Ethiopian Seed Platform Piloting and Roll-Out: Preconditions and the Role of Different Stakeholders

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1. Overview

A great effort has been exerted to map the formal seed system value chain actors and to develop a web-based platform to exchange seed related data. A scalable seed platform is developed as part of this effort with a technical support from Addis Ababa University team. Guided by the seed mapping study result and discussion with much known seed scientists, a national seed platform is implemented and deployed in the MOA datacenter. Once the system is deployed, validation workshops were conducted with the participation of ultimate users of the software. Given the importance of seed to increase agriculture productivity in Ethiopia and the platform's contribution to enhance the seed information flow, it is time if not late to pilot test and roll-out the system throughout the value-chain actors.

However, roll-out of these kinds of platforms is not easy due to the presence of complex value chain actors some of which are independent organizations and private system actors. Thus, this document briefly describes pre-requistes from the legal, technical and system readiness perspective in order to roll-out this platform. The first part of the document discusses the existing policy instruments that will help us to roll-out the system while the second part of the document describes the different stakeholders' role. The last part of the document has also the intension in bringing overlooked features that need revision before piloting this software and development partners' contribution into this committee's attention. These features are discovered in the validation workshop with ultimate users of the system. These are basic functional features for the sustainability of the platform and increase adoption rate.

2. Legal Basis

The highest governing legal document related to this initiative is the Seed Proclamation No.782/2005. Following this, the council of ministers has also approved the Seed regulation 375/2008. The seed proclamation gives the Ministry of Agriculture and regional agriculture offices all the powers and responsibilities to enforce this proclamation. The ministry is also given the power to issue directives and implementation guidelines to some of the issues that need further clarification. As a result of this, the ministry has issued a number of directives such as local Seed certification directive (463/2013), imported seed multiplications and marketing directive (456/2013), Plant Breeder`s Right Directive (769/2013), seed marketing directive

(464/2013). There is no restriction to suggest a new legal piece as far as the implementation of this platform has lack of clarity. One can check article 7 and 22 of the seed proclamation to check the legal gap to roll-out this tool. Two articles from Seed Proclamation No.782/2005 support the need for having a national platform to capture seed related information. First, Article 7 sub-article 2 of this proclamation clearly stated that "the ministry shall keep a seed production database containing; annual production plan and due responsibilities of actors; annual production of seed by type, by producer and by aggregate; land, infrastructure and other resources used to produce seed and any other information relevant to seed production". Moreover, sub-article 3 of article 7 also stated the national database should also contain registry of seed producers and distributors. Second, Article 22 of the proclamation clearly state about "records and access to information". Sub article 1 of article 22 stated that any holder of a certificate of competency shall record and keep particulars of each farmland; seed produced, imported, processed, exported, distributed or retailed as the case maybe and furnish this information upon request by the Ministry.

Enforcing the utilization of the platform has legal support in the existing proclamation and we don't need to revise the proclamation, the regulation and existing directives. It rather requires the ministry of agriculture and regional agriculture regulators to exercise the powers given to them by law.

3. Enforcement Mechanism

The proposal in this document is to issue a letter by the MOA on how the different units and other actors discharge their responsibilities by using the digitalized seed platform and produce data to achieve an integrated seed planning mission mentioned in article 7 of the proclamation. However, the task is not easy and needs top level management commitment. In the subsequent sections, the role of the different seed system actors on the sustainable use of this system is briefly described.

3.1. Ministry of Agriculture

The system is going to be hosted in the MOA server. The ministry is expected to assign system admin and ICT support service personnel. Other issues such as controlling all administrative issues such as registering different actors, giving support services for organizational users,

approving requests, assigning roles for organizations and so on. The ICT department should be committed enough to discharge these duties which requires designing a benefit package for ICT experts. The existing civic society organization working to improve the seed system shall also oversee this platform to make it sustainable. The input directorate is expected to use only the platform to collect demand from regions. Regions that are not willing to submit their demand with this platform should not be given seed. The directorate shall also collect produced seed from all suppliers through this system. Any seed supplier's produced amount shall not be recognized unless they provide data with this system. The ministry should facilitate training and capacity building programs to use this platform. ICT personnel shall be assigned to handle requests while interacting with the system. The variety registration and seed certification directorate/agency is expected to collect all the required information about breeders, maintainers and seed suppliers using this system. Additional details such as farmlands, processing center shall be available via this platform. In case, they use alternative system for variety registration and seed certification, they are shall immediately provide information of approved varieties, farmlands, processing centers and certified seed amounts to this system.

3.2. Regional Agriculture Offices

Regional regulatory offices shall also perform the same activities to use the system and encourage all actors under their jurisdiction. They shall report seed demands to the ministry using the system. They shall facilitate training to their staff to use the system. They shall also force seed suppliers under their jurisdiction to use the same platform to produce their seed amount via the platform. Regional regulatory agencies such as quality controlling labs shall also produce the amount of certified seed and other details through this platform.

3.3. Seed Certificate Holders (Public Seed Enterprises, Research Institutes, Seed Importers, Seed Distributors)

There shall be an enforcement mechanism where public seed enterprises, research institutes, seed importers including at a regional level produce the amount of seed they have to this platform. These entities shall submit their branches, processing centers and farmlands directly to this platform. They are required to submit seed amount of any stage (i.e. raw and cleaned) from different seed class (pre-basic, basic and certified) indicating the crop cycle (irrigation or rainy season). They shall also report the amount of carry-over seed from previous season. Suppliers

shall facilitate training for their staff so as to achieve an easy utilization of the system. Public seed enterprises or private seed enterprises unable to use this platform shall not be allowed to get support from early generation seed producers. Any seed actor having certificate in seed multiplication, distribution, importing may result to loss of their certificates unless they properly provide data to this system. Moreover, they shall also record every seed exchange when they conduct transaction. They shall record with who the exchange is made, to which location and so on. This is equivalent as converting the existing manual practice already implemented. Figure-1 shows how Public seed enterprises are reporting the amount of certified seed they produced in a given season.

Figure-1: Manual Reporting

These entities are also advised to develop an internal app that can exchange data with this platform. A typical example is that EIAR is developing a Farm Management Information System and seed tracking system that is interoperable with the main national platform.

4. Overlooked Features

Development partners who have been providing both technical and financial support in the system development stage are expected to provide sustainable support and finalize this software. It is important to note that the requirement for this system was not clear initially and the scope of the system has been changing now and then as we go in the development process. This is common in any software engineering and that is why agile software development methodology is preferred. However, the requirement change in this case is exceptional. The plan was to implement the system phase by phase and AAU team sign agreement to implement the first phase. This was suggested by Dr.Dawit in our initial few requirement elicitation sessions. The scope of the system is becoming clear when discussions are started with ultimate users of the system. The initial effort to research and design a prototype of a seed platform grows to full-fledged seed software since interesting features are suggested during the validation workshop. Besides, additional activities were introduced to harmonize with similar initiatives to develop seed platform in Ethiopia. This effort took more time than we expect.

Although the Addis Ababa University team has tried to incorporate many of the features being suggested from different stakeholders, the scope of the work becomes triples from the original estimation. This has budget implication and the technical team shall be compensated for features implemented so far beyond the contract and for the revisions to be made soon. For instance, users of this system recommend integrating a mobile app for the sake of off-line data entry. This is a valid suggestion due to connectivity problems for most actors. It is known that software that doesn't consider ultimate users need will not be successful and sustainable. Moreover, software which is against the organization business logic cannot be usable. These kinds of issues need to be fixed. The AAU team will fix these issues within a month once we get approval and the required budget support from partners' side. Due to the interest of time, additional team will also be deployed to complete the system and ready for piloting. The following features need also maintenance and revision.

- Configuration of Users, organization as per their role in this system needs further revision.
- Activities to maintain Data Quality that are recommended during the validation workshop need revision

- The seed Demand data aggregation which was started from Woreda needs approval at regional level and this data Approval Workflow needs Revision
- Implementing Mobile App for offline data entry is a must if this software to be sustainable.
- The Seed Supply Side data capturing which was de-emphasized to avoid redundant efforts with the Seed Certification System needs revision.
- A one day event for final validation and socialization of the software is strongly recommended.
- Adequate training for ICT team both MOA and other actors, training of ultimate users of this system shall be given

5. Action Plan

S.No	Activity	Duration	Budget (USD)
1.	Completing Overlooked Features and Revising Comments in the validation workshop • Configuration of Users with Associated Profiles • Data Quality Approval Workflows • Demand Side Data Approval Workflow Revision • Mobile App for offline data entry • Supply Side Workflow revision • Remaining Data Entry	One Month	35,000
2.	Final Testing and Final Validation	One Day	5,000
3.	Training and Capacity Building • System Manual Preparation, Conducting training for different stakeholders (ICT Experts and Users)	10 Days	15,000
4.	System Maintenance and Support	Five Months	10,000
5.	Back-up Server Rent (to be rented from cloud-Providers)	Per Annum	10,000
	Total		75,000