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Semi-Annual Report

project	Farm Mechanization & Conservation Agriculture for Sustainable Intensification (FACASI)
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1 Progress summary

Objective 1 - To evaluate and demonstrate 2WT-based technologies to support CA systems, using expertise and implements from Africa, South Asia and Australia.

In Ethiopia, the 2BFG (based on rotary hoe; and imported from China by the private dealer Amio) has been modified for small seeds (teff) by importing specialized seed metering device from China. Metering devices will be further improved by producing them locally using a 3D printer (model has been identified and purchase initiated). In addition, plans are under way to produce locally-made strip till planters from conventional rotovators (that are imported with every two-wheel tractor entering the country) by modifying the blades and adding seed and fertilizer metering devices (to be produced through 3D printing).

In Zimbabwe, based on the feedback from service providers (SP) who have been engaged in the FACASI project for the past 3 years, the project team has worked on (1) improving transportability of the planters, by developing wheeled toolbars with a seat for the operator, in collaboration with 2 private manufacturers (Zimplow and Grownet, Fig; 1a, also see the Grownet planter in action in Annex 1); and (2) improving the field capacity of planters adopting and modifying the starwheel planting system developed by the local company HASTT three decades ago (Fig. 1b; the starwheel has very low draft requirements, and could thus allow 3 or 4 rows to be pulled by a single 12-15 HP two-wheel tractor, thus increasing field capacity by 50-100%).

Figure 1 – (a) wheeled toolbar on which two planting units (manufactured by Grownet) are attached; and (b) two starwheels attached to a toolbar.

Objective 2 - To test site-specific commercial systems to deliver 2WT-based mechanization.

In Ethiopia, the variation of FACASI is partnering with the Ministry of Agriculture and Natural resources (MoANR) to scale out small mechanization in wheat-based areas of Ethiopia. The MoANR has imported 100 sets of two-wheel tractors and distributed them throughout the country to youth groups. The project has been working closely with the Ministry, from site selection, to developing criteria for selection of members, organizing youth groups and providing training. In addition, the project is working closely with two youth groups in Assela (original FACASI site) composed of 24 members: 18 males and 4 females (Fig. 2). Each youth group is equipped with three 20 HP two wheel tractors, three reapers, three trailers, and one thresher. FACASI assist these youth groups on technical and agribusiness issues, and collect data on the performance of these groups to inform MoANR.

Figure 2 – 'Hundaol', one of the youth group supported by FACASI and MoANR in Assela.

During the period under review, the Ethiopia project team provided two trainings to owners and operators of two-wheel tractors based in FACASI sites, but also in other sites supported by MoANR, and by other projects (notably a GIZ-funded project collaborating with FACASI and the USAID-funded project Africa RISING; Annex 2). These trainings were provided in collaboration with Selam Vocational Training Center, which is expected to become a perennial center offering practical courses on small mechanization in Ethiopia.

During the period under review, the Zimbabwe project team supported and monitored 27 SPs owning a two wheel tractor and a planter (and often additional pieces of ancillary equipment as well), and 40 shelling SPs who were supported by project activities. FACASI also continued to build the capacity of local suppliers of small-scale mechanization equipment. As a result, (1) two models of no till small scale tractor powered planter are now commercially available: one from Zimplow (Fig. 3) and one from Grownet. A range of medium sized shellers from Zimplow and Grownet is also commercially available. The Zimplow planter is now being sold by Farm Shop, an agro-dealer well established in the country. A UNDP-funded project has acquired 15 Grownet planters. Grownet also sold 26 large motorized sellers during the 2017 shelling season.

The Zimbabwe project team also developed curricula and training materials for the Institute of Agricultural Engineering (IAE) which is expected to become a perennial center offering practical courses on small mechanization (including CA and agribusiness aspects). Training materials on the operation and maintenance of equipment were drafted (Annexes 3, 4, and 5). The training manual on business management developed during the first phase of FACASI was used for agribusiness training sessions (Annex 6). These materials will be finalized in the course of 2018. IAE provided two trainings during the period under review, and 10 more trainings are planned in the coming 2 years (Annex 7).

Figure 3 – Zimplow staff displaying the no till small scale tractor powered planter that was produced through the efforts of FACASI, and which is now commercially available.

To assess the profitability of the hire service businesses, a data collection tool and methodology has been developed (Annexes 8 and 9). The analysis will use ex-post data for each of the hire services offered in the project sites and will examine profitability both from the perspective of the service provider and from the user. In addition, a tool to assess the performance of the business model along the supply chain was also developed (Annex 10). This tool is designed to better understand the business enabling environment, to assess end-market opportunities (dimensions, segments, technology user behaviour, trends and growth rates, product and process standards in procurement, etc), and to understand how the value chain operates (vertical and horizontal linkages, governance structures, support services) and where major constraints and upgrading opportunities are located. Both tools will be used by iDE in Ethiopia and by UZ in Zimbabwe.

To better understand what conditions enable two-wheel tractor entrepreneurs to develop and sustain businesses, a set of tools was developed (Annex 11). These tools will be used by iDE in Ethiopia and the University of Zimbabwe in Zimbabwe. In Zimbabwe, this will be complemented by a student (MSc or PhD) research project (Annex 12). In addition, another set of tools was developed to understand the conditions that enable two-wheel tractor adoption and sustainable utilisation (Annex 13). To understand these conditions in the context of shelling service provision, a social network analysis was also conducted in Zimbabwe (Annex 14).

Finally, a synthesis on the performance of two-wheel tractor hire service business models in the four countries involved in the first phase of FACASI (Ethiopia, Kenya, Tanzania, and Zimbabwe) was produced during the period under review, with the help of a consultant (Annex 15).

Objective 3 - To identify improvements in national institutions and policies for wide adoption of 2WT-based mechanization.

While transiting from the first to the second project phase, FACASI has created strong ties with the Ministry of Agriculture and Natural Resources (MoANR) in Ethiopia, which proves to be one of the strongest scaling partner in the country (as reported above, MoANR imported 100 small mechanization sets, distributed to youth groups across the country – FACASI is providing training and guidance for this initiative). A senior member of MoANR now seats in the Project Steering Committee (Tamiru Habte Woldemariam). Partly through FACASI efforts in the country, small mechanization has been included in the Growth and Transformation Program II.

Zimbabwe is currently formulating two national policy documents in which FACASI had a direct input (though consultation meeting, etc): (1) the National Policy on Agricultural Mechanisation and Irrigation, and (2) the Climate Smart Agriculture Framework. The final policy drafts are yet to be released. A senior member of the Mechanization Department seats in the Project Steering Committee (Tiri Koza) and is instrumental to channel project findings to policy makers.

Objective 4 - To improve capacity and create awareness of 2WT-based technologies in the sub-region, and share knowledge and information with other regions.

Since the beginning of the FACASI variation, the project started to work with the world acclaimed company Hello Tractor on a knowledge sharing platform targeting small mechanization. The platform will be hosted on the website of Hello Tractor, and will be framed around an intuitive interface that will be easily accessible from any device, whether a smartphone, a tablet, a laptop, or a desktop. Materials such as Newsletters, Factsheets, Bulletins and Photobooks produced during the first phase of the project are still hosed by ACT and will remain on the site indefinitely. We will however migrate most of the contents to the new platform once it is ready. Hello Tractor has assigned a resource to work with FACASI and a bi-weekly meeting is currently taking place to put the infrastructure in place. As a preliminary step to setting up the site, a wireframe was created (Annex 16) and shared and upon approval a mock site was developed. The next step is reviewing and approving the design and layout of the mock site (http://knowledgeplatform.hellotractor.com/) prior to populating it with relevant information and making the site publicly available.

A cartoon book aiming at popularizing two-wheel tractor based conservation agriculture was also finalized during the period under review (Annex 17).

A multi-stakeholder (research institutes, NGOs, Ministry, private sector, etc) national advisory meeting was organized on 3 November 2017 in Ethiopia (Annex 18) and on 11 December 2017 in Zimbabwe (Annex 19).

2 Achievement against activities and outputs/milestones

Objective 1: To evaluate and demonstrate 2WT-based technologies to support CA systems, using expertise and implements from Africa, South Asia and Australia

No.	Activity	Outputs/ Milestones	Completion date	Comments	
Output 1.5	**Second generation technological improvement to increase the performance of service provision**				
Activity 1.5.1	Improvement of 2BFG wheat seeders (seed metering devices, blades, transportability) and exploration of the possibility to produce local strip till seeders based on conventional rotovators	Drawings and testing reports. At least 10 improved seeders in use.	Dec 2018 EIAR Lead CIMMYT	2BFG modified for small seeds (teff) Plan to further improve metering devices by producing them locally using a 3D printer (model identified and purchase initiated). Plans to produce locally-made strip till planters from conventional rotovators by modifying the blades and adding seed and fertilizer metering devices (to be produced through 3D printing).	
Activity 1.5.2	Improvement of the Zimplow maize seeders (transportability and soil engagement parts)	Drawings and testing reports. At least 10 improved seeders in use.	Dec 2018 UZ Lead CIMMYT	Improvement of the transportability of the planters (wheeled toolbars with a seat for the operator) and improvement of the field capacity of the planters (starwheel planting system). Continued support to 2 private manufacturers: Zimplow and Grownet. Zimplow sold 6 planters to FACASI in 2016, and 5 to Farm Shop (private agro-dealer) during the period under review. New commercially available Grownet planter (Annex 1). Grownet sold 15 off these planters to a UNDP-funded project operating in the Eastern part of the country.	

Objective 2: To test site-specific commercial systems to deliver 2WT-based mechanization

No.	Activity	Outputs/ milestones	Completion date	Comments	
Output 2.3	**New or upgraded business models supported**				
Activity 2.3.8	Twice yearly training of Ethiopian rural service providers, mechanics, and trainers in wheat-based systems	Training reports. At least 50 men and women trained during each training.	On-going until Feb 2019 SVTC (lead) CIMMYT, EIAR	Two technical trainings on calibration, operations and maintenance of tractors and ancillary equipment provided to 13 members (4 females) of youth group management committee. Two training sessions on hire service business management provided to the same 13 youth.	
Activity 2.3.9	Twice yearly training of Zimbabwean rural service providers, mechanics, and trainers in maize-based systems	Training reports. At least 50 men and women trained during each training.	IAE (lead) CIMMYT, UZ	Week long training on technical and business issues provided to 20 service providers from Makonde District, at the Institute of Agricultural Engineering. Another week long training was provided to service providers from a new UNDP-funded project.	
Output 2.4	**Performance of the new or upgraded model assessed**				
Activity 2.4.3	Socioeconomic analysis of the mechanization service packages offered by hire service business models	Report on the costs and benefits of small mechanization service packages for rural service providers and users At least 30 service providers assessed in each country	On-going until Feb 2019 iDE, UZ, CIMMYT (lead)	Data collection tools and methodology have been developed (Annexes 8 and 9) and will be used to collect data starting February 2018.	
Activity 2.4.4	Assessment of the performance of business models along the supply chain (local importers, manufacturers, hire services providers)	Report on the incentive structure and supply chain in small mechanization business At least 30 service provision business models assessed in each country	Feb 2018 iDE, UZ, CIMMYT (lead)	The data collection tool for assessment of performance of the business model along the supply chain has been finalized (Annex 10) and will be used to collect data starting February 2018. A synthesis on the performance of two-wheel tractor hire service business models in Ethiopia, Kenya, Tanzania, and Zimbabwe was produced (Annex 15).	
Output 2.5	**Performance of the new or upgraded model assessed**				

No.	Activity	Outputs/ milestones	Completion date	Comments	
Activity 2.5.1	Analysis of structural and cognitive drivers of mechanization, especially related to costs and benefits, and the way they influence 2WT adoption decision-making	Report on the relationship among structural factors and cognitive drivers of mechanisation (i.e. their influence on 2WT adoption decision-making) Policy brief on structural factors of 2WT entrenchment At least 30 service providers assessed in each country	March 2018 CIMMYT (lead) June 2018 CIMMYT (lead)	A set of tools was developed to better understand what conditions enable two-wheel tractor entrepreneurs to develop and sustain businesses (Annex 11). A student (MSc or PhD) research proposal was developed for Zimbabwe (Annex 12). The student project will start early 2018.	
Activity 2.5.2	Study functions of, and loops in social networks as regards how they limit referrals and influence adoption of 2WT	Report on functions and loops in mechanisation related social networks Networks including at least 100 households per country analyzed	Sep 2018 CIMMYT (lead)	A set of tools was developed to understand the conditions that enable two-wheel tractor adoption and sustainable utilisation (Annex 13). A social network analysis was also conducted in Zimbabwe in the context of shelling service provision (Annex 14).	

Objective 4: To improve capacity and create awareness of 2WT-based technologies in the sub-region, and share knowledge and information with other regions.

No.	Activity	Outputs/ milestones	Completion date	Comments	
Output 4.1	**Outputs from the project available to project partners and partly available to the public**				
Activity 4.1.5	Development of a knowledge sharing platform on small mechanization in developing countries	Summaries of discussions on particular topics. At least 6 discussions per year. Communication products from the first phase available on the platform	On-going until June 2019 CIMMYT	As a preliminary step to setting up a knowledge sharing site, a wireframe was created (Annex 16), shared and currently under review (http://knowledgeplatform.hellotractor.com/) The FACASI cartoon book was finalized (Annex 17).	
Output 4.2	**Awareness on 2WT-based technologies created at various levels**				
Activity 4.2.6	Annual advisory and scaling meetings	Minutes of the meetings	NARS (lead) CIMMYT	A multi-stakeholder national advisory meeting was organized on 3 November 2017 in Ethiopia (Annex 18) and on 11 December 2017 in Zimbabwe (Annex 19).	

3 Project Outcomes and Impacts

3.1 Research Outcomes

Outcome 1 - Adoption of 2WT-based technologies by smallholders

In both Ethiopia and Zimbabwe, the number of service providers is increasing. In Ethiopia, this doesn't include 60 user groups that have receive a two-wheel tacor (but no seeder, reason for them not to be included in the graph). In Zimbabwe, as a result of exposure to FACASI, smallholders have also began to purchase two-wheel tractors and direct seeders on their own, with no financial assistance from the project. For instance, 15 farmers from Makonde district have organised themselves to procure double row Fitarelli planters from Brazil (one each). Two of them have already acquired their planters, and the other 13 are awaiting for the local dealer to import the units.

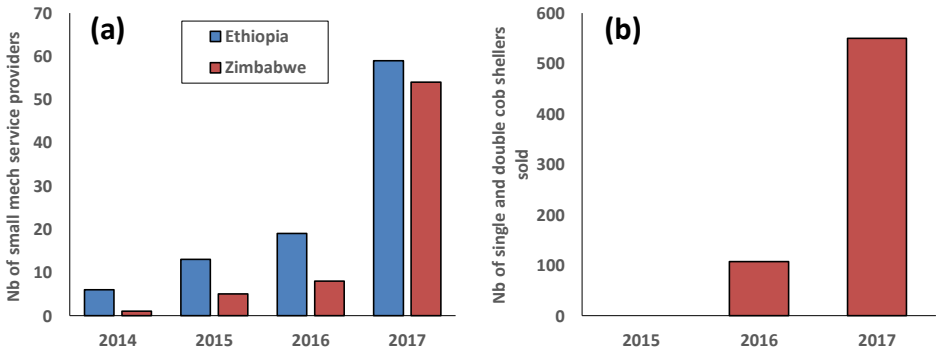

Figure 4 – Increase (a) in the number of small mechanization service providers (planting + shelling service providers) from 2014 to 2017 (cumulative); and (b) in the number of small shellers (single and double cob) sold in Zimbabwe (sales per year).

Outcome 2 - Increased sale/import/use of 2WT and ancillary equipment

In Ethiopia, Amio engineering imported 100 two-wheel tractors with accessories in 2017 alone. The same year, METEC imported, assembled and sold 200 units of two-wheel tractors. METEC has distributed a total 1,100 two-wheel tractors with accessories in the country since 2013. In addition, the USAID-funded project Africa RISING and the GIZ-funded project 'Appropriate Mechanization for Sustainable Intensification of Smallholder Farming in Ethiopia' continue to support two-wheel tractor based mechanization in the country and to make use of the outputs of FACASI. There are now nodes of small mechanization in Oromia (Assela, Zeway), SNNPR (Hawassa), Oromia (Bako), Amhara (Debre Markos) and Tigray (Adwa).

In Zimbabwe, ATA imported and sold 50 two-wheel tractors in 2017, and 273 since 2013. The data from the other 6 dealers is not available yet. The small mechanization supply chain has developed steadily in Zimbabwe since the start of the project: the number of two-wheel tractor dealers increased from from 3 in 2015 to 7 in 2017, the number of sheller manufacturers from 1 in 2015 to 7 in 2017, and the number of CA seeder manufacturers from 0 in 2015 to 2 in 2017.

The increased sale of single and double cob shellers (from local dealers including Bhola Harware, Farm & City, ATA, etc) as a result of FACASI promotional activities has been dramatic in Zimbabwe (Fig. 4b).

Outcome 3 - 2WT-based market systems supported by private sector

Amio and METEC in Ethiopia, and ATA and 6 other dealers in Zimbabwe are supporting the import of small mechanization equipment. Bhola Hardware and Farm & City in Zimbabwe are also importing single and double cob shellers.

Because of its involvement in FACASI over the past years, Amio is now importing the 2BFG seeders (which can be used for direct seeding) in Ethiopia. METEC has also diversified the range of ancillary equipment for two-wheel tractors it imports, to include threshers, trailers and pumps. METEC is also considering importing seeders.

Thanks to the support of FACASI (design, testing, training, etc), Zimplow and Grownet both produce commercially a two-wheel tractor seeder. Grownet also manufactures shellers commercially after its involvement in FACASI, and sold 26 of them in 2017 alone.

Outcome 4 - Mechanization- and business- friendly policies

See section 3.4.4.

3.2 Scientific impacts

A peer review paper tiled '*Labour and mechanisation of African smallholder agriculture: the myths, the reality*' was drafted, based on the baseline survey data and the focus group discussion data collected during the first phase of FACASI (Annex 20). A peer review paper titled '*Drivers of Agricultural Mechanization and Mechanized Conservation Agriculture: Synthesis from country cases*' is being drafted (Annex 21). A peer reviewed paper article titled '*Is labour a major determinant of yield gaps in sub-Saharan Africa? A case study for cereals in Southern Ethiopia*' is in the final stage of preparation and will be submitted early 2018 (Annex 22).

Two MSc research projects were completed during the period under review. The first one is titled '*Analysing the social network of technology and information transfer for maize sheller service providers in Zimbabwe*' and was executed by Mutsvandiani Chikutuma from Wageningen University, The Netherlands (Annex 14). The second one is titled '*A comparative analysis of business models of two-wheel tractors in Babati District, Manyara Region, Tanzania*' and was executed by Baraka Mbesa from Sokoine University, Tanzania (Annex 23)

A synthesis on the performance of two-wheel tractor hire service business models in Ethiopia, Kenya, Tanzania, and Zimbabwe was produced, and could be turned into a peer review paper (Annex 15). Finally, the FACASI team is preparing a chapter titled '*The role of mechanization in the sustainable intensification of smallholder agriculture in Eastern and Southern Africa*' for the SIMLESA book '*Sustainable Intensification of Maize Legume Farming Systems for Food and Nutrition Security in Eastern and Southern Africa*'.

3.3 Capacity impacts

Training centers

The Institute of Agricultural Engineering (IAE) in Zimbabwe and Selam Vocational Training Center (SVTC) are being capacitated to offer small mechanization training (technical and agribusiness aspects). FACASI assists these centers to develop training programs and training materials (Annexes 3, 4, 5, and 6). It is hoped that these two institutes will become perennial centers for training in small mechanization in the region. Actually, IAE started running courses to clients outside of FACASI, for example to a UNDP-funded project that started recently. SVTC also

provided training to the GIZ-funded project 'Appropriate Mechanization for Sustainable Intensification of Smallholder Farming in Ethiopia' and to the USAID-funded project Africa RISING.

Importers and manufacturers

FACASI continues to build the capacity of importers (in particular Amio and METEC in Ethiopia, and ATA in Zimbabwe) and manufacturers (in particular Zimplow and Grownet in Zimbabwe). This is done through formal trainings (e.g., manufacturers), exchange of designs, joined testing of equipment, equipment promotion, et.

Service providers

During the period under review, 13 and 38 service providers were trained on small mechanization in Ethiopia and in Zimbabwe, respectively.

Academic training

Two MSc student completed their research during the period under review (Annex 14 and 23). Three additional Tanzanian MSc student were sponsored by the project and their theses will be defended soon.

In Zimbabwe, four agricultural college students are currently on a year-long attachment on FACASI project.

FACASI has also influenced Agricultural Colleges in Zimbabwe (which offer diploma level skills training) to incorporate small mechanization and CA in their curricula on agricultural engineering.

3.4 Community outcomes and impacts

3.4.1 Economic impacts

In Ethiopia, a cost benefit analysis of two-wheel tractor hire service business models conducted in Hawassa, Meki and Zeway revealed a gross margin per ha 24% higher – on average – for farmers hiring two-wheel tractor planting services compared with farmers using conventional crop establishment methods (draught power and manual labour). Increased profitability was due to reduced production cost (41% of service users), increased their production (41% of service users) and time saving (18% of service users). 60% of users declared being very satisfied with the service provided, and 40% quite satisfied.

In Zimbabwe, a cost benefit analysis demonstrated an average gross margin per ha 18% higher for farmers hiring two-wheel tractor planting services compared with farmers using conventional crop establishment methods. 89.5% of the users highlighted general satisfaction with the service they received. 100% of the users were satisfied with the timeliness of the operations. 36.8% of the respondents highlighted an increase in productivity.

In Zimbabwe, shelling hire service business models were also analysed. 46% of the farmers highlighted an increase in income due to the shelling services, and 92% declared being satisfied with the shelling services the received. 100% were satisfied with the timeliness of the service.

3.4.2 Social impacts

The reduction in drudgery from mechanized planting was highlighted by 18% of the service users in Ethiopia and 47% of the service users in Zimbabwe. The reduction in drudgery from mechanized shelling was highlighted by 100% of the service users in Zimbabwe; all of them also mentioned a positive effect of mechanized shelling on the drudgery of women and children.

In Ethiopia, the Ministry of Agriculture and Natural Resources specifically target youth; as such all machinery owners and operators are youth members. In Zimbabwe, 47% of machinery owners and operators are youth members.

3.4.3 Environmental impacts

In Zimbabwe, 26% of the service users noted savings in energy, especially amongst those who were used to hiring larger tractors.

Moreover, a shift from animal draught power to tractor power would lower emissions by livestock and release some crop residues from being used to feed draught animals (the quantity of which being estimated to several tonnes per year in Ethiopia by Baudron et al., 2015) to (potentially) being retained on the fields as organic amendment. These reductions in emissions should be weighed against increases in emissions due to the combustion of fossil fuel and the manufacturing and transport of equipment. This calls for a life cycle assessment, which we hope to conduct (pending to additional funding) in 2018.

3.4.4 Policy impact

F. Baudron was invited to a policy meeting organized in Addis Ababa from 31 October to 1 November 2017 and titled '*South-South Knowledge Sharing on Agricultural Mechanization*' (www.ifpri.org/event/south-south-knowledge-sharing-agricultural-mechanization), where he presented the FACASI experience (Annex 24).

In both Ethiopia and Zimbabwe, the national roundtable organized regularly by FACASI (see Annexes 18 and 19) are starting to get the attention of policy makers.

In Ethiopia, the Ministry of Agriculture and Natural Resources has recently developed a mechanization implementation strategy plan, with strategic input from FACASI. Partly through FACASI efforts in the country, small mechanization has been included in the Growth and Transformation Program II.

Zimbabwe is currently formulating two national policy documents in which FACASI had a direct input (though consultation meeting, etc): (1) the National Policy on Agricultural Mechanisation and Irrigation, and (2) the Climate Smart Agriculture Framework. The final policy drafts are yet to be released. A senior member of the Mechanization Department seats in the Project Steering Committee (Tiri Koza) and is instrumental to channel project findings to policy makers.

In Zimbabwe, as a result of the FACASI project lobbying the drafting teams, the Department of Mechanisation, in the Ministry of Agriculture, Lands and Rural Resettlement has adopted the combination of small mechanisation, conservation agriculture and private sector involvement as a key element of two national policy documents addressing mechanisation and climate smart agriculture: The Mechanisation and Irrigation Policy for Zimbabwe, and the Climate Smart Agriculture Policy Framework for Zimbabwe.

3.5 Stakeholder engagement and Communications

In Zimbabwe, FACASI reach hundreds of potential service providers and service users through field days and shows during the period under review (see table below).

Date	Event	Equipment	Males	Females
12/6/17	Mutoko demonstration	Shellers and planter	15	17
29/6/17	Nyahondo field day Mhangura	Shellers and planters	100	100
11/8/17	Mashonaland West Provincial show	Shellers and planters	300	200
21-26/8/17	Harare Agricultural show	Shellers and planters	900	300

FACASI outputs are being used in the two countries by several project, including the GIZ-funded project 'Appropriate Mechanization for Sustainable Intensification of Smallholder Farming in Ethiopia' and the USAID-funded project Africa RISING in Ethiopia, and the Syngenta Foundation for Sustainable Agriculture-funded project 'Developing approaches for sustainable access to mechanization for small holder farmers' and the UNDP-funded project 'Program for Growth and Resilience' in Zimbabwe. These partnerships multiply the reach and impact of FACASI.

Regarding project communication, all material produced by FACASI during the first phase of the project (e.g., newsletters, factsheets, bulletins, photobooks, video, etc) will continue to be hosted on ACT website indefinitely (www.facasi.act-africa.org). We will however migrate most of the contents to the new platform (www.knowledgeplatform.hellotractor.com) once it is ready. FACASI progress is also being communicated widely through regular and numerous tweets from the Project Leader (@FBaudron) and the Project Manager (@rahel1208).

4 Training and capacity building activities

See section 3.3 above.

5 Intellectual property

No issue to report for the period under consideration.

6 Amendments to personnel and project activities

The period under review marks the transition of the project from its first phase to its second phase (variation). The variation being implemented in Ethiopia and Zimbabwe only, all the personnel from KENDAT and DRD is no longer part of the project personnel. Only two staff members from EIAR (Ethiopia) and two staff member from UZ (Zimbabwe) are involved in the variation. iDE remains involved in the variation (with two staff members). CIMMYT staff has also been reduced

to only include a Project Leader (who remains F. Baudron) and Project Manager (who remain R. Assefa), and Integrated Mechanization Expert (R. Yahaya), a consultant Business Model Specialist (D. Kahan), an Innovation Scientist (M. Misiko) and two national Business Model Specialists (E. Tadesse and D. Matangi). CSU is not part of the variation but A. Woodhead from USQ was contracted to contribute to the variation. ACT is not part of the variation, but J. Oliver from HelloTractor was contracted to handle the project communication. IFPRI and FAO are not part of the variation. The Ethiopia team is joined by one staff from Selam Awassa Business Group and the Zimbabwe team by one staff from the Institute for Agricultural Engineering.

R. Bell, G. Mburathi and T. Koza remains Project Steering Committee (PSC) members in the variation. However, A. Tadesse was replaced by Tamiru Habte Woldemariam for the Ethiopia representation. The PSC will also be joined by two new members: E. Fleming (from the University of New England) and J. Oliver (from HelloTractor, as a representative of the private sector).

The CVs of the new project personnel was shared during the submission of the variation.

7 Problems and opportunities

In Ethiopia, the delayed start of the variation (signed in June) resulted in the loss of the 2017 cropping season for demonstrations, trials, and related activities. In addition, the unrest in some part of the country has also created a problem on traveling to each site and provide backstopping support to service providers.

In Zimbabwe, the strong engagement of private sector is in line with the new government's policy on strengthening local manufacturing capacities, particularly in agriculture, and this is expected to create numerous opportunities.

8 Evaluative Learning

The project has synthesized its learnings in a short document to assist other interventions aiming at promoting small mechanization in the region with strong private sector engagement (Annex 25).

9 Budget

No issue to report for the period under review.