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Review Article

Review on; Seed legislation and Regulatory measures in Ethiopia

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Abstract

Seeds play a key role in human history and agriculture. Seed system in Ethiopia represents the entire complex organizational, institutional and individual operations associated with the development, multiplication, processing, storage, distribution and marketing of seed in the country. It can be divided into two broad types formal and informal seed system. The Ethiopian seed policy was first formulated in 1992 and have an objective of Ensure the plant genetic resources collection, conservation, evaluation and use in addition it has a function of Regulate seed quality standard import and export, seed trade quarantine. Policy and regulatory constraints that have seen in Ethiopia seed system are relevant laws and regulations have not been revisited and amended and inefficiency of the executing agencies. seed legislation is important to protect the farmer not to buy pore quality seed this achieved by Seed certification and quality assurance, variety evaluation release and registration system, seed import and export documentation procedure. To import the seed, take the import permit from animal and plant health regulatory directorate of the MOARD to gathers with phytosanitary certificate.

Keywords: Seeds, Human history, Agriculture, Plant genetic resources, Phytosanitary certificate

INTRODUCTION

Seeds play a key role in human history and agriculture. First, seeds are instrumental in the domestication of wild species into cultivated plants (Alemu D et al., 2010). Prehistoric humans (probably women) were the first to recognize the value of seeds as planting material. Since then seeds played a central role in agricultural development Increasing the quality of seeds can increase the yield potential of the crop by significant folds and thus, is one of the most economical and efficient inputs to agricultural development (Bishaw Z et al., 2008). Generation and transfer of new technologies are critical prerequisites for agricultural development particularly for an agrarian based economy such as Ethiopia (Lipper L et al., 2005). Seed, especially that of improved varieties, is an essential input for increasing crop productivity (In van Amstel H et al., 1995). This suggests the need to place much emphasis on sustainable and efficient seed production systems (Louwaars NP, 2002).

The emergence of the seed regulations was a response to evolution of technical and economic changes in the seed industry usually prompted by the desire of the society for government intervention (Sisay DT et al., 2017). The structural changes to traditional agriculture brought by new crop improvement techniques and the arrangements for seed production and marketing required new institutions to regulate the industry (Mulesa TH, 2021). The regulations of particular relevance to seed systems are:

- Variety regulation for testing, release and registration.
- Seed regulation prescribing field and seed standards for certification.
- Plant variety protection to protect breeders of new varieties.
- Seed trade regulation setting specifications for seed import or export.
- Quarantine regulation for exclusion of exotic pests (insects, diseases and weeds).

In the past seed laws and regulations were prepared and implemented with specific national interests and with no or little regional interactions (Alemu D, 2011). Most

national seed laws, however, are replicas of each other with little national flavor. To date, with the increasing globalization of seed trade the existence of unrealistic and inflexible national regulations become a serious impediment for regional integration. Objective of the review is to know seed legislation and regulatory measures in Ethiopia.

LITERATURE REVIEW

Seed system in Ethiopia: Seed system in Ethiopia represents the entire complex organizational, institutional and individual operations associated with the development, multiplication, processing, storage, distribution and marketing of seed in the country (Kuhlmann KA et al., 2023). Seed systems in Ethiopia can be divided into two broad types: The formal system and the informal system (sometimes called local or farmers system). Both systems are operating simultaneously in the country and difficult to demarcate between the two (Mulesa TH et al., 2021). There is however, a fact that the formal system is the original source of improved seeds in the informal system. there also integrated and community based seed system inundation to the two those seed system (CBSS).

Formal seed system: The formal seed system is a distinct, but highly interdependent chain of operations of which the overall performance can be measured by the efficiency of the different links in the chain (Kuhlmann K et al., 2021). This system comprises of public and/or private plant breeding institutions; parastastal, private or multinational seed companies; seed certification agencies; and agricultural input distribution agencies operating within a specified national seed policy and regulatory framework. The major actors of the formal system are: National Agricultural Research Systems (NARS), Ministry of Agriculture (MoA), Ethiopian Seed Enterprise (ESE) and private seed companies specializing on specific crops like Pioneer. Recently, Regional Seed Enterprises (RSE) were also established as public seed enterprises (such as Oromiya Seed Enterprise (OSE), Amhara Seed Enterprise (ASE), and Southern Nations nationalities and Peoples Region Seed Enterprise (SRSE) and entered into the formal system. Legal institutions such as variety release procedures, intellectual property rights, certification programs, seed standards, contract laws, and law enforcement are also an important component of the formal seed system of any country. They help determine the quantity, quality, and cost of seeds passing through the seed system. The country seed system develops and release more than 664 variety of 50 different crop types.

Informal seed system: Informal seed systems include farmer-saved and exchanged seed of important food crops, comprising both local and improved varieties that have been accessed through the formal distribution system. The seed production-distribution chain in the informal seed system is short and simple, without any regulation. In the context of some countries like Ethiopia, the informal system is extremely important for seed security. The bulk of seed supply is provided through the informal system, implying its importance in national seed security. About 60-70% of seed used by Ethiopian smallholder farmers is saved on-farm and exchanged among farmers, and the remaining 20-30% is borrowed or purchased locally. The informal seed system (either self-saved seed or farmer-to-farmer seed exchange) accounts for 90% of the seed used by smallholder farmers while the share of improved seed is less than 10%.

Integrated seed system: The line between the formal and informal seed sectors can become somewhat blurred, as seeds of improved varieties can be saved by farmers and eventually considered as “local variety” or “local seed” after some years of usage. In addition, in Ethiopia there have been attempts made by the government and NGOs to promote quality.

Ethiopian seed policy and regulatory frame works

The Ethiopian seed policy was first formulated in 1992, and serves as the basis for different laws and regulations. This seed policy focused on plant genetic resource conservation, crop variety development, testing and release seed production and supply, seed import and export, and reserve seed stocking. Various activities have been undertaken to enforce the implementation of the policy. The main objectives set by the policy are to: Ensure the plant genetic resources collection, conservation, evaluation and use by the national research and development programs; enhance and streamline variety development, evaluation, release, seed production and distribution through market channels for landrace varieties, although until now the volume they represent is quite small. It also Create a functional and efficient organizational setup to facilitate collaborative linkage and coordination in the seed industry; Regulate seed quality standards, import and export, seed trade, quarantine and other seed-related issues.

Policy and regulatory constraints: The national seed policy and relevant laws and regulations have not been revisited and amended to keep up with new developments in the industry. A number of articles need to be amended, particularly with regard to seed quality standards, which are very high for some crops. The seed law no. 206/2000 demands conformity with these standards for any commercial seed. It proved impossible to achieve such standards at the current stage of development in the seed sector. This concern was noted by the responsible agency but no practical action is taken yet. Another major constraint is the inefficiency of the executing agencies. There are serious problems in implementation, although the seed sector has now better legal frameworks. Repeated restructuring of the executing agencies left the responsibilities shared among various departments of the MoARD, which is now being reorganized. This weakened the enforcement and serious fraudulent practices were reported by some suppliers. It is important that the quality assurance is strengthened so as to enforce the seed laws and prevent malpractices which have very serious repercussions for the agricultural sector.

Inconsistent demand planning and target setting: The government's methods for estimating seed demand from farmers and subsequent seed production targets are inconsistent and inaccurate, leading to both over and under-estimation of demand. The allocation process is also slow, contributing to delivery delays. Thus, there is a need for more reliable information about farmer seed demand to calibrate projections, including a better database of local and regional needs. Inclusion of data from and consultation with private sector sources on the demand-side calibration could also be beneficial in setting prospective targets. Furthermore, planning is currently favorable to high potential areas, yet the low-potential areas are also a source of demand for improved seed. Given the lack of strong market incentives in low-potential regions, there is a case for GOE to play a stronger role in these areas.

Productivity gaps and financial constraints in contract grower schemes: ESE and RSEs experience productivity gaps and financial constraints in their contract grower schemes, resulting in reduced quantity and quality of seed production. Retrieval rate from contract growers is often very low, with some growers returning less than 50 percent of the expected seed result.

Lack of coordination between production, processing and delivery: The current processing, cleaning, testing and storage facilities are not aligned to major seed producing areas. Key resources remain concentrated in specific areas, increasing logistics costs and slowing delivery to remote areas. Five additional state-run seed producing entities have been established, but no additional processing capacity. Furthermore, current capacity is unknown; making it difficult for ESE/RSEs to take advantage of available processing, cleaning, and testing and storage resources or to understand what excess capacity could potentially.

Low participation of private sector in seed industry: For a sustainable national seed industry development, it is necessary that private seed sector participation flourishes. For one reason or another, the private seed sector is still undeveloped in the country. Special attention and support should be offered by the government particularly in making the working environment more encouraging to the private sector. Other farmer organizations involving in seed sector such as unions and cooperatives are also playing key roles in multiplication and distribution of different classes of seeds and other farm inputs.

DISCUSSION

Seed legislation in Ethiopia

Seed legislation is important to protect the farmer not to buy pore quality seed and also have the general objective to regulate verity verification and protection. In countries where there is a fairly well-developed seed inspection and certification service, the regulatory authority is vested to an autonomous or semiautonomous agency away from the main seed producer players. This agency carries out control of all processes of seed inspection and certification and has authority to enforce seed laws and regulations. It is answerable directly to the Ministry of Agriculture. Ethiopia has recently reviewed her seed legislation and is in the process of issuing a seed proclamation. However, there is not perfect seed legislation anywhere in the world and the laws and regulations may need to be frequently amended in response to changing circumstances. Even sometimes the seed legislation may need to be temporarily suspended as in times of crisis due to drought, floods, disease outbreaks etc. Looking at the future, it is recommended that Ethiopia brings her seed legislation and regulations in conformity with the International Seed Testing Association in order to facilitate seed imports and exports of diverse crop cultivars as it may become necessary.

Seed certification and quality assurance: Seed certification is one of the important mechanisms in order to provide farmers with good quality seeds. Since, farmers have difficulty assessing the physical or genetic qualities of seeds before they are planted and grown, certification of seed quality is essential to provide consumers with quality assurance and a means of redress if expectations are not met. Successful seed program is one which is able to supply a sufficient quantity of high quality seed at the required time, at a reasonable cost and at a place where it is needed. The seed standards in Ethiopia have been prepared under the direction of the agricultural product standards committee and published by the Quality and Standards Authority of Ethiopia. Currently, the authority revised its seed standards and prepared field and seed standards for 174 crops versus the 74 crops standards that were officially issued for implementation. Ethiopian Seed Standards includes the minimum limits of germination, varietal purity, physical purity and other quality attributes of certified, quality declared and emergency seed, or of any other standard the Minster may establish under article 15 of the new draft law. In this system, the producer declares that the seed meets the established Quality Declared Seed standards based on internal quality controls, which the regulatory authority later controls through spot checks. It relies on the technical facilities and competence of seed producers to control quality; as such, it is initially intended to apply to large producers (Atilaw, 2010). Previously, the responsibility for official seed quality control and certification was given to National Seed Industry Agency (NSIA) and later transferred to the Animal and Plant Health Directorate of MoARD. To date, the implementation of seed inspection and certification restructured and decentralized to Bureaus of Agriculture and Rural Development (BoARDs) in regional states.

The new draft law (2010) gives the regional authority to:

- Coordinate public seed production and distribution at the regional level among regions and with the central public seed producer; issue certificates of competence for seed producers, processors, distributors and retailers in accordance with Articles 25 and 26.

- Designate and obtain accreditation for seed testing laboratories.
- Carry out quality control functions as provided in this Proclamation.
- Perform other functions within the scope of this article or as agreed between the Regional Authorities and the Minister.

During inspection the authorities consider minimum isolation distance, crop history and rotation, contaminants, disease and health status. Seed samples are collected and examined in the laboratory for purity, germination capacity, moisture content and health status (seed-borne diseased of seed lots) Seed Inspectors with the authority to appear at production, processing, storage, wholesale and retail sites to inspect seed for its conformity to these standards. Certificate holders must make records and samples from laboratory tests of seed quality available to Inspectors, and follow any advice the Inspector gives them for improving the quality, before they are allowed to sell their seed. Any prescribed seed on sale must have a label specifying it is certified, the variety name, and the dates of production and testing It was observed that some Ethiopian seed standards are excessively high, which has resulted in the rejection and destruction of good quality seed. It is therefore recommended that standards be reviewed and revised as necessary to comply with international standards and otherwise to determine what is appropriate for each variety. Concerning official laboratories, the draft seed law says 'The Minister shall establish the accreditation criteria and testing procedures for all seed testing laboratories in Ethiopia'. This section takes into account Ethiopia's current seed testing capacity while still requiring the eventual adoption of ISTA procedures. In the new draft law, the Minister gives the power to accredit and issue guidelines, procedures and standards for both central and regional laboratories to promote consistent seed quality among regions. This will facilitate the inter-regional movement of seed and otherwise create a coherent seed system in Ethiopia.

Variety evaluation, release and registration system: In Ethiopia, a crop variety evaluation and release system has been in use for more than 25 years. Since the start of the national variety registration and release system, 664 varieties have been officially released, but only about 18% of these varieties have been under production at the moment. This may be as a result of either some varieties in use become obsolete or the newly released ones were not popularized. This limited use of improved seed is detrimental to agricultural development in general, and the situation has to be changed to bring about agricultural productivity and production at the desired level. The variety release system in the country was initially established and managed by the National Crop Improvement Conference that involved stakeholders in the recommendation and release of different crop technologies. The system was institutionalized following the National Seed Improvement Program and Seed Proclamation 206/2000. The release procedure has been revised at different times to accommodate the demand of users. In Ethiopia, two steps are involved in the release of a new variety or a hybrid developed by a breeder. These are testing the new improved variety, and registering and releasing the variety and both steps are undertaken by the National Variety Release Committee (NVRC) Hence, the NVRC is mandated with the task of being involved with both the testing and release of varieties and hybrids. The Committee is composed of breeders (4), agronomists (1), crop protection specialists (2), research/extension (1) and socioeconomics (1) representing different research institution and user organizations. The membership includes the EARI, Institute of Biodiversity Conservation and Research (IBCR), Awassa College of Agriculture, MoARD, the functions of the NVRC are to make decisions on variety release and related issues, undertake periodic reviews and approve recommendations for enhancing the system in the country. It develops guidelines and issues important formats to breeders before a candidate variety is submitted to the NVRC, it must have had at least two years of regional or national trials on-station at three to five locations, and a one year 'verification trial' on-farm, to demonstrate yield, disease-resistance, or "other important characteristics". Once the NVRC has received this data, it elects a technical sub-committee to oversee a further verification trial, evaluating performance on a 10 x 10 m plot on-station and two on-farms. The committee assessing Plant height, days to maturity, resistance to pests and other performance data that matches with breeder's data. This is to ensure that the variety meets DUS criteria for stability, as well as for uniformity. The subcommittee also interviews the breeder in detail, particularly on agronomy, and solicits the farmer's views on performance relative to both a standard (improved variety) and a local (farmer's variety) check, usually grown on adjacent plots.

Seed import/export documentation and procedures: The Ministry of Trade and Industry (MOTI) is responsible for seed import and/or export trade license while the MoARD is in charge of issuing the certificate of competence, a prerequisite for issuing a trade license. According to Seed Proclamation No. 206/2000 the requirements for seed import and export include, inter alia, the following:

- Seed importers-exporters must be registered with MoARD to get the certificate of competence and must have a trade license from MOT.
- Seed importers-exporters are required to apply and get import-export permit from MoARD before importing-exporting any seed.
- Seed importers-exporters must comply with the requirements of the plant quarantine service of MoARD.

In addition to the above the new draft law of Ethiopia on import and export of seed suggests the following:

- Any variety of seed to be imported for multiplication purposes, except where exclusively for re-export, shall be subject to prior verification trials as established by the VRC and shall be listed

in the national variety register in accordance with this proclamation.

- Genetically modified organisms may be imported into Ethiopia only if the minister receives prior assurance of their compliance with applicable legislation from the authority designated therein.
- No person may import or export restricted seed; or import any seed containing terminator gene technology.
- The Minister may, by directive, restrict the export of any variety of seed if it is determined that such export may adversely affect Ethiopia's food security or any other public interest.

The organizations involved in seed import and/or export include private traders, private producers, and public enterprises (ESE), Horticultural Development Enterprise (HDE), NGOs, research institutions, universities and colleges.

Regulatory measure: Seed production has to comply with numerous regulation and standards in order to access export markets. Such regulations and standards cover such broad areas as human and environmental heath, plant health, introduction of alien species, worker welfare and consumer tastes. These regulations are enforced through a number of bilateral and multilateral mechanisms and arrangements between and among trading partners, for example, the World Trade Organization (WTO). The fundamental requirement of WTO's regulation is to ensure that agricultural products are safe and pose no risk to human, animal and plant health. SPS measures refer to the actions taken to protect

- Human life from plant or animal-carried diseases.
- Animal or plant life from pest, diseases or disease-causing organisms.
- Human and animal life from risks arising from additives, contaminants, toxins or diseases-causing organisms in their seeds, food, beverages or feedstuffs.
- A country from damage caused by entry, establishment or spread of pests.

In Ethiopia, in 1992, a revised Plant Quarantine Regulation No. 4/1992 was issued based upon the Plant Protection Decree No. 56/1971. All imported plants and materials, which are liable to be infested or infected with plant pests, are subjected to plant quarantine checks. The regulation restricts the importation of some plants, plant products and other articles without import permit duly issued by the Ministry of Agriculture and Rural Development. A Seed Import Permit must be obtained from the animal and plant health regulatory directorate of the MoARD before importing seed into the country. The permit specifies the requirements for plant health, indicating prohibitions, packaging, conditions for release at the point of entry, and any other additional declaration with regard to preshipment treatments. Any seed consignment arriving in the country must be accompanied by a copy of the Import Permit together with a "Phytosanitary Certificate" which verifies that a competent authority, preferably internationally accredited in the exporting country has examined the plant material for pests prior to leaving the country and that the materials meets the importing country's own phytosanitary requirements. Without a phytosanitary certificate plant material is not allowed entry and may be destroyed or reshipped at the owner's cost.

CONCLUSION

Increasing the production and productivity of the crop sub sector is one of the measures taken in Ethiopia to assure food security and escape from long-lived poverty persisted in the country. This improvement can only be realized if modern technologies are utilized from which seed take the first priority due to its nature. In countries like Ethiopia where the formal seed supply is inefficient, the informal system is extremely important for seed security of the nation. The majority of Ethiopian smallholder farmers are largely dependent on this system mainly through farm-saved seed exchange. Thus, national seed policies should recognize the role of smallholder seed producers and the informal seed sector as a whole. In this respect, legislations and practices that hinder the development of the sector should be reviewed with the aim of removing the hindrances and replacing them with enabling policies and strategies. In addition to this, for a sustainable national seed industry development, it is necessary that private seed sector participation flourishes. Thus, government should collaboratively work with the non-governmental organization and private sector. Currently, Ethiopian seed system has been confronted with several challenges. The sector is still unable to meet farmers need in terms of varietal choice and timing of seed supply. One of the key factors which restrict the utilization of improved varieties is due to weak coordination and linkages among actors in the system for seed development, production, multiplication and distribution. Thus, coordination and linkages among all actors and stockholders is need strengthening to foster rapid, orderly and effective growth. The EACs should standardize documentation and rationalize procedures that will require plant import permit, phytosanitary certificate from source, quality certificate and customs clearance. This will reduce time on documentation and will speed up seed movement, thus availing seed to farmer's sooner and encouraging seed trade.

REFERENCES

1. Alemu D, Rashid S, Tripp R (2010). Seed system potential in Ethiopia: Constraints and opportunities for enhancing the seed sector. Int Food Policy Res Inst. 62.
2. Bishaw Z, Sahlu Y, Simane B (2008). The status of the Ethiopian seed industry. Farmers, seeds and varieties: Supporting informal seed supply in Ethiopia. Wageningen International Publisher. Wageningen, The Netherlands. 23-

33.

3. Lipper L, Romina C, Winters CP (2005). Seed system, household's welfare, and an economic methodology applied in Ethiopia, ESA technical paper. Agric Dev Econ Div FAO. 32.
4. In van Amstel H, Bottema JWT, Sidik M, van Santen CE (1995). Integrating seed systems for annual food crops. CGPRT Center, Bogor, Indonesia. 311.
5. Louwaars NP (2002). Seed policy, legislation and law: Widening a narrow focus. The Haworth Press Incorporated. New York, USA. 260.
6. Sisay DT, Verhees FJ, van Trijp HC (2017). Seed producer cooperatives in the Ethiopian seed sector and their role in seed supply improvement: A review. J Crop Improv. 31(3):323-355.
7. Mulesa TH (2021). Politics of seed in Ethiopia's agricultural transformation: Pathways to seed system development. Front Sustain Food Syst. 5:742001.
8. Alemu D (2011). The political economy of Ethiopian cereal seed systems: State control, market liberalisation and decentralisation. IDS Bulletin. 42(4):69-77.
9. Kuhlmann KA, Francis T, Thomas I, Schreinemachers P (2023). Laws and regulations enabling and restricting Africa's vegetable seed sector. Int J Agric Sustain. 21(1):2210005.
10. Mulesa TH, Dalle SP, Makate C, Haug R, Westengen OT (2021). Pluralistic seed system development: A path to seed security?. Agronomy. 11(2):372.
11. Kuhlmann K, Dey B (2021). Using regulatory flexibility to address market informality in seed systems: A global study. Agronomy. 11(2):377.