8 Agriculture Sector

Introduction

Agriculture sector is the primary and important sector of all economies of world. This sector is not only providing foodgrains, vegetables, fruits, flowers, but it also provides raw material to the industrial sector. The agricultural productivity of every country of the world is different. That gives production, employment and income generation in various proportions.

8.1 Backbone of the Economy

Since ancient times, India has been an agricultural nation, due to a high dependency on this sector for agriculture production, for employment and for exports. It is like the life-line of India. So, it has the status of being the backbone of the economy. Indian economy is dependant on agriculture for various aspects. Then main reason being, if Indian agriculture sector fails to produce foodgrains, vegetables, fruits and flowers (are) not only affect but raw material, which are cash crops and used in industries that also fails in that situation agricultural goods are not be available in enough quantity. Therefore they become costlier, which influences the life of people. In addition to that big proportion of India's population (68.8 % population as per 2011 census) live in rural

areas. And if agricultural production fails then the income of a big mass gets negatively affected. Due to this, they have to reduce demand of industrial products. Thus, on a one side industries are not getting enough raw material and on the other side industrial products are not adequately demanded. Thus, it can be said that agricultural failure, provide failure to industrial sector. And where both are badly affected, it is very obvious to say that the third sector, which is the service sector also faces fall in its demand and income. Agriculture sector fails then entire economy fails. In short once the agriculture succeeds then whole nation progresses. Hence, agriculture sector is known as the back bone of nation.

India utilises industrialisation since 1956 (Second five year plan). The Government of India has made efforts to industrialised the nation but even today India is known as an agriculture oriented economy. It should be noticed that due to planning efforts dependency on agricultural production, income, employment, export revenue etc. have been reduced. Inspite of this, even today the development rate of economy is dependent on the growth of agricultural sector.

8.2 Present Situation of Agricultural Sector in India (Importance)

India has been an agriculture oriented economy before the british rule, during the british rule and even after the british rule. During planning period, industrialisation is mainly focused upon and due to that as compared to past, the present scenario of agriculture shows abnormal changes. Presently, agriculture sector provides much more employment, production and export income as compared to the past, but changes have been prevalent in these areas. Though agriculture sector provides maximum employment to the economy, its contribution to the share in total revenue (National income) as compared to the other sectors of economy is the least. To understand these changes about their type and direction, let us examine several factors of present scenario of agriculture.

8.2.1 Contribution in National Income

Table 8.1

Year	Share of Agricultural Sector in National Income (in percentage)
1950-51	53.1
1960-61	48.7
1970-71	42.3
1980-81	36.1
1990-91	29.6
2000-01	22.3
2011-12	13.9

Source : Economic Survey, 2011-12

Usually, the income of agricultural sector is also known as the income of primary sector. It includes agriculture crops, poultry farming, fisheries and cattle rearing. As per economic survey of 2011-12, contribution of agriculture sector in national income (GDP) was 53.1 % in 1950-51 and had reduced upto 13.9 % (at constant prices) in the year 2011-12 due to greater emphasis on industrialisation since 1956. This fall in contribution in national income of agriculture sector is due to the speedy progress of non-agricultural sector. The development of agricultural sector in India has become a complex issue.

8.2.2 Employment :

It is the agricultural sector which provides maximum employment in India. At the time of independence, 72 % population was engaged in agriculture and allied agricultural activities (cattle rearing, fisheries, forest products, poultry farming, etc.). After independence of India the development process has become speedier, specially development of industries and service sector achieved much faster growth than agriculture sector, therefore, employment dependency on agriculture has been reduced. In the year 2001-02 it was 58 % which came to 49 % in the year 2014-15 as an employment providing sector.

8.2.3 Export Income :

Indian agriculture helps our coutry to earn foreign exchange by exporting necessory exports and it helps to import necessary goods which are not produced or produced less in the country. During the independence period, the total contribution of India's total export earnings of 70% has been obtained from agriculture. But, due to the development process, industries and service sector are at the top most and thus the contribution of agriculture sector in export earnings has reduced. It can be noted that in the year 2013-14, the contribution of agriculture in the total export earnings was 14.2%.

8.2.4 Living Standard

Agriculture is the basic support of the world's population. Agriculture has continuously improved life of people in India also. Agriculture sector produces two types of crops : Food grains and Cash crops. All the cereals are included in food grains. Due to production of these food grains, India became self sufficient. Cash crops are cotton, jute, ground nut, oil seeds, sugarcane, etc. are used as raw material. Food items are mainly included in food grain crops / and these have shown rise in production. Present farmers are also engaged in production of vegetables, fruits, flowers etc. Therefore, it can be said that agriculture sector is satisfying requirement of agricultural goods of people. Average food grain availability was 395 grams per head per day in the year 1951 which increased to 511 grams in the year 2013 even there was rise in population. Therefore it can be said that agriculture sector is satisfying requirement of people in enough quantity and due to that average life span of people is also increased.

8.2.5 Growth of Agriculture Production :

Table 8.2

Sr No.	Crop	1950-51	2013-14
1.	Food grains (in metric ton)	51.0	264.4
2.	Pulses (in metric ton)	8.4	19.6
3.	Sugarcane (in metric ton)	69.0	348.0
4.	Oilseeds (in metric ton)	5.1	32.4
5.	Cotton (in metric bale)	2.1	36.5

Source : Ministry of Agriculture, Government of India 2015

Total production of agriculture in India has increased. As shown in the schedule production of food grains was 51 metric tons in 1951 which increased to 264.4 metric tons in 2013-14. That shows about 2.5 times rise of it. Where as production of sugarcane was 69 metric tons in 1951 which increased to 348 metric tons in 2013-14. That also shows rise about five times. Here, oilseeds and cotton show tremendous rise. In which oilseeds was 5.1 metric ton in 1951 which rose to 32.4 metric tons in 2013-14. That means a rise of 6.35 times and cotton was 2.1 metric bales in 1950-51. It rose to 36.5 metric bales in 2013-14. That mean rise of 17 times. That becomes possible only due to rise of cultivated land and rise of hectre wise productivity.

8.2.6 Base for Industrial Development

Agriculture is a base for industrial sector of India. Agriculture sector provides required raw material to industrial sector, to do production as per capacity of industrial sector to attain possible development. In addition to that rural areas are becoming big market for the industrial products because about 69 % population of India live in rural areas. Here, it is noticeable, that 69% population of rural population has main source of income from agriculture. Due to that only rural areas are demanding industrial products like television, freeze, bike, mobile, etc.

8.3 Causes of Low Productivity of Agriculture

India is agriculture oriented nation then also it has many agriculture related problems. One of the major problems is a low agricultural productivity. In reality agriculture productivity, it can be in terms of productivity per hectare or income per hector are being measured. Agriculture productivity is very low as compared that of the world. Responsible factors for that are as follows :

8.3.1 Institutional Factors

8.3.2 Technological Factors

8.3.3 Other Factors

8.3.1 Institutional Factors :

The influence of those farmers who work in the institution and are felt in the physical, social, economic and legal factors are institutional factors such factors are negative in India due to that

agriculture development is very low or of a very least level. Therefore, low productivity of agriculture being seen.

Zamindari system, Mahalwari system, Ryotwari system are land revenue collection systems implemented by Britishers, facility of agriculture finance, agriculture marketing system, land ownership system etc. are included in institutional factors. These insitutional factors remain resistant or negative. Due to this agriculture productivity has also remained low.

8.3.1.1 Land Revenue Collection Systems : Three revenue collection systems - Zamindari system, Mahalwari system and Ryotwari system were prevalent during India's independence. Tenants of land or landless labourers were cultivating the land under these systems. A large share of crop or just by leaving substistance level of farmer the entire crop was compulsorily taken by the landlords as rent of land. This was the reason why farmers were not interested in increasing productivity as they did not make efforts to increase production or they were not ready to implement any innovations, so agricultural production remained about stagnant. As a result, agriculture production did not increase as per nation's requirement and not according to the requirement of the cultivators.

After independence to protect tillers and to control rent of land, "Tillers land" act was passed. But this act was not completely implemented and due to that farmers are not exploitation free. Finally, productivity of agriculture sector become series issue.

8.3.1.2 Agriculture Finance : Majority of the farmers are facing poverty in India and they are in need of agriculture finance. To buy fertilisers, seeds, pesticides, etc. they require finance to do cultivation. But, since independence a great role is played by private money lenders. 71.6 % agriculture finance business was managed by money lenders in 1951. They were providing finance at a very high rate of interest, not even that, they were doing manipulation of account to exploit poor farmers.

After independence government had nationalised banks which has reduced the importance of money lenders. Government has expanded insitutional agriculture finance by constructing regional rural banks in 1975 and National Bank for Agriculture and Rural Development (NABARD) in 1982. Due to all these efforts, the role of money lenders fell down to 27 % where remaining entire agriculture credit is managed by institutes. These factors prove that farmers are paying higher cost to avail credit and due to that their revenue (profitability) remain very low. As profits are remaining very low farmers are not much interested to improve productivity on to do agriculture oriented work and agricultural productivity has also remained low.

8.3.1.3 Agriculture Marketing : Due to weak infrastructural facility Indian remote villages are not having adequate road or transportation facility to connect agriculture markets. Even agriculture markets have different rates of produce at the time of season and at the end of season. Majority cases high price benefits go to traders and hoarders. Farmers, who are under the debt are forced to sell their crop before crop get ready to local lenders and brokers. Farmers are least informative so they do not have knowledge of market, knowledge of market rates, selling procedure. Therefore, they are not able to get good returns of their crop and due to this they become pessimist.

8.3.1.4 Rural Social Stucture : Indian farmers are fatalist and having least information. Rural society is bound with old traditions and structure. As they are fatalist, they accept problems given by nature and accept situation of scarcity. So, they do cultivation for their substistance only. They are not having motivations to attain, economic development, development of cultivation, increase in income. This is the reason, why agriculture, which is centre point of rural areas is having low productivity.

8.3.2 Technological Factors :

Indian agriculture sector utilises old traditional technology, old equipments, ideologies, techniques, etc. which make agriculture weak. Even in the present, farmers use plough and bullock instead of tractors. They use traditional seeds instead of hybrid seeds which give low productivity. They use cow dung as manure instead of chemical based fertiliser which give low productivity. Indian farmers use very less proportion of pesticides and newer technology to protect crops. Therefore, Indian agriculture sector moves ahead very slowly.

8.3.3 Other Factors :

8.3.3.1 Pressure of Population : One of the big reason for low productivity of agriculture sector is population pressure on it. Population pressure on agriculture sector can be understood by dependancy on agriculture about employment. At the time of independence 72 % population was engaged in agriculture that reduced to 58 % in 2001-02, which was giving 49 % employment in agriculture in 2013-14. Thus, burden on agriculture reduced, but, still it is higher than other sectors and even high compared abroad economies. Here, total produce of agriculture being distributed on the grounds of production or income among big mass of population, it shows low productivity of labour.

8.3.3.2 Lack of Economic Planning : Government of India has used first five year plan exclusively for agriculture sector. But, from the second five year plan (1956) India's economic planning centred to industries. The government has not taken that much efforts, not allocated time and money for the agricultural sector as compared to industrial sector. Finally, it can be said that, as agriculture sector has irregular and slow rate of development, government has not given help to it and due to that only Indian agriculture sector is in a worrisome condition.

8.4 Measures to Increase Agriculture Productivity

Low productivity of agriculture sector shows backwardness of agriculture sector. Agriculture sector needs improvement as it is a main occupation and very important pillar of Indian economy. In addition that, if agricultural productivity increases than income of rural economy will increase which will force to development of industry and service sector. It will also give solution of employment, urbanisation, migration and inequality of income. To improve productivity of agriculture following steps to be taken :

8.4.1 Institutional Measures

8.4.2 Technological Measures

8.4.3 Other Measures

8.4.1 Institutional Measures

To increase agricultural productivity economic planning has undertaken institutional reforms, which would be favourable for economic progress of agriculture.

8.4.1.1 Land Related Reforms : Law to abolish zamindari system, to protect tillers and to control rent are implemented in India so that it provides ownership of land to farmers and land labourers may have protection to till land. To stop exploitation of farmers and this way farmers may have big share of their crop. This may become cause to do more efforts to increase agricultural production. Overall it may increase agriculture productivity.

8.4.1.2 Availability of Institutional Credit : To provide (reach) credit and other monetary facilities, nationalisation of banks undertaken by India. Even National Bank for Agriculture and Rural Development (NABARD) which is body of RBI set up in 1982 to do special focus on agriculture sector and Regional Rural Banks (RRBs) and Land Development Banks (LDBs) developed under it to provide cheap and enough credit to Indian farmers. So that, they would have cheap and enough credit in order to increase agriculture productivity.

8.4.1.3 Improvement in Structure of Agriculture Marketing : To overcome the shortcomings of the system of agriculture marketing many important steps have been taken :

(1) Regulated markets have been set up.

(2) To classify the agriculture produce as per their quality "AGMARK" (Agriculture Marketing) has been introduced.

(3) National warehouse corporation and state warehouse corporation started to increase agricultural produce of farmers.

(4) Systems have been developed to provide information about prices of agriculture produce.

(5) To protect farmers from market price changes, bottom price being announced by government.

8.4.1.4 Agriculture Reaserch : Indian farmers are not able to do research as they are less educated therefore that duty is allotted to NABARD. It does many researches and it gives knowledge and training to farmers about it. So, farmer should not cultivate only with traditional technique but they produce as per rising demand and by that earn more income and start doing market oriented production. To include them in agricultural reform programs, collective rural development programs, Panchayati Raj, Integrated rural developemt programs, Jan-Dhan Yojana, etc. started to modernize the agriculture sector to direct them for increase in agricultural productivity.

8.4.2 Technological Measures

Compared to institutional measures, technological measures are more easy and fast to give benefits. Therefore, these changes have more importance in agriculture developmental strategies. They are as follows :

8.4.2.1 Improved Seeds : Improved seeds (Hybrid seeds) are developed by scientific inventions. These scientifically developed seeds give more production helps in producing crops

speedily and protect crop against diseases. India has achieved a notable rise in food grain production with the help of these type of seeds. Therefore, extra ordinary rise in food grains production is known at the place of agriculture revolution, 'as seed revolution'. National agriculture research committee, National seed corporation and agriculture universities give priority to seed development to increase agriculture productivity in reality.

8.4.2.2 Use of Chemical Based Fertilizers : Use of chemical fertilizer increased with the use of improved seeds in India. Chemical based fertilisers give enough nutrition to plant and helps it to grow rapidly. Therefore, these fertilisers are very beneficial to increase agriculture productivity. Nitrogen, phosphate, potash and other chemicals used as per crop. Chemical based fertilisers produced by public sector enterprises are also used India. Even fertilisers are imported and distributed at lower rates (subsidy rates)

8.4.2.3 Increase in Irrigation Facility : Indian agriculture sector depend on sky (for rain purpose) in majority cases but rain is quite uncertain. So it directly affects agricultural production and productivity. India has one of the big issues of agriculture which is inadequate facility of irrigation. If agriculture has to come out from uncertainly of rain and to provide certainty in irrigation facility, then different motive of small scale and of medium scale irrigation projects should be developed and this task should be prioritised. To expand the service of irrigation 'Development program of irrigation sector' and 'Infrastructural development fund' set up by India. In addition to that incomplete irrigation projects and to develop other facilities NABARD being assigned.

8.4.2.4 Use of Machines : One of the reasons for low productivity of agriculture is traditional equipment or machines. In reality, with the development of engineering and automobile sectors Tractor, Trailer, Thresher, Electric pump set, Oil engine, Pesticide sprinkler pump, etc. modern machineries are invented. These machines are very helpful to have more than one crop a year which increases productivity.

8.4.2.5 Pesticides : Ready crop has danger of various diseases and insects. To prevent crop from various diseases and to protect plants from insects scientifically develop pesticides are very useful. By using them, the loss of crop can be restricted which also will give high productivity.

8.4.2.6 Soil Testing : Soil testing is much popular in cultivation with the help of scientific techniques. That tests give information about land, it means, it is land favourable to crop or not can be known by tests. Even it gives information of deficiency of elements of soil. That helps to remove deficiency of land.

This way land can be made favourable to crop and it become capable to give high productivity. This test answers about favorability of land for crop or not so.

8.4.3 Other Measures :

To improve agriculture productivity farmers are needed to educate or they may be well inform about new techology to bring changes in their working pattern. Even they should awakened for bad customs of rural areas and can be explained about, not to believe in fatalism. New measures like agriculture fair can be used to increase agriculture productivity.

In addition to that, agriculture allied activities like cattle rearing, poultry farming, food processing, jungle and others can be used to reduce dependency of agriculture. That can increase agriculture productivity. If small scale industries can be expanded to rural areas, that kind of industries can become supporting to agriculture and that can make improvement of agriculture productivity easier and possible in reality.

8.5 Modern Agriculture

Indian traditional agriculture use organic manure, seeds, simple plough, bullocks and primary instruments. These instruments give very less productivity and the use of them was unable to satisfy agricultural requirements of entire nation. Therefore, since 1966 modern agriculture emerge in India. Modern agriculture uses modern inputs like hybrid seeds, chemical fertilisers, pesticides, new machines of agriculture, irrigation. Due to use of these modern inputs agricultural production increase entensively. This was counted as revolution. This revolution was of agriculture, therefore it was called Green Revolution.

8.5.1 Green Revolution :

Use of new technology of agriculture started from the year 1960-61 at seven districts of India as 'pilot project'. This known initially as IADP (Intense Agricutural District Program) that means Intensive agricultural programme for districts. Due to wonderful success with passing of time, it was applied to whole nation. When it was implemented to nation this was known as HYVP (High Yielding Varieties Program) that means program of high yeild products which is also known as "Green Revolution". It is also known as "Modern agricultural technology progarmme" or "Programme of seeds, fertiliser and water technology."

8.5.2 Multiple Cropping :

Multiple cropping can be obtained by different crops on a cultivated land area. Multiple cropping show nature of agricultural work. Normally two types of crops are seen : (1) Food grains (2) Non food grains which is also known as cash crops. Wheat, Rice, Coarse grains (Millet/bajra, Sorhum/juvar, Maize etc.) and pulses are included in food grain crops whereas different oilseeds (Groundnut, Sesame , Castor, Soyabean, Linseed, Sunflower, etc.) and sugarcane, rubber, cotton, jute, etc. are included in cash crops.

Reasons for multiple cropping are two : (1) Technological factors (2) Economic factors.

Technological factors : Multiple cropping in a area depends on its soil, environment, rain, etc. elements. For example, in Madhyapradesh after taking crop of millet/bajri, they take crop of Sugarcane, Tobacco, etc. on the ground of irrigation facilities. This way multiple cropping is possible due to capital, new seeds, fertilisers and credit facilities.

Economic factors : Economic factors are also important for multiple cropping. These economic factors are as follows :

(1) To maximise price and income (2) Availability of agricultural instruments (3) Size of farm (4) Protection of insurance (5) Tenure (Tenure avail from landlord) etc.

Availability or scarcity of these factors are responsible for selection of crop.

In 1950-51, approximately 75 % crop of food grains and 25 % crop of cash crops was taken up. After 1966, multiple crop have been seen due to use of inputs of 'Green Revolution'. In the year 1970-71, about 74 % of food grains, where about 26 % of cash crops were taken. It became as 64 % of food grains and 36 % of cash crops in the year 2006-07. But then again due to change in multiple crops in the year 2010-11 about 66 % of food grains and about 34 % of cash crop were taken. That can be said on the ground of details of Agricultural Statistics at a glance of 2010-11.

8.5.3 Crop Protection :

Agriculture productivity should increase with the use of pesticides but India has very less use of pesticides per hectare. Economic survey 2015-16 shows that India has only 0.5 kg per hectare use of pesticides where America has 7.0 kg, Europe has 2.5 kg, Japan has 12 kg and Koria has 6.6 kg use of pesticides. This is the reason why 15 to 25% Indian crop get spoiled by insects, diseases, weed, cattles and birds, which may be saved.

Improper information of pesticides, poor quality pesticides and lack of information of proper use of pesticides are big issues of India. Improper use of pesticides in India create big danger to mankind and environment.

CIBRC (Central Insecticide Board and Registration Committee) is appointed to inform Indian farmers abour various types of pesticides and its level of poison. That publish different booklets to guide farmers which explain about quantity of pesticides, time of usage and level of poison. This information should be spread among farmers, to make pesticides environment friendly. Pesticides should be effective but non poisonous and cheaper to encourage small and marginal farmers for increasing agricultural productivity.

8.5.4 Agriculture Research

ICAR (Indian Council of Agricultural Research) is only institute which manages agricultural researches. It provides arrangements for research and also gives adequate help. It is also spreading awareness of Horticulture, Fishering and Cattle rearing science. ICAR has done pioneer work for expansion of green revolution. It has made appropriate efforts to have national food availability and nutrition.

Exercise

1. Choose the correct option for the following questions :

(1) How much percent population live in rural area as per 2011 census ?

(a) 68.8 % (b) 72 % (c) 60 % (d) 74 %

(2) How much was the contribution of agriculture in national income of 2011-12 ?

(a) 53.1 % (b) 42.3 % (c) 13.9 % (d) 59.9 %

(3) How much employment was provided by agriculture in the year 2014-15 ?

(a) 72 % (b) 49 % (c) 26 % (d) 24 %

(4) When was NABARD constructed ?

(a) 1947 (b) 1969 (c) 1975 (d) 1982

(5) When was the utilization of green revolution applied on overall India ?

(a) 1961 (b) 1966 (c) 1969 (d) 1991

(6) How much is the use of pesticides per hectare in India ?

(a) 0.5 kg (b) 2.5 kg (c) 6.6 kg (d) 7 kg

(7) Which is the institute of agriculture research ?

(a) ICAR (b) CIBRC (c) Regional rural banks (d) RBI

2. Answer the following questions in one line :

(1) When was the second five year plan started ?

(2) How much is the export income of agriculture ?

(3) Give names of methods to collect land revenue under British rule.

(4) Give examples of cash crops.

(5) Which corporation was made to store agriculture product ?

3. Answer the following questions in brief :

(1) Explain about factor of population pressure on low productivity of agriculture.

(2) Explain about agriculture credit to improve agriculture productivity.

(3) Why is India known as agriculture oriented economy ?

(4) Explain role of agriculture to improve life standard of people.

(5) State different names of Green Revolution.

4. Give answers to the point for the following questions :

(1) Explain crop rotation.

(2) What is Green Revolution ?

(3) Discuss about agricultural research.

(4) Discuss any three factors/matters/points to prove importance of agriculture.

(5) Explain any three reasons for low productivity of agriculture in India.

5. Answer the following questions in detail :

(1) Explain about agriculture pattern.

(2) Discuss the reasons for low productivity in Indian agriculture.

(3) State measures to improve productivity in agriculture.

Glossary

National Income	:	Value of goods and services produced in a year with the help of factors of production.
Export	:	Sale to foreign economy is known as export.
NABARD	:	It is institute of Reserve Bank of India. It is focusing only on monetary functions of agriculture sector, due to that it is known as central bank of agriculture (NABARD – National Bank for Agricultural and Rural Development)
Population Pressure	:	When big mass of population live in a small area or big mass of employment depends on a area then it can be called that there is population pressure in that area.
Green Revolution	:	Fast technological growth attained by agriculture with the help of irrigation, fertilizer, seeds, pesticides and machines known as Green Revolution. In other words, Green Revolution is, in short period what speedy growth achieved by agriculture with the help of technological advancement.
Cash Crop	:	Mainly crops used as raw material in industries known as cash crops. Normally, these crops are non food grains crops.
Thresher	:	A machine which separates seeds from husks or straws.