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The Seed Industry in Pakistan

REGULATION, POLITICS, AND ENTREPRENEURSHIP

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INTRODUCTION

Seed provision in Pakistan is experiencing tension as private entrepreneurs have been challenging the boundaries of the country's archaic regulatory structure. All key aspects of the system – licensing of seed producers, variety release procedures, access to public germplasm, quality control, intellectual property rights, and import and export –are governed by laws and regulations framed decades ago for a system then dominated by public sector enterprises. Since the early 1980s, the private seed business has grown but governance has failed to keep pace. The failure of regulatory frameworks to evolve has constrained business activity, at least through official channels. Most actors, including some public sector enterprises, have on occasion found answers in the informal sector, which now mediates a substantial portion of the trade.

Whereas technical topics have attracted the most attention, rigorous seed policy work focusing on broad issues such as governance has been scarce. Studies have also tended to adopt a very narrow scope, for example, focusing on a specific crop instead of viewing the seed sector holistically. This policy brief is intended to fill in this gap. It will critically examine the legislative and institutional framework that governs seed provision in Pakistan.

HISTORICAL CONTEXT

From its post-colonial origins, under which Pakistan farmers relied on their own production, the Pakistan seed provision system has since expanded to encompass a wide range of activities. The history of the Pakistani seed industry can be divided into four broad phases:

Phase I. Upon its independence in 1947, Pakistan inherited only one institute for agricultural research and education – the Punjab Agricultural College and Research Institute in Lyallpur, Punjab province (Sarwar 2007). The institute was home to a number of crop-specific stations and research and development projects, which bred new planting material for cultivation. Since there was no formal system of variety approval and registration, these seeds were handed over by breeders to the provincial agricultural department. While seed certification was not an entirely unknown concept, it could not formally be put into operation without the appropriate legal and institutional infrastructure. Overall, these public-sector stations played a small role in seed provision; most farmers produced their own.

Phase II. Economic development in the 1950s necessitated the establishment of a more complex system for agricultural research and seed production. In 1961, the government launched two major initiatives. One was to divide the Lyallpur College and Institute into two parts: the Agricultural University at Lyallpur and the Ayub Agricultural Research Institute (AARI). The other was to establish the West Pakistan Agricultural Development Corporation (WPADC). These organizations grew quickly and emerged as dedicated institutional hubs for agricultural research and teaching, variety development, and seed production, respectively. AARI and WPADC became an important conduit for transmitting technologies from overseas and can rightfully claim some credit for the transformation initiated by the Green Revolution.

While the establishment of AARI and WPADC represented progress in an institutional sense, there remained major gaps in Pakistan's seed network. Procedures for variety approval still had not been developed, leaving a legal vacuum. Moreover, institutional reach was clearly limited and took several years to scale up operations. At the peak of their influence, these institutes were only able to serve a small proportion of Pakistani farmers concentrated in irrigated areas of Punjab and Sindh provinces. Capacity constraints, foremost among them a shortage of skilled professionals, forced these organizations to devote research and development to a few major crops.

Pakistan's first seed law, the West Pakistan Seeds and Fruit Plants Ordinance of 1965, was signed during this period. It established registration for producers of certified seeds. Registered growers could voluntarily apply for certification; in exchange, they would have to sell specified volumes of seed to the government.

Phase III. In 1973, the Pakistani government sought the help of the World Bank to review the seed provision system and to identify opportunities for reform (Salam 2012; Ahmad and Nagy 1999). This was the beginning of Pakistan's large-scale initiatives to address the seed sector, enacted through wide-ranging legal and institutional reforms. The Seed Act of 1976 was the most prominent piece of legislation signed during this period. It not only clarified procedures for variety registration and seed certification, but also created an extensive institutional framework to accompany them. It consisted of the National Seed Council, provincial seed councils, and two separate agencies under the federal Ministry of Agriculture, which in 1998 merged to form the current Federal Seed Certification and Registration Department (FSC&RD).

The Seed Act was characteristic of an era that was defined by the active leadership of public sector organizations. This contrasted with the marginal role played by the private sector. Seed multiplication on private fields represented the extent to which the latter could claim participation. All functions in the seed development chain were reserved for the public sector, including variety development, production of breeder nucleus seeds, pre-basic and basic seeds, seed testing, and certification. Such an exclusive focus on public institutions reflected the national economic policy of the 1970s, which pursued nationalization across a broad spectrum of activities.

Phase IV. The current period has its roots in the 1980s, when changes in macroeconomic policy led FSC&RD to proactively seek the private sector's participation in the seed business. The first seed company was formally registered in 1981, and eight others – all based in Punjab – opened for business shortly thereafter (Sarwar 2007). By 1994, the seed business was formally categorized as an industry (Ali and Ali 2004) and was granted associated privileges. Multinational corporations gained a foothold in Pakistan during the 1980s and 1990s. There were 291 private seed companies registered with FSC&RD in 2000 (Ali and Ali 2004), and the number jumped to 963 by 2012. Private seed companies represented a wider geographical reach than the Punjab- and Sindh-centered activity of earlier decades.

From their modest beginnings as a host for the multiplication of basic seeds obtained from public corporations, private seed companies quickly established their competence in a range of functions. They have launched their own variety development programs and have introduced new crop varieties into the market in the last decade. As their operations grew, private seed companies began to outcompete and displace public sector corporations in the market. Gradually, they became the leading provider of several crops including cotton, vegetables, oilseeds, maize, and fodder. These developments signal the private sector's quiet assumption of leadership in Pakistan's seed sector.

LEGAL AND INSTITUTIONAL CONTEXT

The Seed Act

The Seed Act of 1976 provides the basis of the legal and institutional framework of Pakistan's seed industry. It created three institutions: (1) the National Seed Council, (2) provincial seed councils, and (3) the two predecessor agencies of the FSC&RD. Chaired by the federal Minister of Agriculture, the National Seed Council performs a range of regulatory and advisory functions including specifying seed standards, regulating interprovincial movements of seed, guiding the administration of seed quality standards, advising the government on seed policy, and protecting investment in the seed industry.

The Act authorizes the federal government to prescribe seed quality standards, regulate printed label information, and approve varieties for production by province. The Act prohibits the sale (and storage for sale) of officially branded seed varieties that do not actually meet quality standards or are mislabeled as such. While the Act allows an individual intending to produce seeds of a notified variety to have it certified by FSC&RD, it does not require mandatory certification. The FSC&RD is assigned two functions under the Act: registration of new varieties and certification of seed. It is mandated to perform the following five types of roles: (1) Conduct initial assessment of seed varieties for eligibility and quality standards, (2) maintain a register of officially approved varieties defining their botanical description, (3) register seed growers and maintain their records, (4) control seed quality based on production-stage inspections, and (5) build the capacity of seed technologists.

Though ambitious in scope, the Seed Act still overlooks large areas of the seed provision system, creating legal gray areas that have been filled by outside actors. Firstly, the Act assigns no role to private seed companies, nor does it provide for their registration or regulation. On the matter of private sector participation, it only discusses seed multiplication. Moreover, while the Act applies certain

restrictions on the sale of approved seed varieties, it does not consider the production, storage, or sale of unauthorized varieties. There are no provisions to ban the sale or production of a seed variety on any grounds. Moreover, variety registration with FSC&RD does not confer associated intellectual property rights to the breeder.

KEY ACTORS

Public Sector Research Organizations

Pakistan features one of the larger agricultural research systems among developing countries, with an estimated 3,513 full-time equivalent researchers (Flaherty et al. 2012). Most are employed in public sector research organizations, which play an important role in several seed sector activities including maintaining germplasm, importing exotic material from overseas for local adoption, developing varieties, and training workers. Public sector organizations can be divided into three groups: federal institutes, provincial-level institutes, and agricultural universities.

Public sector organizations account for 96 percent of all seed varieties released to date. The private sector has only recently started developing its own seeds for commercial use and this effort is limited to a few crops. It is possible that FSC&RD data sets overestimate the share of public sector-developed seed varieties because they do not include those released by the informal sector. Data show that most variety development is concentrated on a few crops and originate in Punjab province. Moreover, the release of new crop varieties and hybrids peaked during the 1990s and 2000s, around the time that most seed companies were established.

Table1—Number of registered and released varieties (up till December 2013)

Crop	Public sector*					Private sector	Total
	Punjab	Sindh	KPK	Balochistan	Ibd		
Wheat	59	24	40	8	3	–	**134**
Barley	3	–	3	4	–		**10**
Maize	11	–	12	–	–	2	**25**
Rice	16	13	06	–	–	–	**35**
Cotton	74	21	1	–	–	13	**109**
Sugarcane	14	8	16	–	–	1	**39**
Pulses	43	4	19	1	5	–	**72**
Oilseed	20	5	22	–	8	5	**60**
Fodder	27	–	7	1	–	2	**37**
Vegetables	36	1	12	8	–	–	**57**
Fruits	2	–	33	–	–	–	**35**
Total	***305***	***76***	***171***	***22***	***16***	***23***	***613***

Source: FSC&RD data.

* The geographic distribution in this table shows the location of the research institute that developed these varieties. Thus, Punjab-based institutes developed 305 varieties and hybrids.

Ibd: Islamabad; KPK: Khyber Pakhtunkhaw.

Seed Corporations

Seed corporations were established in Punjab and Sindh during the 1970s. Of those, Punjab Seed Corporation (PSC) is the only seed producer and distributor remaining in the public sector. PSC boasts an extensive roster of seed farms, processing plants, ginning and de-linting plants, storage, and marketing assets. Despite this impressive infrastructure, PSC is now a largely irrelevant entity and suffers from poor demand for its seed. PSC now controls a negligible market share and has even begun to lose its farms since the mid-2000s. PSC's governance structure is a major factor for this poor performance; the PSC operates as a component of the Punjab Agriculture Department rather than as a professionally-managed seed provider competing in market conditions. Other seed corporations founded in the 1970s, such as the Sindh Seed Corporation (SSC) and the Khyber Pakhtunkhwa (KPK) Agricultural Development Authority (ADA) fell by the wayside in the early 2000s after demonstrating similarly anemic performances.

Federal Seed Certification and Registration Department

FSC&RD is Pakistan's premier agency for regulating seed provision. Headquartered in Islamabad, it is also represented by regional directorates in Punjab, KPK, and Sindh. FSC&RD is responsible for: (1) registering seed companies, (2) registering seed varieties, (3) certifying seeds, and (4) enforcing the Seed Act of 1976. FSC&RD grants registration certificates typically lasting for 10 years for new seed varieties following a two-year multistage trial process. Field inspectors certify seeds on site, assessing genetic and physical purity through

various tests. Although seed certification is voluntary, several seed companies prefer to obtain certification tags from FSC&RD to be able to sell seed to exclusive government programs and to avoid facility inspections by agency officials. Still, certified seed supplies only a fraction of the total seed requirement, ranging between 20 and 23 percent in recent years (Salam 2012). FSC&RD inspectors wield the power to confiscate seed stocks and impose fines for Seed Act violations. However, the current workforce is too small to effectively exercise this task and seed production mostly takes place without regulatory oversight.

Seed Companies

There are 750 seed companies currently operating in Pakistan, mostly concentrated in Punjab, particularly in the southern region. In addition to local companies, five MNCs are currently active in Pakistan primarily as importers of foreign hybrid seeds. Seed companies play a leading role in the certified seed market for a substantial list of key crops. Since the declaration of the seed business as an industry in 1994, bank financing has become more readily available, especially through commercial banks. However, companies still face constraints in their operations, the most prominent among them being the archaic legislative and institutional framework. Limited access to breeder seed from public research institutes and poor intellectual property rights protection also hamper seed companies from taking advantage of wider opportunities.

INFORMAL SECTOR

Uncertified seeds account for about 80 percent of total requirements every year, made possible by non-commercial farmer-to-farmer exchanges, small farmer-to-farmer sales, farmer-saved seeds for future planting, and medium- to large-scale brown bag seed sales. Seed companies will on occasion sell uncertified seed, usually because the variety is unapproved, either through its own outlets or through a vast network of input dealers. Uncertified seeds are commonly sold in brown bags by seed companies or other key seed actors, even in violation of express injunctions. In reality, the boundary between the formal and informal sectors has shifted depending on the circumstances.

FINDINGS AND RECOMMENDATIONS

There is a strong and urgent case for reimagining the regulatory framework for seeds. When the Seed Act was enacted in the 1970s, all important aspects of seed provision occurred within the public sector. Therefore, legislation regarding intellectual property rights, brand names, and other similar concepts were overlooked in favor of certification and variety notification. With multiple providers to choose from in a functioning and competitive market, existing legislation appears dated. For their part, FSC&RD and other public authorities charged with enforcing regulations are not equipped with the manpower or resources to keep up with the flourishing private sector.

One of FSC&RD's main functions is to certify seed, performed through field inspections during the production stage. FSC&RD officials issue tags upon successful inspection, which the seed distributors are required to display prominently as a mark of quality. The private sector, however, views this paradigm entirely differently. It feels that it had the knowhow to produce quality seed and therefore regard the field inspections intrusive, time-consuming, and unnecessary. Private companies believe that the brand name itself, rather than a tag issued by a government official, carries weight in the market, making seed certification a tedious formality.

Because variety approval confers no intellectual property rights and bypassing the process entails no FSC&RD recourse, companies gain little in doing business through official procedures. In addition, they are also reluctant to submit their seeds to institutes for evaluation because the two parties compete in the market for the same share. Ideally, variety registration should be voluntary but existing approval regimes should aim to formalize, rather than penalize, the informal sector. Making variety registration voluntary and replacing certification by truth-in-labelling is not a call for a withdrawal of the state from seed regulation but rather a call for strengthening it by making it reflect current business practices.

The role of FSC&RD needs to be redefined. Given that registration benefits neither the breeder nor the farmer, why should it be required at all? Similarly, seed certification has become largely irrelevant as much for the lax implementation regime as for farmers' reliance on their judgment rather than a tag issued by an official displayed on the seed bag. Companies usually obtain these certification tags to avoid unwarranted inspections, rather than for any value that the tags may add to their business.

Similarly, PSC also needs to develop a better business model, as the current model is flawed on several counts. PSC is unable to dispose of the seed it produces on its farms or procures from its registered growers. Thus, rather than being a mainstream seed provider, it struggles every year to offload its stocks. Further, PSC is providing commodities that are being supplied (more successfully) by several providers in the private sector. There appears to be a case for either closing down PSC or shifting its focus to producing seed for niche and ignored markets.

Numerous efforts to reform the system have made little headway in the legislative process possibly because of conflicting interests of key actors in the sector. The private seed industry has provided lukewarm support at best to proposed amendments to the Seed Act expanding the scope of oversight and standards, which they feel will extend government control without offering any value in return. The public sector also bears some responsibility for the lack of legislative progress. For example, FSC&RD has been lukewarm towards enhanced intellectual property rights amendments that placed breeder rights functions within the federal government's Intellectual Property Organization (IPO) and therefore out of its control. This is not merely a public-versus-private issue, however; even within other sectors there is tension. For instance, private seed companies not only seek to protect their germplasm through plant breeders' rights legislation, but also to preserve their free access to others' material. Thus, the Pakistan seed industry is unable to muster support to break through chronic legislative inaction.

Further policy research needs to be reoriented to the informal sector. Rather than investing in collecting and analyzing data on the provision of certified seed, which constitutes only 20 percent of the total seed requirement, investing in understanding the dynamics of the use and provision of uncertified seed will yield more productive results. Determining how seed providers compete on seed quality in a market with an unusually large number of providers will be instructive. It will also be useful to explore ways to support farmers in saving their seed, which will continue to be an important source for several crops.

About the Author

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