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**AGRICULTURE SECTOR: ISSUES AND PROSPECTS**[[1]](#footnote-1)

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 Agriculture sector plays a critical role in Pakistan’s economy through a variety of channels. Almost 20 percent of national income and 43 percent of total employment are generated in this very sector. For instance, quite a portion of the country’s manufactured exports are dependent on raw materials such as cotton and hides that are part of the agriculture sector, while supply shortages and market disruptions in farm products do push up inflationary pressures.

Overall poverty incidence can be reduced only if rural incomes of the poor are raised from their current levels. In other words, the gyrations in macro-economic and micro-economic transactions can be attributed to a large extent to the health of agriculture sector. Wheat consumer and producer prices influence the wage-setting process in the urban areas and are politically sensitive. Though there is an avowed policy of liberalization of prices in place, every successive government has pursued an active interventionist policy in fixing minimum guaranteed price, procuring a large proportion of marketable surplus through public-sector agencies, storing and releasing the wheat to millers and monitoring retail prices.

 Despite the popular lamentations about the neglect of agriculture in the country, the performance of the sector has been simply impressive. Those who point to the share of agriculture declining from 50 percent at the time of independence to 20 percent currently as an indicator of poor performance of agriculture are mistaken. In the US less than five percent labor force produces food, fibres and other agriculture produce for 300 million and the rest of the world.

In 1949-50, Pakistan produced only 2.4 million tons and could not feed its population of 30 million people. By 2009-10 wheat production had increased 10 times to 24 million tons, not only feeding 170 million of its people but exporting the surplus. Pakistan has now emerged as the third largest exporter of rice, and its share in international trade has rose from 6.9 percent in 1985 to 14 percent in 2005.

The country is also the fifth largest producer of cotton, with cotton production of 14 million bales from a modest beginning of 1.7 million bales in the early 1950s; is self sufficient in sugarcane; and is the fourth largest producer in the world of milk. Land and water resources have not risen proportionately, but the increases have taken place mainly due to gains in labor and agriculture productivity.

 The major breakthrough in crop production took place in the late 1960s and 1970s due to the Green Revolution that made a significant contribution to land and yield increases of wheat and rice. Private tube wells led to a 50 percent increase in the cropping intensity which was augmented by tractor cultivation. While the tube wells raised crop yields by 50 percent, the High Yielding Varieties (HYVs) of wheat and rice led to a 50-60 percent higher yield.

For example, wheat production during the years of the Green Revolution jumped from 4.59 million tons in 1964-65 to 7.29 million by 1969-70 almost 60 percent rise within five years. Similarly, rice production went up by 77 percent from 1.35 million tons to 2.4 million tons in the same period. The adoption of these seed varieties by the small farmers, however, followed the large farmers with some time lag.

Fertilizer application rates were similar and the advantage of the large farmers deploying tractors was offset by the higher labor input and bullock power input of the small farmers per unit of land. The new varieties of cotton that were introduced much later in 1980s had also a positive impact on the yields compared to the traditional varieties. Cotton production doubled within one decade from 4.2 million tons in 1979-80 to 8.5 million bales in 1989-90.

 Government support price policies particularly for wheat, which is the staple crop of Pakistan, have paid dividends in form of higher production, increased use of modern inputs and higher yields. Studies have found Pakistani farmers to be responsive to prices and increases in prices do induce higher output, lower waste in consumption and storage, and increased marketed supply. Thus, keeping the prices aligned with international prices provides the right incentives to the farmers while reducing the tendency for smuggling across the borders.

 Beginning with the 1980s, livestock emerged as the prime mover of agricultural growth with the crop sector taking a secondary position. This sector now contributes 55 percent to agriculture value addition and about 11.5 percent of GDP. Its share is gradually on the up. Within the crop production sector, commercial crops such as cotton and sugarcane assumed greater significance relative to cereals which were leaders until 1980s.

 Livestock is taken up all over Pakistan by millions of farming and landless holdings. The livestock sub-sector constitutes a more important source of food and means of sustenance in rain-fed, mountainous and desert ecologies of the country. It is the main agricultural activity in deserts because in these areas crop farming opportunities are relatively few due to very low rainfall, sandy soils and meager availability of good quality ground water.

 The prospects for agriculture look quite promising as the yield gaps between progressive farmers and national average are quite wide, varying between 30 percent and 70 percent. If this gap can be reduced for wheat, for example, from 40 percent to 30 percent, production increases of about 4-5 million tons can be achieved with the same land, labor and water resources. The output growth rate over time with a larger base can assure domestic food self sufficiency and large exportable surplus on a sustained basis while absorbing the rise in population. Higher incomes to the households at the threshold of poverty would help in moving them above the poverty line.

 Experience with the adoption of higher yielding varieties of wheat and rice demonstrate that there were no known differences between the small and large farms. Though the large farms played the leading role in the early adoption of these varieties, the differences in the adoption rates of the two groups had disappeared by the early 1970s. As much as 68 percent of wheat acreage in 1980 both on the small and large farms was under HYVs. In rice, the area covered under Irri Rice by the large farms was 44 percent compared to 54 percent by small farms. Thus, replication of farming practices of the progressive farmers by other farmers is possible if institutional and structural changes are introduced at the policy level.

 How can this yield gap be reduced? First and foremost agriculture production in Pakistan is dependent on one of the world’s most elaborate system of irrigation from surface canals and ground water. In other countries, this advantage would have been of immense value in transforming the pattern of agriculture. But in Pakistan, this resource has not been optimally utilized and has produced much lower return than its potential.

But this water is now becoming scarce and has reached the stress level of 1000 cubic metre per capita and is on a downward slope. Pakistan is currently close to using all of the surface and groundwater that it has available, yet it is projected that over 30 percent more water will be needed over the next 20 years to meet the needs of the country. The situation has been exacerbated by the latest findings arising out of the studies on climate change. Pakistan is among the South Asian countries that are going to be adversely affected by the melting of glaciers in Himalayas from where most of the Indus Basin System draws its sustenance.

As water availability decreases, cropping patterns get disrupted due to changes in the monsoons. With the risks of floods and droughts increasing, the prospects of decreased agriculture productivity and food insecurity will face us starkly. The focus of attention will have to shift from productivity per unit of land to productivity per unit of water – to get more from less.

A comparison of wheat yields in the Indian Punjab and Pakistani Punjab shows that the productivity in Pakistan can be raised by 40 percent by better use of irrigation water. Inefficient irrigation application at the field level can be curbed through zero tillage, laser leveling and regular de-weeding. Over-irrigation in Sindh and southern Punjab can be curbed by equitable water distribution to the head and tail-end reaches of the canals and distributaries. New drought-resistant varieties for crops that can be resilient and require less water per acre have to be developed. Progressive farmers are growing high value crops by adopting ‘precision agriculture’ in which water plays a central role in delivering fertilizers and pesticides to crops.

 Water pricing has to be rationalized as Abiana charges recovered from the farmers amount to only 20 percent of operational and maintenance costs. These charges have to be gradually raised in order to finance the maintenance of irrigation infrastructure that has been consistently neglected and requires major repairs and strengthening. The floods of 2010 and 2011 clearly exposed the vulnerability of Pakistan’s irrigation system as weaknesses in Pakistan’s barrages, silting of canals, encroachments of water channels and damaged embankments became apparent.

 Pakistan’s energy fuel mix has also shifted away from hydropower to furnace oil, creating a lot of difficulties for the management of the power sector. Storage dams and reservoirs will, therefore, not only meet the timely needs of irrigation water but also help re-orient the fuel mix away from the environmentally damaging and expensive furnace oil.

 The education status of those engaged in the agriculture sector is a key factor. Farmers with five years or more of average schooling demonstrate higher productivity compared to those with no schooling or little schooling. They are able to follow the instructions for the use of fertilizers, seeds and planting techniques better than the illiterate farmers. Expansion in schooling facilities in the rural areas is an area of public policy that will have a high pay off.

The inadequacy of marketing and processing facilities needs to be looked into as well. Small farmers are found to suffer relatively higher losses due to a lot of waste particularly in perishable commodities such as fruits and vegetable, milk, etc. because of inadequate storage facilities, absence of agro processing and packaging facilities nearby and lack of farm-to-market roads and transport. Private sector should be allowed to set up rural markets and the Government’s exclusively monopoly in this respect should be dismantled.

 Empirical studies have found that public development expenditures leads to enhancement in private investment in agriculture. The implementation of well targeted public investment in infrastructure projects complements and stimulates private investment in agriculture. Rural infrastructure can be effectively designed, planned and implemented by local governments. Provincial governments have now recourse to almost 60 percent of Divisible Tax Pool. They should allocate resources to the district governments for undertaking public infrastructure projects such as farm-to-market roads, on-farm storage, silos and cold storages, lining of water channels, etc. in the rural areas.

Small farmers would thus be able to store and transport their goods to the nearest markets. They would not make distress sales to the middlemen who procure the produce directly by visiting the farms soon after the harvest and pay much lower prices than the prevailing market prices.

 Next comes the issue of credit to small farmers has been a major constraint in the adoption of new technologies and productivity-enhancing inputs such as fertilizers, seeds, pesticides, renting agriculture machinery, etc. Although the liberalization of agriculture credit policies by the State Bank of Pakistan (SBP) since 2001 has expanded disbursement from Rs.30 billion to Rs.250 billion annually with the active participation of private commercial banks, but this amount meets only 15 percent of the total credit needs.

In recent years, microfinance services have also reached the rural areas. Their penetration rate is still quite low. The availability of credit on time would facilitate them to purchase certified seeds, fertilizers and other inputs. A more aggressive but carefully monitored plan to increase the outreach of agriculture credit and microfinance would certainly be conducive in bridging the yield gap. Revolving credit lines which facilitate the farmers to have flexibility in disbursement and repayment should be promoted by the banks.

 Besides, there has been a slowdown in the pace of technological change in yields per hectare during the last 25 years compared to the 1960s and 1970s. Consequently, agricultural growth rates have decelerated in the last two decades. A large number of agriculture research institutes operate in the country both at the federal and provincial levels, but their output has not been helpful in developing new varieties, improving water utilization practices, animal husbandry, etc. The transfer of knowledge from the progressive farmers to other farmers has been sporadic and unsystematic.

The nexus between agriculture, education and training, research and extension is quite weak because of the fragmentation of responsibilities, overlapping and duplication and bureaucratic turf battles. Private-public partnerships have worked in other countries successfully in promoting this nexus and delivering integrated package of advice, services and inputs. Such partnerships should utilize public funded research findings for transmission to farmers through private agents.

 The cropping pattern in Pakistan hasn’t changed very much during the last 64 years of its existence. The same four major crops figure prominently. Diversification into high value products such as fruits and vegetables, oil seeds, pulses, etc. should form the main plank of our agriculture development strategy as the demand of higher household incomes shifts from cereals and staples to meat, fruits, vegetable, etc. The economics of irrigation also dictates that water should be utilized for high value crops. The changing demand pattern, efficient utilization of water and existing shortages of these commodities make this diversification strategy viable.

 Finally, the potential in livestock sub-sector has not been fully exploited because of a number of constraints. Limited supply of forage and fodder, more physical exertion of animal during grazing, frequent incidence of diseases, drought cycles, lack of access to veterinary health services and vaccination, limited marketing opportunities for milk, meat and poultry and non-existence of milk preservation facilities with the herders are some of the difficulties faced by the farmers.

The yield gap in milk between progressive farmers and national average is estimated at almost 60 percent. Only three percent of the milk is processed in absence of an integrated and coordinated system of milk-collection, chilling plants, refrigerated vans and retail outlets for distribution. Recent efforts in which some large, well- respected public-listed companies have entered the field of milk processing and distribution augur well for the farmers. Income from livestock production is a powerful means for poverty reduction because most of the farm households in rural areas maintain a few animals.

1. Appeared in DAWN, Feb 10, 2012 [↑](#footnote-ref-1)