



Progress Report Integrated Seed Sector Development Myanmar: 2020

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Contents

1	Key Project Data	3
2	Executive Summary	3
3	Introduction	6
4	Results and Outcome	6
1	Sustainability	15
2	Risks	16
3	Finance	16
4	Lessons learned	16

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Reporting Period	2020	Reporting Institution	Wageningen University & Research
Reporting Manager	Abishkar Subedi ISSD Myanmar programme leader	Date	23 April 2021

1 Key Project Data

Project Title	Integrated Seed Sector Development Myanmar: Developing a Vibrant Public-Private Seed System for Rice, Oilseeds and Legumes in the Dry Zone (ISSD Myanmar)					
Duration of project	Current phase	2017-2021	Project launch	1/1/2017	Closing date	30/06/2021
Budget	Budget for reporting period	€438,938	Overall budget	€ 1,499,639	Overall contribution by	

2 Executive Summary

The Integrated Seed Sector Development (ISSD) Myanmar programme has three components, which correspond with its three outcome areas. The first component is seed sector coordination, with the outcome of improving seed sector coordination; the second is early generation seed (EGS) production, with the outcome of increased business performance of EGS producing seed farms; and the third is seed business development, with the outcome of increased local availability and uptake of quality seed at affordable prices to smallholder farmers. The main results of 2020 for the three components are presented below.

Improved seed sector coordination

- ISSD Myanmar established a partnership with the Syngenta Foundation to further strengthen the capacity of the newly established Myanmar Seed Association (MSA). MSA was legally registered in August 2019 at the Directorate of Investment and Company Administration (DICA) of Myanmar. ISSD Myanmar programme played a key role in the establishment of MSA. In 2020 ISSD Myanmar supported the Association in the recruitment of an Executive Secretary and the development of a Strategic Plan for the next four years. The Strategic Plan includes activities to expand services to members and have a more regular and structured dialogue with government office like the Seed Division and Plant Protection Division.
- A seventh national seed sector platform meeting was organized online on 3 June 2020. The topic was 'A national Covid-19 response for the seed sector' and was attended by 40 participants (13 from the public sector, 10 from the private sector, 9 from development partners and 8 from non-governmental organisations). During the meeting the rapid assessment report of impact of Covid-19 on Myanmar's seed sector was presented. The meeting was successfully finished and all the presentations and meeting report can be found through the following link: <https://issdmyanmar.org/2020/06/04/7th-national-seed-sector-platform-meeting-in-the-air/>
- ISSD Myanmar together with Department of Agriculture (DOA) undertook a rapid assessment of Covid-19's impact on the seed sector in April 2020. A survey was implemented under 36 informants from 23 organisations and results were validated through three panel discussions with 20 experts. Four alerts were identified:
 - Measures reduced the mobility of farmers and seed entrepreneurs, and thereby reduced farmers' access to quality seed
 - Measures affected regulatory functions in seed import, variety release, and registration
 - Measures affected the affordability of quality seed for farmers
 - Measures hampered the production and supply of early generation seed (EGS)

Separate discussions were held with MOALI to discuss the outcomes of the alerts. The process supported the development of a Covid-19 economic recovery plan for the seed sector by the Myanmar government. The seed alert document was published in May 2020 and can be accessed through this link: <https://issdmyanmar.files.wordpress.com/2020/06/covid-19-seed-alert01-myanmar.pdf>

- We carried out studies on quality seed trials to generate field evidence on the additional yield farmers gain in the Dry Zone by using quality seed of improved varieties. The study found that seed produced by seed farms performed well in the farmer trials, yields of these seeds were respectively 25.8%, 32.8% and 21.7% higher for rice, green gram and sesame than farm saved seed. In addition, seed produced by seed companies also had higher yields than farmer saved seed. For the trials undertaken at farmer fields the difference for rice was 26.2%, for green gram 24.1% and for sesame 12%.

Increased business performance of EGS producing seed farms

- Three domestic seed companies (Green Growth Generation seed company based in Mandalay, Greenish Sagaing seed company based in Sagaing region, and Shwe Nan Taw seed company based in Mandalay) have successfully implemented the first year of forward contracting agreement with DAR for the access to agreed volume of the early generation seed (breeder and foundation seed). One additional crop 'groundnut' was added in 2020 so the total crop under the long-term contract now reached to six including sunflower, chickpea, green gram, sesame and rice. The long-term contract on access to EGS is for five years. This business model will be helpful in solving one of the key bottlenecks in the lack of sufficient volume of EGS in the Dry Zone.
- The variety use agreement model with regional exclusivity has been approved by DAR to improve the sustainable supply of EGS. However there is a need of National Seed Committee's (NSC) approval because it includes royalty fees terms and conditions. In this model DAR will organize a partnership with a private seed company to provide a variety use agreement for a specific geographical region. At the same time, the selected variety will be available in other regions for other seed companies. In return seed companies provide a fixed-rate of royalty fee to DAR.
- We scaled up the digital EGS demand forecasting and supply system to 14 major food security crops and 227 varieties. The digital forecasting system has three key functions a) a mobile based application system for seed demand where EGS users can place their seed demand and at the same time farmers can purchase the certified seed b) mobile based application system for seed producers who can make seed production planning and place their seed production figure in the system and c) seed producer registration software to register existing and new seed producers by DOA. All three systems are interlinked to digitize: seed production, demand requests and seed transactions on a real time basis. The mobile based application system 'Quality seed' is freely downloadable from google play store.
- Two refresher training programmes were organised on quality EGS production and the characteristics of new varieties for the seed producers and private seed companies for sunflower and chickpea crops. These training were organised on 9 February 2020 in Kyaukse, Mandalay Region and on 11 February, 2020 in Monywa, Sagaing region. A total of 65 seed producers were benefited in the areas of importance of pollination in seed production, isolation distance, plant protection, soil management, weed control, rouging, harvesting, field inspection, post-harvest operation and seed inspection.
- A 3-day seed business model training was organised during the 17-19 August 2020 for seed farm managers. A total of 45 participants from DOA and DAR from different states and regions had improved their knowledge and skills on seed business, seed value chains and EGS production, seed quality control and seed sector governance, plant breeding and varietal use as well as seed laws and regulations. During the training the participants actively discussed about their challenges to run the seed farms in order to comply with the government's rules and regulations.
- On-line training of trainers (TOT) on data entry and data management in the digital seed demand forecasting was organised for DOA staff on the usage of the digital demand forecasting system and how to enter the data was organized on 10th September 2020 with 16 participants from Seed Division (DOA), Yezin Agricultural University and DAR.

Increased local availability and uptake of quality seed at affordable price to smallholder farmers

- For 2020, supported seed producers and domestic seed companies produced a total of 4,308 metric tons of seed out of which 94 % was sold to farmers. The variety portfolio consisted of eight crops and 33 improved varieties. The programme supported a total of 72 seed producers and four domestic seed companies in Sagaing and Mandalay regions

- We reached an additional 46, 818 farmers directly in 2020 through quality seed sales (45,747 farmers), quality seed trials (141 farmers) and field demos (930 farmers). Farmers' use of quality seed of improved varieties covered an additional 44,3525 ha of crop land from the 2020 seed sales.
- We further strengthened the the local seed business scaling partnership with Cooperative Department (DOC) of MOALI. Scaling was achieved with an additional 311 seed producers from 16 townships of Nay Pyi Taw and Bago region of the Dry Zone in 2020.
- A total 62 Field demonstrations were conducted by seed producers and domestic seed companies to create awareness and increase uptake of quality seed by farmers. A total of 330 new improved variety demonstration plots (11 varieties of rice, 8 varieties of sesame,7 varieties of chickpea, 2 varieties of groundnut,1 variety of green gram,1 variety of pigeon pea) were demonstrated in the field. A total of 9,30 farmers visited the field demos by maintaining the COVID-19 social distancing guidelines as administrated by the Myanmar government
- Partnership with two additional seed companies from the Netherlands (Bejo and Solynta) was implemented in the establishment of pre-commercial trial of two hybrid potato in the Shan state and to assess local production suitability and market/consumer preference. We continued strengthening the partnership with four domestic seed companies for increased volume of seed production of programme focus crops.
- Mobility restrictions and social distancing measures impacted on conducting the larger group based training and workshop to the seed producers. Instead of this, programme team developed smaller group and shorter format of training and coaching sessions. A total of 165 seed producers benefited from such training session which focussed on quality seed production and seed business development. Larger workshop was organised by using the online platform such as zoom.

Lessons learned

We learned that the integrated nature of the project is well-appreciated by the Myanmar government and private sector. The programme embeddedness within the Ministry of Agriculture's Seed Division and partnering with WHH who has strong field presence significantly helps in achieving our targets. Even though the outbreak of Covid-19 in 2020 we were still able to implement a large number of activities. Our team on the ground, both in Nay Pyi Taw and Sagaing, was able to continue training activities for DOA and DAR staff as well as seed producers and seed companies. Working on both systemic bottlenecks in the enabling environment (such as quality EGS provision and improving the seed business climate) and training activities on the ground (supporting seed farms, seed producers and seed companies), was of considerable help in developing a more vibrant public-private seed sector. Strong relations between government experts, seed farms and seed producers also helped significantly in improving quality seed production (the volume of seed), seed quality (genetic and physical purity / certification) and the variety portfolio (ensuring a greater choice for farmers and the introduction of new varieties).

Conclusions and follow-up steps

We have achieved the main outputs and outcomes of the programme and developed a sound strategy for exit. These includes improved private sector role and policy advocacy by legal registration of Myanmar Seed Association (MSA), initiation of improved seed sector coordination role together by MSA and DOA, development of alternative business models on EGS production in the DOA and DAR farms for example long-term forward between the DAR and private seed companies and use of digital systems for seed demand forecast and supply. The development of scalable local seed business model which is now fully institutionalised by the DOC. DOC has established a separate Seed Producer Cooperative unit, which provides legal registration and long-term institutional support to thousands of informally organized small-scale seed producers. The DOC has already put six fulltime staff in the new SPC unit.

The military coup that started in February 2021 however it will have some consequences on the finalization of two activities that needed dialogue between MOALI officials and National Seed Committee (NSC). The NSC meeting has been suspended now. Most activities now focus on documentation of lessons learned in particular of the institution innovation related to the seed producer cooperative model, quality seed production manual, the seed farm cost-recovery model (a write-up), scaling the digital seed demand forecasting system and strengthening the Myanmar Seed Association.

3 Introduction

The ISSD Myanmar programme envisions a vibrant and pluralistic seed sector that caters for the quality seed needs of smallholder farmers in Myanmar's Dry Zone. The programme consists of three different components, which are also the three outcome areas of the programme. The first component is seed sector coordination, with the outcome of improving seed sector coordination. The second component is EGS production, with the outcome of increased business performance of EGS-producing seed farms. The third component is seed business development, with the outcome of increased local availability and uptake of quality seed at affordable prices to smallholder farmers.

The first two components are coordinated by MOALI through a dedicated ISSD programme office located within the DOA's Seed Division in Nay Pyi Taw. The third component is coordinated by Welthungerhilfe (WHH) through two field offices located in Myinmu and Pathengyi townships in the Dry Zone. The Wageningen Centre for Development Innovation (WCIDI), Wageningen University and Research (WUR), is the overall coordinator of the consortium and the liaison point for the Netherlands Directorate-General for International Cooperation (DGIS). WCIDI is responsible for project financial control, monitoring and evaluation, reporting and accountability, and technical assistance. Resilience BV provides technical assistance for the implementation of the first and second programme component.

The ISSD Myanmar programme operates in four regions of the Dry Zone of Myanmar: Sagaing, Mandalay, Nay Pyi Taw and East Bago. The eight selected crops are: rice, green gram, black gram, pigeon pea, chickpea, sesame, groundnut and sunflower. The programme aims to reach 75,500 smallholder farmers with locally available quality seed of well adapted varieties of rice, food legume and oilseed crops in the Dry Zone of Myanmar.

4 Results and Outcome

We have organised this chapter according to the three programme components and the outputs and outcomes associated with the components.

4.1 Seed sector coordination

Improved seed sector coordination is the first outcome of ISSD Myanmar. MOALI coordinates this component with support from Resilience BV and WUR. In table 1 we provide the key outcomes and outputs against the target indicators for component 1 in 2020. A summary of the main achievements of the programme for 2020 are explained below.

Table 1. Key outcomes and outputs against the target indicators for component 1 in 2020

Indicator	EOP target	2018 result	2019 result	2020 result	Total	% EOP reached
OUTCOME 1: Improved seed sector coordination						
# of collaborations established or strengthened	15	7	4	3	14	93%
# of studies implemented in the Dry Zone	6	6	0	0	6	100%
# of actors participating in seed platform meetings	40	75	75	40	75	188%
Types of actors participating in seed platform meetings	7	9	10	11	11	157%
# of joint pilots on seed value chain issues endorsed	4	3	1	0	4	100%
# of regional seed growers associations established	4	0	0	0	0	0%
National seed association established	1	0	1	1	1	100%
# of seed association meetings	4	0	2	2	4	100%
# of seed association members	12	0	12	12	12	100%
# of studies implemented in the Dry Zone	2	1	1	2	4	200%

4.1.1 Implementation of seed demand assessment study for the Dry Zone

The study on seed demand assessment was done in 2018 in partnership with the Centre for Economic and Social Development (CESD), DAR, Michigan State University (MSU) and International Food Policy Research Institute (IFPRI). The study was undertaken in six townships of the Dry Zone, interviewing 1,383 farm households growing rice, pulses and oilseed crops. The publication of the study can be found in the weblink:

<<https://www.canr.msu.edu/resources/variety-adoption-and-demand-for-quality-seed-in-the-central-dry-zone-of-myanmar>>

4.1.2 Establishment and facilitation of national seed sector platform

Because of the Covid-19 mobility restrictions, the seventh national seed sector platform meeting was organized online on 3 June 2020. The topic was 'A national Covid-19 response for the seed sector' and was attended by 40 participants (13 from the public sector, 10 from the private sector, 9 from development partners and 8 from non-governmental organization). At the meeting, DG of Department of Agriculture delivered the opening speech and DG of Department of Planning shared response of MOALI to Covid-19. ISSD Myanmar Programme leader Dr. Abishkar Subedi presented the rapid assessment report of impact of Covid-19 on Myanmar's seed sector. Mr. Brett Ballard from Livelihood and Food Security Fund (LIFT) and Mr. Ashok Murarka presented their organisation's response to the crisis: respectively the cash for work programme and Tropical Biotechnology company's response to Covid-19.

The meeting organized four break-out sessions: (1) mobility and logistics for all seed related activities; (2) emergency response for hardest hit households; (3) demand side challenges: creating incentives for farmers to buy seeds; and (4) supply side challenges: supporting seed companies and producers. The rapporteurs of four groups presented the biggest issues, solutions and key stakeholders involved in each action in the plenary session. The meeting was successfully finished and all the presentations can be found through the following links: <<https://issdmyanmar.org/2020/06/04/7th-national-seed-sector-platform-meeting-in-the-air/>>

In the end, we didn't organize the 8th National Seed Sector Platform meeting. Main reason for this was the approved budget neutral extension till June 2021, and the plan to organize one last big 'physical' event in Q2 of 2021, in which all achievements and activities of ISSD Myanmar would be presented and discussed. Due to the coup in February 2021 it is unlikely that this event still takes place.

4.1.3 Establishment and support of the National Seed Association

The ISSD Myanmar programme established a partnership with Syngenta Foundation to further strengthen the capacity of the newly established Myanmar Seed Association (MSA). MSA was officially registered on 9 August 2019 at the Directorate of Investment and Company Administration (DICA). ISSD Myanmar played an important role in the establishment of MSA. The partnership with Syngenta Foundation includes financial support to MSA in strengthening the secretariat.

In 2020 ISSD Myanmar supported the Association in the recruitment of an Executive Secretary. Together with the Board of MSA a vacancy was developed and candidates were interviewed. The Executive Secretary started on January 2021. In addition, ISSD Myanmar supported the Association in the development of a Strategic Plan for the next four years. The Strategic Plan includes activities to expand services to members and have a more regular and structured dialogue with government office like the Seed Division and Plant Protection Division.

4.1.4 Implementation and presentation of studies on key seed sector bottlenecks

Rapid assessment of Covid-19 impact to the Myanmar seed sector: seed alerts (April-May)

The global pandemic of Covid-19 resulted in mobility restrictions in Myanmar. This has impacted the operations of the seed sector. However, there was less clarity on the specific parts of the seed sector that were impacted by Covid-19. Therefore, the ISSD Myanmar programme team and the Department of Agriculture (DOA) of MOALI took the lead in conducting a rapid assessment. The rapid assessment looked at the impact of Covid-19 measures on the Myanmar seed sector. As such, in April 2020, we undertook a survey with 36 informants from 23 different organisations, representing the private sector, public sector and NGOs. The survey results were shared in three focus group discussions with panels of in total 20 experts. Discussions focused on the crops: rice, pulses and oilseeds. We developed a dashboard to visualize the level of impact ('severe negative impact', to 'no impact') on different aspects of seed sector performance. Together with the panels of experts we prioritized four alerts; key bottlenecks and challenges to the seed sector and how to respond to these specific challenges. The four alerts were:

- Alert 1: Measures reduced the mobility of farmers and seed entrepreneurs, and thereby reduced farmers' access to quality seed
- Alert 2: Measures affected regulatory functions in seed import, variety release, and registration
- Alert 3: Measures affected the affordability of quality seed for farmers
- Alert 4: Measures hampered the production and supply of early generation seed (EGS)

The seed alert was shared during the seventh national seed sector platform meeting on 3 June 2020. Also separate discussions were held with MOALI to discuss the outcomes of the alerts (and possible mitigation measures). This processes were found to be helpful in the development of a Covid-19 economic recovery plan for the seed sector by the Myanmar government. The seed alert document was published in May 2020 and can be accessed through this link <<https://issdmyanmar.files.wordpress.com/2020/06/covid-19-seed-alert01-myanmar.pdf>>

Rapid assessment of Covid-19 impact to the Myanmar seed sector: seed alerts (June-July)

The level of mobility restrictions changed in the period May-June and this resulted in a different type of impact on the seed sector. We repeated the rapid assessment in June with the same respondents and focus group participants. However, we have focussed on vegetables and field crops this time. Four alerts identified in June-July assessment are:

- Alert 1: Measures reduced the activity of variety development and release
- Alert 2: Measures affected the seed production operations
- Alert 3: Measures affected seed marketing
- Alert 4: Measures affected the reduced food, nutrition and income security of the country

Peer review article publication of Covid-19 impact on the seed sector

The ISSD Myanmar programme team of WUR and MOALI (Myanmar), together with the project teams of Nigeria, Ethiopia and Uganda jointly published the journal article: 'Rapid assessment of the impact of Covid-19 on the availability of quality seed to farmers: Advocating immediate practical, remedial and preventive action'. The article was published in the journal Agricultural Systems. The article is open access and can be found through the link <<https://www.sciencedirect.com/science/article/pii/S0308521X20308982>>

Quality seed trials

We carried out studies on quality seed trials to generate field evidence on the additional yield farmers gain in the Dry Zone by using the quality seed of improved varieties. We choose three crops for analysis as indicator crops for the Dry Zone. The crops included rice (cereal), green gram (pulses) and sesame (oilseed crop). From our previous study, we found that farmers source the seed of these crops from four major seed channels or seed systems, i.e. informal seed system (farm saved seed), intermediary seed system (seed produced by seed producers or cooperatives), public seed system (seed produced by public seed farms) and private seed system (seed produced by private seed companies). We decided to include all four sources of seed per crop in the analysis. In our trial, we used farm saved seed (or informal seed) as control to see whether farmers would gain by purchasing the certified or quality seed from the market. We established 5 replicates per crop in the Department of Research (DAR) station in Yezin. While we also established 47 field trails per crop in the farmers

field in Mandalay and Sagaing, observing yield differences between the research station and farmers condition. The study found that seed produced by seed farms performed well in the farmer trials, yields of these seeds were respectively 25.8%, 32.8% and 21.7% higher for rice, green gram and sesame than farm saved seed. In addition, seed produced by seed companies also had higher yields than farmer saved seed. For the trials undertaken at farmer fields the difference for rice was 26.2%, for green gram 24.1% and for sesame 12%.

4.2 EGS production

The second outcome of the ISSD Myanmar programme is the increased business performance of EGS-producing seed farms. Within the public system, DAR and DOA seed farms are responsible for EGS (breeder seed, foundation seed and registered seed production); below is a summary of achievements in 2020. Table 2 shows the key outcomes and outputs against the target indicators for component 2 in 2020.

Table 2. Key outcomes and outputs against the target indicators for component 2 in 2020

Indicator	EOP target	2018 result	2019 result	2020 result	Total	% EOP reached	
OUTCOME 2: Increased business performance of EGS producing seed farms							
# of seed farms working with new business model for EGS production	10	0	5	10	10	100%	
# of persons (male/female/youth) reached/trained with improved technology and skills in EGS production							
	Female	15	24	34	12	34	227%
	Male	15	31	20	49	49	327%
	# <35	5	20	24	8	24	480%
	total	30	55	64	61	83	276%
# of crop types covered by the EGS study	3	3	0	0	3	100%	
# of EGS business pilots implemented in DAR and DOA farms	4	0	2	1	3	75%	
# of trainings/workshops for EGS seed farm staff	8	4	3	4	11	138%	
# of DAR and DOA staff trained							
	Female	15	24	34	12	34	227%
	Male	15	31	20	49	49	327%
	# <35	5	20	24	8	24	480%
	total	30	55	64	61	83	276%
Direct							
	Female	15	24	34	12	34	227%
	Male	15	31	20	49	49	327%
	# <35	5	20	24	8	24	480%
	total	30	55	64	61	83	276%

4.2.1 Piloting of alternative models for EGS seed production

Long-term forward contracting of EGS

Three domestic seed companies (Green Growth Generation seed company based in Mandalay, Greenish Sagaing seed company based in Sagaing region, and Shwe Nan Taw seed company based in Mandalay) have successfully implemented the first year of forward contracting on guaranteeing the access to agreed volume of the early generation seed from the DAR. One additional crop 'groundnut' was added in 2020 so the total crop under the long-term contract now reached to six including sunflower, chickpea, green gram, sesame and rice. The long-term contract on access to EGS is for five years. An extension will be possible beyond the end of the contract, in which both parties can continue research and cooperation accordingly. DAR has provided the technical support to the seed companies on quality EGS production technologies on a cost-recovery basis. This business model will be helpful in solving one of the key bottlenecks in the lack of sufficient volume of EGS in the Dry Zone.

Implementation of a variety use agreement with private seed companies using a regional geographical exclusivity model

The variety use agreement model with regional exclusivity has been approved by DAR to improve the sustainable supply of EGS, there is a need of National Seed Committee’s (NSC) approval because it includes royalty fees terms and conditions. According to a government lawyer, the proposed agreement must submit to Attorney General Office as well as other relative departments before signing it. It is noted that National Seed Committee has the authority to grant the approval of signing the mutual benefited agreement and the necessary submission procedures are still under process. DAR is trying to have a variety use agreement with one of the AWBA Group Branches company for hybrid corn production and distribution and it is still ongoing. The demand for hybrid sunflower, hybrid corn will take into account once the mutual agreement works. In this model DAR will organizes a partnership with a private seed company to provide a variety use agreement for a specific geographical region. At the same time, the selected variety will be available in other regions for other seed companies. In return seed companies provide a fixed-rate of royalty fee to DAR.

Digitized EGS seed demand forecasting system

We scaled up the digital EGS demand forecasting and supply system to 14 crops and 227 varieties (table 3). The scaling partnership was carried out with the RSSD project in the Delta region of Myanmar funded by LIFT with ISSD Myanmar programme. RSSD project piloted to rice crop. The forecasting system has three key functions a) a mobile based application system for seed demand where EGS users can place their seed demand and at the same time farmers can purchase the certified seed b) mobile based application system for seed producers who can make seed production planning and place their seed production figure in the system and c) seed producer registration software to register existing and new seed producers by DOA. All three systems are interlinked to digitize: seed production, demand requests and seed transactions on a real time basis. The mobile based application system ‘Quality seed’ is freely downloadable from google play store. This quality seed app has also voice guided system for the farmers who can read the text. The digital system has brought public seed farms, seed companies, seed producers and farmers in one platform in order to real-time estimate demand and supply for different seed classes. The Seed Division of DOA (MOALI) is taking the coordination role of data management.

The seed production and seed availability data entry of public seed farms have already started. However, difficulties have been found in the seed data entry of seed producers and seed companies due to the COVID-19 mobility restrictions. This activity need a field travel to coordinate 800 seed producers across the dry zone of Myanmar. This has resulted delay in the official launching of the digital system in the dry zone.

Table 3. Crops and number of varieties included in the digital application system and quality seed app

Crop name	# of varieties	Crop name	# of varieties
Rice	172	Green gram	2
Wheat	2	Black gram	2
Maize (hybrid)	3	Chickpea	9
Sorghum	1	Pigeon pea	5
Butter bean	1	Groundnut	10
Lab lab bean	1	Sesame	15
Suntani pea	1	Sunflower	3

4.2.2 Building capacity of seed farm staff on EGS production

Training on quality EGS production to seed producer groups and private seed companies in Mandalay region

A one-day training course was organized on EGS production, characteristics of different varieties and quality control on Sunflower and Chickpea was organized on 9th February 2020 in Kyaukse, Mandalay Region. A total of 32 seed producers joined the training course. The training course was resulted in the improved knowledge in importance of pollination in seed production, isolation distance and its importance, best time of planting, crop

cultivation, plant protection, soil management, weed control, rouging, harvesting, field inspection, post-harvest operation and seed inspection in each participant. Participants could learn the characteristics of specific variety with distinctive illustrations.

Training on quality EGS production to seed producer groups and private seed companies in Sagaing region

A one-day quality EGS production training course was organized to equip the seed producer groups in Sagaing Region with seed production and seed quality control especially on different characteristics of sunflower and chick pea crops on 11 February, 2020 in Monywa. A total of 33 participants benefited from the training course.

Seed business model training to the seed farm managers

A 3-day seed business model training was organised for Seed Farm Managers at Agricultural Extension and Rural Development Center (AERDC), Yezin, Nay Pyi Taw during the 17-19 August 2020. The objective was to strengthen the capacity of Seed Farm Managers to run seed business in profitable way in longer term in competing with different seed companies. A total of 45 participants from DOA and DAR from different States and Regions had improved their knowledge and skills on seed business, seed value chains and EGS production, seed quality control and seed sector governance, plant breeding and varietal use as well as seed laws and regulations. During the training the participants actively discussed about their challenges to run the seed farms in order to comply with the government's rules and regulations.

Training of trainers (TOT) on data entry and data management in the digital seed demand forecasting

Global New Wave company (digital seed demand software developer) and WUR jointly conducted an on-line TOT training to DOA staff on the usage of the digital demand forecasting system and how to entry the data was organized on 10th September 2020 with 16 participants from Seed Division (DOA), Yezin Agricultural University and DAR. These 16 trainers will train to their respective department for data entry. Similar training targeted for several seed producers and seed companies could not be organized due to the mobility restrictions as resulted from COVID-19. On-line training was found as not feasible and practical at the seed producers level.

4.3 Seed business development

The third planned outcome of the ISSD Myanmar programme is the increased local availability and uptake of quality seed at affordable prices for smallholder farmers. This component is coordinated by WHH and mainly focusses on strengthening the capacity of private seed producers (seed producers and seed companies) in the Sagaing and Mandalay region. In 2020 we continued scaling partnership on seed business development in Bago and Nay Pyi Taw region through the DOC. In table 4, we have provided the key outcomes and outputs against the target indicators for component 3 in 2020.

Table 4. Key outcomes and outputs against the project targets for component 3 in 2020

Indicator	EOP target	2018 result	2019 result	2020 result	Total	% EOP reached	
OUTCOME 3: Increased local availability and uptake of quality seed at affordable price to smallholder farmers							
Volume of quality seed produced (MT)	3,375	482	2,016	4,038	6,536	194%	
# of persons (male/female/youth) reached/trained with improved technology and skills in seed production							
Direct	Female	16	13	13	13	81%	
	Male	170	119	119	119	70%	
	# <35	60	52	52	52	87%	
	total	186	132	132	132	71%	
Number of new improved and well-adapted varieties used by farmers in selected townships	28	11	20	24	24	86%	
Total number of farmers reached							
Direct	Female	36,224	5,780	10,371	22,435	38,586	107%
	Male	39,326	6,262	11,414	24,383	42,059	107%
	# <35	35,673	5,597	10,021	21,405	37,023	104%
	total	75,550	12,042	21,785	46,818	80,644	107%
Total number of hectares of farmland reached	63,067	5,335	20,105	44,352	69,892	110%	
# of functional local seed businesses directly supported by the programme	60	62	72	72	72	120%	
Increased performance (average % increase in indicators) of local seed business in key performance areas	20	0	35	55	55	140%	
# of local seed businesses supported by partners	120	0	311	311	311	259%	
# of partners supporting local seed businesses	4	0	1	1	1	25%	
# of domestic seed companies supported by the programme	6	3	4	4	4	67%	
Increased performance (average % increase in indicators) of local seed business in key performance areas	25	0	15	25	25	100%	
# of field demonstrations established by local seed businesses and seed companies	60	13	24	62	62	103%	
# of field demonstrations organised by Dutch seed companies	6	0	3	2	3	50%	
# of joint activities between the programme and Dutch seed companies	2	1	1	0	2	100%	
# of family farms with increased productivity and/or income							
Direct	Female	36,224	5,780	10,371	22,435	38,586	107%
	Male	39,326	6,262	11,414	24,383	42,059	107%
	# <35	35,673	5,597	10,021	21,405	37,023	104%
	total	75,550	12,042	21,785	46,818	80,644	107%

4.3.1 Establishment of viable local seed businesses

Seed production and sales in 2020

A total of 4,308 metric tons of seed was produced, out of which 94% was sold to farmers (table 5). In total we achieved 6,536 metric tons of quality seed production for the combined years of 2018, 2019 and 2020. The 6% of unsold seed in 2020 was a result of the Covid-19 related mobility restrictions. Otherwise, the project end target was to produce 3,375 metric tons by 2020. The substantial higher result in 2020 was a consequence of the increased capacity and scaling partnership with local seed businesses and private seed companies. Hence, we have achieved 94% more than our initial seed production target. A total of eight crops and 33 improved varieties were under seed production in 2020. A total of 72 seed producers, four domestic seed companies and 311 seed producer under the scaling partnership were involved in seed production in the Sagaing, Mandalay, Bago and Nay Pyi Taw regions in 2020. Covid-19 impacted mainly in the months of May-July for the rice crop. This resulted in 313 metric ton less volume of rice seed production than the initial plan. In addition, a total of 230 metric ton of rice seed remained unsold also a result of mobility.

Table 5:. Seed production and sales data for 2020 season in Sagaing, Mandalay, Bago and Nay Pyi Taw region

Crop	Varieties	Total seed production area (acre)	Total volume of seed production (baskets)	Total volume of seed sales (baskets)
Rice	Ayar Min, Manaw Thu Kha, Paw San Bay Kyar, Paw San Yin, Shwe Manaw, Shwe Thwe Yin, Sin Thu Kha, Super Hnan Kauk, 90 days, Thai 90 day, Thai 100 day, Lao sticky rice, Pyi Taw Yin	2,008	17,7791	16,6781
Chickpea	Yezin 3, Yezin 4, Yezin 6, Yezin 8, Yezin 11, Yezin 12, Yezin 13	283	5,141	5,141
Green gram	Yezin 11, Yezin 14	111	2,564	2,564
Back gram	Yezin 14	21	315	315
Pigeon pea	Yezin 8, Yezin 14	7	35	35
Sesame	Sin Yadanar 3, Sin Yadanar 14, Yezin 14, Magwe Smote Net	149	1,220	1,220
Groundnut	Magwe 16, Sinpadathar 11	46	1,529	1,529
Sunflower	Suryakiran (hybrid)	192	1,344	1,344
Total (baskets)		2,788	189,589	178,589
Total (metric tons)			4,308	3,808

The scaling partnership of the DOC with the ISSD Myanmar Programme

The local seed business partnership with DOC was further strengthened in 2020. A total of 311 seed producers from 16 townships in Bago and Nay Pyi Taw were involved in quality seed production. The data on total seed production by these seed producers are integrated in table 5.

Strengthening the seed producers' cooperative unit within MOALI

The DOC, with support from the ISSD Myanmar programme, established a new seed producers' cooperative unit (SPC Unit) in Nay Pyi Taw in 2019 to coordinate and provide long-term support to the SPCs in Myanmar. In 2020, our programme staff who were embedded in the SPC Unit at DOC, provided training and orientation to the SPC DOCS staff. The finalization of SPC management guidelines was affected due to the Covid-19 related mobility and social distancing restrictions. This will be finalized in the no cost extension phase of the project in the first half of 2021. The guidelines will include a standardized by-law for SPC management in Myanmar. DOC has received a World Bank loan to further strengthen the SPCs.

Strengthening of seed producers in their business operations

Due to the mobility restriction and social distancing measures as imposed by Covid-19, the large group based trainings were minimized. A model of smaller group based training was implemented. This resulted in an increased workload for our programme staff. In total 165 seed producers from ten townships benefited from these type of trainings on: quality seed production and seed business management.

Establishment of field demonstrations with new varieties

A total of 62 field demonstrations were conducted by seed producers and domestic seed companies to create awareness and increase uptake of quality seed by farmers. A total of 30 new improved varieties (11 varieties of rice, 8 varieties of sesame, 7 varieties of chickpea, 2 varieties of groundnut, 1 variety of green gram, 1 variety of pigeon pea) were demonstrated in the field. A total of 930 farmers visited the field demos strictly maintaining Covid-19 social distancing guidelines as administered by the Myanmar government.

Partnership with domestic seed companies

Our partnership with four domestic seed companies was further strengthened in 2020. We provided training and coaching to the seed companies. In addition to this, we facilitated long-term EGS contracting with DAR and domestic seed companies for the coming five years. This will guarantee sufficient availability of EGS for the seed companies, so that they can better plan for their commercial seed production. One of the seed companies supported by ISSD, Green Growth Generation (3G), received a grant from the USAID-ACDI/VOCA project for pulses and oilseeds production in the Dry Zone.

Partnership with Dutch seed companies

We collaborated with the Dutch Topsector on a potato project that supported pre-commercial trials of two hybrid potato varieties in Heho. Two private seed companies, Bejo and Solynta, partnered in this project and provided planting material, and technical and backstopping support. The ISSD Myanmar team from DOA provided supported the import process and legal requirements. Also, our partnership with East-West Seed company on hybrid bitter melon and yard-long bean seed production continued in 2020.

Workshop on key achievement of seed business development

Our consortium partner WHH organised an online workshop on 28 December 2020 to share the key results and achievements made by ISSD Myanmar with respect to the development of local seed business in the Dry Zone of Myanmar. A total of 67 representatives of the Union DOA, DOC, Regional and Township DOA, seed companies and seed producers and NGOs participated in the online meeting.

Seed producers and seed companies performance assessment

We organised a survey in November 2020 under four private seed companies that were supported by the programme since 2018 in order to measure performance and satisfaction in four areas: being technically well equipped, market-oriented, professionally well organized, and strategically linked. The survey found that the programme contributed to major improvements in the area of being technically well-equipped, with a 38% increase compared to the baseline, followed by market orientation (33% improvement), strategic linkage (16% improvement) and professionally organised (12% improvement). The average of the four areas was a 25% improvement in performance compared to the baseline.

Similarly, we conducted a survey under 68 seed producers who were directly supported by the programme since 2017. The survey was organised between the first week of December 2020 and the third week of December 2020. The survey found a 40% to 75% improvement in four key performance areas within the programme intervention within a three year period.

Uptake of quality seed by farmers

We reached an additional 46,818 farmers directly in 2020 through quality seed sales (45,747 farmers), quality seed trails (141 farmers) and field demonstrations (930 farmers). Calculations of the number of farmers reached was based on seed sale volume for each crop, the seeding rate used by farmers, and the average crop area of a family farm. The use of quality seed of improved varieties covered an additional of 44,352 ha of crop land in 2020.

4.4 Programme management and coordination

4.4.1 Facilitation of project coordination, planning and field monitoring

The ISSD Myanmar programme organised three quarterly programme review and planning meetings, and one annual review and planning meeting, with all programme consortium partners and staff. These meetings were all organized online as travel to and within Myanmar got restricted from March 2020 onwards. These activities contributed to increased coordination, communication and problem solving in the implementation of programme activities.

1 Sustainability

In the 2019 report, we proposed five priority areas for seed sector development in the Dry Zone important for programme sustainability. In this report, we briefly summarise progress in each of the priority areas:

Improved private sector role and policy advocacy: The achievements made in 2020 included the further professionalization of the Myanmar Seed Association as a representative of the private seed sector in Myanmar. ISSD Myanmar supported in the recruitment of an Executive Secretary. In addition, ISSD Myanmar assisted MSA in the finalization of a five-year strategic action plan. All ingredients are in place now for MSA to emerge as an active association that can represent and provide quality services to its members.

Improved seed sector coordination: Due to Covid-19 we were unable to organize a physical 'live' biannual national seed sector platform meeting. Instead we organized one online platform meeting on the Covid-19 impact on the seed sector. This meeting was organized jointly with MOALI and MSA. As the MSA is now legally registered, we will work in 2020 to alternate the organisation of the platform meetings between the DOA-Seed Division and the MSA. The meeting was organized on Wednesday 3 June with as main topic: 'a national Covid-19 response for the seed sector'. The meeting build on the Myanmar Seed Alert that was developed by ISSD and MOALI. Depending on the outcome of the coup we will explore possibilities for fully handing over the seed sector platform meetings to MOALI and MSA in 2021.

Alternative business models for EGS production: With DAR, we completed a long-term forward contracting agreement for EGS supply with three domestic seed companies. This allows private seed companies to plan their seed production with greater levels of certainty for up to five years as there is a guaranteed volume of EGS provided by the DAR combined with technical training and coaching. In addition, we finalized a pilot on an alternative seed farm development model at two DOA farms. This pilot is now completed and we expect the two seed farms to retain more of their revenues for investments in their production and processing equipment.

Digital EGS seed demand and forecasting systems: We scaled up the mobile based technology for Dry Zone crops in 2020. The digital system has brought together in one platform; public seed farms, seed companies, seed producers and farmers in order to real-time estimate demand and supply for different varieties and seed classes. The system was launched in 2020 for the Dry Zone, and can run independently now.

Economy of scale of local seed business: We worked with the Department of Cooperatives (DOC) to establish a separate Seed Producer Cooperative Unit, which provides legal registration and long-term institutional support to thousands of informally organized small-scale seed producers. The DOC has already put six fulltime staff in the new SPC unit and ISSD Myanmar seconded one fulltime senior advisor to support the SPC unit staff. The SPC management guideline (and standard by-law format) will be finalized in 2021.

Seed regulatory reform: The ISSD Myanmar programme continued to partner with the IFC/World Bank's 'Inputs Reform Project' in 2020. We supported the development of guidelines for risk-based (and farmers' complaint-based) inspections and supported the trainings for MOALI (DOA) staff to implement the guidelines.

Inclusiveness: Throughout the programme much attention was paid to inclusive business development, targeting small-scale seed producers and larger seed companies as well as youth and women.

Additional priority areas

The concept of a 'Myanmar Seed Partnership' programme emerged during 2020. As part of the Myanmar Seed Partnership initiative a 'Myanmar Seed Valley' was included, alongside other initiatives like an independent variety testing and training service. The plan was to establish a hub for seed companies to produce and process seed, as well as test and demonstrate new varieties. In 2020 these ideas were further discussed with MOALI and a number of seed companies. But due to Covid-19 travel restrictions an anticipated field day at the Hlaingtet Central Seed Farm (FVRDC) had to be cancelled. Depending on the outcome of the coup we will further explore the 'Myanmar Seed Partnership' initiative in 2021.

2 Risks

Climate change: The main risks for project implementation centred around the volatile climatic conditions of the Dry Zone. Due to climatic change there are increased incidences of droughts *and* floods that affect both crop and seed production.

Volatile export market for pulses: The Myanmar Dry Zone is the main production hub for pulses. Many pulses are grown both for commercial export as well as domestic consumption. But regularly changing import restrictions in the main export market of India are reducing incentives to invest in quality seed, especially black gram and pigeon pea.

3 Finance

Presented in a separate document.

4 Lessons learned

We learned that the integrated nature of the project is well-appreciated by the Myanmar government and private sector. Working on both systemic bottlenecks in the enabling environment (such as quality EGS provision and improving the seed business climate) and training activities on the ground (supporting seed farms, seed producers and seed companies), was of considerable help in developing a more vibrant public-private seed sector. Strong relations between government experts, seed farms and seed producers also helped significantly in improving quality seed production (the volume of seed), seed quality (genetic and physical purity / certification) and the variety portfolio (ensuring a greater choice for farmers and the introduction of new varieties).

Even though the outbreak of Covid-19 in 2020 we were still able to implement a large number of activities. Our team on the ground, both in Nay Pyi Taw and Sagaing, was able to continue training activities for DOA and DAR staff as well as seed producers and seed companies. The military coup that started in February 2021 however it will have consequences on the finalization of two activities of the programme that need dialogue between MOALI officials and approval by the National Seed Committee (NSC) meeting. The NSC meeting has been suspended now. This includes the work on scaling of DOA seed farms cost-recovery model in other farms and implementation of variety use agreement model in DAR. Most activities now focus on documentation of lessons learned in particular of the institution innovation related to the seed producer cooperative model, quality seed production manual, the seed farm cost-recovery model (a write-up), scaling the digital seed demand forecasting system and strengthening the Myanmar Seed Association.

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Report WCDI-20-106

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