around the impact of large-scale investments in land-use change. Success of the project and program would be evidenced through the use of the program and its results specifically in the interventions of the Volta Basin Authority's Strategic Action Program, and secondarily its use by partner countries in evaluating the progress on the SDG's.

Table C: Cross-cutting Aspect of Expected Deliverables

This optional Table has been completed, however we urge caution when considering the results, for the following reasons: i) many projects may have a large component that is cross cutting (e.g. gender, or youth), but whilst it may be a large component in itself, when taken as a proportion of the whole project, which has multiple other deliverables, its contribution appears unjustifiably low, when expressed as a % of all other deliverables. This creates the impression that the Gender/Youth/Capacity Development is less important than it actually is; ii) by the same token, the number of gender deliverables does not reflect the percentage of the budget spent on gender; and iii) without clear cross-CRP guidance, it has been difficult to harmonize the ratings applied across the program. We recognize that this is a work in progress and welcome future guidance on this when it comes to reporting.

Cross-cutting	Number (%) scored 2 (Principal)	Number (%) scored 1 (significant)	Number (%) scored 0	Total overall number of deliverables
Gender	6.21%	23.50%	70.29%	451
Youth	0.22%	6.65%	93.12%	
CapDev	9.31%	31.49%	59.20%	

Table D: CRP Staffing

Category	Female	Male	Total	% female
Program director & flagship leaders (including GYI)	4.5	5	9.5	47%
Other science support staff (PMU only)	4.5	1	5.5	82%

Notes:

- Noting this is an optional table, it has been completed for PMU and Flagship Leaders only.
- WLE counts number of staff, not FTE, as the same staff perform various roles under the program (e.g. a FL can also be a Principal investigator and senior scientist), with the exception of the 1 Flagship Leader and 1 PMU staff who are contracted on a part-time basis.
- ISC members are not counted

Table E: CRP Planned Budget 2018

Flagship/Cost Center	Planned Budget 2018 (\$US 000s)				Comments on major changes
	2017 Carry forward W1/W2	W1/W2	W3/Bilateral/ Center Funds	Total	
FP1	(23)	1,762	6,840	8,580	
FP2	102	1,580	10,661	12,342	
FP3	111	950	1,995	3,057	
FP4	50	1,394	3,847	5,290	
FP5		550	2,189	2,739	
Strategic Competitive Research grant		200	-	200	Funds will be allocated based on criteria that are likely to include performance as well as strategic and technical fit
Management & Support Cost	(43)	1,129	-	1,086	Management, Monitoring and Evaluation and Communications and Knowledge Management
Subtotal	197	7,565	25,532	33,294	
Research grants in case of "Stretch Funding"		1,335	-	1,335	WLE has budgeted on the basis of \$7.6m, based on the guidance in the 2018 FinPlan. If WLE receives more than this, additional funds will be allocated according to criteria to be agreed by the WLE MC and ISC.
TOTAL	197	8,900	25,532	34,630	

Notes:

- All GYI related funding is included in Flagship budgets
- This budget includes confirmed bilateral, W3 and Center funding as of 2 April 2018. Incoming information suggests that the total bilateral funding will increase, for example by at least USD 2 million in FP2
- As requested, we note that the bilateral contribution from WLE's Core non CGIAR partner, RUAF (FP3), will be at least USD 200,000 in 2018.

Table F: Main Areas of W1/W2 Expenditure

Expenditure area	Estimated percentage of total W1/W2 funding in 2018	Comments
Planned research: principal or sole funding source	72%	Most WLE W1/W2 funding supports research, some of which is new, or builds on existing research but in new areas or with new elements. Some of it leverages bilateral funding. These categories are not mutually exclusive and it is difficult to provide an estimate that distinguishes between these three categories.
Planned research: Leveraging W3/bilateral funding		
Catalyzing new research areas		
Gender	13%	This is based on WLE project budgets, together with the gender component of the PMU
Youth	1%	This is an estimate based on the deliverables strongly considered to incorporate youth
Capacity development	9%	This is an estimate based on the deliverables strongly considered to incorporate youth
Monitoring, learning and self-evaluation	2%	This is an estimate based on the MEL component of the Program Management Unit, plus some project specific budgets
Evaluation studies and Impact Assessment studies	2%	This is an estimate based on the MEL component of the Program Management Unit, plus some project specific budgets
Other: Strategic Competitive Research grant/Contingency	2%	Competitive research facility to be allocated to incentivize strategic action and good performance
Other: Residual unallocated funds, up to total allocation in FinPlan	15%	Will be allocated based on criteria to be agreed by WLE, if “stretch” funding target is reached.
Other: CRP Management and Communications	9%	PMU costs for Management, Administration, Knowledge Management and Communications
Total Funding (Amount)	USD 8,900,000	

Notes: Percentage calculation is based on the total potential allocation, according to the FinPlan, not the lower amount that has been programmed.

Table G: Collaborations among Programs and between the Program and Platforms

Name of CRP or Platform	Brief description of collaboration (give and take among CRPs) and value added*	Relevant FP
A4NH	<p>There will be joint A4NH – WLE workshop held at Stockholm Water Week (August 2018), entitled Water Use, Food Security and Disease: Achieving Healthy Outcomes. It will bring together medical, agricultural, environmental and social researchers and practitioners together to identify key and emerging risks and possible solutions.</p> <p>WLE FP3 (RUL) and FP4 (VCR) will collaborate with IITA, ILRI and LSHTM on water, agriculture, and vector borne diseases, initially focusing how climate change and other drivers affect mosquito habitats and how to manage water accordingly, including infrastructure such as dams for irrigation.</p> <p>Other evolving areas of mutual interest will be explored, such as possible agricultural cases of chronic kidney disease in tropical agricultural systems.</p>	FP5 – Improving Human Health
CCAFS	<p>WLE FP1 (RDL) will contribute the “Koronivia” document (led by CCAFS) to be submitted by the CGIAR System Organization in response to UNFCCC Decision 4/CP.23. RDL will also continue the strategic partnership with CCAFS through joint workshops, seminars, webinars and fund raising initiatives, to emphasize the role of soil carbon to mitigate climate change.</p> <p>WLE FP4 (VCR) will continue to collaborate with CCAFS on the study of managed aquifer recharge for flood mitigation with research pertaining to trials in India (led by CCAFS) and Vietnam (led by WLE). In addition the research conducted on index based flood insurance in India will also continue in 2018 as a collaboration between VCR and CCAFS.</p>	All
FISH	<p>WLE FP3 (RUL) will collaborate in the preparation of a compilation/comparison of business models for wastewater aquaculture. This expected co-production, and subsequent reports and advice will contribute to the evolving knowledge base in this area.</p> <p>WLE FP4 (VCR) will work with FISH FP2 around water efficiencies and integration of fish into water management schemes and multifunctional landscapes, overall seeking to better understand and exploit significant global opportunities for integrated approaches involving fish and water management.</p>	<p>FP1 - Sustainable Aquaculture</p> <p>FP2 - Small Scale Fisheries</p>
FTA	<p>WLE FP1 (RDL) will contribute to FTA land restoration projects by applying its decision analysis methods to improve evaluation and planning of interventions and to prioritize monitoring. This is a new area of collaboration, which builds on the existing support which RDL provides to FTA on land monitoring projects through soil-plant spectral analysis, e.g. for the sentinel landscapes initiative.</p>	FP4 - Landscape dynamics, productivity and resilience

FTA and PIM	The collaboration between WLE FP5 (ESA) and FP1 (RDL) and PIM and FTA aims to bring together complementary research and evidence on landscape restoration from across the three CRPs, and channel this in a user-friendly format, that delivers targeted advice to policy and investment processes on land restoration. Bringing the CG-wide collective evidence together in this way has stronger potential for greater influence and impact.	FTA FP4 - Landscape dynamics, productivity and resilience PIM FP5 – Governance of natural resources
GLDC	Collaboration between WLE FP2 (LWS) GLDC FP3 will be brought together to explore how GLDC work on farm level interventions and household bio-economic tools, could be brought together with FP2 (LWS) and FP5 (ESA) work on tradeoffs, and synergies and environmental impacts, to evaluate the impacts of sustainable intensification at watershed to landscape scale. For example evaluating the return on investment of a government scheme promoting farm ponds or contours; impacts of farmer managed contour bunding on water availability to a community.	FP3 – Integrated Farm and Household Management
LIVESTOCK	RDL will join forces with the Livestock and Environment Flagship to assess carbon stock and dynamics under rangelands in East Africa, and potential to minimize losses or to sequester carbon in these ecosystems through rangeland restoration and/or improved land management. This has brings together expertise on soil carbon dynamics from WLE/CIAT and grassland/rangeland management expertise from Livestock/ILRI.	FP4 - Livestock and the Environment
MAIZE	RDL is providing advisory, analytical and CD services on soil-plant spectroscopy, including through the Cereal Systems Initiative for South Asia (CSISA) and Taking Maize Agronomy to Scale in Africa (TAMASA) projects.	FP4 - Sustainable intensification of maize - based systems for improved smallholder livelihoods
RICE	The collaboration between FP5 and RICE seeks to identify how to work together to support the development of more effective methods to assess and monitor landscape level impacts of field level rice farming activities. This will build in work of RICE on field level data and assessments and WLE on indicator and tools development. WLE will invest in a workshop to further this collaboration.	FP3 – Sustainable farming systems
RTB	WLE seeks to leverage evidence-based policy advocacy geared towards sustainable intensification at the landscape scale. It will rely on farm-to-landscape level inputs from RTB, while in turn giving feedback on large (global, regional, national and catchment) scale processes affecting sustainability of intensification practices at farm to land scape level. The collaboration is envisaged to be piloted on case studies in Uganda in RTB systems. RDL is providing advisory, analytical and CD services on soil-plant spectroscopy, including through the African Cassava Agronomy Initiative (ACAI) project.	FP5 – Improved Livelihoods at Scale

*e.g. scientific or efficiency benefits

Table H: Planned Monitoring, Evaluation, and Learning Exercises

Planned studies/learning exercises in 2018	Comments
Indicator Reference Sheets	Review of indicator sheets to ensure that they are appropriate for efficiently tracking outcome level progress and will deliver credible and robust outcome level progress accounts (as required now by CGIAR CRP reporting)
Evaluation, Outcome Story and Impact Assessment Planning	Planning exercise to ensure that the CRP has identified evaluations, outcome stories and impact assessments appropriate to the CRP Theory of Change
CRP Thematic Evaluation: TBA after consultation	Planning for CRP-level evaluation on a topic of broad relevance to the CRP. The subject of this evaluation will be determined as part of the above planning exercise. The evaluation will be conducted in either 2018 or early 2019.
Flagship Theory of Change Workshops	The CRP will hold critical reflection workshops for up to 2 Flagships per year to review progress to date, and to ensure that new learning and risks are incorporated into the strategic planning of activities.
Results Framework Review	Review frameworks to reflect upon and update impact pathways, milestones and deliverables.
Review and implementation of a results-based management system	Develop and implement a simple, pragmatic results-based management system that is consistent with the CG-wide approach to performance-based management, and which creates the right incentives, and is fit for purpose for research-for-development initiatives.
Outcome Story Planning and Development	Outcome story selection, data collection and development to foster institutionalisation and internalisation of learning processes, and to collect outcome stories to provide evidence that change is happening.
Gender, Youth and Inclusion Outcome Review	Review to ensure that gender and youth are adequately captured through the MEL system of the CRP.
Joint i-CRP Integrative Tool Assessment	Rapid Assessment of the integrative tools and mechanisms being used by the Global Integrating CRPs or 'i-CRPs'. Assessment will be a joint activity across the four CRPs and is expected to be initiated towards the end of the year
WLE MEL support to projects	Support and mentoring for WLE projects to ensure that outcomes and impacts are captured and reported through MARLO.