

Chapter-17

Agriculture In The Indian Economy

Agriculture has been the foundation of Indian economy from ancient times. Agriculture and its related fields are the main sources of earning for the majority of Indian population specially for the village people. Approximately half of the population of the country is still dependent on agriculture though due to Plan Development Process the national income from agriculture has partially reduced but still agriculture is very important from various aspects in Indian economy.

Importance of Agriculture :- Importance and contribution of agriculture can be illustrated by the following points.



1. Contribution in the national income -

Indian agriculture has contributed a lot in the National income According to the data of year 1950-51 of Central Statistical Organization agriculture and its co-activities such as forestry, wood cutting, animal husbandry, fishery, mining poultry etc. have contributed 59.2 percent in the national income which was reduced in 2012-13 (2004-05 statistic value) to 13.7 percent. Even today as compared to other developed countries agriculture is contributing a lot

in GDP.

2. Providing Employment Opportunities -

Even today most of the working Indian population is dependent on agricultural and its co-activities in the year 1950-51, 70% of the working population was dependent on agriculture and its co-activities. Even today according to the census of 2011 approximately 48.9 % of people are dependent on agriculture. Agriculture is providing employment directly and indirectly to the people. Farming, harvesting, irrigation etc. are the example providing direct employment and as indirect employment animal husbandry, fisheries, poultry, forestry, food preservation, preparing fruits and vegetables for marketing oil refinery, wood cutting, preparing pulse preparing animal fodder and preparing organic manure.

In Indian planning period contribution of agriculture in providing employment is still very high but its contribution in national income is declining. It can be increased by adopting new methods techniques of agriculture.

3. Contribution in International Trade -

Contribution of agriculture is also very important in international trade. We export and import various agricultural products. India exports tea, spices, coffee, rice, cotton, tobacco, cashew nuts, fruits, vegetables, fruit juices, sea products, sugar and meat and meat products are main agricultural things. Presently total export of agricultural and its co fields contribute 12.5%

4. Contribution in industrial Development -

Contribution of agriculture is of two types in industrial Development. Firstly agriculture provides raw material for the major industries for eg. Cotton for cotton Textile mills, sugarcane and beetroot for sugar industries, fruits and vegetables for industries,

flower and seeds for oil industries, for few medicines agricultural products are used most of Ayurvedic medicines dependent on agricultural products.

Secondly agriculture provides market for other industries such as tractor trolley industry, agricultural tools industries, Chemical fertilizer industry, pesticides industry, seed industry, plant Nursery etc. to sell their products depend on agriculture.

5. Contribution in food and fodder -

Agriculture provides food product for the people and fodder for the animal.

6. Contribution towards removal of poverty

By improving the facilities in agriculture and its co-activities can provide employment and income for the increasing population of the country. It can stop the spread of poverty in the country.

7. Contribution in Revenue -

Agriculture and its co-activities provide the government less taxes in the form of revenue.

8. Contribution to the development of other sector of the economy-

Agriculture is the foundation of Indian economy hence all other fields are influenced by it Rural development transportation, communication, packing and industrial development and its co-activities. Looking to all these contributions we can say that agriculture is the axis of Indian economy.

9. Bases of the progress in Animal Husbandary -

Most animal of the world are found in India. Even today all the major activities in agriculture are performed by animals and mostly animal breeding is done by the farmers. Dairy, wool, meat, milk and milk products are produced and improved breeds etc. are done in agricultural areas. So livestock development is also done in this area.

New trends in agriculture sector-

Policies of colonial period had its bad results in the agricultural field which came in the form of speedless progress. At the time of independence agriculture was in pitiable condition but due to the progressive works in plan period reforms in agriculture area is praiseworthy which can be understood in the following manner.

1. Food Production -

India is a land of diversity due to its climate, land, soil, water table, geographical structure etc. there are various diversities found here and many types of crops can be grown. We can classify the crops on two main basis.

(a) Crops on the basis of seasons

According to seasons, crops are of three types -

1. Rabi crops -

The Rabi cropping season is from mid October and harvested between March and April. Crops include wheat, barley, oats chickpea/ gram, mustard etc.

2. The Kharif crops -

The Kharif crop is grown in June-July and harvesting time is from September to mid October. It includes rice, jawar, arhar, moong, maize, cotton, linseeds, sugar cane, soyabean, ground nut etc. Rice is the only crop which is sown both in Rabi and Kharif season.

3. Zaid crops -

Cropping season is from March to mid June. Such as muskmelon, pumpkin, cucumber, watermelon and vegetables, sunflower etc.

(b) Crops on the basis of their use-

Crops on the basis of their uses are divided into two groups/parts

(i) Food crops -

Food crops are those crops which are eaten in the form of food they are as follows- rice, wheat, maize, grams and pulses.

(ii) Trade crops or cash crops

Cash crops are those crops which are grown only for profit sale. Farmers either sell the entire lot or partly use and sell the rest such as sugarcane, jute, cotton, tea, coffee, tobacco.

Presently the area and productivity of all crops have changed.

In the previous years food production from 1950-51 to 2012-13 nearly 62 years linseeds approximately 4.2 times, 5.3 times in oil seeds sugarcane approx 5.13 times, cotton approx 3.95 times increased and jute increased approx 2.5.

Source- Statistics and Economics directorat 2015

2. Trends in the production of main crops.

productivity in india is still low as compared to the other countries of the world. Following are the main reasons- (a) Natural Reasons - they following reasons are included in this-

- (i) Excessive dependence on the Monsoons
- (ii) Lack of irrigation facilities
- (iii) Constantly fall of productive power in the agriculture
- (iv) Vast desert in the western area
- (v) Weeds problem
- (vi) Natural calamities (Drought, flood, famine, Cyclone)
- (vii) A big/vast part of fallow and waste land

(b) Technological Reasons/factors

- (i) Underdeveloped and backward irrigation facilities
- (ii) Lack of electricity
- (iii) Lack of agriculture productivity (high yielding soil/seeds, tools etc)
- (iv) Lack of transport, communication and banking facilities.
- (v) High cost in stocking of agricultural products
- (vi) Lack of provision of agriculture marketing

(c) Institutional factors -

- (i) Ploughing getting small
 - (ii) Faulty land acquisition process
 - (iii) Excess dependecne of population on agriculture
 - (iv) Ploughing land of farmers spread to far off places
- natural calamity and financial crisis are additional factors with the above mentioned factors.

3. Land Reform Programme-

After independence more importance was given to land reform programs so that agricultural productivity and produce increase and to improve the economic condition of the farmers. Under this program the main step was to remove zamidary system. List of extra land reform work was also implemented.

- (i) End of mediators. middle-men/ mediocre
- (ii) Taxation rules
- (iii) Protection of land acquisition
- (iv) Efforts to give rights of land ownership to land tenants.
- (v) Fixation of borders of ploughing land assessment.

(vi) Marking the boundaries.

(vii) Government farming.

(viii) Distribution of land to landless labourers/ farmers.

(ix) ban on the transfer of land of land tenants SC/ ST to other caste people

(x) Facility of computersing the land records

After getting independence many reform programme have been implemented still due to illiteracy and lack of knowledge among the farmers they are unable to get full benefit from these programme.

4. Irrigation -

Indian agriculture is called gamlling of mansoon. Indian Monsoon Due to the dependence on rain, there is always uncertainty and unstabilty in agriculture keeping this in view more emphasis was given on irrigation facilities for its progress. Main sources of irrigation in india are wells, ponds, lakes etc.

Government of india during plan period implemented various programmes for irrigation facility. Irrigation programmes were classified into three categories-

(i) small/short irrigation programme-

These programmers are meant for only 2000 hectare of agricultural common and area.

(ii) Mid irrigation programme -

These programmes are meant for more than 2000 hectare but till 10,000 hectare of agricultural command areas.

(iii) Large irrigation programmes-

These are meant for more than 10,000 hectare of agricultural command area.

5. Reorganization of Agricultural Ploughing -

In India the area of ploughing is small. The area of ploughing is spread far flung places. The main reason is the rule of heredity. According to which the father's property is distributed which is called 'Sub division'. Due to this division, the agricultural land get reduced. Secondly, one farmer gets ploughing land at different places which is called 'Sub division', due to the fact that the inherited land is distributed among the sons piece by piece.

In India, small and marginal is on a large scale. The following measures are taken to stop the spreading of small and marginal farming.

1. Consolidate farming / Consolidation of sub division farming.
2. Co-operative farming

According to first Agricultural census in India, year 1970-71 the area of farming land was 2.28 hectare which reduced to 1.33 hectare in 2000-01. In agriculture, 62.88% is the Limited Plough able land. On the basis of area, plough able farm hand is divided into 5 parts.

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|----------------------------|---------------------|
| (i). Marginal farming | less then-1 hectare |
| (ii). Small-scale farming | 1 to 2 hectare |
| (iii). Semi-scale farming | 2 to 4 hectare |
| (iv). Medium-Scale farming | 4 to 10 hectare |
| (v). Large-scale farming | 10 or more then 10 |

6. Manure, fertilizers and pesticide medicines -

To increase the power of agricultural fertility manure and fertilizers have their own importance from the very begining indian farmers had been using manure made of cow dung, leaves of crops and animals to improve the fertility of the soil but due to green revolution use of chemical fertilizers and pesticides increased rapidly. The main chemical fertilizers like nitrogen phosphate and potash are used in great quantity. Presently in India the level of consumption of fertilizers is 239.59 lac mt. ton.

Till today the level of consumption of fertilizers is less compared to other developed countries not only this, there is vast difference in the consumption of fertilizers in different states of india. In Punjab the consumption of fertilizers per hectare is greatest while it is lowest in Orrisa.

Chemical fertilizers are mostly used in grain, wheat, sugarcane, cotton and cash crops. Similarly

pesticides are used to protect the crops from seasonal diseases and pests. Mostly the crops of ground nuts. cotton grain and sugarcane are affected by the pests and diseases. There is always a danger of pest in fruits and vegetables. The use of pesticides is always useful to protect the crops. The use of fertilizers is constantly increasing but today the use of organic farming is gaining more importance in this field.

7. Use of high variety seeds-

To increase the production and productivity of the agriculture it is important to use high variety seeds. By using high variety seeds we increase the production 10 to 20%. Govt. of india encourage the production and distribution of the seeds of proofed crops. In 1963, formed National seed corporation and in 1969 National state farm corporations. 13 state seed corporation were established to distribute the high variety of seeds to the farmers. Indian seeds programme include the three seed produce such as. The use of high variety seeds is constantly increasing.

8. Agricultural Mechanisation -

Indian farmers are using old/ traditional tools and instruments and effective technology in the agriculture. Agricultrue in the plan period had progressed and due to it in agriculture new tools/ apparatus are being used like tractor, harvestors, power tiller, thrasher, pump set etc.

Use of new tool in agriculture has made the agricultural work easier and there is increase in the the productivity of agricultral produce at the time of independence there was no production of tractors but now we are self dependents in the production of the tractors, Production of electric pump sets and diesel pump sets are also produced Agricultral mechanisation, Punjab and Haryana states here greatly progressed. Mechanisation in agriculture on one hand increases the production, on other hand make the work easier in agricultural transport cutting of crops, separating, ploughing of land etc. It is also the reason of unemployment for the landless farmers/labourers. Mechanisation increases the gap between small and big farmers and increases enviornmental pollution. Despite being very important for the growing population of developing

country like india but mechanisation must be controlled and developed.

9. Minimum support value of Agricultural produce -

To give fair price for the produce of the farmer and to encourage the agricultural work govt of india declares Minimum support value for he crops twice is Rabi and kharif seasons. For this the govt established Agriculture value commission as 1965 which was later known as Agricultural cost and value commission is that value of the entire crop to be sold by the farmer and the govt. is ready to purchase it in other words support value is that minimum value that the farmers get for their crops. This is declared by the govt before the crops are planted the crops for which minimum support price is declared are as follows-

- (i) 7 types of grains - paddy price wheat, oat, jawar, maize, ragi, bajara
- (ii) Pulses/Dals - Chana, Arhar, Moong, Urad, Masur
- (iii) Oilseeds - Soyabean, Sunflower, groundnut, mustard, coconut, linseed,
- (iv) Other crops - Sugarcane, cotton, jute, coconut

Objective of support value is to protect the rights of the farmers. If the market value falls the farmers by selling their entire crop to the govt. is saved from the losses. Due to the declaration of this the doubt regarding the value is cleared of the farmers and they can get the right decision regarding the production. On the other hand govt. can run smoothly the Public Distribution system and get the grams and other agricultural products at minimum price value and builds the Buffer stock. When the prices are high protect the rights of the consumers the govt sell the grains from this stock through which the prices are controlled.

10. Agricultural loans -

The reason behind the backwardness of Agricultural economic system is lack of facilities of Agricultural loan. Farmers are always in the need of loans for manure, seeds fertilizers, pesticides agricultural tools, labour etc. Farmers according to their need on the basis of period get three types of loans.

(i) Short term loan -

This type of loan is given for less than 15 months. The farmers get this short term loan to fulfil their temporary requirements such as seeds, manure fodder and household work.

(ii) Mid- term loan -

These loans are given for more than 15 months but less than 5 years. These are mainly given to reform the field, to purchase animal, to dig wells, to purchase agricultural tools.

(iii) Long term Loans -

These loans are given to the farmers for more than 5 years. These loans are mostly given for the purchase of new land to pay the old debts, small irrigation to change infertile land into cultivated land to purchase heavy machinery, electrification, to purchase tubewells etc.

Farmers can get these loans through two types of sources, they are as follows-

(i) Non-institutional source -

These include local villagers, money lenders, zamidars, commissions agents, businessman, rich landowners or family members relatives.

(ii) Institutional sources -

To expand the facilities for agriculture and rural development on 12 July 1982 Bank 'NABARD' was established on National level for rural goodwill. This is the supreme institution for rural loan system. the chief sources of institutional loan are commercial land local rural bank, co-operative, Land developments bank etc.

Short term loans and mid-term loans are granted by co-operative societies while long term loans are granted by land development Bank which are known as Land guarantee but in the field of loan with the arrival of institutional sources, farmer got independence from traditional sources and also the rate of interest was low.

11. Kisan credit card Programme -

To make available short term loans for farmers in 1998-99 kisan credit card programme was started. This included such farmers who produce the value of Rs. 5000 or more value were entitled for Kisan credit card. The farmers were given credit card and passbook who were included in this scheme this card was valid for 3 years and the amount

withdrawn from this account had to be returned within 12 months. The term of loan can be increased if the loan is paid regularly farmer credit card depends upon the boundaries of ploughing field, cropping pattern and shape of finance.

From 2001-02 Kisan credit card holders get Rs 50,000 for the death due to accidents and for it permanent handicapped Rs. 25,000 as insurance money presently no tax is cut on the loan for 3,00,000 Kisan credit cards are issued from Trade commercial Bank, co-operative banks and local Rural Banks Mostly Kisan credit cards are issued by Trade/ Commercial Banks Till 2012 11.39 crores of Farmers credit cards were issued.

Kisan credit card programme has played an important role in fulfilling the loan related needs.

12. Agricultural Insurance -

Indian agriculture is always influenced by natural calamities such as heavy rains, drought, hail storms, frost, locusts attack and diseases. Farmers were always in a position of doubt due to these calamities. Govt implement various insurance programmes to protect the farmers to certain extent from the harm/ damage of calamities. Under this in the year 1999-2000 started National Agricultural Insurance plan.

In this farmers were given financial help when the crops failed due to natural calamities, pests and diseases without keeping the size of ploughing land indebted and non-indebted farmers were given help this runs in 25 states and 2 union territories of the country. Agricultural insurance plan is an important advantage for the farmers and save them from the risks still more expansion is needed because the gain of the programme has not reached all the farmers.

Problems of Agriculture farming -

India is an agricultural country. Agriculture is the main source of occupation and income of majority of people. It is the main pillar of economic system of the country. In spite of this the condition of agriculture is not satisfactory. Many problems are faced in agricultural field following are the reasons.

(i) Natural Problems/ calamities -

Indian agriculture is a gambling of monsoon. Irregularity and uncertainty of rain is always there. There is always a fear of droughts, floods, frost,

cyclone, strong wind in agriculture with this the agricultural fields are damaged by erosion, desert decline of fertility, attack/fury of insects, diseases etc.



Natural Disaster Drought

(ii) Small size of ploughing plots land -

The main reason of backwardness in the Indian agriculture is the small size of ploughing area. Due to this it is not possible to use high/modern Agriculture techniques. Secondly the fields are far apart and a big part is wasted due to fencing and the farmers are unable to keep an eye on right farming and the use of techniques which result in the lack of productivity.

(iii) Lack of finance in agriculture -

From the time of sowing to harvesting and selling the crops in the market the farmers need money for the agriculture work and for his every day life. The farmers have to take loan from money lenders, zamindars and business man to buy seeds, manure pesticides to pay electricity bill, labours etc. The money lender give money at high interest rate and force the farmers to sell the produce to them they do not pay the right value to the farmers so the farmers have to lead their life in deficiency this effects the agricultural productivity.

(iv) Lack of Agriculture tools and techniques -

There is always lack of seeds, manure, pesticides, good tools etc for the farmers. Due to lack of good tools and techniques, productivity is less. Because of lack of manure and insecticides the crops are damaged.

(v) Lack of Irrigation facilities -

Indian agriculture irrigation is dependent on rains because there is lack of facility of artificial

irrigation and where it is available there is high regional imbalance. Lack of maintainance of the lake, ponds, canals, rivers etc they are becoming un-usable instead of these tube wells and hand pumps are used widely, due to this the level of land water table is falling if rain does not come in time and there is lack of irrigation facility then the crops have to face heavy damages.

(vi) Decline in the land fertility -

Due the increase in use of chemical fertilizers the fertility of the land is falling because of this the productivity is affected.

(vii) Problem of Agriculture marketing -

One important problem of the farmers is they have to go to far of markets to sell their crops there is no proper facility of transport so it is difficult for them to reach there. In these markets there is no proper facility of stocking the grains. Due to rains, insects, rats etc the crops of the farmers are damaged. Sometimes they have to sell their crops to money lenders or midman in the village itself at low rates.

(viii) Orthodoxy of the farmers -

Till today many farmers are following traditional ways of agriculture. They spend more money on social traditions like marriage, deaths and other social rituals rather on agricultral works. For these works they take loans also, they think the poverty is their destiny and do not want to come out of it.

(ix) Problem of right price -

Farmers do not get the correct price for their produce. Businessman buy at a very low price the produce of the farmers. Sometimes the prices are so low that the farmers do not get even the money they have invested on crops, though the govt had issued the support price for same crops but they are unsufficient.

(x) Neglect of Institutional changes :- This Resolution paid more attention to technical changes, and land reforms were neglected. In this manner Green Resolution made on unprecedented contribution to the development of the agricultural sector and not only made India self reliant in food production but also gave a spurt to the export of agro-products by bringing to an end the cereal crisis.

(xi) Illiteracy in Farmers - Even today most of the farmers are uneducated. therefore neither can they understand advanced and appropriate technology nor can they make good use of it. Consequently, they cannot sell their produce at appropriate prices due to this.

Suggestions for the removal of Agricultural problem -

In every five years plan efforts were made for the development in the field of agriculture in first five year plan the main importance was given to agriculture. After this also in every five year plans special importance was given to the development of agriculture still indian farmers are facing many difficulties. Following is the list of suggestions for reforms.

(i) To implement the land reform properly -

After independence efforts made towards the improvement of marking of boundaries, co-operative farming reforms in cultivation, land ownership etc. steps suggested to implement these in a proper manner. Big laws and Policies must be implimented for these works.

(ii) Availability of agricultral things for poor farmers and farm labours -

Rich farmers can get easily things related to agriculture like manure, seeds insecticides, fertilizers, tools etc. but small and poor farmers have great difficulty to get them. The govt should make these things available for them and give grants. They should also educate them so that they can use these agricultural tools properly.

(iii) Spread of Dry farming methods -

The areas where rainfall is less and irrigation facilities are lacking there, dry farming method should be developed the farmers must be encouraged to use these method they should also be educated to use technic for increasing productivity in less waterfor eg. sprinklers for irrigation.

(iv) Spread of Education -

Education must be spread among the farmers so that they can understand and fit to use new technology.

(v) Encouragment to cottage industries -

Encouragement to cottage industries must be given so that the dependence of people become less on agriculture the income of rural people will increase and dependence on agriculture decrease.

(vi) Encouragement to optional employment with agriculture -

Farmers must not depend only on agriculture but use also optional ways for employments such as poultry, Honeybee breeding, milking animals, planting of fruits on sides of the fields etc. On one hand farmers income will increase and on other hand there will be no need to take loan, if their crops are damaged. This will improve the condition of the farmers and increase the productivity in agriculture.

(vii) Establishment of Agricultural grainary -

Graineries must be established in proper places for agricultural production.

(viii) Encouragement to organic farming -

Excessive use of chemical fertilizers and pesticides make the land lose its fertility. Organic farming plays an important role to protect this on one hand it protects the fertility and on other hand is important for health and environment.

Green Revolution And White Revolution

Green Revolution -

From the beginning of third five year plan to the mid fourth five year plan (1961-69) these 8 years are important in the history of Indian agriculture. It was during this period that the new strategy of agriculture was implemented. In the form of a pilot project, Intensive agriculture farming was introduced in 7 districts. Following this highly productive variety of seeds were added and this progressive strategy was encouraged throughout the country. This was the start of the green revolution.

In place of traditional farming new techniques like chemical fertilizers, pesticides, advanced seeds, modern farming technology and vast irrigational project etc. so as to give importance in the year 1966-67 with kharif crops a new era began which is called the "Green Revolution." The Prof. E Norman Borlaug is the father of Green Revolution. But in India Prof M.S. Swaminathan is



A Scene Green Revolution

known as the father of Green Revolution. The main objective of the Green Revolution was to overcome the problem of food- shortage and to get more production in a short period and to commercialize agriculture.

Important Factors of Green Revolution.

Programme for more productive crops- In 1970-71 In this programme as implemented on 6 crops which are grains, wheat, maize, jawar, millet and raggi. The maximum types of wheat, Chinese rice and a few highly developed Indian varieties with maize, jawar, millet & raggi were used.

In this project along with highly developed kinds of seeds there was the use of chemical fertilizers and pesticides by which production was by vastly increased.

In this project wheat was among one of the most successful all attempts. The programme was a great success in the following States Punjab, Haryana, Uttar Pradesh, Bihar, Tamilnadu and West Bengal.

(ii). Multi Crops Programme:- Under multi crops programme those seeds are sown which have a very short harvesting duration in which within a year more than one crop can be cultivated.

(iii). Emphasis on small scale Irrigation :- For the success of Green Revolution only advanced seeds

& manure are not sufficient. For this purpose sufficient facilities for irrigation was necessary which could be fulfilled only through big dams. Therefore, under this programme emphasis was on hand pumps, canals, ponds, water-harvesting and tube-well for irrigation.

(iv). **Chemical Fertilizer**- To increase agriculture produce chemical fertilizers like ureas and potash made widely used.

(v). **Highly developed seeds**:- To encourage more production and qualitative farming, seeds of developed variety was encouraged to be used.

(vi). **Encouragement to agricultural mechanization**;- In Green Revolution for the progress of agriculture, the use of new types of instruments was encouraged from sowing to harvesting.

(vii). **Crop Protection Programme**;- Under this programme, pesticides were used on the soil and the crops. During the years when large campaigns were conducted to destroy them on the land or in the air so that the crops could flourish.

(viii). **Agriculture Knowledge and Research**:- Expansion of agricultural education and research programme were started for increasing agricultural production.

(ix) **Land Protection Programme**:- Land Protection Programme was encouraged and fertile land was protected from erosion while research was done to make barren land fertile.

(x). **Establishment of various institution for agricultural progress**- For the successful working of agriculture progress, various institutions were established eg. National seeds Corporation, NABARD.

(xi). **Agriculture Price Commission**;- To guarantee for fair price to farmers, Agriculture Price Commission was established.

(xii). **Crop Insurance**; - Insurance was provided for protection of crops from natural disaster.

Important of green Revolution. The importance of green Revolution could be understood by the following factors :-

1. Growth in the production & productivity of crops:- As a result of Green Revolution, there is unprecedented growth in production & productivity due to which the situation of food grains get created in country.

2. Employment for farm laborers:- As a result of Green Revolution, there is improvement in the situation of farm labourers. Due to increase in agriculture area and growth in production, there is growth in employment. Due to production of multi-farious and commercial crops, the demand for more labor got fulfilled by landless laborers due to which economic condition improved.

3. Decree in Rural Poverty:- Due to Green Revolution Rural Landless laborers got employment and because of multi harvesting programme, income of farmers increased and poverty lessened.

4. Mechanization; - The Green Revolution emphasized mechanization and traditional techniques were replaced by modern machinery.

5. Production of advanced crops;- The Green Revolution resulted in advanced seeds, pesticides and chemical fertilizers which increased the production of crops.

6. Commercial Outlook: - A commercial outlook replaced the traditional manner of thinking of the farmers.

7. Modernization;- Modernization was given great emphasis and so the circumstances of farmers improved.

8. Facilities :- Reasonable prices, ware housing, credit and other facilities brought more profit to the farmers.

Limitations of Green Revolution -

Green Revolution is an important revolution in the field of agriculture still it has few lackings and limitations they are as follows -

(i) Limited to specific crops -

Green Revolution had its effects specially on wheat, rice, jawar, bajra and maize productivity. Its mam success was in field of wheat production so it is also known as wheat revolution compared to these crops its effect was very less on other crops.

(ii) Effective on limited areas -

The effect of green revolution was observed mainly on irrigated ares it was not successful in the areas backward in agricultrre and non-irrigated areas. This is reason why the irrigated states of Punjab and Haryana were more influenced by green Revolution

(iii) Bad effects of machanisation -

In the begining farmers income increased due to green revolution but slowly and slowly the use of machines replaced the labourers with machines this incresed the employment.

(iv) Increase in the gap difference in income -

Rich and resourceful farmers got more advantage of green Revolution because poor farmers had no finance to adopt new methods of agriculture technics. Due to this rich farmer took advantage and made themselves resourceful secondly, disparity of income increased between the various states because in other states the condition of the farmers did not improve.

(v) Bad effects of the use of chemical fertilizers -

In green Revolution more emphasis was given to the use of chemical fertilizers and pesticides. It made the land unfertile. It also had effects on underground water, enviornment and animal.

(vi) Decline in water level -

Due to green revolution excessive use of water through tube well and handpump were done.

So there was great fall in the ground water table.

(vii) Encourgement to capitalist farming -

High variety of seeds, chemical, manure and agricultural tools all were very expensive. Due to this encouragement was given to capitalism.

(viii) Neglect of institutional changes- This Resolution paid more attention to technical changes, and land reforms were neglected. In this manner Green Resolution made on unprecedented contribution to the development of the agricultural sector and not only made India self reliant in food production but also gave a spurt to the export of agro-products by bringing to an end the cereal crisis.

White Revolution

Production of livestock and agriculture are related and are dependent on each other and both are important for food security. Most of the world's animals are found in india. Most of the world's milk production is produced in India but the animal breed in india is in pitialble condition. Due to this reason production of milk is very little and expenditure is very high. To improve this government implmented white revolution as a co-operative programme.

In the year 1964-65 for the indian farmers livestock Development programme was started. According to this programme to increase milk production, animal breeders were provided advance and developed methods of training. In this animal breeders were given high breed cow and buffalows and methods of artificial pregnancy was developed. Increase milk production with such great speed is called white Revolution. In 1970 National Dairy Development Board started white revolution in Anand village of Gujrat. It was named as Operation flood. The chairman and founder of this revolution was Verghese Kurian. He was the main architect.

Importance of white Revolution

(i) Increase in Milk Production -

Due to white revolution there was an incredible increase in the production of milk. Today india is the leading producer of milk and the total production of milk in the year 2013-14 was 137.69 metric ton.

There is an increase in the production of milk every year in 2013-14 per person 307 gm per day milk was available.

(ii) Income for farmers -

Dairy employment make the secondary source of income for lacs of people in the villages and lacs of people specially women and poor farmers. It has been an opportunity to earn a living through dairy production.

Permanent and self employment was made available to the village and landless people and land labourers in the form of Animal husbandary they got ample of employment in this field from Dairy development. Most of this milk production is done by the neighbouring and landless labourers of the country. 90 lacs of peasant families are employed in this work.

(iv) Encouragement to the comprehensive rural development -

Due to dairy development various basis rural imperature improved. Road, transport, communication, Banking as they were required the successful implementation of white Reveolution.

(v) Availability of milk in the Urban Areas -

Operation flood made it possible for urban areas to get extra milk produce in rural areas the urban people not only got milk but also the milk products such as curd, butter, milk, ghee, cheese and butter very easily.

(vi) Improved in animal breed -

Due to operation flood there is imporvement in the breed of animals and control on the diseases by all measures in India.

In This way white revolution has changed completely the shape of Rural economy. Green revolution by bringing reforms in agriculture protected the main occupation of the farmers while white revolution by reform on animal husbandary and milk production and provided extra employment and income to the villagers.

Important Points :

1. Agriculture is important organ, foundation and backbone of Indian economy.
2. Following ways in agriculture contribute to

following areas in Indian economy.

- (i) National income
 - (ii) Making employment available
 - (iii) Contribute towards international business
 - (iv) Development of industries
 - (v) Fulfilments of food grain
 - (vi) Eradication of poverty
 - (vii) Contribution towards revenue
 - (viii) Contribution to other ares of economy
 - (i) Development of livestock
3. New trends in agriculture area
- (i) Increase in food grain production
 - (ii) Method in the field of production in India major crops.
 - (iii) Implemetation of land reform programme.
 - (iv) Promotion of irrigation
 - (v) use of fertilizers
 - (vi) use of advanced seeds
 - (vii) Promotion of agricultural mechanization
 - (viii) Minimum support pricing of agricultural products
 - (ix) Promoting agricultural credit
 - (x) Implementation of Kisan credit card scheme
 - (xi) Implementation of Kisan insurance.
4. Agricultural Productivity refers to the quantity of production per unit, which is expressed as per hectare production.
5. Despite many development programmes in India, todays production of agricultural area is very low.
6. Reason for low productivity in agricultural area are :
- (i) Natural
 - (ii) Establishment
 - (iii) Technology & others
7. India has three main sources of irrigation, rivers, ponds & wells.
8. Problem in agriculture area in India are :
- (i) natural Calamities
 - (ii) Small size of stocks
 - (iii) lack of agricultural finance
 - (iv) lack of irrigation facilities
 - (v) Problem of lands
 - (vi) Problem of agricultural marketing
 - (vii) Farmers conservativeness
 - (viii) Illiteracy of farmers
 - (ix) lack of price quotation

9. Decision - making measures should be adopted to improve the problem of agriculture sector-

- (i) Effectively implement improvement programs.
- (ii) Provided aide to agriculture.
- (iii) Dry farming methods should be disseminated.
- (iv) organic farming should be established.
- (v) Agriculture store house should be extablistied.
- (vi) Promotion of rural cottage and agricultural based industries.
- (vii) Promotion of alternative sources of employment with agriculture.
- (viii) Promotion of education.

10. The green revolution implies that it should be an important method of agricultural production in short period of time & this method should be maintained for tory time,

11. Green revolution started between 1966-67.

12. Improtant factors of green revolution are -

- (i) High yielding crop programme
- (ii) Multi crop programme
- (iii) Emphasis on small irrigation.
- (iv) Emphasis on the use of chemical fertilizer.
- (v) Use of advanced seeds.
- (vi) Promotion of mechanization in agriculture
- (vii) Plant protection work
- (viii) Promotion of agriculture education and experiment
- (ix) conservation programme
- (x) Establishment of institution for agricultural development.
- (xi) Establismnt of value commission
- (xii) Crop insurance programme

13. Improtance of green revolution -

- (i) Crop production of productivity increased.
- (ii) Enhancement of employment of agriculture labourers
- (iii) Decreased in rural poverty
- (iv) Increasing mechanization in agriculture.
- (v) Increased production of advanced varities.
- (vi) Business approaches developed in agriculture.
- (v) Development of modernisation in agriculture.

14. Limitation of green revolution

- (i) Limited to only few crops.
- (ii) Limited area is only effected
- (iii) Side effect of mechanisation.
- (iv) Increasing inequality of income.

(v) Drawbacks of fertilizers.

(vi) Reduction of water level.

(vii) Promotion of capitalist farming

(viii) Ignorance of institutioinal changes.

15. The rapid rise of milk production is known as while revelotion.

16. Father of white revolution is Dr virgin kuieen.

17. Importance of white revolution

- (i) Milk production enhanced
- (ii) Enhancement of income of farmer.
- (iii) Employment for rural unemployment
- (iv) Promoting balanced rural development
- (v) Availability of milk in urban area.
- (vi) Animal breed improvement.

Objective Type Questions :

1. India has a major base of employment in -

- (a) Agriculture
- (b) Business
- (c) Service
- (d) Animal husbandry

2. What is a duration of emergency loan -

- (a) Less than 15 months
- (b) Less than 2 years
- (c) Less than 5 years
- (d) Less than 10 years

3. Which state got the highest benefit of green revolution?

- (a) Gujrat
- (b) Punjab
- (c) Kerala
- (d) Jammu & Kashmir

4. Which area is related to white revolution ?

- (a) Fishries
- (b) Animal husbandry
- (c) Gardening
- (d) None

Very short answer questions :

- 1. What are the auxallianes activities of agriculture?
- 2. Which crops are zaid crops ?
- 3. What is the small irrigation project ?
- 4. What is the agricultural land ?
- 5. What fertilizer are used in agriculture ?
- 6. What are the non institutional sources of

agriculture credit ?

7. What is the share of agriculture products in exports.
8. What is green revolution ?
9. Which crop programme is applied to the crop ?
10. Who is the creator of white revolution in India?
11. Which programme was started as a pilot programme ?
12. Which country is the most livestock found ?
13. In which the world largest dairy development programme ?
14. What are the main objectives of green revolution ?
15. In which district the intensive agricultural district programme was started ?

Short answer type question :

1. What is agricultural mechanization ?
2. What is agricultural credit card programme ?
3. Which are the business crops ?
4. What are the natural causes of lack of agricultural productivity ?
5. What is the support price ?
6. Why is the Indian agriculture called monsoon gambling ?
7. Explain the importance of agriculture in livestock

development.

8. What is H.Y.V.P. programme ?
9. What is small irrigation programme ?
10. What is plant protection programme ?
11. Explain three advantages of white revolution .
12. Explain the adverse effect of the use of chemical fertilizers.
13. What are the reasons for the decrease in ground water level ?
14. Explain difference between green and white revolution.
15. How white revolution help the need of milk in urban area ?

Eassy Type Questions :

1. Explain the importance of agriculture in Indian economy.
2. Explain the solution to solve the problem of Indian agriculture.
3. Explain the meaning of green revolution and important achievements of green revolution.
4. what do you mean by white revolution ? How does it benefit to different sections ?

Answer of objective questions

1. (a) 2. (a) 3. (b)
4. (b)