



RESEARCH  
PROGRAM ON  
Dryland Systems



# East and Southern Africa Flagship 2015 Plan of Work and Budget

**Revised: June 2015**

*Food security and better livelihoods  
for rural dryland communities*

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**Table 1. East and Southern Africa Flagship – IDOs**

Level	Level of organization within the CRP	Description of planned key activities at each level of internal organization	Expected results of planned key activities	Planned Budget (\$ 000s)
3	<a href="#">East and Southern Africa</a>	<p><b>Agro-pastoral system interventions</b> (testing, piloting and scaling up): W1&amp;2: <a href="#">Marsabit-Yabello-East Shewa Transect</a>; W3/Bil: Ethiopia, Uganda, Kenya, Tanzania, Zambia, Mozambique, Zimbabwe, Sudan</p> <p><b>Rainfed System interventions</b> (testing, piloting and scaling up): W1&amp;2: <a href="#">Chinyanja Triangle (Changara-Ntcheu/Dedza) Transect</a>; W3/Bil: Malawi, Tanzania, Zimbabwe, Eritrea, Ethiopia, Kenya, Sudan, Zambia, Lesotho</p> <p><b>Irrigated Crop Systems interventions</b> (testing, piloting and scaling up): W3/Bil: Eritrea, Ethiopia, Kenya, Sudan, Tanzania, Zambia, Zimbabwe, Lesotho</p> <p><b>Collaboration with other CRPs:</b> CCAFS (provision of climate services); DC and GL (improved varieties); WLE (watershed approaches)</p>	<p><b>Progress towards CRP IDOs and indicators of progress</b></p> <p><b>IDO1</b></p> <ul style="list-style-type: none"> <li>At least 100 ha well maintained area enclosure providing services to the communities and protecting their resources (2015)</li> <li>20% of households became resilient to vulnerability shocks such as rainfall variability, pest and diseases as their livelihoods have been improved. (2017)</li> </ul> <p><b>IDO2:</b></p> <ul style="list-style-type: none"> <li>A well-documented model for scaling up sustainable intensification approach by government and non-governmental organization (2016)</li> <li>Over 500 households adopt sustainable intensification methods specifically on best-best soil and water management options (2016)</li> <li>50% of the intensifiable men and women have improved per capita income due to adoption of appropriate soil, water and crop management technologies (2017)</li> <li>the major opportunities for and constraints to technology adoption and land use choice decision by small holder farmers (both men and women) understood for out-scaling (2015)</li> </ul> <p><b>IDO3</b></p> <ul style="list-style-type: none"> <li>At least one micro-finance company providing access to capital (2015)</li> <li>At least 200 target farmers in East Shewa have adopted and utilized synergies between various components of smallholder agricultural systems and increased their productivity and profitability by at least 25% (2016)</li> <li>20% the young and women have access to good quality and nutritious food as a result of improved pre- and post-harvest processing (2017)</li> </ul> <p><b>IDO4</b></p>	9,124.036

			<ul style="list-style-type: none"> <li>Hotspot areas of land degradation identified and participatory and ex-ante analysis of best practices conducted (2016)</li> <li>Sustainable and climate-smart land and water management options introduced on 10% of the action sites (2017)</li> </ul> <p><b>IDO5</b></p> <ul style="list-style-type: none"> <li>Gender disaggregated data and results on resources endowment, decision making, technology adoption and involvement in ISFM and SLM practices available (2016)</li> </ul> <p><b>IDO6</b></p> <ul style="list-style-type: none"> <li>One well-functioning multi-stakeholder platform to identify and address key constraints faced by farmers (2015)</li> <li>200 model farmers and 50 stakeholders trained on sustainable land management, systems innovation and participatory plot-farm-landscape management options and acquired the capacity to train other farmers and stakeholders (2016)</li> </ul>	
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**Table 2. East and Southern Africa - Cluster of Activities**

Please note:

- Blue indicates capacity development activities
- Orange indicates gender-targeted activities

Level	Level of organization within the CRP	Description of planned key activities at each level of internal organization	Expected results of planned key activities	Planned Budget (\$ 000s)
3.1	Research Support	<p>Local Partners meetings, research site coordination, support to cross-cutting issues and to W3/Bilateral projects</p> <p><b>Partnership:</b></p> <p><b>CRP-DS CG Centres:</b> ILRI, ICRISAT, CIAT, ICARDA, Bioversity, ICRAF, IWMI  <b>NGOs/CBOs:</b> 4  <b>NARS:</b> 5  <b>Private Sector:</b> 1  <b>Government Department:</b> 3  <b>Academia:</b> 4  <b>International Center (Non-CG):</b> 1</p> <p><b>CG Scientists:</b> 23</p>	<p>Research activities, partner workshops, and reports coordinated and reported on time.</p> <p>Cross-learning events (between centres within an action site) facilitated through data analysis and experience learning workshops.</p> <p>Joint work plans integrating activities by diverse group of partners developed and their implementation monitored.</p> <p>Data and information sharing and joint evaluation and monitoring of progress facilitated.</p> <p>Experience sharing, capacity building on integrated systems analysis, research design and modelling</p>	243.000
3.2	System Research: Agro-pastoral system interventions (testing, piloting and scaling up)	<p><b>Location:</b>  <b>W1&amp;2:</b> <a href="#">Marsabit-Yabello-East Shewa Transect</a>;  <b>W3/Bil:</b> Ethiopia, Uganda, Kenya, Tanzania, Zambia, Mozambique, Zimbabwe, Sudan</p> <p><b>General objective:</b> To improve productivity, profitability and resource use efficiency of pastoral and rainfed agricultural systems through sustainable intensification and enhanced capacity of female and male farmers and other stakeholders (e.g. policy decision-makers) to cope</p>	<p><b>Outputs in 6 months:</b>  <b>(ILRI-1)</b> None; <b>(ILRI-2)</b> 1 Map of land use and land cover changes in relation to key resource areas; <b>(ILRI-3)</b> None; <b>(ICARDA-4)</b> 1 IP established (<i>gender-disaggregated</i> report); 5-6 trials conducted for food and forage crops (report); Data on agronomic traits collected (dataset); <b>One field day organized for 75 female and male farmers (report)</b>; <b>(ICARDA-5)</b> Goat selection scheme designed and market linkage established (<i>gender-disaggregated</i> report); <b>(ICRAF-6)</b> 1 <i>gender-disaggregated</i> Report describing the beneficiaries and benefits of tree species on a range of ecosystem services and a description of the use and management of these tree species and the effect of this on the</p>	5,692.497

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		<p>with challenges posed by variable and changing climates and/or uncertain contextual changes</p> <p><b>Specific objectives:</b>                      To assist female and male stakeholders identifying promising interventions around land and resource management by using participatory inclusive causal system modeling; To assess heterogeneity in distribution of biophysical systems, productivity and ecosystem services and health, and changes in these, in rangelands at the Action Site; To analyze the institutional, political and management challenges and dynamics of NRM in developing country rangeland settings in a gender-differentiated manner, and to identify gender-responsive concepts and principles for the development of appropriate NRM, land tenure and land use planning policies and frameworks; To introduce high yielding and drought tolerant barley and food legumes with associated crop management practices in the lowlands of East Shoa involving female and male stakeholders; To develop extra early genotypes with associated agronomic practices for diversification and intensification; To integrate small ruminant and crops production to improve productivity and income of female and male farmers on sustainable basis; To understand determinants of tree distribution across landscape, roles of tree on farms, on farm performance and household welfare (including gender equity) and alternatives; To form and operate multi-stakeholder platform that serves as broad coalition with a common goal of achieving sustainable intensification by pooling their knowledge, resources and expertise; To further systems model-based ex-ante assessment</p>	<p>above benefits and beneficiaries; <b>(ICRISAT-7)</b> One multi-stakeholder platform established as measured by the # of participating institutions and their contributions to implement the POWB (report); <b>(ICRISAT-8)</b> Dataverse Database of climate, crop soil and management as required to calibrate and validate the models (dataset) ; <b>(ICRISAT-9)</b> Field testing of intensification options initiated (report);</p> <p><b>Outputs in 12 months:</b>  <b>(ILRI-1)</b> 1 Causal model of system including gendered analysis developed with stakeholders; 2 local partners trained in systems analysis (report); 1 Report analyzing utility of systems analysis tools for stakeholder engagement; <b>(ILRI-2)</b> Validated methodology for rangeland condition assessment (manual); Management methodologies assessed (report); <b>(ILRI-3)</b> Policy/land use framework including gender analysis assessed (report); <b>(ICARDA-4)</b> 1 variety/crop identified for further scaling out with good agronomic practices (report); One field days organized for irrigated wheat and forage crops in East Shoa (100 people attending including farmers; researchers, Policy makers); 50 farmers (20 women) trained in crop production (report); 20 extension staff, 10 young researchers and research technicians trained in crop management (gender-disaggregated report); 10-15 female and male farmers trained in quality seed production (report); <b>(ICARDA-5)</b> At least 2 technologies on feeding and goat selection validated (report); 2 Best bet technologies on goat management and goat fattening demonstrated (report); Goat producers linked to at least one abattoir or other buyer (report); 40 farmers trained on improved goat production (gender-disaggregated report); 5 Farmers trained on fattening technology (report); 6 NARS staff trained on smart feeding, breeding and marketing (gender-disaggregated report); <b>(ICRAF-6)</b> 1 gender-disaggregated Report on farmer led research on optimization of the use and management of trees; One research paper; Gender and youth disaggregated data on the use and benefits from trees (dataset); <b>(ICRISAT-7)</b> 1 active IP involving a minimum of 10 organizations (gender-disaggregated report); A report on planned and implemented interventions; Insights into gender responsiveness of various options leading to identification of gender friendly practices (report); <b>(ICRISAT-8)</b> A report on ex-ante assessment of</p>	

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		<p>of identified interventions on system performance; To make comprehensive assessment of sustainable intensification options for their contribution to productivity, profitability and resource use efficiency of smallholder rain-fed systems in the face of uncertainty; To create climate-smart landscapes through implementing integrated land and water management options.</p> <p><b>Methods:</b> Different types of gendered systems modelling (participatory causal system model, crop-soil simulation model, bio-economic model); Qualitative regional analysis for identifying policy, institutional and management constraints and opportunities in a gender-differentiated manner; Ex-ante gender analysis of the socio-economic and cultural system (e.g. pastoralists) targeted by research;</p> <p><b>Gender dimension:</b> Research to improve productivity, profitability and resource use efficiency of pastoral communities and capacity to cope with risks is gender-mainstreamed.</p>	<p>potential options for productivity, profitability and sustainability; <b>15 women farmers tested different intensification options (report); One journal Article submitted for publication; (ICRISAT-9)</b> First year report on tested options;</p> <p><b>Outputs in 12 months (W3/Bil):</b> <b>(ICRAF -1)</b> 1 project inception report for expected results in 2015–2016; 3 characterization study reports for the project intervention sites; At least 1 report describing options for improved land and water management; At least 1 report describing implementation of land and water management activities; At least 1 report on the integrative approach taken by the project and its implementation; 1 report describing the ME&amp;IA framework of the project; <b>Training of farmers in techniques to enhance food production through better management of soils as well as community mobilization and other integrative approaches with Inclusive approach to promote participation of different categories of farmers - male and female (at least 50%) and youth (report); (ICRAF-2)</b> Capacity development interventions to disseminate the findings of the project towards beneficiaries; <b>Information collected and disaggregated by gender (dataset); Nested communities of practice with refined tools methods and guidelines take land restoration to scale; (ICRAF-5)</b> 1 project inception report for expected results; Report describing implementation of agroforestry interventions; Final report outlining project outcomes; <b>Government, NGO extension officers and farmers (50% women and youth) trained on agroforestry techniques; Community level farm input traders - Agro-dealers (50% women and youth) trained on handling agroforestry tree seed and basic principles of agroforestry practices; (ICRISAT-2)</b> 3 draft journal papers (2015); 3 technical briefs (2015); <b>(ICRISAT-4)</b> 500 households with improved legume production; velvet bean, and improved groundnut varieties, integrated with livestock production; <b>(ILRI-1)</b> 3 counties for which IBLI contract is implemented (2015); 2 peer reviewed papers published (2015); 3 knowledge products published (2015); 3 policy and academic workshops held (2015); 2 proposals for advancing related research and policy agenda submitted (2015); <b>ICT used to improve IBLI extension and training as well as monitoring (2015); Development of instructional</b></p>	

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			<p>design curriculum for standardized IBLI extension (2015); Crowd Sourcing of Rangeland Conditions to generate real-time information of rangeland from pastoralists (2015); 1 paper on gender differentiated adoption of IBLI in Borana (2015); 1 paper on gender differentiated access and demand for credit in Marsabit (2015); (ILRI-2) 900 hectares of improved fodder under sustained production (2015); 42 fodder groups trained; 12 fodder groups linked to steer fattening and 10 groups sell during the drought; 25 Livestock Marketing Associations established and trained; Six policy briefs. (2015); 450 women engaged in camel milk cooperative (2015); (ILRI-3) 1 effective M&amp;E framework in Kenya and Ethiopia: development and application of methodologies, tools and approaches to support evidence-based decision-making and investment prioritization to enhance resilient development trajectories in Horn of Africa (2015); 3 MSc theses published evaluating three case studies;(ICARDA-15): 1 PhD student enrolled (2015)</p> <p><b>Outcomes:</b>                      (ILRI-1) CG and non-CG partners have experience with the ESA systems approach (report); (ILRI-2) NGO partners in Yabello and Marsabit understand impact of interventions on ecosystem health and have an ecosystem health framework (report); (ILRI-3) Two communities understand NRM governance and have initiated NRM governance processes (report); (ICARDA-4) At least one variety/crop species that fits the need of female farmers adopted; 30-50 farmers adopt the new variety/crop species and agronomic practice (gender-disaggregated report); knowledge and skills of 20 Female and 30 youths in non-traditional crop production improved (report); (ICARDA-5) NARS and 200 farmers (30% women) work together and adapt diagnostic and systematic research approaches to promote improved goat production, fattening and marketing (report); (ICRAF-6) 50 Farmers attained increased awareness that optimal benefits in tree based landscapes requires careful planning and negotiation of tree management (gender-disaggregated report); (ICRISAT-7) 50 Smallholder farmers benefitted by improved access to improved technologies as measured by the number of farmers accessing new technologies (gender-disaggregated report); (ICRISAT-8) All project partners accessing and using the database</p>	

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			<p>(Report); (ICRISAT-9) 50 female and male farmers benefitted by testing the options (gender-disaggregated report);</p> <p><b>Outcomes (W3/Bil):</b>                      (ICRISAT-2) Improved motivation and knowledge of farmers to invest in agricultural production through participation at IPs and implementation of participatory trials (2015); increased engagement in development of marketing arrangements, stakeholder aware of market opportunities and increased benefits for women and female headed households to access knowledge, participate in markets (2015); (ICRISAT 4) Greater understanding by farmers, support services and the private sector of the value of market based systems development (2015); Greater adoption of legumes in mixed systems, not only as a cash crop but also integrated in rotation with cereals to improve household nutrition and to increase environmental sustainability; (ILRI-1) 4 organizations providing some IBLI-related service (sales, regulatory, information etc) (2015); 40 % of clientele with understanding of the role and value of IBLI (2015); (2015); Informed pastoralists purchasing IBLI products (4000 clients paying some amount for IBLI) provided by a capacitated insurance industry (3 types of IBLI related products on offer) within a supportive policy and institutional environment (2015); (ILRI-2) 20% increase in volume of camel milk sold and 20,000 households have improved incomes as result of three interventions: market infrastructure; fodder groups; women’s milk cooperative (2015); (ILRI-3) Over 500,000 pastoralists in ASAL areas benefitting from investments being made by governments, NGOs and donors which have been specifically targeted for maximum impact with respect to enhanced resilience (2015); The national agency in Kenya (NDMA) and Ethiopia (Min of Agriculture) staff are able to implement the M&amp;E framework and report impact of investments on resilience to donors (2015);</p>	
3.3	System Research: Rainfed System interventions (testing, piloting and	<p><b>Location:</b>                      W1&amp;2: <a href="#">Chinyanja Triangle (Changara-Ntcheu/Dedza) Transect</a>;                      W3/Bil: Malawi, Tanzania, Zimbabwe, Eritrea, Ethiopia, Kenya, Sudan, Zambia, Lesotho</p> <p><b>General Objective:</b> To improve profitability,</p>	<p><b>Outputs in 6 months:</b>                      (CIAT-1) ISFM options tested on over 50 farmers (&gt;50% women) (report); (CIAT-2) Data collected and ready for analysis (dataset); (Biodiversity-3) Database created, data analyzed, data shared and made public (dataset); (IWMI-4) Water management options identified for testing (report); (ICRISAT-5) 1 guide for dryland systems research on implementing IPs (report); 1 tool on assessing the influence of IPs on</p>	2,478.819

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	scaling up)	<p>resource use efficiency and benefit sharing equity (including of gender and the young) of intensive rainfed landscape through innovative, context-relevant sustainable land management (SLM) options (including integrated soil fertilizer management - ISFM) and female and male stakeholders' capacity for managing systems transition into sustainable intensification</p> <p><b>Specific Objectives:</b>                      To create databases of (i) all the collected data (ii) current SLM (including ISFM) practices, (iii) integrated interventions to be tested by consulting multiple female and male stakeholders (farmers, NARS, NGOs, etc.); To identify and characterize typical smallholder farm types regarding resource endowments and socio-economic and cultural (gender) context; To identify SLM (incl. ISFM) options being best fit to, or highly adopted by, smallholder groups (including gender differentiation); To identify social, cultural, economic and ecological determinants of SLM/ISFM adoptions, including the gaining of clarity on why female and male farmers feel reluctant to adopt some technologies; thereby to develop gendered, group-specific strategies for facilitating SLM/ISFM transfers and packaging up- and out-scaling model; To identify critical areas of soil loss that require prior management intervention by model the spatial distribution of spatially-explicit soil erosion modeling; To identify entry points for introducing agricultural water management options, including potential for scaling out based on the gender-disaggregated baselines that were conducted in 2014; To identify institutional set up of the IP functioning as</p>	<p>livelihoods and resilience (IP evaluation report for Changara); (ICRISAT-6) Feedback on food feed crop demonstrations (report); (ILRI-7) 1 draft report from Zimbabwe's Mashonaland East Province defining research entry points and outlining the effect of integrated crop-livestock interventions on soil, crop, livestock productivity and household income and livelihoods; (ILRI-8) Protocol for setting up, facilitating and documenting gender-balanced IPs (protocol); Stakeholder, institutions and network analysis (gender-disaggregated report); Stakeholder, institutions and network analysis (gender-disaggregated report); technical workshop convened to set up the IPs, including gender sensitive development pathways, identification and monitoring challenges and solutions, mode of IP operation and communications, flexible organizational structure(report); 1 report on the functioning of innovation platforms crops x livestock systems in four districts of Zimbabwe; (ILRI-9) Sites for piloting interventions assessed (report);</p> <p><b>Outputs in 12 months:</b>                      (CIAT-1) Guidance and report on ISFM technology implementation; Training (at least 100 households about 50% of them women) on integrated soil fertility management (report); (CIAT-2) One report on determinants of technology adoption across gender groups; 5 extension agents, 3 development workers and 2 stakeholders trained on processes of better targeting households for improved technology adoption (report); Socio-ecological typology of households developed (report); (Bioversity-3) Agro-biodiversity (ABD) and Dietary Diversity (DD) assessment guideline/manual produced; Gender differences in the use, access, management and control of ADB identified and documented; (IWMI-4) Documentation of farmer responses to water management options; Gender differences in extension, adoption and intervention preferences tested (report); (ICRISAT-5) Stakeholders engaged in reconnaissance survey to explore market opportunities (report); 1 Comprehensive analysis on using IPs for strengthening capacity and building resilience, exploring local development pathways and associated value chains, resilience levels and farm profiles, IP process and achievements, women involved at IP forums, challenges and opportunities for women and men farmers to engage in IPs identified, capacity development priorities for women and men farmers (report); 2 IPs functional, with buy in from stakeholders at local, district and</p>	

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		<p>mechanisms for facilitating transitions in farming systems and enhance capacities of gender-responsive farmer-extension-NARs in the process; To identify/revise development pathways and associated high- potential value chains, barriers to and solutions for systems improvement in a participatory manner with female and male stakeholders; To develop and use tools for improving self-organization and multi-level learning in and across IPs; Generate gendered lessons and data with farmers and extension services through trials that demonstrate yields of different food and fodder crops and forage legumes, and feeding experiments to women and men; Enhance partner capacity on gender-responsive crop x livestock integration; Pilot key interventions (gender-responsive) with partners (dry season feeding, improve quality of crop residues, formulate better rations);</p> <p><b>Methods:</b> Landscape-level narrative-based analysis (including context-option matrix characterization); Gendered household/farm typology analysis; Adoption analysis methods (multivariate statistics, participatory appraisals, gender-differentiated); Landscape-level soil erosion modelling; Gendered stakeholder network analysis; Gender-mainstreamed integrated system modelling (e.g. multi-agent system and bio-economic models TBD); Gender-mainstreamed value chain analysis; On-farm trials/experiments</p> <p><b>Gender dimension:</b> To identify the differential challenges faced by female, male farmers and youths in accessing</p>	<p>provincial levels (1 IP legalized as association; 1 IP evaluation report for Manica); 1 data set (Farm typologies and associated resilience levels); (ICRISAT-6) Review and stakeholder feedback to inform 2015/16 crops and trial design (report); (ILRI-7) None; (ILRI-8) Stakeholders engaged in reconnaissance survey to explore market opportunities, resource bottlenecks, capacity development needs and options to address these (report); Quick wins that respond to stakeholder priorities identified and used to inform technology options and structures for knowledge sharing (report); Participatory M@E framework for assessing systems change (report); Women engaged at IP forums, challenges and opportunities for women and men farmers to engage in IPs and associated value chains identified, capacity development designed for women and men farmers (report); 2 IPs functional, with buy in from stakeholders at local, district and provincial levels (report); 2 journal papers drafted; 1 book chapter drafted; (ILRI-9) 1 report short-listing best-bet wet/dry season feed formulations and interventions that will be further evaluated in 2016; 1 report defining gender relationships (roles and priorities) in intra-household decision-making for different typologies of Chinyanja crop-livestock farmers - with particular reference to commercial beef and small stock production; Number of options piloted and capacitation of NARS in Chinyanja Triangle to customize SI options to local conditions (gender-disaggregated report);</p> <p><b>Outputs in 12 months (W3/Bil):</b> (CIAT-1) Performances of five beans varieties in relation to inputs and management practices tested with over 200 farmers evaluated and reported (2015); Constraints to and opportunities for technology adoption understood and documented for out-scaling (2015); Over 100 households trained on weed and disease management (2015); (CIAT-2); Over 30 extension agents and lead farmers trained on integrated landscape planning and management (2015); Women's needs and preferences related to varieties (crops, trees) and breeds evaluated and reported (2015); perceptions of gender groups about critical areas of land degradation and corresponding 2-3 contextual best-bet SLM practices identified and reported (2015); (ILRI-4) Base line survey (2015); 1 report on identification of entry in crops x livestock integration</p>	

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		<p>agricultural extension; To identify entry points for gendered agricultural extension approaches, which address the specific requirements of female and male farmers as well as youths.</p>	<p>in the Chinyanja Triangle (Ncheu/Dedza, Angonia and Changara) (2015); 1 report on use of simulation modeling to identify priority interventions in mixed crops - livestock systems (using dairy as an example) in Zimbabwe (2015); 1 report on analysis of whole farm activities and how they affect household income and livelihoods in Zimbabwe based on data from 80 farmers (2015); 2 Draft reports from Zimbabwe outlining the effect of integrated crop-livestock interventions on soil, crop, livestock productivity and household income and livelihoods from 480 households in Zimbabwe (Mashonaland and Matabeleland) and defining research entry points (2015); 1 report that identifies technical and institutional interventions that improve farmer's access to inputs, services and markets in in four target districts of Zimbabwe (covering targeted value chains of maize, sorghum, groundnut, and livestock value chains) (2015); 1 report on the functioning of innovation platforms crops x livestock systems in four districts of Zimbabwe (2015); 3 communities and 12 individual forage seed multiplication plots (best-bet interventions test) established in 2 districts of Mashonaland East Province (Zimbabwe) (2015); 200 Farmers trained in crops and livestock marketing, winter feeding strategies and application of conservation agriculture (CA) practices; 20 research and extension staff trained crops-livestock integration for enhanced food and feed production, crops and livestock marketing, winter feeding strategies, application CACA practices, on farm research methodologies, research methods (2015); At least 2 crop and 2 livestock profitable value chains managed by women/youth and which employ SI options identified (2015); (ICARDA-10) 1 regional gender training workshop with at least 15 participants (2015); (ICARDA-21) Wheat Value Chain analysed in Sudan and Ethiopia; 1 CA package developed; 1 Crop-Rotation Package developed; 4,500 farmers and stakeholders (at least 30% women) (progressive farmers, extension agents local input providers and NGOs) involved in technology promotion and capacity development (Farmers Field Schools: pre-season, in-season and post-season); 2 PhD (NRM, breeding) and 2 MSc enrolled in Sudan, Ethiopia, Zimbabwe (2015); (ICARDA-22) 1 Publication on optimizing different agricultural management practices for increasing crop yield of selected crop varieties; At least 1 peer reviewed publication (2015); 1 Publication on</p>	

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			<p>proper livestock management (2015); 1 climate change adaptation workshop for NARS ( 5-10 participants) (2015); 1 climate change adaptation workshop including farmers from the watershed (2015); 1 SWAT modelling workshop for NARS (1-2 participants) (2015); 2 PhD student (NARS employee) enrolled at University Vienna (2015); 10 landless women trained in making fuel saving stoves; (ICARDA-23) At least 1 malt barley, 1 food barley and 1 faba bean cultivar identified for main season production and seed multiplied (farmer and industry preferred) (2015); At least one food barley variety identified for small rain season (2015); At least 100 farmers (40 women) and development agents trained in improved crop technologies in the 4 Africa Rising action sites (2015); (ICARDA-24) Development of at least 4 supplementary packages to improve the nutritive value of crop residues (2015); At least 1 publication on crop residue utilization in mixed crop-livestock systems in Ethiopia (2015); At least 2 publications on supplementation options to improve nutrition of small ruminants (2015); At least 200 smallholder farmers (15% women) receive understanding and awareness of the impacts of improved crop residue quality and ration supplementation (2015) through 8 field demonstrations; (ICARDA-25) Clean sets of instruments and farm HH level data on adoption and impact of improved food legume technologies (2015); 1 MSc Thesis Report (2015); 1 report on adoption and impact of food legume technologies (2015); Clean sets of instruments and farm HH level data on economic impact of market facilities (2015); 1 MSc female and 1 PhD received a scholarship; 12 researchers from the NARS trained on CAPI based data collection; 10 market shades, water troughs, and scales established in 10 local markets; 12 researchers from the NARS trained on CAPI based data collection; Gender differentials in adoption and impact of food legume technologies documented and communicated to research, development, and policy makers;</p> <p><b>Outcomes:</b>            (CIAT-1) At least 100 local farmers (50% Women) become aware of the benefits of ISFM options and understood relevant agronomic practices that can increase yield (report); (CIAT-2) 3 local partners devise improved adoption and dissemination approaches (gender-</p>	

Level	Level of organization within the CRP	Description of planned key activities at each level of internal organization	Expected results of planned key activities	Planned Budget (\$ 000s)
			<p>disaggregated report); <b>(Bioversity-3)</b> CGIAR centers and local partners (50-100 female and male farmers and 3-5 Institutions) identify entry points: effective crop diversification pathways for improving household dietary quality and income and, improved system productivity and resilience (report); Capacity of partners/stakeholders in assessing ADB and DD enhanced through adoption and use of the manual/guidelines (report); <b>(IWMI-4)</b> Farmers and extension using agricultural water management findings (gender-disaggregated report); 2 Msc Students on gender and institutions, Extension officials in Ntcheu have a better gender understanding; <b>(ICRISAT-5)</b> National partners and NGOs buy in to further develop and promote the concept of enhancing resilience and profitability through stakeholder engagement and Innovation Platform approaches and design technology packages and interventions for scaling out (gender-disaggregated IP workshop report); <b>(ICRISAT-6)</b> National partners promote food feed crops as critical adaptation in drought prone environments of Mozambique; <b>(ILRI-7)</b> Better targeting of integrated crop-livestock research activities by R&amp;D teams (report); <b>(ILRI-8)</b> Improved understanding on stakeholders and networks, leverage points in the system, market opportunities and value chains, associated gaps in service delivery (gender-disaggregated report); <b>(ILRI-9)</b> Adoption of appropriate SI options for crop-livestock systems by 250-core farmers in Mashonaland, Zimbabwe (report);</p> <p><b>Outcomes (W3/Bil):</b>  <b>(ILRI-4)</b> Entry points used for interventions by NARS and development partners in Chinyanja Triangle to better target improved intensification options for at least 1000 HH (2015); Value chain members understand priority interventions for their respective value chains and share them with Government and NGO community to better target development activities in Zimbabwe and other countries in the Chinyanja triangle (2015); Adoption of appropriate Sustainable Intensification (SI) options for crop-livestock systems by 480 core farmers in Zimbabwe; <b>NARS capacity developed in Chinyanja Triangle to customize the SI options to local conditions (2015); (ICARDA-10)</b> At least 10% Increase in the income of small-scale producers (200-500 HH per country) (2015); <b>(ICARDA-21)</b> 100% of target farmers adopt the wheat based</p>	

Level	Level of organization within the CRP	Description of planned key activities at each level of internal organization	Expected results of planned key activities	Planned Budget (\$ 000s)
			<p>technologies on 134,000 ha (2015); Wheat Seed System analyzed, developed and institutionalized in Sudan; Wheat productivity increased by 20% (2016); Beneficiaries income increased by 30% (2016); Project wheat based technologies promoted by target beneficiaries to 70,000 indirect beneficiaries in 2015; 1 similarity map within each partner country and 1 similarity map across partners countries; <b>(ICARDA-22) Income opportunities for 10 young landless women generated;</b> <b>(ICARDA-23)</b> About 50 farmers/Africa Rising site adopt/grow the selected crop varieties (2015); <b>(ICARDA-24)</b> At least 50 farmers undertake improved feeding strategies for their livestock (2015); <b>(ICARDA-25)</b> 15% Increase in adoption of improved food legume technologies, 10% Increase in farm productivity, 15% decline in the proportion of mono-cropping and 20% increase in market participation in Bale highlands among the sample population;</p>	
3.4	<p>System Research: Irrigated Crop System interventions (testing, piloting and scaling up)</p>	<p><b>Location:</b>  <b>W3/Bil:</b> Eritrea, Ethiopia, Kenya, Sudan, Tanzania, Zambia, Zimbabwe, Lesotho</p> <p><b>General objective:</b>                      To achieve sustainable increase of wheat productivity and production for enhanced food security, economic growth and poverty alleviation of smallholder farmers in irrigated farming systems in ESA region.</p> <p><b>Specific objectives:</b>                      To increase on-farm wheat productivity and production for food security; To optimize the management of scarce natural resources; To enhance the capacity of the NARES to conduct needed research for development; to develop profitable and climate change-proof packages/models of tested and proven technology options; to facilitate improved institutions and</p>	<p><b>Outputs in 12 months (W3/Bil):</b>  <b>(ICARDA-10)</b> 1 regional gender training workshop with at least 15 participants (2015); <b>(ICARDA-21)</b> Integrated Pest and Crop Management (IPC) package (2015); 1 MSc enrolled in, Zimbabwe (2015); Short in country training (13 participants in each country - at least 30% women) on wheat production package for researchers and extensions (2015); 1 week travelling workshops Kenya, Tanzania, Zambia, Zimbabwe and Lesotho) in Ethiopia for 12 participants - at least 30% women (report);</p> <p><b>Outcomes (W3/Bil):</b>  <b>(ICARDA-10)</b> At least 10% Increase in the income of small-scale producers (200-500 HH per country) (2015);</p>	709.720

Level	Level of organization within the CRP	Description of planned key activities at each level of internal organization	Expected results of planned key activities	Planned Budget (\$ 000s)
		<p>policy environment for an accelerated scaling up of these technologies.</p> <p><b>Methods:</b>                      Innovation platform development process; Food value chains analysis and development; community-based seed system analysis and assessment; agroecological similarity mapping, climate-smart integrated technology packages development;</p> <p><b>Gender dimension:</b>                      NARS capacity developed to develop gender-responsive policies                      Research results of gender strategic research on gender-responsive extension services disseminated to researchers and practitioners through training;                      Women's empowerment through increase in knowledge and options in seed value chains;</p>		

**Table 3. East and Southern Africa Activities by Action Sites**

**I. Marsabit-Yabello-East Shewa**

N	Short Title	Full Title	CG Center	Activity Leader	Other Scientists (CG)	Discovery	Proof of Concept	Pilot	Scaling Up	1	2	3	4	5	6	Budget (\$)
1	System analysis and modelling	Systems analysis and modelling on land issues in Yabello	ILRI	l.robinson@cgiar.org	j.sircely@cgiar.org		100%			10%	5%	0%	75%	10%	0%	18,497
2	Assessment of Rangeland Ecosystem Services and Health	Assessment of Rangeland Ecosystem Services and Health	ILRI	l.robinson@cgiar.org	j.sircely@cgiar.org		100%			15%	5%	0%	80%	0%	0%	14,086
3	Rangeland governance and land tenure	Rangeland governance and land tenure	ILRI	l.robinson@cgiar.org	f.flintan@cgiar.org		100%			10%	5%	0%	75%	10%	0%	33,500
4	Sustainable intensification of crop-livestock production system	Sustainable intensification of crop-livestock production system through the introduction of non-traditional/specialty crops (Barley, Kabuli chickpea, Lentil, mung bean, Abyssinia pea, Buck wheat, cowpea)	ICARDA	s.silim@cgiar.org	z.bishaw@cgiar.org; s.a.kemal@cgiar.org			100%		25%	35%	15%	25%	0%	0%	36,450
5	Enhancing profitability of the agricultural systems	Enhancing profitability of the agricultural systems by harnessing synergies between crop and small ruminant production	ICARDA	s.silim@cgiar.org	j.wamatu@cgiar.org; a.haile@cgiar.org			100%		35%	25%	20%	10%	10%	0%	36,450
6	Assessment of benefits from ecosystem services	Assessment of beneficiaries and the benefits that they derive from ecosystem services of current and alternative tree management in tree based farming systems in two bilateral project areas (ACIAR, DGIS) in the Ethiopian action site	ICRAF	j.leeuw@cgiar.org	k.hadgu@cgiar.org; awekegelaw@gmail.com	100%				0%	25%	50%	25%	0%	0%	72,840
7	Innovation Platforms	Formation and operation of innovation platforms involving relevant stakeholders for	ICRISAT	k.p.rao@cgiar.org	none		100%			10%	20%	10%	20%	20%	20%	20,400

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N	Short Title	Full Title	CG Center	Activity Leader	Other Scientists (CG)	Discovery	Proof of Concept	Pilot	Scaling Up	1	2	3	4	5	6	Budget (\$)
		sustainable intensification of agricultural systems in East Shewa, Ethiopia														
8	Ex-Ante assessment of productivity, profitability and sustainability of potential options for sustainable intensification of agricultural systems	Ex-Ante assessment of productivity, profitability and sustainability of potential options for sustainable intensification of agricultural systems in East Shewa, Ethiopia	ICRISAT	k.p.rao@cgiar.org	s.gummadi@cgiar.org	100%				10%	40%	10%	20%	10%	10%	15,120
9	Testing and evaluating integrated soil conservation, fertility management and crop intensification option	Testing and evaluating integrated soil conservation, fertility management and crop intensification options for their complementary benefits and limitations	ICRISAT	k.p.rao@cgiar.org	s.gummadi@cgiar.org			100%		10%	25%	10%	25%	20%	10%	47,520
<b>TOTAL</b>																<b>294,863</b>

## II. Chinyanja Triangle

N	Short Title	Full Title	CG Center	Activity Leader	Other Scientists (CG)	Discovery	Proof of Concept	Pilot	Scaling Up	1	2	3	4	5	6	Budget
1	ISFM and SLM adoption analysis	Analyse constraints to and opportunities for ISFM, SLM and variety adoption by smallholder men and women farmers in Ntcheu, Malawi	CIAT	lt.desta@cgiar.org	j.kihara@cgiar.org	30%				10%	40%	10%	20%	10%	10%	42,682
2	Systems analysis	Social-ecological typology of smallholder farming systems to lay the foundation for integrated systems modelling	CIAT	lt.desta@cgiar.org	None	100%				10%	40%	10%	20%	10%	10%	30,461
3	Agro Bio Diversity database creation	Finalization and creation of ABD&DD database; data analysis; identification of intervention entry points and production of ABD&DD assessment guideline	Bioversity	f.atieno@cgiar.org	None		100%			15%	25%	25%	15%	20%	0%	60,750
4	Improving Agricultural Water Management Options	Improving Agricultural Water Management Options within irrigation schemes	IWMI	e.mapedza@cgiar.org	b.vankoppen@cgiar.org; j.lautze@cgiar.org;		100%			10%	60%	20%	10%	0%	0%	60,750
5	Innovation Platforms	Innovation Platforms for resilient and profitable farming	ICRISAT	s.homann@cgiar.org	None		100%			20%	30%	0%	0%	0%	50%	42,400
6	Sustainable intensification options	Tailoring and testing sustainable intensification options	ICRISAT	s.homann@cgiar.org	None		100%			20%	0%	50%	0%	0%	30%	30,000
7	Identify entry points for crop x livestock integration	Identify entry points for crop x livestock integration	ILRI	g.manyawu@cgiar.org	None	100%				0%	50%	30%	20%	0%	0%	23,000
8	Innovation platforms (Value Chain)	Establish innovation platforms for key value chains (w/ ICRISAT)	ILRI	s.hendrickx@cgiar.org	None		100%			10%	20%	10%	20%	20%	20%	23,000

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N	Short Title	Full Title	CG Center	Activity Leader	Other Scientists (CG)	Discovery	Proof of Concept	Pilot	Scaling Up	1	2	3	4	5	6	Budget
9	Pilot feeds interventions	Pilot feeds interventions	ILRI	g.manyawu@cgiar.org	None			100%		0%	30%	30%	40%	0%	0%	20,600
<b>TOTAL</b>																<b>333,643</b>

**Table 4. East and Southern Africa - Bilateral/W3 Projects X Cluster of Activities**

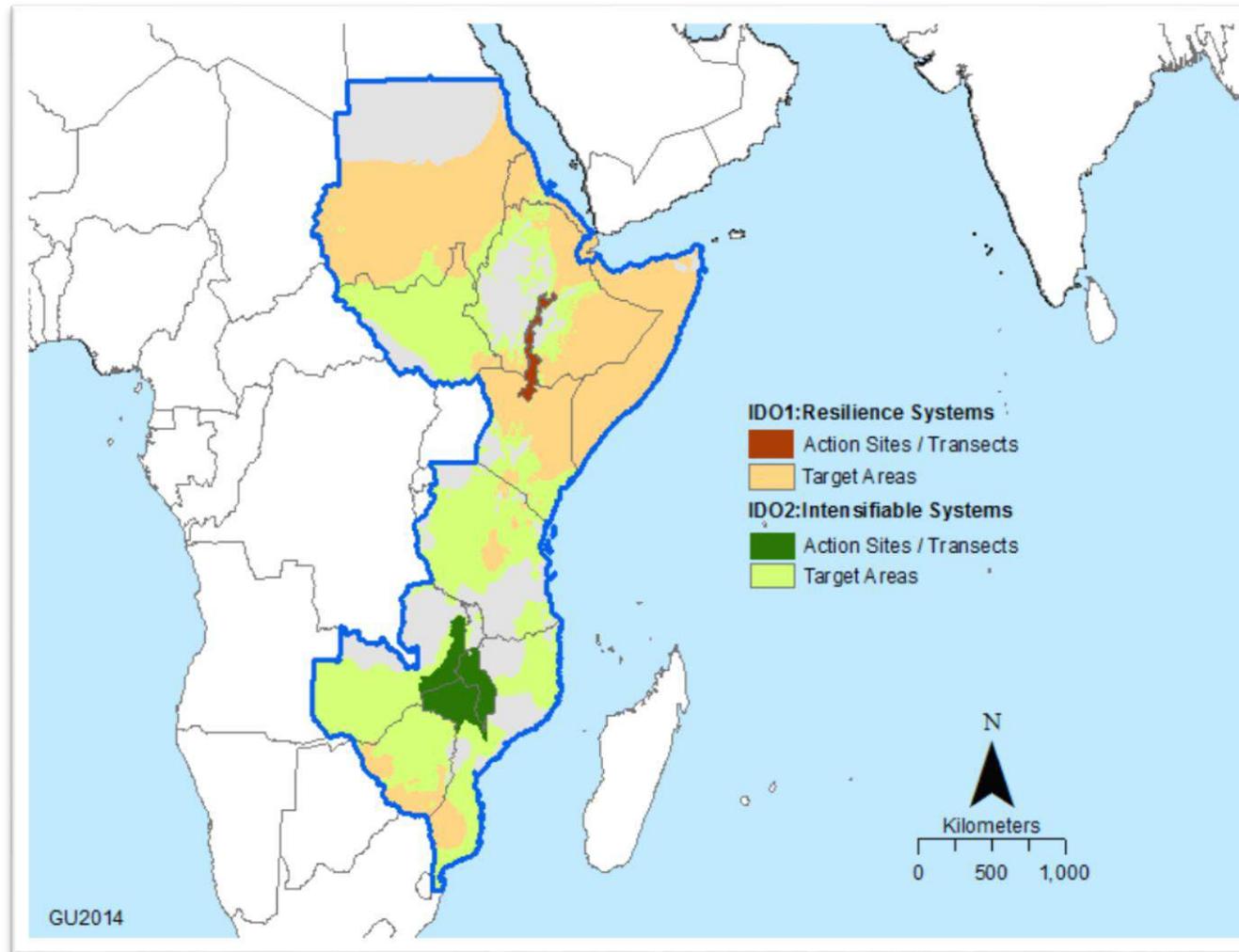
ID	Lead Center	Project or Activity Title	Period From	Period To	Email	ESA %	WAS %	NAWA %	Countries % (equal)	2015 Budget to DS (MUSD)	Agro-Pastoral %	Rainfed %	Irrigated %
1	ILRI	Index Based Insurance	Jul-12	Jun-16	<a href="mailto:a.mude@cgiar.org">a.mude@cgiar.org</a>	100			Kenya	1.978917	100	0	0
2	ILRI	Enhancing Community Resilience to drought	Nov-13	Nov-15	<a href="mailto:p.erickson@cgiar.org">p.erickson@cgiar.org</a>	100			Kenya	0.218748	100	0	0
3	ILRI	Technical Consortium for Resilience in the HOA	Jan-12	Dec-15	<a href="mailto:p.erickson@cgiar.org">p.erickson@cgiar.org</a>	100			Ethiopia, Uganda, Kenya	0.490000	100	0	0
4	ILRI	ZimCLIFS	Jun-12	May-15	<a href="mailto:s.moyo@cgiar.org">s.moyo@cgiar.org</a>	100			Zimbabwe	0.866250	0	100	0
1	CIAT	Agro-ecological intensification in Malawi	Sep-12	Aug-16	<a href="mailto:ltdesta@cgiar.org">ltdesta@cgiar.org</a>	100			Malawi	0.060000	0	100	0
2	CIAT	Acting together for pro-poor land management	Jan-14	Dec-16	<a href="mailto:k.snyder@cgiar.org">k.snyder@cgiar.org</a>	100			Malawi, Tanzania	0.121900	0	100	0
1	ICRAF	DGIS	Aug-13	Jul-18	<a href="mailto:y.ouedraogo@cgiar.org">y.ouedraogo@cgiar.org</a>	40	60		Ethiopia, Kenya, Mali, BF, Niger	2.200000	100	0	0
2	ICRAF	EU IFAD	Feb-15	Jan-17	<a href="mailto:f.sinclair@cgiar.org">f.sinclair@cgiar.org</a>	50	50		Kenya, Ethiopia, Tanzania, Mali, Niger	2.180000	100	0	0
5	ICRAF	Evergreen Maize 4 Africa	Oct-14	Sep-15	<a href="mailto:g.kundhlande@cgiar.org">g.kundhlande@cgiar.org</a>	100			Zambia	0.150000	100	0	0
2	ICRISAT	Developing resilient and profitable rural livelihood systems in semi-arid Mozambique: A conceptual approach	2012	2015	<a href="mailto:s.homann@cgiar.org">s.homann@cgiar.org</a>	100			Mozambique	0.080000	100	0	0
3	ICRISAT	Integrating crop and livestock production for improved food security and	2012	2016	<a href="mailto:a.vanrooyen@cgiar.org">a.vanrooyen@cgiar.org</a>	100			Zimbabwe	0.106000	100	0	0

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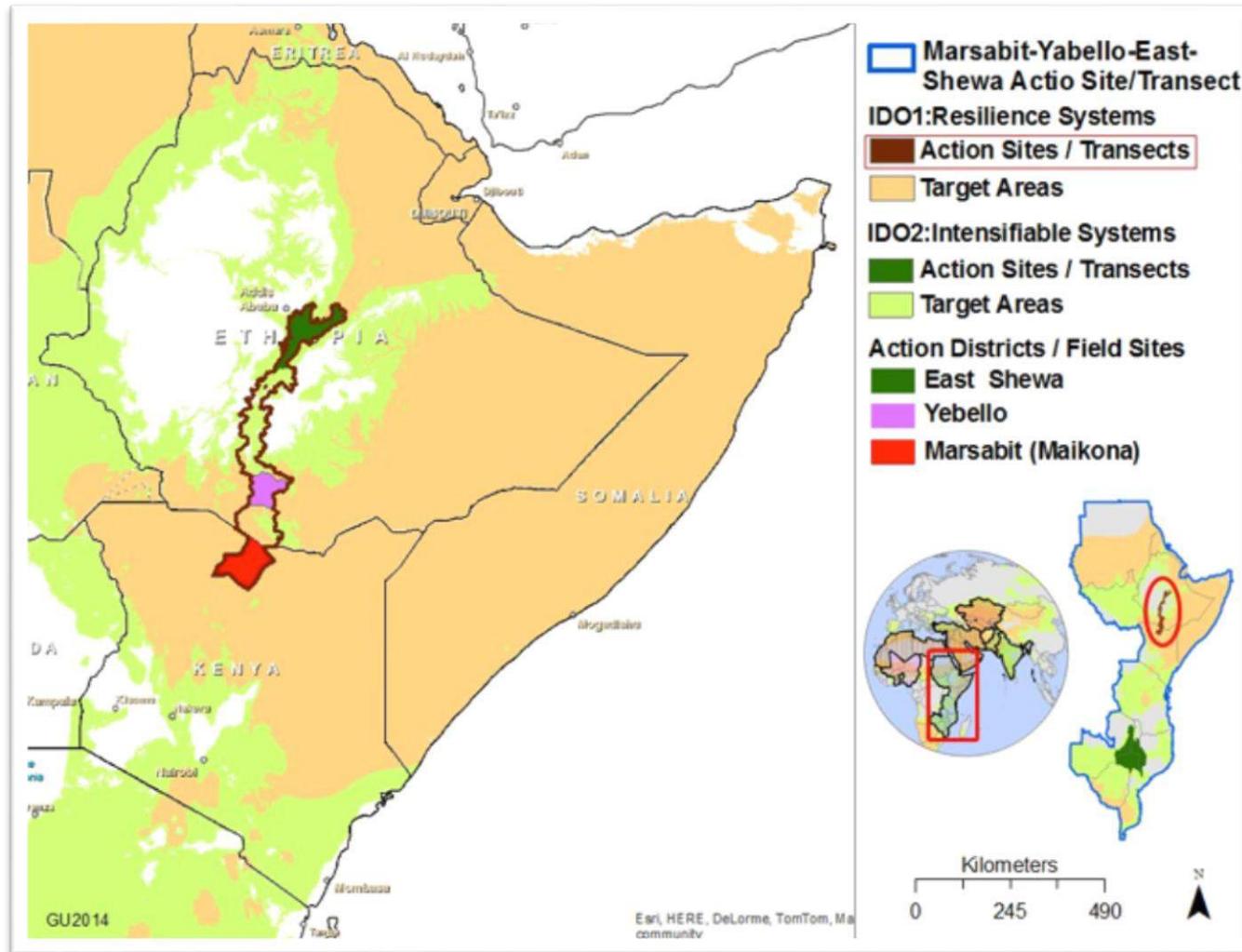
ID	Lead Center	Project or Activity Title	Period From	Period To	Email	ESA %	WAS %	NAWA %	Countries % (equal)	2015 Budget to DS (MUSD)	Agro-Pastoral %	Rainfed %	Irrigated %
		livelihoods in rural Zimbabwe											
4	ICRISAT	Enhancing nutrition, stepping up resilience and enterprise. ENSURE	2014	2016	<a href="mailto:a.vanrooyen@cgiar.org">a.vanrooyen@cgiar.org</a>	100			Zimbabwe	0.098000	100	0	0
10	ICARDA	Integrated Agricultural Production Systems for the poor and vulnerable in Dryland Areas: Nile Valley and Sub-Saharan Africa Region	Mar-14	Mar-16	<a href="mailto:M.Owaygen@cgiar.org">M.Owaygen@cgiar.org</a>	50		50	Egypt, Eritrea, Ethiopia, Kenya, Sudan, Yemen	0.494700	0	50	50
15	ICARDA	Fellowships Program and post graduate scholarships for implementing and managing agricultural research in the Arab countries	Feb-12	Dec-16	<a href="mailto:C.kleineremann@cgiar.org">C.kleineremann@cgiar.org</a>	15		85	Mauritania, Morocco, Algeria, Tunisia, Libya, Egypt, Sudan, Djibouti, Somalia, Yemen, Jordan, Palestine, Lebanon, Syria, Iraq, Kuwait, Bahrain, Qatar, Saudi Arabia, UAE, Oman	0.119429	33	33	34
21	ICARDA	Support to agriculture Research for development of strategic crop in africa (SARD-SC)	May-12	Nov-16	<a href="mailto:S.Assefa@cgiar.org">S.Assefa@cgiar.org</a>	50	50		Nigeria, Niger, Mali, Mauritania, Ethiopia, Eritrea, Kenya, Tanzania, Zambia, Zimbabwe, Lesotho, Sudan	2.319815	0	50	50
22	ICARDA	Developing and	Apr-13	Jun-16	<a href="mailto:t.oweis@cgiar.org">t.oweis@cgiar.org</a>	100			Ethiopia	0.107542	0	100	0

ID	Lead Center	Project or Activity Title	Period From	Period To	Email	ESA %	WAS %	NAWA %	Countries % (equal)	2015 Budget to DS (MUSD)	Agro-Pastoral %	Rainfed %	Irrigated %
		disseminating SLM to combat land degradation (ADA)											
23	ICARDA	Africa Rising	Jan-14	Jun-15	<a href="mailto:s.a.kemal@cgiar.org">s.a.kemal@cgiar.org</a>	100			Ethiopia	0.093575	0	100	0
24	ICARDA	Africa Rising	Jan-14	Jun-15	<a href="mailto:J.Wamatu@cgiar.org">J.Wamatu@cgiar.org</a>	100			Ethiopia	0.097557	100	0	0
25	ICARDA	Africa Rising	Jan-14	Jun-15	<a href="mailto:g.tesfahun@cgiar.org">g.tesfahun@cgiar.org</a>	100			Ethiopia	0.180498	0	100	0

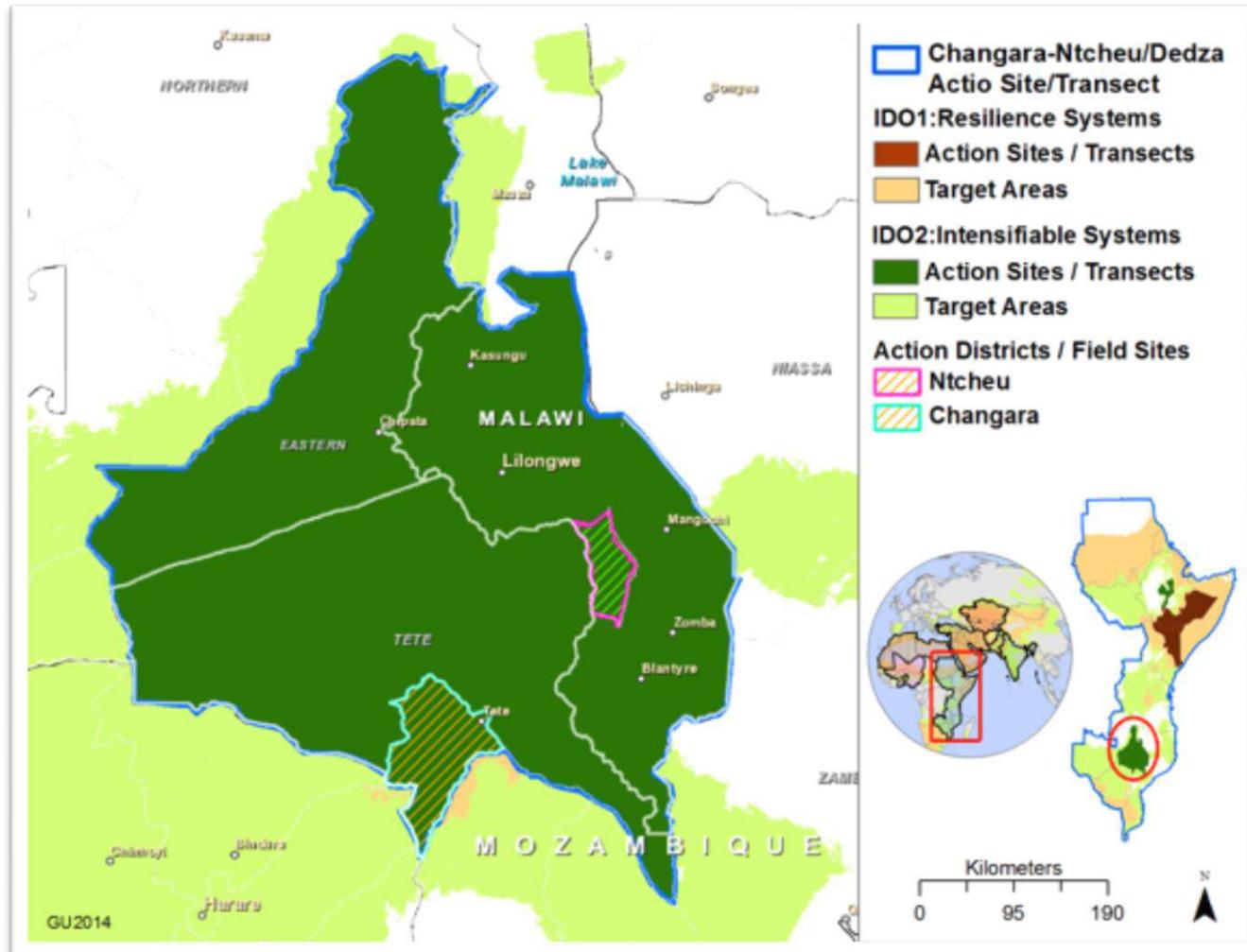
## Map 1. East and Southern Africa Flagship Boundaries



## Map 2. Marsabit-Yabello-East Shewa Action Site



### Map 3. Changara-Ntcheu-Dedza Action Site





RESEARCH  
PROGRAM ON  
Dryland Systems

The CGIAR Research Program on Dryland Systems aims to improve the lives of 1.6 billion people and mitigate land and resource degradation in 3 billion hectares covering the world's dry areas.

Dryland Systems engages in integrated agricultural systems research to address key socioeconomic and biophysical constraints that affect food security, equitable and sustainable land and natural resource management, and the livelihoods of poor and marginalized dryland communities. The program unifies eight CGIAR Centers and uses unique partnership platforms to bind together scientific research results with the skills and capacities of national agricultural research systems (NARS), advanced research institutes (ARIs), non-governmental and civil society organizations, the private sector, and other actors to test and develop practical innovative solutions for rural dryland communities.

The program is led by the International Center for Agricultural Research in the Dry Areas (ICARDA), a member of the CGIAR Consortium. CGIAR is a global agriculture research partnership for a food secure future.

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