

Chapter-7

AGRICULTURE SECTOR

1. IMPORTANCE OF AGRICULTURE SECTOR IN ECONOMIC DEVELOPMENT

Introduction:

The agriculture sector in Pakistan is divided in four main sub-sectors (i) Crops (ii) Livestock and (iii) Fisheries and (iv) forestry. About fifty years back, the agriculture sector was neglected both in the developed and underdeveloped countries of the world. It was regarded as residual reservoir particularly of labour for employment in industries. In 1960's, the importance of agriculture was realised and adequate attention was given to this sector. The importance of balanced growth of agriculture and industrial sectors was stressed by the development economists. In 1970's and since the beginning of 1980's, agriculture in the process of development, has gained increased significance. The important role which agriculture plays in the development of a country is briefly discussed as under:

Land use

Pakistan is basically a farming community. About 60% of its population is living in rural areas and about 60% of them are engaged in farming, livestock and agro-based industries.

The total area of Pakistan is about 80 million hectares (79.61 million hectares) of which 22.16% is cultivated area, 8.37% is culturable waste and 4.47% is under forests. The remaining 65% of the area consists of deserts, mountains and other not used for agricultural and forestry purposes.

2. ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT OF A COUNTRY

Role of agriculture.

Agriculture is the dominant sector of the economy of Pakistan. Agriculture contributes 18.50% to GDP, employs 38.50% of country's work force and contributes more than 66% to export earnings. It contributes to growth as provider of raw materials and as a market for industrial products. The specific contributions of agriculture to economic development, in brief, are as under.

- (1) It provides food and fibre. The key contribution of agriculture is that it provides food (wheat rice etc) and fibre (cotton, Jute etc) to the growing population of the country. If a

developing country, whose economy is based on agriculture fails to meet its food and fibre requirements, then it has an adverse effect on the economy. The direct effect of the shortage of food is that its price immediately goes up in the country. With the rise in prices of food, the nominal wage rates of the labour are forced to go up. As a result in the rise of wages, the investments and the profits of the industries begin to decline. Employment and growth is adversely affected. According to the 6th Population and Housing Census of Pakistan 2017, the country's population is growing at the rate of 2.4 percent per annum. This rapid increase in population is raising demand for agricultural products.

- (2) **Transfer of surplus labour.** Another important contribution of agriculture sector is that it is the main source of providing labour to industry. For instance, in Pakistan about 38.50% of the labour force is employed in agriculture sector. With the growth in the agriculture sector due to improved use of inputs (fertilizer better seeds, water availability, machinery etc.) the agriculture surplus labour is gradually absorbed in small and large scale industries. As a result, the income of the farmers has gone up. The rise in the farm income has increased the market demand for goods and services produced by industry. **The development of agriculture thus leads to the growth of industry which has contribution to overall economic development.**
- (3) **Provision of capital.** Another key contribution of agriculture is that it provides capital to the state for meeting the requirements of economic development such as construction of factories, building of infrastructure (roads, school, electric power facilities), purchase of agricultural inputs etc. The government can secure the flow of capital out of agriculture in a number of ways;
- (i) **Tax on agriculture income.** It generates capital by levying tax on the income of the farmers.
 - (ii) **Purchase of agricultural commodities at relatively low prices.** The government sometimes purchases the agricultural commodities at low prices compared to the industrial goods. It then sells them at higher prices in the domestic as well as in the foreign market. The difference in prices so secured is used for development purposes.
 - (iii) **Direct capital formation within the agriculture sector.** The government also raises capital from agriculture by stimulating direct capital within the agriculture sector itself. The farming community is motivated to take part in local infrastructure development such as desiccating of canals, cleaning of land from bushes, development of orchards etc.
 - (iv) **Promoting rural savings.** Another mean of securing capital from agriculture is to encourage farmers to deposit their savings in banks. The amount thus mobilized is used for development of farm and non farm sectors.
- (4) **Source of foreign exchange earning.** The well developed agricultural sector is also a major source of earning foreign exchange for the country. The trade surpluses not only helps in paying off external debt but also provides capital to pay for imports of essential goods such as seeds, fertilizers, machinery etc.

- (5) **Expansion in domestic demand.** As the agricultural productivity increases, the income of the farmers goes up. With the rise in income, there is a rapid growth in demand both of farm goods (fertilizer, tractors, tube well machinery) and industrial goods in the rural and urban areas. There is also expansion in domestic demand for consumer goods. The expanding and progressive agricultural sector, thus, brings increasing levels of development all over the country.
- (6) **Impact on rural welfare.** Agricultural development has a significant impact on rural development. If productivity is increased in agriculture, it reduces poverty, provides increased consumption goods, stimulates nonfarm employment. With the increase in income the standard of living of the rural people rises. They are able to get basic amenities of life such as water supply, sanitation, provision of health and educational facilities, village electrification, establishment of public call offices, road etc.
- (7) **Contribution to growth:** The performance of Agriculture during 2018-19 remained subdued. On the aggregate, the sector grew by 0.85 percent, much is lower than the target of 3.8 percent set at the beginning of the year.

3. REVIEW OF THE PAST PERFORMANCE OF AGRICULTURE IN PAKISTAN

Pakistan inherited an agricultural economy at the time of the Partition in 1947. The cultivated area particularly of the Punjab was regarded as the bread basket or granary of the Subcontinent. The development of agriculture was ignored in the initial years inspite of the fact that the agricultural sector was the largest single contributor to the GDP. It employed 80% of the population directly or indirectly, accounted for 73% of the foreign exchange earnings, provided raw material for cotton, jute, sugar and vegetable industries, served as a market for industrial products. The emphasis was, however, placed on the development of industrial sector. We, here, briefly review the progress made in the agricultural sector since 1947.

Progress in the agricultural sector

From 1947 to 1953, agriculture remained sluggish due to (a) influx of refugees from India, (b) allotment of land to non-agriculturist refugees which reduced interest of farmers and (c) lack of technological change etc. In the Six Year Programme (1951-57) which was suspended for two years before its completion, emphasis was laid on the establishment of industries. Agriculture remained stagnant during this period, rather declined due to an increase in waterlogging and salinity. Pakistan had to import over 1 million tons of wheat in 1952 to meet the acute food shortage. The Planning Machinery then, realised that agriculture should not remain neglected and it should be developed alongwith industry.

In the First Five Year Plan (1955-60), it was mentioned that with increasing population, rapid industrialization, growing urbanization and substantial increase in money supply, a constant and rapid increase in food grain was essential to maintain economic stability and to provide a base for economic growth. This sector, however, remained neglected till 1958 due to various reasons. The lack of adequate institutional credit system, absentee landlordism,

uneconomic holdings, defective land tenure system etc., etc. adversely affected the agricultural productivity. The average annual growth rate of agriculture sector was 1.3% from 1955-58. While the population was growing at the rate of 2.6% a year. The population was thus growing at a much faster rate than the growth rate of agriculture. Malthus was time and again quoted and people were warned of his prophecies. In the First Plan, the targets of increasing foodgrains production by 9% and cash crops from 15% to 33% were not achieved. The increase in the food supply was negligible. The increase in production of cotton was 2%.

In the Second Five Year Plan 1960-65, the Government was determined to achieve self sufficiency in basic production raising dietary standards through increased supplies of fish, fruit, vegetable, livestock etc. and expanding the output of cotton and jute to the maximum extent possible. In order to achieve the above objectives, it took a few effective steps like the agrarian reforms, adoption of modern technology, provision of credit facilities to the farmers etc.

The well phased policies both in agriculture and industry did bear fruit. The output of foodgrains increased by 27% against the Plan target of 21%. The production of cotton increased by 33% against the planned percentage increase of 38%. The target set for sugarcane was 34% which was almost achieved.

During the Third Five Year Plan 1965-70, there was remarkable shift in agricultural production upto 1968. The use of adequate water and improved practices in the cultivation of various crops raised the agricultural production from 6.2% in 1961-62 to 11.7% in 1967-68.

Since 1968 to 2002, the agricultural sector indicated a fluctuating growth pattern. The agricultural production on the whole presented a gloomy picture. The growth rate declined from 4.5% in 1968-69 to 2.5% in 1976-77. There were various factors for the decline in agricultural output. The strained relations between the tenants and the landlords, salinity and waterlogging, high prices of inputs, natural calamities, pest and plant diseases, use of low yield seeds etc., etc. were responsible for low yield in the country.

Since 1977, there is a steady improvement in the agricultural growth rate. The average rate of growth has improved from 2.5% in 1976-77 to 4.2% during 1977-78 period. During 1982-83, the agricultural sector recorded a growth rate of 4.9% per cent. The improvement was mainly due to greater use of essential inputs as fertilizers, pesticides. The growth was only 2.8% in 1993-94 in the sector. The decline in growth was due to fall in the production of cotton and wheat. Cotton crop had an attack of leaf curl virus. The wheat production fell due to the dry spell in the country. During 1995-96, the growth in the agricultural sector improved from 5.9% in 1994-95 to 6.7% in 1995-96. It, however, came down to 3.8% in 1997-98 and registered a growth of 1.9% in 1998-99. The agriculture growth was 6.1% in 1999-2000. It recorded a negative growth rate of 2.2% in the year 2000-01. The overall performance during the year 2001 was badly affected due to drought situation particularly in Baluchistan and Sindh areas. The shortage of rain resulted in lower production of major crops such as cotton, rice, sugarcane and wheat also. However, the agriculture grew by 4.1% in 2002-03 as the extent of water shortage was relatively less. During the year 2003-04, the wide spread rains, and pest attack on crop there was a fall in the production of cotton. It recorded a growth rate of 2.3%. However, during the year 2004-05, there was a modest recovery in agriculture due to availability of rain water, and timely provision of fertilizers and credit to the farmers. The growth in agriculture was 6.7% during 2004-05. The performance of agriculture during

the Fiscal Year 2005-06 was weak. The agriculture growth was 1.6%. However, there was a sharp recovery in agriculture growth in 2007 and it grew by 5.6%.

The performance of Agriculture during 2018-19 remained subdued. On the aggregate, the sector grew by 0.85 percent, much lower than the target of 3.8 percent set at the beginning of the year. This under-performance of agriculture sector was mainly due to insufficient availability of water which led to a drop in cultivated area and a drop in fertilizer offtake. The crops sector experienced a negative growth (-4.43 percent against the target of 3.6 percent) on the back of decline in growth of important crops by (-6.55) percent. Sugarcane production declined by (-19.4) percent to 67.174 million tons, Cotton (-17.5 percent) to 9.861 million bales and Rice (-3.3 percent) to 7.202 million tonnes while production of Maize crop increased by 6.9 percent to 6.309 million tonnes and Wheat growth was marginally higher (by 0.5 percent) to reach 25.195 million tonnes. Other crops having a share of 11.21 percent in agriculture value addition and 2.08 percent in GDP, showed growth of 1.95 percent mainly due to increase in production of pulses and oilseeds. Cotton ginning declined by -12.74 percent due to decrease in production of cotton crop.

The agriculture growth from 2011-12 to 2018-19 (P) is given below:

Agriculture growth	
Year	Agriculture
2011-12	3.6%
2012-13	2.7%
2013-14	2.5%
2014-15	2.1%
2015-16	0.2%
2016-17	2.2%
2017-18	3.9%
2018-2019 (P)	0.9%

Source: Federal Bureau of Statistics

4. MAJOR CROPS OF PAKISTAN

The main crops of Pakistan are classified into food crops and non-food crops. The food crops include wheat, rice, maize, coarse grains, grams and other pulses. The cash crops are cotton, sugarcane, tobacco, mustard and sesame. The total area, yield and production of each crop is now discussed under separate heads.

(A) FOOD CROPS

(1) **Wheat:** Wheat is the principal food crop of the people. It occupies an important position in farming policies. The share of wheat is 1.6% to GDP and 8.9% to Value added in

Agriculture. During 2018-19, wheat crop was cultivated on an area of 8,740 thousand hectares showing a decrease of 0.6 percent compared to 8,797 thousand hectares during the corresponding period last year. Wheat production stood at 25.195 million tonnes during 2018-19, recording a marginal increase of 0.5 percent over the production of 25.076 million tonnes last year.

The shortfall in production is attributed to decline in area sown, delayed and prolonged sugarcane crushing season, acute water shortages and fog and smog in the country. The position over the last six years is given in Table below:

Area, Production and Yield of Wheat

Year	Area in thousand hectares	Production 000 tons	Yield Kgms./Hec.
2013-14	9,199	25,979	2,824
2014-15	9,204	25,086	2,726
2015-16	9,224	25,633	2,779
2016-17	8,972	26,674	2,973
2017-18	8,797	25,076	2,851
2018-19 (P)	8,740	25,195	2,883

Source: Ministry of Food.

With the advent of Green Revolution, the wheat production increased from four million tones in 1960 to 25 million tones in 2018-19. In order to increase the yield of wheat per acre, some additional measures shall have to be taken. These in brief are (i) Development of new high yielding varieties (ii) production and distribution of certified seeds (iii) Timely sowing of wheat (iv) Timely availability of fertilizer and (v) elimination of weeds from fields.

Pakistan now is not only self-sufficient to wheat but is also in a position to export the surplus wheat to other countries.

(2) **Rice:** Rice is the 2nd largest food crop in Pakistan. It is now a major export item and contributes 3.0% and 0.6% of value added in Agriculture and GDP. During 2018-19, area cultivated under rice crop has decreased by 3.1 percent to 2,810 thousand hectares compared to 2,901 thousand hectares of the corresponding period of last year. The production of rice stood at 7,202 thousand tonnes against the production of 7,450 thousand tonnes and recorded an increase of 3.3 percent over production of last year.

Area, Production and Yield of Rice

Year	Area hectare 000	Production 000 tons	Yield Kgms./Hec.
2013-14	2,789	6,798	2,437
2014-15	2,891	7,003	2,422

2015-16	2,739	6,801	2,483
2016-17	2,724	6,849	2,514
2017-18	2,901	7,450	2,568
2018-19 (P)	2,810	7,202	2,562

Pakistan produces finest quality of rice named as "Basmati". It enjoys monopoly in the international market. After Thailand, Vietnam, USA and India, Pakistan is the fifth largest rice exporting country in the world.

(3) **Maize:** Maize is an important food grain as well raw material for edible oil production. It is also used to produce starch and poultry food mixes. Maize contributes 2.6% to the value added in agriculture and 0.5% to the GDP.

During 2018-19, maize crop was cultivated on an area of 1,318 thousand hectares and witnessed increase of 5.4 percent over last year's cultivated area of 1,251 thousand hectares. Maize crop production recorded increase of 6.9 percent as its production stood at 6.302 million tonnes compared to the last year's production of 5.902 million tonnes.

The performance of this crop can be further improved with adequate seed supplies and farm practices required to obtain high yields from hybrid and synthetics. Efforts to remove existing constraints are urgently required to increase the production of this valuable crop.

(4) **Other Crops:** During 2018-19, gram production recorded an increase of 35.6 percent on account of higher yield due to favourable weather condition prevalent at the time of sowing. The production of Bajra increased by 3.2 percent. The production of Barley, Rapeseed & Mustard and Tobacco remained constant. The area and production of other crops are given in Table below.

Table 2.9: Area and Production of other Kharif and Rabi Crops

Crops	2017-18		2018-19 (P)		% Change in production over Last year
	Area (000 Hectares)	Production (000 Tonnes)	Area (000 Hectares)	Production (000 Tonnes)	
Bajra	489	339	486	350	3.2
Barley	255	153	242	149	2.5
Gram	977	323	914	438	35.6
Barley	58	55	55	55	0.0
Rapeseed & Mustard	199	225	263	225	0.0
Tobacco	46	107	46	107	0.0

P: Provisional (July-March)

Source: Pakistan Bureau of Statistics

During 2018-19, the production of Onion and Chillies witnessed increase of 2.0 percent to 2.12 million tonnes and 0.4 percent to 148.7 thousand tonnes, respectively, compared to production of last year. However, the production of pulse Mash (Lentil), Moong and Potato decreased by 5.5 percent, 3.4 percent and 0.3 percent, respectively compared to last year's production. While the production of Masoor remained same as last year's production.

The area and production of other crops are given in Table below.

Table 2.10: Area and Production of Other Crops

Crops	2017-18		2018-19(P)		% Change in production over Last year
	Area (000 Hectares)	Production (000 Tonnes)	Area (000 Hectares)	Production (000 Tonnes)	
Masses	13.6	6.4	12.4	6.4	0.0
Moong	162.4	122.0	163.2	117.8	-3.4
Matt	15.5	7.3	14.1	6.9	-5.5
Potato	194.0	4,591.8	196.2	4,578.9	-0.3
Onion	150.2	2,080.8	151.0	2,122.5	2.0
Cauliflower	65.3	148.1	65.3	148.7	0.4

P: Provisional (July-March)

Source: Pakistan Bureau of Statistics

During 2018-19 (July-March), 2.421 million tons edible oil valued Rs. 192.203 billion (US\$ 1.455 billion) was imported. Local production of edible oil during 2018-19 (July-March) recorded at 0.500 million tons.

The area and production of oilseed crops during 2017-18 and 2018-19 is given in Table 2.11.

Table 2.11: Area and Production of Major Oilseed Crops

Crops	2017-18 (Jul-Mar)			2018-19 (Jul-Mar) (P)		
	Area (000 Acres)	Production		Area (000 Acres)	Production	
		Seed (000 Tonnes)	Oil (000 Tonnes)		Seed (000 Tonnes)	Oil (000 Tonnes)
Cottonseed	6,572	3,057	367	5,252	2,748	330
Rapeseed-Mustard	492	226	72	643	318	102
Sunflower	259	147	56	264	142	54
Canola	60	35	13	68	38	14
Total	7,483	3,465	508	6,227	3,246	500

P: Provisional Targets

Source: Pakistan Oilseed Development Board (PODB), Pakistan Bureau of Statistics

(B) CASH CROPS

(5) **Cotton:** Cotton is the most important cash crop of Pakistan in terms of area and value addition. During 2018-19, cotton production stood at 9.861 million bales showing a significant decline of 17.5 percent over the production of 11.946 million bales during same period last year. Cotton crop has 0.8 percent share in GDP and contributes 4.5 percent in agriculture value addition. Cotton crop was cultivated on an area of 2,373 thousand hectares compared to last year's area of 2,700 thousand hectares, showing a decrease of 12.1 percent. It supplies raw material to the textile industry and provides employment to the people living in both rural and urban areas. The area production and yield of cotton from the year 2013-14 to 2018-19 is given below:

Area, production and yield of Cotton

Year	Area 000 Hec.	Production (000 bales)
2013-14	2,806	12,769
2014-15	2,961	13,960
2015-16	2,902	9,917

2016-17	2,489	10,671
2017-18	2,700	11,946
2018-19 (P)	2,373	9,861

Source: Ministry of Food

(6) **Sugarcane:** Sugarcane is high value cash crop of Pakistan and is significantly important for sugar and sugar related industries in the national economy. It provides raw material for sugar industry which is the country's second largest agro-industry sector after textiles. The year 2018-19, witnessed significant drop for the sugarcane crop production at 67,174 million tonnes showing an decrease of 19.4 percent over the last year's production of 83,333 million tonnes. Its production accounts 2.9 percent in agriculture's value addition and 0.5 percent in overall GDP. Sugarcane crop was cultivated on an area of 1,102 thousand hectares compared to last year's area of 1,343 thousand hectares witnessed a decrease of 17.9 percent.

Table 2.5: Area, Production and Yield of Sugarcane

Year	Area		Production		Yield	
	(000 Hectare)	% Change	(000 Tonnes)	% Change	(Kgs/Hec.)	% Change
2014-15	1,141	-	62,826	-	55,067	-
2015-16	1,131	-0.9	65,482	4.2	57,897	5.1
2016-17	1,218	7.7	75,482	15.3	61,972	7.0
2017-18	1,343	10.3	83,333	10.4	62,050	0.1
2018-19 (P)	1,102	-17.9	67,174	-19.4	60,956	-1.8

Source: Pakistan Bureau of Statistics P. Provisional (July-March)

5. AGRICULTURAL PRODUCTION AND ITS PROBLEMS

Agriculture is the backbone of our economic system. It contributes about 18.50% to GDP and employs around 38.50% of total labour force. It nearly contributes 2/3rd of our export earnings. We thus find that agriculture has a special role to play in the economic development of our country.

The growth of agriculture in Pakistan, compared to the advanced countries of the world is very low. In America only 2 to 4% of the population is directly engaged in agriculture and yet produces surplus goods. Whereas in Pakistan about 60% of the rural population are directly engaged in agriculture and even then the agricultural production per acre and per worker is far below them. For instance, the productivity per agricultural worker in Pakistan is about \$ 100 in a year as against \$ 2000 in the U.K. and \$ 2400 in USA and \$ 2300 in Japan. Similarly, the production per hector in agriculture in other advanced countries of the world is about one to six times more than in Pakistan.

Causes of Low Productivity

The problems of agricultural sector in Pakistan are varied and complex. Low productivity cannot be attributed to any single factor. It is infact a combination of number of factors. The main problems which are responsible for low production of agriculture in Pakistan can be grouped under three main heads.

(a) General factors (b) Institutional factors and (c) Technological factors. These factors are now discussed in brief.

(a) General Factors:

- (1) **Over crowding in agriculture:** The agriculture sector, in Pakistan, is over crowded. About 60% of the population is living in rural areas is mainly depending on Agriculture for its livelihood. Due to over crowdedness, the area of cultivated land per cultivator has declined. Due to small size of holding, the improved techniques cannot be satisfactorily applied. This leads to low productivity in agriculture.
- (2) **Socio-economic factors:** The farmers conservative outlook, illiteracy, superstitions etc., also stand in the way of adoption of modern technology and improving the conditions of agriculture in the country.
- (3) **Natural factors:** Natural factors play an important role in the growth of agriculture. If the rain is timely, evenly distributed, and there is no hail storm and attack of pests, the production is plentiful. Agriculture, in short, is the gamble of rain.
- (4) **Lack of adequate finance:** The Zarai Taraqati Bank Limited, formerly known as Agricultural Development Bank of Pakistan, commercial banks, cooperative banks are the main supplier of finance to the farmers in Pakistan. Since the financial facilities are not adequate, the farmers, therefore, have to depend on the loans given by friends, relatives and money lenders. Due to the inadequate supply of loans from institutional sources, the farmers are mostly not able to purchase modern inputs of agriculture in time.
- (5) **Inadequate irrigation facilities:** Pakistan's agriculture is suffering from severe shortage of irrigation water. The supply of water through tubewells is quite expensive for the farmers.

(b) Institutional Factors:

- (1) **Small size of holding.** Due to the application of law of inheritance, the size of holding is fast decreasing with the passage of time. The holding of two or less than two acres does not allow the use of mechanized method of cultivation. The fragmented and small size of holding is an important factor of low agricultural productivity in the country.
- (2) **Defective pattern of land tenure.** The prevalence of Zamindari system has made the life of the tenants miserable. The tenants pay high rent to the landlords. Even then they are treated like animals and are subject to frequent ejections by the landlords. The tenants under these circumstances work half heartedly and cannot make any permanent improvement on their land. As such the agricultural productivity is bound to be low.

(c) Technological factors:

- (1) **High ratio of labour to land.** In Pakistan, nearly 60% of the population is directly or indirectly dependent upon agriculture. The excessive pressure of population on land is resulting in small uneconomic and fragmented holdings. The surplus labour, uneconomic holdings, low income and high ratio of labour to land adversely affect agricultural productivity.
- (2) **Under utilization of cultivable land.** The total area of Pakistan is 79.61 million hectares, Out of which, 27.65% is of cultivated land. There is, therefore, a huge wastage of

- cultivable land which is not being brought under cultivation or is partially brought under cultivation due to lack of capital and water supply. The under utilization of cultivable land is another cause of low growth of agriculture in Pakistan.
- (3) **Lack of mechanization.** Though mechanization of agriculture is on the increase in Pakistan, yet in most of the areas, the old implements are still being used for agricultural production. The centuries old implements cannot help in raising production to the international level.
 - (4) **Inadequate supply of inputs.** The supply of modern inputs like improved seeds, chemical fertilizer, pesticides, mechanized machinery etc are not only costly but also inadequate and irregular. The inadequate availability of the modern inputs at the time and price is also a hurdle in the expansion of agricultural production.
 - (5) **Inadequate agricultural research.** Due to inadequate amount allocated for research, the development of new varieties of crops, farm machinery animal health etc remains slow. The average crop yield, in Pakistan, is therefore, low.
 - (6) **Poor extension service programmes.** In order to raise farm productivity, the extension service programme needs to be extended in the rural areas. The education of farmers for the adoption of agriculture technology is a massive work and has to be carried out systematically and efficiently. The lack of funds again is a hurdle in the proper implementation of this programme. The result is slow growth in agricultural production.
 - (7) **Lack of infrastructure facilities.** There is lack of infrastructure facilities like farm to market roads, storage, transport, electricity etc in the rural areas. The unsatisfactory provision of these facilities stand in the way of agricultural growth.
 - (8) **Problem of land reform.** Land reform whether it involves changes in land ownership or tenancy have been introduced and implemented half heartedly. There is an urgent need to conduct a proper land reform for improving agricultural growth, proper income distribution and for political and economic stability in the country.

Conclusion: The problems of agricultural sector, in Pakistan, are varied and complex. If the economy is to be lifted from subsistence farming (farmers nearly consume all that they produce) to commercial farming (selling more than 90% of what is produced), then the main problems faced by the farmers have to be tackled on war footing.

6. MECHANIZATION OF AGRICULTURE IN PAKISTAN

What is Farm Mechanization?

Mechanization of farms means the use of machines for conducting agricultural operations, replacing the traditional methods which involve human and animal labour. Farm mechanization is one of the packages of green revolution technology. Farm mechanization implies the use of mechanical technology in the varied farming operations like sowing, harvesting, thrashing, levelling, watering, spraying, weeding etc., etc. The farm technology includes:

1. **Chemical Technology**--Plant protection measures.

2. **Hydrological Technology**--Tubewells.

3. **Mechanical Technology**--Tractors, thrashers, bulldozers etc.

When all the farming operations are done by machines displacing animal labour, the mechanization is said to be **complete**. When machines are used along with traditional methods of cultivation, the mechanization is said to be **partial**.

The Farm Mechanization Debate:

The issue of adoption of farm mechanization in Pakistan is not dead. There are various aspects of this problem which are debated in the under developed countries. The main points of debates are:

- (a) Can we adopt mechanized farming on a large scale?
- (b) Can we adopt the same mechanical technology practiced in the advanced countries?
- (c) Can we develop and adopt selective simple powered machine which suit our small scale farming?
- (d) Can we altogether do away with mechanized farming?

Arguments For Farm Mechanization:

1. **Increase in volume of production.** Farm mechanization has helped in increasing the volume of agricultural production.
2. **Encourages multiple cropping.** Farm mechanization encourages multiple cropping which was not possible under traditional farming.
3. **Reduces dependence upon animal power.** Farm mechanization reduces dependence upon animal power which are costly and also slow in operation.
4. **Diversion of land from growing fodder.** Farm mechanization makes it possible to divert the land used for growing fodder for animal power. The same land can be brought under cultivation for growing food and non-food crops.
5. **Greater area under cultivation.** Farm mechanization saves labour, makes the job for levelling and preparation of land easy and helps in bringing more land under cultivation.
6. **Increase in labour productivity.** Farm mechanization increases efficiency of farmers and raises the output per worker.
7. **Timely water supply, spray etc.** The timely availability of water supply from tubewells, the use of new package of modern inputs has been made possible only with the help of mechanization. The use of modern inputs increased the yield of crops.
8. **Reduction of cost.** Due to efficient use of resources, through the mechanized farming the cost of production of various crops goes down.
9. **Increase in income.** Mechanization helps in increasing income of farmers by minimizing pre and post harvest losses.
10. **Provides off farm employment.** It provides off farm employment to the population living in rural areas.

11. **Self sufficiency in food.** Mechanization of agriculture helps in achieving self sufficiency and surpluses in food and other crops.

Arguments Against Farm Mechanization

The main arguments advanced against mechanized farming are as follows:-

1. **Increase in unemployment.** The use of mechanized technology displaces labour and leads to increase in farm unemployment in the country.
2. **Problems of urbanization.** The migration of labour from the mechanized farm sector to the cities creates problems of urbanization.
3. **Social disparity.** Farm mechanization is basically capital intensive and has a big farmer bias. It, therefore, creates social disparity.
4. **Diversion of capital.** Farm mechanization diverts capital from non-agricultural sector to agriculture where there is already abundant labour and the farming operation are labour intensive.
5. **Cattle population surplus.** Mechanization has rendered a large number of cattle population surplus and unnecessary.

There is a unanimity of opinion that mechanical technology alongwith other inputs increases agricultural productivity. The difference is, however, on the type of mechanical technology to be adopted. In advanced countries of the world, the concentration of large scale mechanized farming has maximized output per hectare and per worker. The conditions in the developing countries, including Pakistan are, however, different. They can neither adopt mechanized farming on large scale, nor can use the same mechanical technology applied in advanced countries of the world. The most suitable strategy for them is to collect quantitative data on the effects of mechanization on crop yield in different areas, apply appropriate mechanical technology according to the local conditions. For instance, the areas where there is surplus labour, the use of new seeds, fertilizers and better water management can give increased yield per hectare even with the traditional methods of cultivation. The areas where land is to be levelled, the use of bulldozers is a must. Similarly, where river irrigation water is not available and the ground water is sweet, the installation of tubewells should be encouraged. The areas where cultivable land is plenty and the population is small, the mechanized farming should be adopted on large scale.

Impact of Mechanization

There is no doubt about it that farm mechanization along with the use of package of modern inputs increases agricultural productivity. It reduces pre and post harvest losses. It leads to increased income of the farmers which leads to increased savings, which leads to greater investment in agricultural machinery and eventually leads to higher standard of living of the farmers and so the country.

The Government of Pakistan is guiding and encouraging farm mechanization in the country. Spray machines are applied to spray the standing crops. The manual harvesting of wheat and rice is now virtually dispensed with. Tractors, bulldozers and attached implements are increasingly brought into the scene. The ZTBL and commercial banks are providing credit to the farmers to purchase tractors. In order to increase mechanization, the Government

of Pakistan has given a number of incentives to the farmers such as reduction in prices of tractors, withdrawal of sales tax on bull dozers, and combined harvester etc. The sale of tractors and other improved agricultural implements are on the increase in the country.

7. CO-OPERATIVE FARMING IN PAKISTAN

What is Co-operative Farming?

Co-operative farming is a voluntary organization in which the farmers pool their resources in order to carry out the various agricultural operations with each other's help for the protection of their common economic cause and the adoption of new skills and techniques. In a cooperative farming society, the following features are relevant (i) Joining of the farming society is voluntary (ii) The farmers may or may not retain their rights to land (iii) The pooling of resources varies with each members (iv) The entire farm is managed as single unit and the management is elected by all the members (v) Each and every member earns a share of the total produce. Cooperative farming society is considered a permanent solution to the problems of sub division and fragmentation of holding. The co-operative farming may not here be regarded as the remedy for all economic ills of the farm sector. It is only an approach rather an effective approach for improving the economic position of a large number of scattered small farmers.

Pooling of resources

A co-operative farming society can pool the resources in a number of ways. For instance, (1) a co-operative farming society may take over the proprietary rights and management of the land from the members. (2) A co-operative farming society may allow the individual farmers to retain the proprietary rights of land. The management and the right to use land may be taken over by the society. (3) A co-operative farming society can also be set up which allows the members to retain the proprietary rights and also the use of land. The supply of essential agricultural inputs such as fertilizers, seeds, water and machinery etc., and the marketing of products is undertaken by the society. The cropping pattern to be followed by the members is also laid in the constitution of the farming society. (4) A co-operative society can be formed with the sole objective of supplying inputs but not controlling the cropping pattern.

The first two types of co-operative societies are completely ruled out in Pakistan. The farmers have great attachment with their land and regard it as their 'mother'. They, in no case are, willing to surrender the proprietary and management rights of the land. As regards the third and fourth types of co-operatives, the farmers can be motivated to form co-operative societies for the supply of inputs to the members and even for laying down the cropping pattern. These will, however, not be full fledged cooperative farming societies but a co-operative society for the supply of fertilizer, seeds, a co-operative Society for water management, agricultural credit and marketing society etc., etc.

The co-operative movement was introduced in the Sub-Continent in 1904. The main objective of forming the co-operative society at that time was to lessen the burden of excessive indebtedness of the farmers. In 1912, another Act was passed and the non-credit societies were registered for purchase, sale, production, housing, consolidation of holdings

etc. The Government of Pakistan, immediately after Partition in 1947, established Co-operative Department to reform the rural society and tackle its complex problems. The Co-operative Credit Societies, the Co-operative Marketing Societies, the Co-operative Housing Societies and the Co-operative Farming Societies have been set up all over the country.

The main types of cooperative farming in Pakistan. In Pakistan, the cooperative farming societies are still at the elementary stage. They are only working on the crown land or on the land abandoned by the non-Muslims. The first experiment in co-operative farming was made in 1948. Each farmer was allotted 12-1/2 acres of land on the conditions that he would become the member of the co-operative farming society. The co-operative societies were supplied interest free credit, material for construction of houses, godowns for the storage of produce and marketing facilities to the members.

The co-operative farming was not a success as it was involved an element of compulsion to be a member. In a co-operative society, the membership should be absolutely on voluntary basis (2) The decisions on farming operations (such as levelling, ploughing, sowing, harvesting, marketing and supply of inputs etc) should be arrived at democratically and (3) all the members should work for the welfare of one another. There is not a single co-operative farming society in Pakistan which came up to the above test. The economists, therefore, have coined another term Group Farming in place of co-operative farming.

In the Second Five Year Plan, it was suggested that "Co-operative Land Management" on the lines of Punjab experiment should be introduced in other areas, particularly the areas opened by the large irrigation projects. The co-operative farming was organized on experiment basis in (a) Ghulam Mohammad Barrage Scheme (b) Farming Scheme (c) Assistant Registrar's General Line Scheme. All these schemes have met only with nominal success. However, the Government of Pakistan is not disappointed with the results achieved in yield per hectare in the areas managed by co-operative societies. It has now prepared a bigger scheme of co-operative farming under the direction of Federal Government. The Scheme envisages to establish five Pilot Co-operative Farms in Punjab, two in Sindh, four in N.W.F.P. and two in Baluchistan. The farmers joining the co-operative farming societies will pool their resources. However, they will retain their right of ownership. Each will have minimum areas of 500 acres. The Government has provided subsidy for the purchase of tractors, wheat thrashers, and installation of tube-well etc., etc. to these societies.

Advantages of Co-operative Farming. Co-operative farming if adopted in its real spirit, can achieve the following advantages:-

1. The marketable surplus of agricultural goods can be collectively transferred and marketed which can fetch a better price of produce to the farmers.
2. By pooling of resources, the farmers can benefit the economies of large scale farming.
3. Due to fragmentation of holdings, the area in possession of most of the farmers is too small to employ improved methods of cultivation. Co-operative farming enables the consolidation of the small units of land and thus paves way for mechanization of agriculture.

4. The agricultural machines which are beyond the power of the individual farmers to purchase, can be easily procured by co-operative farming society. The use of machines will not only curtail the cost of production but will also increase the yield per hectare.
5. A co-operative farming is in a better position to get adequate and timely supply of essential agricultural inputs.
6. A co-operative society with the elimination of middlemen, will ensure fair price of the products. The income of the individual farmer will increase.
7. A co-operative farming society guides and provides technology to the farmers for increasing the yield per hectare.
8. A co-operative farming society creates brotherhood, love and affection amongst the members.

The advantage of co-operative farming described above are no doubt very appealing and should have been achieved by now. We are sorry to point out that the co-operative farming societies organized with various objectives have miserably failed in the attainment of above goals. The reasons of the failure of co-operative farming societies are as under:-

1. The villagers in no case are willing to surrender the rights of land as they have too much attachment with it.
2. The farmers are mostly illiterate and are generally reluctant to adopt any change in the farming operations.
3. The spirit of brotherhood is extremely lacking among the farmers. They are divided in various sections on caste basis. There is, therefore, no unity and harmony among the tillers of the soil.
4. The co-operative farming societies lack finance to meet the growing needs of agriculture.
5. The management of co-operative often turns out to be dishonest. Favouritism, nepotism and other selfish activities render the co-operative society ineffective. A member once elected to an office of management holds the office till his death or dissolution of the co-operative society.

Conclusion. We have depicted a gloomy picture of the performance of co-operative farming in Pakistan. The facts speak themselves that since 1904, the co-operative farming is still in the initial experimental stage. The villages where co-operative/group farming has been compulsorily introduced, have not produced any demonstrational effect on the farmers residing around those villages. *The better way, therefore, is that the small farmers should be encouraged to keep and cultivate the land individually. The Government through its own institutions, should supply the essential inputs. The availability of adequate and timely inputs will increase the production per hectare. The higher production will generate higher income. Higher income will increase the capacity of the farmers to save. Higher saving will lead to investment and higher investment will increase production. The break through in the vicious circle of poverty will thus be achieved in Pakistan.*

We should not here blindly follow the pattern of 'Collective or group farming' adopted in Former USSR, China, Israel, Egypt and Italy. In Former USSR, the farming is centrally

controlled. As such it cannot be called co-operative farming. **Kolkhoz** is the name which is given to the group farming. In Israel, the members contribute land, livestock, machinery etc., to the farming society. The society meets the basic needs of the farmers. In Egypt, the agricultural operations right from levelling of the land down to the marketing of products are carried by co-operative farming societies under the guidance and supervision of the State. All these forms cannot be applied in Pakistan due to the reasons stated earlier.

8. FORESTS AND ECONOMIC DEVELOPMENT (Green Gold)

Forest Area. The total area of Pakistan is 79.61 million hectares. Forests constitute 4.47% of the total area of the country. The desired level of forests is 20 to 25 percent. The area under forests is thus quite low. The production is also short of demand for timber & firewood. The gap in the supply is to be met from private lands and imports.

Impact of forest. Forests are one of the precious gifts of nature to mankind. They play a vital role in the economic development of a country. As they are renewable and serve multipurpose, they are, therefore superior to other natural resources. As regards the impact of green gold on the development of a country, it can be classified under three main heads:

(1) Productive role; (2) Social role; and (3) Protective role

I - Productive role:

The economic value of forests in Pakistan can be judged from the following facts:

1. Forests provide timber and firewood.
2. They supply wood for many industries such as paper making, sports manufacturing, furniture industry, silk industry, resin industry, etc.
3. Forests give medicinal herbs which are used in the country and are also an export item.
4. They provide employment to millions of persons.
5. They are source of providing fodder to cattle especially in famine days.
6. They conserve soil and help in checking the floods.
7. The fallen leaves of forests serve as manure.
8. They attract the tourists and earn foreign exchange for the country.
9. They are good breeding and conserving centres for birds, wild animals.
10. Forests supply various oils like Sandal-wood oil, Turpentine oil etc.
11. They are a source of income to the Government.

II - Social Role:

1. The thick growth of forests store up rain water and allow it to pass slowly. The forests thus help controlling the floods and provide water throughout the year. As the life and property of the people is saved from floods, they can easily move from one place to

another for better jobs. The Government can build up and expand the means of communication and transport which lead to urbanization.

2. They provide beautiful scenery and holiday resorts.
3. The sanatoriums are usually established in the forest areas for healing the sick patients.
4. They provide purified air, rest and recreation areas, scenic enjoyment, reduced noise levels and spiritual satisfaction.

III - Protective Role:

The thick growth of forest areas having strategic importance from defence point-of view cannot be ignored. The forests serve as a first line of defence.

Strategy for development of Forests:

In view of the meager wood resources, the Government launches various tree plantation programmes on state and private lands twice a year. Alongwith increasing area under forests, the Government is also paying attention to the development of sericulture and wildlife.

Development of forests:

The Government has chalked out an elaborate programme for increasing the area under forests both in the (a) Compact forest and (b) Linear plantation. The main measures taken are as under:-

1. 'Farm Forestry' programme has been launched.
2. Improvement has been made in the technique of raising nursery, planting, protection from fire etc.
3. Introduction of improved logging-forest harvesting systems for efficient utilization of the existing wood resources.
4. Securing effective participation of the local communities in promoting improved and intensive growth of forests.
5. Investment of owners of the private forests, particularly in Hazara Division for achieving maximum productivity of the land.
6. Development of compact fuel wood plantation.
7. Developing and harvesting of minor forest products and sericulture for creating job opportunities near the forest areas.
8. Strengthening forestry services and the forestry research and training institutions.
9. Popularizing fruit tree plantation in the suitable areas in hills.
10. Strict enforcement of forest laws.

9. LIVESTOCK

Livestock has an important role in promoting socio-economic development in rural areas. Nearly 8 million families are involved in livestock raising and deriving more than 35 percent

income from livestock production activities. It is a source of cash income, providing a vital and often the only source of income for the rural and playing an important role in poverty alleviation and foreign exchange earnings.

During 2018-19, livestock contributed 60.50 percent to the agriculture value added and 11.2 percent to the overall GDP. Gross value addition of livestock has increased from Rs. 1,384 billion (2017-18) to Rs.1,440 billion (2018-19), showing an increase of 4.0 percent over the same period last year. The importance of livestock sector can be realized from the fact that it is not only a source of foreign exchange earnings by contributing around 3.1% to the total exports, but also a source of 35-40% of income for over 8 million rural families and providing them food security by supplementing high value protein of animal origin.

Importance

1. **Motor power.** Animals are used as motor power for agricultural operations. They transport agricultural products from one place to another.
2. **Nutritional food.** The livestock provides nutritional food such as milk, meat, eggs, butter, cheese for human beings.
3. **Raw material for domestic Industry.** Livestock sub-sector is vital for the economy as it provides essential raw material such as hides, skins, wool, animal hair, bones for some of the domestic industries like carpets, rugs, leather, footwear etc.
4. **Contribution in exports.** Some of the animal-by-products and their manufactures are exported to other countries.

Livestock Resources. The livestock population in Pakistan consists of buffaloes, cattle, goats, poultry, camels, donkeys, horses, mules. The quality of livestock and its products compared to the developed countries of the world is poor. The basic reasons for the poor quality of animals and their by produce are:

(1) the tropical climate (2) primitive breeding methods (3) lack of proper care (4) lack of medical facilities, research centres (5) poor marketing facilities and (6) insufficient breeding farms.

Problems of Livestock:

At the time of Partition, Pakistan was self sufficient in milk, ghee, meat, leather and other animal by-products. As years pass, the import of milk, milk products and edible oil is on the increase. Pakistan, basically an agricultural country, cannot afford the import of milk, cream, fats, oil which it can produce itself. The main problems regarding the proper utilization of animal wealth are as under:-

1. Due to heavy pressure of population, the size of land holding is gradually being reduced. The grazing grounds for cattle are fast disappearing.
2. The slaughter of goats, sheep, cows, buffaloes, is on the increase inspite of the fact that the prices of meat have gone up considerably.
3. As the prices of animal feed has increased, therefore, it has become difficult to keep animals in the cities.

4. The prices of milk, cream are low in villages. The seller of milk, ghee etc. are not attracted to breed the milk giving animals.
 5. The marketing system of milk, ghee etc is not very well organized. The owners of milk giving animals are almost at the mercy of milk sellers.
 6. Most of the villages are not connected with the cities. The urban and rural markets are, therefore, not properly connected.
 7. As the species of cows and buffaloes are generally inferior and also high priced, people are therefore, not interested in rearing them up.
 8. There are less milk plants all over the country. They are not sufficient to process the milk and variety of milk products.
 9. The number of veterinary hospitals, veterinary dispensaries are too small to provide animal treatment in the villages.
 10. The per capita availability of major livestock products as given below is not sufficient in Pakistan.
- (b) **Poultry:** Poultry production has emerged as a good substitute of beef and mutton. The poultry industry is progressing at a rapid pace of 8 to 10 percent in the country. Current investment in poultry industry is more than Rs. 700 billion. This is one of the most organized sector of Agriculture. It generates income and employment for about 1.5 million people. Poultry meat contributes 34 percent (1,518 thousand tons) of the total meat production in the country.

10. FISHERIES

Fishery is also a sub-sector of agriculture. Fishery plays an important role in Pakistan's economy and is considered to be a source of livelihood for the coastal population. Apart from marine fisheries, inland fisheries (based in rivers, lakes, ponds, dams etc.) is also an important activity throughout the country. Fisheries' share in GDP is 0.4 percent but has a greater value addition in export earnings.

During FY 2018-19 (July-March), total marine and inland fish production was estimated at 575,000 m. tons out of which 390,000 m. tons was from marine waters and the remaining catch came from inland waters.

During the year 2018-19 (July-March), a total of 130,830 metric tons of fish and fishery products were exported, earning value of US\$ 293.887 million (Rs. 39,245 million)

QUESTIONS

1. Discuss in brief the importance of agriculture in the economic development of a country.
2. Review in brief the past and present performance of agricultural sector in Pakistan.
3. Discuss the major food and non-food crops of Pakistan.
4. "Pakistan is an agrarian economy. Still its yield per acre is low". Do you agree with this statement? Please elaborate.
5. What are the cash crops of Pakistan?

6. Analyse the causes of low productivity of agriculture in Pakistan.
7. "Agricultural production during the last decade has increased mainly through increase in productivity rather than the increase in area". Comment.
8. Define agricultural price policy. What are the objectives of agricultural price policy in Pakistan.
9. Discuss in brief the agricultural price policy of Pakistan.
10. What are the major problems of the agricultural sector in Pakistan? Suggest remedies.
11. What is farm mechanization? Discuss the impact of farm mechanization on agriculture in Pakistan.
12. What are the main merits and demerits of agricultural mechanization in Pakistan.
13. What is cooperative farming? Cooperative farming has not been successful in Pakistan. Do you agree with this statement?
14. "Forests play an important role in the economic development of country." Discuss.
15. "Livestock is an important sub-sector of agriculture in Pakistan". Elaborate.
16. Discuss in brief the position and problems of livestock in Pakistan.

Short Answer Questions

Q.1. Is agriculture the dominant sector of the economy of Pakistan?

Ans. Yes. Agriculture accounts for nearly 18.50% of Pakistan's national income employs 38.50% of its work force, provides livelihood to 60% of country's population living in rural area and is the main supplier of raw materials to Pakistan industries.

Q.2. What is the growth rate of agriculture in the fiscal year 2018-19.

Ans. The growth rate was 0.85%.

Q.3. What is the total production of cotton and wheat and rice in the year 2018-19 (P).

Ans. (i) Cotton production = 9.861 million bales.
 (ii) Wheat production = 25.195 million tones
 (iii) Rice production = 7,202 thousand tonnes

Q.4. Write down four main farm inputs which are used for achieving higher agricultural productivity.

Ans. (i) Irrigation (ii) Fertilizer (iii) Improved seeds and (iv) mechanization

Q.5. What are the two main advantages of mechanization as a tool for modernization of agriculture.

Ans. (i) It generates cropping intensity.
 (ii) It results in considerable savings of fodder and feed through a reduction in bullock population.

Q.6. Mention three features of Pakistan's agriculture.

- Ans. (i) Feudal character of production
(ii) Orthodox farming techniques and
(iii) Fluctuations in agricultural production.

Q.7. Write three main problems of agriculture in Pakistan.

- Ans. (i) Subdivision and fragmentation of holding
(ii) Poor farming techniques and
(iii) inadequate use of inputs.

Q.8. Why is not cooperative farming successful in Pakistan?

Ans. Lack of cooperative spirit among the farmers.

Q.9. What is the total area of land under forest in Pakistan?

Ans. Only 4.47% of total land area.

Q.10. How much livestock account for in agriculture value added and of GDP in 2018-19 in Pakistan.

Ans. Livestock accounts for 60.50% of agricultural value added and about 11.2% of the GDP.

