PAKISTAN'S AGRARIAN ECONOMY: CHALLENGES, MEASURES AND WAY FORWARD

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Abstract

Agriculture sector in Pakistan contributes substantially to the national economic development and country's foreign exports. According to the Economic Survey (2014-2015), the share of agriculture sector in GDP was reported to be 21%. The (2016-17) statistics of Pakistan Economic Survey indicate that the contribution of agricultural sector in Pakistan's GDP is 19.5 percent, and the sector provides employment to 42.3 percent of the labor force. However, for the last few years, Pakistan's agriculture growth rate has remained relatively low. This owes to a number of reasons, including pressing challenges of environment, water, land as well as institutional and socio-economic factors. This article analyzes the significance of agriculture sector for Pakistan's economy, current trends and problems in the agricultural growth and productivity, government's initiatives to counter these challenges along with the factors that need to be addressed to revitalize Pakistan's agricultural system. It attempts to present suggestions to improve the performance of Pakistan's agricultural system, directed at achieving optimal agricultural production. The analysis is based on studying extensive research work and expert opinion on the subject.

Introduction

Agriculture comprises of one of the major sectors of Pakistan's economy and a wide segment of the country's population, directly or indirectly, depends on it. More than half of the country' population lives in the rural areas and are directly involved in agriculture sector. The two main crops in Pakistan are the Rabi & Kharif crops. Main crops include rice, wheat, maize, sugar cane and cotton. Progress of the agricultural sector along with the associated subsectors i.e. crops, livestock, fisheries and forestry has a huge potential to upsurge national economy, eradicate poverty, maintain food security and uplift the socio-economic conditions of the people, especially in the rural parts of the country. This can be acheievd through increased productivity and the use of advanced agricultural technologies. The agriculture sector has the potential to suffice not only the domestic requirements but has the capacity to provide surplus production for exports as well, thereby contributing greatly towards foreign exchange earnings. Though, in the last few decades, its input and contribution to GDP has dwindled. The sector that once contributed more than half of the country's GDP, has now declined to just around 18.5%. Moreover, the 6th Population and Housing Census of Pakistan 2017, has reported a rapid increase of 2.4 percent per annum in Pakistan's population, which is raising demand for agricultural products. Thus there is a need to develop comprehensive strategies for improved management of the factors that hinder efficient agricultural productivity in Pakistan.

Analyzing the agricultural growth of the last couple of years, it is observed that the achieved yield has fallen short of the targeted output because the important crops have dropped by 6.5 percent and other crops have experienced growth of only 1.9 percent. For example during 2018, the production of major Kharif crops of cotton, rice and sugar cane declined by 17.4 percent, 3.3 percent and 19.4 percent in cotton, rice and sugarcane respectively. Similarly, cotton registered less production with a decline of 17.4 percent and 12.1 percent reduction in area. This was mainly due to scarcity of irrigation water, low quality fertilizers and seeds along with reduced cultivated area. Hence, owing to the overall decline in the production of important crops, the agriculture sector experienced a minimal growth of 0.8 percent. During the

FY2020, the agriculture sector has performed relatively well inspite of the numerous challenges it has faced such as the climate change, pest attacks, water scarcity, financial constraints and the global pandemic.

Problems and Challenges in Pakistan's Agriculture Sector

Climate change is an emerging global menace with shattering effects on people, economic growth of the countries and their development. The Intergovernmental Panel on Climate Change (IPCC) has alarmed the world community of the situation that might occur due to global warming, Green House Gas (GHG) emissions, degradation of natural resources, loss of biodiversity etc. Pakistan faces these issues, having negative impact on its economy and thus there is a need to implement adaptation and mitigation measures. This calls measures including scaling up the glacial flood risk reduction in respective areas, integrated floodplains management, livelihood Improvement in coastal areas, conservation of mangroves ecosystem, rain water harvesting and so forth. Land degradation is another major challenge causing massive reduction in land productivity. It includes soil salinity that severely harms the productive capability of land causing low crop yields. This is mainly due to the use of bad quality groundwater for irrigation. Similarly, waterlogging largely undermines land productive capability.

A report indicates that at least 50 liters per capita domestic water is required, rendering food security as directly related to water security. However, relevant departments have warned, for example the Pakistan Council of Research in Water Resources has concluded that Pakistan may run dry by the year 2025. Similarly, the United Nations Development Program report (2016) states that one of the serious threats to Pakistan is that of water scarcity. Furthermore, the - International Monetary Fund has reported that the per capita annual water availability in Pakistan has declined substantially. There is absence of strict regulatory framework that has resulted in groundwater depletion. The water issue can be managed by specialized water management, water and soil preservation technologies, using high-efficiency system for irrigation and promoting climate-smart agriculture. Indian malignant policies toward Pakistan to strangulate Pakistan's agriculture, is also a major factor as it has restricted water flow of rivers that originate from Indian side especially the Indus, Chenab and Jhelum rivers that pass through Indian occupied Kashmir. Pakistan has raised objections to Indian water projects but no concrete action has been taken so far.

Furthermore, use of the traditional methods of cultivation and harvesting has led to the low yield per acre. There is a dire need to introduce modern scientific methods and machines to improve the yield. There should be more awareness about modern farming practices and technologies in the farmer community. It improves the quality and timeliness of agricultural operations. In Pakistan, there is lack of improved quality seed which hinders enhanced agricultural productivity. Availability of improved seed plays a pivotal role in high agricultural yield. The Federation of Pakistan Chambers of Commerce and Industry's Standing Committee on Agriculture has called for the government to provide better quality of seeds and pesticides. There is a need to revamp Pakistan's seed sector and produce larger volumes of certified seeds at affordable.

There has been a considerable decrease in the availability of labor for agriculture purposes due to rising challenges. This has in turn called for increased demand for agricultural machinery. Technological advancement is key to high growth-strategy. Therefore evolving new HYVs of crops, new breeds of livestock and developing new cultural practices is the need of time. Complete mechanization package including modern equipment for efficient irrigation system and postharvest work is required. There is need to

introduce and promote farm machinery in small farms. Among many issues, the prevailing one remains the limited direct access of farmers to the market. This needs to be addressed by relevant authorities at priority. Moreover, there must be strict check on black marketing and the sale of poor quality of seeds, fertilizers and pesticides.

The agriculture sector of Pakistan has been hit hard due to locust attack resulting in severe agriculture losses in crop production, in the large areas of Balochistan, Punjab and Sindh. According to the initial assessment, about 115,000 hectares of crops of oil seed, wheat, gram, cotton, vegetables and fruits have been damaged. The growth rate of livestock decreased from 3.82% to 2.58%. The relevant departments have tried to counter the Locust attack in minimal time to curtail the damage for farmers and ensure the food supply in the country. Rs.10 billion are allocated in the new budget to deal with locust swarm. Pakistan technicians have developed drones to spray pesticides on locust-infested fields. To contain the spread of the pest, the country has engaged China, Iran and most recently, Saudi Arabia. However there is a need for speedy action in this regard including quick information provision, awareness, and timely spray.

Pakistan Government Initiatives to Address Challenges in Agricultural Sector

The government of Pakistan has placed a special focus on developing the agriculture sector of the country and has initiated several constructive steps in this regard. These include measures taken like crop diversification, promoting high value crops, efficient use of water, enhancing agriculture credit, subsidized fertilizer prices, ensuring smooth and affordable electricity for agriculture machinery like tube wells and so forth. As a result, the performance of agriculture sector has started to improve gradually. Recently, the federal government has announced a program, "National Agriculture Emergency Programme" with the aim to allocate funds worth Rs.290 billion in the next five years. This initiative of the federal government is directed to address the issues that farmers and relevant departments face, in coordination with all the provinces. The target set by the government is to boost the crops yield, fisheries and livestock development as well as water preservation.

The provincial governments have introduced mega schemes like the "Punjab Fasal Bema Program" with the objective to enhance the financial resilience of the agricultural community to assist them in confronting the climate change challenge and its impact on the crops yield, so as to provide crops yield protection. It involves the registration of farmers, the insurance of farmer community through a competitive bidding process to compensate any loss from natural disasters, and farmer awareness programs through newspaper, radio, TV, SMS, tehsil level seminars, pamphlet distribution etc. Furthermore, the "Empowerment of Kissan through Financial and Digital Inclusion", an E-Credit Scheme launched in 2016 for a period of five years till 2020-21, to provide interest free loans to small farmers. The primary objective of this program is to increase farmers' digital literacy and their financial inclusion in the country. To increase the digital literacy among the farmers community, they are provided with weather updates, pesticides warning, pest crop practices, expert advice etc.

The government has developed a comprehensive Punjab Agriculture Policy that offers data-driven, cohesive and interconnected role for increasing farmer profitability, boosting crop diversification, optimizing subsidies, transforming markets, water preservation, food security and enhancing exports. Under the water management strategies, various small dams and canals are being constructed for example the 'Jalalpur Irrigation Project (JIP)' along right bank of River Jhelum encompassing Jhelum and Khushab districts. It is a non-perennial irrigation

system directed to utilize the barren land for agriculture in Jalalpur Canal command and promote irrigated agriculture using limited water resources. The project aims to construct new, extensive irrigation canals over 200 km, bring about institutional reforms and form farmers' organizations.

The "Prime Minister Agriculture Emergency Programme" worth Rs. 277 billion with the objective to transform and develop the agriculture and livestock sectors, enhance water availability, soil conservation, establishing new agriculture markets has also been initiated. More proposals have been proclaimed by the government to revive the agricultural sector. These include improving bank lending to farmers, ginners etc., applying uniform GST on all fertilizers, reducing sales tax on agricultural machinery, district equalization program, prioritizing the construction of dams for water conservation, financial schemes to prevent the loss caused by environmental hazardous etc. the task force on agriculture has proposed projects in concurrence with the provincial authorities as well as the private sector for reforming the agriculture sector.

Conclusion

Pakistan is an agrarian country, and thus the agricultural sector of the country needs to be modernized and transformed to produce optimal outcome and boost our economy. Use of advanced techniques, refining basic infrastructure and promoting agriculture research facilities is required to revamp our agriculture sector. Latest machinery, pesticides, quality seeds and fertilizers should be provided to farmers at subsidized prices. More awareness campaigns and programs should be initiated. India- Pakistan water issues should be resolved at priority. There is a strong need to educate people about drastic consequences of water scarcity and climate change. The construction of dams must be accelerated. There should be greater investment in research, development and extension. Further improvement in agriculture sector is contingent upon effective policies.

The importance and Benefits of Natural Stevia Plant

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Stevia is a small natural plant was discovered by Paraguay people in South America. They used the stevia leaves to sweeten the food and drinking water. In 1800, stevia plant broadly used in South America. In 1900, the innovation of plant was credited to Dr. Bertoni, so named as stevia rebaudiana Bertoni. The stevia crop was harvested for the first time in 1908. In 1970, the usage of stevia plant was initiated for sweetener to food and beverages in Japan. In 1990, the development started all over the world. In 2006, the safe benefits assessed of the stevia plant by World Health Organization. The welfare of stevia is published in more than 200 scientific studies.

The stevia plant is also known to be sweet herb, honey herb, meethi tulsi candy plant which is related to family Asteraceae. The genus of stevia is composed of 110 species, while 18 were verified for sweetness and suitable desired character. The most beneficial part of the sweet herb is leaves which contain sweet components include stevioside and rebaudioside. The leaves of this plant are the best source of sugar, whereas 30 times sweeter than sugar.

It is the sub-tropical and short day plant of South America. The oppositely developed leaves of this plant directly attached to the stem with the size of 2cm to 10cm. The maximum height of this plant is 26-32 inches. It has small white flowers and

fibrous roots. It has the ability to tolerate 200^0C (392F).

Worldwide status of stevia:

The natural stevia is very important worldwide due to zero calories. China holds the 1st position as a producer of sweet herb. In Japan, this plant has the 47% of the sweetener market.

Now, this plant is commercially cultivated in many countries include: China, Japan, India, Korea, Australia, Canada, Mexico, United States of America, UK, Belgium, Germany and Spain for the purpose of flavor enhancer, beverages and medicines.

According to the report in 2011, Pakistan is the 7th diabetic population. Therefore, there is requirement of alternate of sugar; stevia is the sweet plant that has no side effect. It is also developing and marketing with the name of zero Cal tea in Pakistan.

Importance:

The stevia has many benefits against human diseases that control the blood sugar, cholesterol level in the body and blood pressure. Furthermore, particular compounds found in stevia leaves which prevent the mouth against bacteria.

- Due to absence of calories, it is very helpful to control the sugar level and for diabetic and obese people.
- It improves digestion and gastrointestinal functions.
- It is effective against skin infections like acne, dermatitis, eczema, etc.
- It inhibits bacterial development in the mouth.
- It is used in chewing gums, tooth paste and mouths wash.
- It has the ability of anti-inflammatory, anti-tumor, anti-diarrheal and anti-oxidants.
- Stevia plant also used in herbal tea for taste; drinking tea for two times a day may help to stabilize the blood pressure level.

Recommended dose:

The suggested doze is 4mg/kg of body weight. The over doze can create problems of normal body functioning include; anaphylaxis, vomiting, bloating, emotionlessness, muscle pain, and decreased hunger.

Production technology:

Pakistan has blessed with different climate conditions from 0-50^0C, which is the appropriate for the development of stevia. The most suitable temperature is from 15-37^0C throughout active growth. Sandy loam soil with PH of 5.5-7.5 is the best for the growth of plant.

Production through Nursery:

The suitable time from February to March is good for nursery rising through seed. Development of seed takes place within 10-15 days.

Fertilizers:

For the fruitful growth of the stevia crop FYM 10-15 ton/acre is enough at the time of field preparation. N: P: K with a ratio of 28: 14: 18 kg/acre must be use.

A well-rotten FYM 10-15 ton/acre at the time of field preparation is sufficient to grow a fruitful crop.

Recommended varieties:

The high yielding varieties are SBR-123, SBR-512 and SBR-128. These can be harvest 3-4 times in a year.

Production:

The average yield from stevia crop is 12-15 tone/acre per year. The whole plant is dried after harvesting while leaves are separated. The dried leaves are in powdered form and can be stored in plastic bags. This powder can be used for extract. Stevia must be grown in Pakistani areas like Swat, Hunza, Chilas, Malakand, Rawalpindi and Islamabad. Agrarian specialists have successfully cultivated stevia plant for sugar in 12 districts of Punjab, but still problem is

- Lack of awareness about its importance.
- Less trust on its production.