
SEED LAW IN PAKISTAN AND ITS IMPACT ON FOOD SECURITY

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ABSTRACT

Agriculture is the mainstay of economy of Pakistan, more than 45 percent of population is reliant on agriculture employment. As the growing population is a constant threat to the food security, thence efforts need to be taken for its sustainability through different means. To combat this threat and overcome the situation agriculture production need to be enhanced where agriculture inputs play a major role. Besides water, soil, agro-chemicals seed is the main input which guarantees agriculture production. Impurity of seed has direct impact at overall production of crop, hence all expenses made during process of from land leveling to the harvesting becomes waste, if quality of seed is compromised. This article is based on qualitative research, in which numerous legal aspects of seed laws were examined and analyzed to identify any gaps in these laws and the way they were being put into practice. Contrarily, the green revolution and the sustainable development goals were outlined to emphasize the significance of food security, which is achieved through an agricultural revolution. Due to the paucity of research on this area of laws and their deficiencies, this study has a significant impact on policymaking. The only remedy to control all this menace is the law and its true implantation. In Pakistan the seed laws have great ambiguity as federal government do not want to relinquish its function which constitution does not allow though agriculture is and was a provincial subject as per constitution of Pakistan. Agriculture was neither in federal legislative list, nor in concurrent list which was abolished in 2010. This is purely a residual subject which is the domain of federating units of Pakistan.

Keywords: Food Security, Seed Laws, Irrigation, Agriculture Inputs, Sustainable Development Goals, The Green Revolution.

INTRODUCTION

Pakistan is mainly an agrarian economy, which is contributing 19.2 percent in the GDP and 45 percent of population is directly engaged in agriculture employment. Agriculture also produces raw material which is used in businesses that contributes to the proportion

of country's human resource engagement. Agriculture is a broader subject that deals with crop, livestock, poultry, fisheries and forest thus food demand is met out from all the above sources. The agricultural productivity not only plays its role in economic development, but also in ensuring food security, overall, it contributes to the economic wellbeing and contributes in poverty alleviation. For higher productivity and economic growth, factors of production including land, labor and capital are essential, however entrepreneurship is the fourth agreed factor of production.

Food security is and has remained an issue for every living creature on the earth for its survival since its birth. This is an issue for all nations including developing countries to ensure food security for their residents as a whole. The demand for food is directly proportional to the increasing population in the world, so is in sub-units of the countries. World population today is numbered around 77,875 million, whereas, Pakistan's current population is 227.8 million, with a projected population of 262.9 million in 2030 and 338 million in 2050. According to U.N. between 2019 and 2020, the number of undernourished persons has increased by 161 million. If the proportion of undernourished people in the world will not decline the world will have to face severe food crisis. More than 20 percent of Pakistan's population is malnourished, and nearly half of all children under the age of five have stunted growth issues. According to a survey conducted by the Pakistan Bureau of Statistics (PBS), 16 percent of the population suffers from mild to severe malnutrition. The incidence was 20 percent, which is double the population of rural areas, compared to 9.2 percent in urban areas. Unfortunately three in five households, 61 percent of the two lowest incomes suffer food insecurity. Further, it revealed that there is serious food malnutrition that was found in over three million people in Pakistan. The majority of country's population is dependent upon agriculture sector. the question here arises whether there is enough food in the world to feed for the entire population or not? Even though it is assumed that in spite of post-harvest losses enough food is produced for entire population of the world, but the accessibility of food to each and every soul living on the earth is still an issue. This mainly is due to inappropriate distribution and lack of access for every living soul to the produced food in the world.

The United Nations adopted Sustainable Development Goals (SDGs) in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated they recognize that action in one area will affect outcomes in others and that development must balance social, economic and environmental sustainability. Countries have committed to prioritize progress for those who are furthest behind. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls. The creativity, knowhow, technology and financial resources from all of society is necessary to achieve the SDGs in every context. Out of all seventeen Sustainable Development Goals agriculture productively plays a great role, as goal number one is for poverty, goal number two is for Zero hunger, goal number three is for good health and well-being (nutrition) whereas goal number eight is for Decent work and economic growth. Agriculture productivity can play vital role in achieving all these goals. The legal framework, proper legislation supported by prudent policies and regulations can help achieve these sustainable development goals.

The basic need to meet the food demand is food production in enough quality, for that production required agriculture inputs play a vital role. This article will mainly focus on agriculture part and shall discuss the major input of agriculture and that is seed with available legal framework and its impact on food security.

Agriculture produce is dependent upon the soil and its improvement, watering mechanism, use of implements, agriculture machinery, use of agro-chemicals lastly proper harvesting. The use of agro-chemicals such as pesticides, fertilizers and seed are mainly used and are classified as agriculture inputs. There is need for vigilant pursuance and monitoring at all the steps involved in food production. Starting from land preparation, use of agriculture machinery and equipment, use of quality certified seed, proportionate watering, application of pesticides, harvesting, post-harvest losses, storage, distribution and market mechanism to meet the food needs of the country as a whole all steps need vibrant legal framework.

The Green Revolution: The “Green Revolution” refers to a revolutionary agricultural initiative of the 20th century that used chemical pesticides and fertilizers, sophisticated irrigation systems, and plant genetics to boost food production and alleviate poverty and

hunger in emerging nations. The beginning of the Green Revolution was sparked by scientist Norman Borlaug's hybrid wheat strain, which he developed in Mexico and radically enhanced yields. The concept was later expanded to Asia, Latin America, and eventually Africa to enhance food production for expanding populations without using considerably more land. However, when inequality and environmental deterioration increased, the methods and policies of the Green Revolution came under scrutiny. By the 1960s, food shortages and population growth in India and Pakistan were endangering the lives of millions of people. The new types flourished once the nations joined the Mexican wheat programme, and by the late 1960s, harvests had significantly increased. However, Agriculture in developing countries has been confronted with an increasing number of challenges, including fulfilling the challenges for diet diversity resulting from rapidly rising incomes, having to feed rapidly growing urban populations, gaining access to proprietary technologies, and preparing for the predicted adverse impacts of climate change. While grappling with the new issues, the food policymaking community remains preoccupied with the continuation of hunger and poverty in low-income nations, particularly emerging economies. In order to reinvigorate agricultural innovation and production systems to address today's complicated challenges, we need to tap into the finest of scientific knowledge and technological advancements. New global public goods are required that focus on changing the yield frontier, boosting stress tolerance, and increasing competitiveness and sustainability (Pingali, 2012).

This was aimed to increase the yield per acre, the increased production is only possible through improvement in agriculture technology, improved management techniques, efficient water management, preparation of soil and other related expenditures for production that growers are bearing in the interest that harvesting will benefit them economically and also will address the poverty alleviation issues. Lastly strict implementation of laws.

Why High Yield is Necessary?: There are many different types of farm inputs, ranging from the most popular ones like fertilizer, farm chemicals, machinery, seeds, and water to many others that all combine to produce glamorous outcomes. Only high-quality inputs, with seed playing a key role among them, can provide high yields. One

of the most crucial aspects in enhancing agricultural production in any farming system is the use of high-quality seeds. Physiological, biochemical, and cytological changes occur throughout seed growth, resulting to the evaluation of quality. This component is now more important than ever in ensuring adequate food security for the world's growing population.

High-yielding cultivars that are suitable to the production area, have disease, pest, lodging, and shatter resistance, as well as other desired features, are essential for optimum crop productivity and yield. Any effective agriculture system relies on the production of high-quality seed. It's also a good marketing strategy for boosting crop sales potential, especially in today's competitive industry.

Agricultural Objectives: The following are some of the primary agricultural goals that a country may choose to set for it to achieve such as achieving maximum agricultural production in response to consumer demand, increasing agricultural output as per customer demand, achieving national food self-sufficiency, conservation of agricultural resources, to alleviate population strain in the agriculture sector and agricultural resource flexibility, i.e., the ability to adapt the use of farm resources in response to changes in market and cost considerations. Moreover, farmers' social security in the face of natural disasters and economic uncertainties and Tenure security, fair rent fixing, and the ability to purchase landed property (Azhar, 1956, Mbabu & Ochieng, 2006).

Agriculture as a subject had never been in the Federal legislative list, except for reference. Likewise, it was not in the Concurrent legislative list even at the time of passing of the constitution in parliament in 1973. Thus, it was the residual subject, empowering the provinces to legislate on the subject of agriculture. Federal Government was having two ministries one with name of Food and Agriculture and of Livestock and Dairy development. After passage of 18th Amendment, this ambiguity was further cleared and the subject agriculture which was and is the provincial subject was further clarified to be the provincial subject. Instead of devolving these ministers to the provinces the existing ministries were renamed with Ministry of Food Security and Research which kept continued dealing with the agriculture, food, livestock and fisheries departments of the provinces. Likewise, several other Ministries such as Ministry of

Health, Educations and Climate Change was formulated rather renamed with different cover. It was the same product with different packaging. Ministry of Climate change is now dealing with Forests, Wildlife, Climate change and environment which again all are provincial subjects. Since agriculture was not in the Federal legislative list 4th schedule nor in Concurrent list, therefore the 'The Sindh Seed Act 1976' was passed from the parliament with the consent of the provinces under Article 144 of the Constitution. The amendments in the Seed Act 1976 were made in 2015 after passage of 18th amendment in the year 2010 again the same procedure of seeking consent of the provinces was sought through Article 144 of the constitutions.

It needs special attention on part of the policymakers to ponder over the matter and avoid duplication. Currently, the important framework for the seed part exists in Pakistan at both the federal and provincial level. The Federal Seed Certification and Registration Department (FSC&RD), Provincial Seed Council (PSC), Seed Corporations and Seed Organisations are controlling the seed's production and marketing of new varieties. Federal Government is still controlling The Seed Act 1976 amended 2015 though there are provision of approval of seeds through provincial seed councils that is applicable to the entire country, where as Seed Corporation Acts are separately working in Sindh and Punjab. It is right to point out that there are very few employees posted in the provinces by the Federal Seed Certification and Registration Department (FSC&RD) who can check the impure supply of seed or can reach to each and every corner of provinces for strict implementation of law. With this mechanism, the things have mixed up neither federation is able to perform at full peak due to lack of capacity nor the provinces are doing well due to lack of legislation and legislative powers to implement all such activities provided in law. Though Agriculture extension departments of all the provinces have enough staff at Union Council level, who can easily check and control the dealers and suppliers of seed. But Federal government is reluctant to relinquish its powers at the cost of national economy. Due to all such gaps, Pakistan is not creating enough amounts of seed for the cultivating group, aside from cotton. The country is dependent mainly on imported seed and multinational seed companies; Private Sector in Seed business are at large to create monopoly in the business who are hardly checked and controlled. This

overall affects the economy of the county, wellbeing of farmers and ensuring food security as a whole.

LITERATURE REVIEW

Basic Concept of Food Security: Food security, as defined by the Food and Agricultural Organization of the United Nations “exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2010: 8). The four pillars of food security i.e., access, availability, utilization, and stability of supply take on unique characteristics in an aboriginal (Power, 2008). In 1983, FAO expanded its concept to include securing access by vulnerable people to available supplies, implying that attention should be on the balance between the demand and supply side of the food security equation “ensuring that all people at all times have both physical and economic access to the basic food that they need”.

Although there have been many attempts around the world to achieve food protection through different pathways that have had detrimental consequences for our ecological system (Håk et.al., 2018). Food insecurity is still not being studied where there is a high degree of it in rural areas. (Khan et.al., 2012). Food demand data might be useful in developing suitable medium- and long-term strategies within the food sector, as it assesses the difference in demand and availability. Kumar et.al., 2016).

Poverty, food insecurity, and environmental degradation are inflicting tremendous human suffering at the turn of the twenty-first century, and they threaten to destabilize global, regional, and national economic and ecological systems. If current trends continue, the majority of humans will find the world to be an unpleasant place to live (Béné, 2020). So that, National food self-sufficiency is a wide and nebulous objective. Two key questions must be addressed before any food strategy can be developed: (a) At what level of nutrition do you want to achieve national self-sufficiency? (b) Should we strive for national self-sufficiency in specific food categories? In and of itself, the first question is a policy question. Perhaps the best solution is to establish near-term self-sufficiency at current levels of nutrition and long-term optimum levels. Major and cash crops, such as wheat, rice, cotton, and sugarcane, would be the response to the second question.

Carbohydrates plus animal proteins in the short term, and carbohydrates plus animal proteins in the long term. The following are some of the primary measures that would be implemented to accomplish the objective of natural sufficiency in food production: (i) Rice and wheat forward pricing (ii) Appropriate storage facilities for storing food grains. (iii) Pest control for stored grains Sub-(1) Development of fisheries, poultry, fruits and vegetables, and other related industries. (2) Food grain smuggling and export restrictions. (3) overhauling of distribution equipment (Clapp, 2017).

Basic Concept of Agriculture Resources/Inputs: Agriculture is considered as the backbone of every economy which not only feed peoples also generate employment along with foreign exchange earnings, so the input use efficiency is also necessary along with output evaluation for food security, export promotion, and sustainable growth. In addition, profitability of irrigated agriculture depends on the availability of low prices and high quality of agriculture inputs such as seed, fertilizer and pesticides for potential yield and profitability. Agriculture encompasses a lot more than just farming and ranching. Agriculture includes both our current and future food systems, as well as the resources utilized to generate them. Food safety, agricultural and livestock production, processing, storage, transportation, financing, waste management, marketing, and commerce are just a few of the potential issues (Godfray et.al., 2010).

Two important agricultural input resources are soil and water. Some analysts include agriculture labor in the above list as well. When it comes to conservation, however, soil and water are the most crucial considerations. Some authors have referred to soil erosion and water logging as "creeping death" and "soil cancer", respectively. They pose a severe danger to our agriculture industry as well as our overall economy (Prokopy et.al., 2019). A long-term policy for agricultural resource conservation should aim for maximal community engagement in conservation techniques. In the near run, however, state cooperation would be essential because water logging, alkalinity, and soil erosion are important national issues that cannot be adequately addressed by individuals or even towns in their current state (Rai et.al., 2021). Further, Open-source plant germplasm license is being developed through an interdisciplinary social unit of plant breeders, farmers, lawyers, and common specialists. The aim is to shield germplasm as a

standard, support the free exchange of germplasm, stimulate plant breeding, cut back prices, and accelerate innovation. It is a legal instrument and a new approach, which expands the reach of allowed germ plasma derivatives. Compatible with existing seed legislation, Effects on plant germplasm access, reproductive activity for various pedo-climatic environments, socioeconomic systems, and on diversity. The influence of germplasm open source in these ways must be closely controlled (Kotschi and Horneburg, 2018).

A study by Giller et.al., (2009) shows that conservation tillage with mulching could lead to the same or higher yields as conventional farming practices. In northwestern Ghana, smallholder maize and soybean farmers realized increased yields and incomes with a no-tillage system (Naab et.al., 2017). They had lower production costs and enjoyed higher returns to labor compared to the conventional moldboard practice. Farms that used no-tillage, crop rotation, and intercropping of maize and soybean also generated more profit. Ethiopian farming households had a similar experience. Likewise, in a study of smallholder maize-producing households in more than 100 villages in nine countries in sub-Saharan Africa, Tambo and Mockshell (2018) found that total household income and income per adult equivalent rose with the adoption of conservation agriculture. Most income gains occurred due to the implementation of all the practices associated with conservation agriculture, minimum soil disturbance, crop residue retention and crop rotation.

Many studies focus on increasing productivity while ignoring fundamental inputs like seed and relying on pesticides, which are harmful to the ecosystem, climate change, and biodiversity, which is why we urgently need a legal framework that promotes agriculture while simultaneously protecting the environment. The need for sustenance is the most plausible foundation for agricultural law as a distinct field. Food, being the most basic of human needs, provides compelling justification for a regulatory framework that nurtures and guides the country's agricultural business. Providing enough food for its population is one of the most crucial tasks of government. According to agricultural law researcher Neil Hamilton, "the fundamental nature of food production to human existence." is one of the primary reasons for the establishment of agricultural law as a distinct field (Shaw, 2007; Venkatramanan & Shah, 2020).

Agriculture Input: The agricultural inputs are any external source put in the soil that can help farmers in producing yield. Mainly there are two categories of inputs i.e., consumable inputs and capital inputs. Consumable inputs are those which are consumed by crops e.g., water, seed, fertilizers, pesticides, insecticides, weedicides and others. Likewise capital inputs include land itself, machinery and other material used before and after sowing and until harvesting; that includes tractors, laser levelers, cultivators etc. For attaining best results various studies has suggested that agriculture productivity inputs play a vital role. There are two sorts of primary and secondary inputs. Primary inputs simply give services, whereas secondary inputs are incorporated into the product for which they are used. The most essential agricultural inputs include soil, tractors, equipment, and farmer's services. In addition, production components are primary inputs because they only give services, but seeds, manure, water, insecticides and pesticides are secondary inputs because they are absorbed into the produce for which they are used. Of all these inputs seed is the main agriculture input which affects the agriculture production both positively and negatively, thus causing threat to food security or otherwise. Threat to food security also lies with overpopulation, massive urbanization, soil erosion, income disparity, ecosystem degradation, animal health, and lack of food wholesomeness. When we talk about inefficient production leading to a threat to food security, this couples with several other factors mainly environmental degradation, climate change, sea intrusion, soil erosion, water logging, salinity, water scarcity, but inefficient agriculture inputs are the main threat. Inefficiency of agriculture inputs can overcome with strict laws and their implementation.

Seed Industry in Pakistan: The relevance of environmental effect on seed growth and maturation is demonstrated by the accomplishment in growing good quality seed of a given crop throughout one area and failure in another. Temperature, water stress or excessive rain, lack of nutrients, disease infestation, and insect pressure all affect seed quality during development and maturation. Seed quality is also influenced by the stage of seed development during harvest. Harvesting seeds too soon or too late can degrade their quality. Long-term, less-than-ideal storage conditions cause physiological, biochemical, and cytological changes in seeds, resulting

in quality loss. Slower growth, abnormal seedlings, and a reduction in vigour and viability are some of the physiological changes. Mechanical injuries from harvesting, conditioning, or handling can potentially degrade the quality of seeds. Seed deterioration and quality are accelerated and reduced when stored in suboptimal circumstances such as high temperature and relative humidity or high moisture content. The degree of seed deterioration is determined by the species, storage environment, storage period, and seed quality at the time of storage. As a result, determining the influence of ageing on seed quality requires assessing the quality of seeds stored for various periods of time.

Importance of Inputs and Quality Seed: The quality seed which is free from disease and have ability to resist pests and can generate nutrients with high germination percentage can only give the desired results. All other inputs may it be consumable or capital are sphering around the quality seed. The input cost involved in production can only bring good output, when seed used is of high quality and is used with required moisture and germination. Seed quality is assessed in a variety of methods, including genetic and physical purity, germination, vigour, size uniformity, disease resistance, and any other parameters that may affect seed performance in the field. As a result, seed quality refers to the genetic and physical purity, viability, vigour, and seed health of seeds as a whole. Seed quality is also influenced by other features such as chemical composition or resistance to certain diseases or insects. Seed quality is influenced by a variety of factors. The expression of seed quality is influenced by complex combinations of genetic, environmental, physiological, biochemical, cytological, and pathological variables. Seed size and colour, chemical composition, hard-seededness, hybrid vigour, vulnerability to mechanical damage, and disease resistance are all factors under genetic control.

Role of Seed in Agricultural Productivity: Seed is a vital input for crop production upon which, the efficiency of other agricultural inputs greatly depends. The supply of certified seed in the country is limited to only few major crops like wheat, rice and cotton; whereas, the availability of certified seed is almost non-existing for minor crops like fodder, pulses, and vegetables. The supply of certified and true to type nursery plants is also lacking for all fruits produced all over the

country. Hybrid seed of maize, vegetables, oilseeds and fodders remained on the import list. As a policy, a modern seed sector is aimed at not only to meet domestic needs of seed, but also harness opportunities for export to regional and international markets for ensuring seed quality and supply not limited to few major crops (wheat, rice, cotton). Also, Hybrid seed supply and different varieties be made available to tackle climate challenges and losses. Moreover, Strengthening of Sindh Seed corporation and focusing more on research by enabling coordination among the university and the organization.

SEED ACT 1976

The Seed Act 1976 was enacted through parliament seeking consent of all federating units for its coherence in all provinces. Even then its implementation in all provinces was not at the mark as there had been complaints of growers on low quality seed in the market since inception of this Act. The Seed Certification authority had meager resource and manpower issues which could hardly look into the massive agriculture area around whole Pakistan and in all provinces. After constitutional amendment in the year 2010 the agriculture subject was completely devolved and the concurrent list was abolished in the Constitution of Islamic Republic of Pakistan. It was at that time was mandatory upon all federating units to enact their own laws which could suit their own issues, environment, ecological regions and problems. Federal bureaucracy seeing their shrinking strength though 18th constitutional amendment managed to rename the Federal Agriculture Department and likewise Environment Ministry to Climate Change Ministry. Technically speaking Agriculture, Food, Livestock, Fisheries and Forest which mainly contribute in food security of the province are all devolved subjects and are no more reflected federal legislative list or in the concurrent list of the constitution. Surprisingly overlapping ministries with simply change of name were created at the center level. In the same way Forest, Wildlife and Environment, Climate change all are devolved subjects were merged into the renamed Ministry of Climate Change.

Though the constitution does not provide any domain to the Federal Government after 2010 even then the amendments in Seed Act 2015 were made after five years of devolution. Here too the consent

was sought from the provinces under Article 144 as parliament was not having mandate to amend in the existing laws at its own.

SEED ACT, 1976 AMENDED, 2015

To ensure food security in Sindh as well as in Pakistan, Amended Seed Act (2015) provides control the quality of pure seeds of diverse crop varieties i.e., cotton, rice, wheat, sugarcane oilseeds and fruits, vegetables, fodder and vegetative propagated materials such as seedlings, tubers, bulbs, rhizomes, roots, cuttings and grafts. According this Act, the federal government has a well-known set up a “National Seed Council” this council is responsible to advise on policy for the development, achievement and training of the provincial seed activities, seed quality control and to approve and sanction seed standards. In this Act “Provincial Seed Council” was also established to approve new crop varieties and technologies.

SEED (BUSINESS REGULATION) RULES, 2016

In that Rule stated that employs a full time crop specialist having a graduate degree in Agriculture (B. Sc. Hons.) or M.Sc. Botany or equivalent with 3 years relevant experience in seed production; following gaps is observed such as employs a full time crop specialist having a Master’s degree in Agriculture (M.Sc. Honours in Plant Breeding and Genetics) or Graduate degree in Agriculture (B.Sc. Honours in Plant Breeding and Genetics) with 3 years relevant experience in seed production.

THE SINDH SEED CORPORATION ACT, 1976

Taking steps to promote and distribute pure seeds. The Sindh Seed Corporation Act of 1976 tasked the organization with developing promotion programmes and taking steps to strengthen the seed sector in province Sindh. The Sindh Seed Corporation would carry out the field experiments for seed multiplication and propagation. It dwells provide facilities for capacity building of technical staff within and outside the province regarding seed production, processing, procurement, marketing, marketing, packaging and seed distribution. The Sindh Seed Corporation would make suitable arrangements of seed multiplication on private farms under its technical staff supervision.

PROVINCIAL SEED COUNCIL

In 1997, the Federal Seed Certification Industry (FSCA) and the National Seed Certification Agency (NSRA) were merged to form

FSC&RD, a government body charged with overseeing the work of public and private seed companies and ensuring the availability of high-quality seed to farmers, thereby boosting agriculture. Controlling quality seed, certifying seed after steps such as crop inspection, seed sampling, and seed testing, issuing certification tags for accepted seed lots and intended for sale, providing technical and special advice to the National Seed Council in performing functions, conducting pre-registration checking of varieties, determining sustainability, and preparing botanical descriptions (DUS) trials that are all functions of the Federal Seed Certification and Registration Department.

The plant breeders when innovate the seed variety, it has to pass through different stages of variety testing like, "value for cultivation and use (VCU), distinctness, uniformity and stability (DUS)" providing information on value of cultivation and use (VCU). The more functions are registration of varieties after performing pre-registration checking, publication and notification of registered seed varieties, conducting research in seed science and technology, registration of seed business and seed quality monitoring in the market.

It needs special attention on part of the policymakers. Currently, the important framework for the seed part exists in Pakistan at both the federal and provincial level. The Federal Seed Certification and Registration Department (FSC&RD), Provincial Seed Council (PSC) and Seed Organizations are controlling the seed's production and marketing of new varieties. Pakistan is not creating enough amounts of seed for the cultivating group, aside from cotton. The country is dependent mainly on imported seed and multinational seed companies.

RESULTS

We must strive in many different directions to achieve food security in Sindh and throughout Pakistan, and one of the most crucial is seed legislation. This will help us to optimize output, fulfill people's demand for food, and prevent future food savagery.

In Pakistan, both the governmental and private sectors work together to produce seeds in Pakistan. Therefore, evaluating the quality of seeds stored for varied amounts of time is necessary to determine the impact of ageing on seed quality. The analysis of the paper indicates that because each federating unit has its own dynamics and agricultural cropping zones, the seed industry was never a federal concern and cannot be centralized. Each region has a different need for seeds, and each province's research varieties need a particular climate

zone. The administration and oversight must be transferred to the provincial level, because each federating unit has its own assembly and can enact laws in accordance with its own needs.

CONCLUSION AND POLICY RECOMMENDATION

Pakistan is a federation with federating units as per Article 1 of the Islamic Republic of Pakistan's Constitution and in the chapter on Fundamental Rights and Principles of Policy, Article 38 of the Pakistani Constitution emphasizes the promotion of social and economic well-being of the people by providing basic necessities of life, such as food, clothing, housing, education, and medical relief, to all citizens, regardless of sex, caste, creed, or race. To meet this constitutional mandate, food production must be based on the country's demand and population proportion. In contrast, agriculture produces food, particularly staple foods, which are the primary source of food security. Article 37 (f) of the Constitution states that promoting social justice and eradicating social evils is only feasible, if one of the most fundamental physiological needs, food, is fulfilled.

The seed business was never a federal subject and cannot be centralized as every federating unit has its own dynamics and agriculture cropping zones. The demand of seed in each area is different, not only this but research varieties of each province require different climatic zones. The administration and supervision need to be devolved to the provincial level as each federating unit has its own assembly hence can legislate at its own according to its own requirements. The parliament has the authority to legislate on the issues included in the 4th schedule of the Federal legislative list. Prior to the 18th amendment, the legislature could legislate on any of the subjects included in the Concurrent list in this case agriculture was neither in federal nor in concurrent list.

To recapitulate, high-quality seed production does not occur by coincidence. For high-quality seeds, each step in the production chain is crucial, from planting the right variety at the right time to following weed control practices, a fertilizer programme, harvesting at the right time, purifying the seeds, storing, and shipping.

For controlling all such operations required to achieve high output in agriculture demand, specific laws, rules and regulations are required to be enacted with strict enforcement of such laws. In this scenario to control and regulate all such operations and functions involved in food production, storage, transportation, distribution, and marketing and reduced food waste is possible through the law.

The economic, social, political, and legal context in which the policies are to be framed and be implemented be considered during policy formulation. To avoid conflicts and inconsistencies, policies in various areas of economic activity should be carefully coordinated. Agriculture policymaking is a challenging task, it necessitates a thorough understanding of agricultural economics, as well as sociology, political science, law, and the technical aspect of agriculture, on the part of policymakers. In order to make policy decisions, reasonable accuracy and sufficient data are also required. All policymaking may be a gamble without such data and basic study on contentious matters (Klerkx, Jakku, & Labarthe, 2019). The conclusion lies in strict decentralization in the sector and enhancing the capacity of provincial organizations, legislation on agriculture through provincial assemblies and its strict implementation in the field. This all can ensure food security in the provinces and for the nation as a whole.

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