

Trends in agri production & productivity
over the planning period -

* Agri Agricultural production has 2 components
- food grains & non food grains. The former
contributes approximately $\frac{2}{3}$ of total agricultural
production. In the index Number of Agricultural
production (1981-82) equals to 100. The
weight assigned to food grains & non
food grains are 62.9 & 37.9 respectively.
The most imp component in the food grains
categories is rice (29.7) followed

by wheat (14.5). In the non food grains category, oil seeds ^{constitute group} contribute to most crop group (12.6) followed by sugar-cane (8.1) & cotton (4.4).

For the purpose of analysis of agricultural production & productivity over the planning period, the entire period can be divided into 2 parts:-

- 1) The period ^{upto the} end of the 3rd plan.
- 2) The period after the 3rd plan which is often referred as the period of green revolution.

The Trends in agricultural production is shown in the table below → (1950-51 to 2011-12)
(in million units)

Crop	1951-56 (1st plan)	3rd plan	10th plan	2011-12
Total food grain	63.2	81.0	202.9	252.6
Non food grain				
1) Oil seeds	5.5	7.3	23.2	30.1
2) Sugar cane	55.3	109.2	271.0	351.2
3) Cotton	3.9	5.5	16.0	35.2
4) Jute	3.9	4.9	10.1	10.1

Source - Eco survey, Govt of India

~~1988-89~~ (2007-08) (2011-12)
Govt of India, ministry of agriculture
directory of economic & statistics

From the above table it is clear that as far as food grains output is concern, the total production increase from ~~50.2~~^{69.2} million tons in the 1st 5 yr plan to 202 million tons in the 10th plan. Food grains production touched the record level of 20252.6 million tons in 2011-12.

As far as non food grains crop are concerned the production of oil seed increased considerably in the later half of 1980s. For eg oil seeds production increased from 7.3 million tons in the 3rd plan to 23.2 million tons in the 10th plan.

As far as sugar cane production is concerned it registered a more or less steady growth over the planning period. Among the non food grains group Jute has shown a slow & halting progress during the entire period of planning.

Agriculture Productivity in terms of yield per hectare in kg per hectare

Crops	1950-51	1990-91	2000-01	2010-12
Total food grains	55.2	1380	1826	1921
oil seeds	481	771	810	1159
cotton	88	225	140	510
Total	1043	1833	2026	2344

Source - Eco survey, (2007-8), (2011-12)

The above table shows that over the period of 1950-51 to 2010-11, yield per hectare of all food grains have increased by $3\frac{1}{2}$ times from 55.2 kg per hectare in 1950-51 to 1921 kg per hectare in 2010-11. Due to the adoption of high yielding varieties & BT cotton in recent times, the production of maize & cotton has increased substantially.

There is a slow & steady rise from 1950-51 to 2010-11 for most of the crops. However compared to other crops, & as compared with potential & actual productivity level in agriculture

continued to be very low, for eg productivity of wheat in India is abt 37% of productivity in UK & 61% of productivity in China. As far as rice is concerned, productivity in India is less than half of productivity in China. As far as productivity of sugar cane is concerned, it's 53% in India of the productivity in Egypt. Similar conclusion holds for most of the other crops [Source - govt of India; agri statistic at a glance] 2011

Information of India's global rank in ~~measuring~~ major agri crop is still more revealing. India happens to be 1 of the largest growers & producers of most of the agri crops but ranks very low in terms of yield. For instance it has the largest area under rice & wheat in the world & ^{is the} 2nd largest producers of this crop. In terms of productivity its rank is only 52nd in the rice & 38th in wheat. [Source -

Not only productivity in Indian agri-culture is lower than that in other countries it is much lower than the potential. On one instance of - in the case of wheat the success crop of green revolution. The actual productivity of 2010-11 was only 2002-08 kgs per hectare as against the potential of 6000/6800 kgs per hectare. [Source - Eco survey 2011-12]

Farm Size & Agricultural Productivity

For over 2 decades, economists have been engaged in a debate on the relationship between farm size, productivity & profitability. While farm productivity implies output per unit of land, farm profitability or farm efficiency refers to the surplus of value of output over all cost. Originally on a faulty reasoning, economists asserted that small farms in India were far more productive than large holdings because of intensive cultivation. Some economists argued that there exists an inverse relationship between farm size & productivity, while some other economists feel that no such relationship ever exists. Thus, there was no clear cut conclusion on this issue.

Economists like A.K. Sen, Khurana, Rao, Saini etc. observed that with the increase in size of holdings, productivity declines & thus the productivity was more on small farms in comparison to large farms.

Arguments in favour of inverse relationship betⁿ farm size & productivity

Various explanation offered by diff. economist in favour of inverse relationship have been broadly classified by ~~as~~ Ashok Rudra into 2 categories →

- 1) Quality based explanation
- 2) Intensity based explanation

1) Quality based explanation - This explanation

argued that → a) Fertility of land is higher in small farms compared ~~by~~ to large farms (Kush Khurru, Rao, Bhagavati, S. Chakrabarti)

b) Smaller plant used relatively superior technique & they are more efficiently managed. (Rao & Sen)

c) In a small firm indivisible factors have a higher impact in comparison to larger farm (Khurru & Rao)

ii) Intensity based explanation →

a) This explanation argued that -

a) Family labour is comparatively cheaper than hired labour & in small farm, family labour is free dominantly used & this leads to higher labour...

land ration & subsequently higher productivity as compared to large farms (A.K. Sen)

b) Application of agricultural inputs is more intense in small farms as the small farmers are under compulsion to provide for themselves & their families (Magumder, Khushi, K. Bhargadwaj & Usha Rani)

Argument Against →

- a) It is not correct to argue that the small farm will use labour till MP_L becomes 0 or almost 0.
- b) There is plenty of empirical evidence to show that the opportunity cost of labour on small farms is not significantly diff from market wage. Thus the explanation of inverse relationship of land & family labour doesn't appear to be correct.

Thus we may conclude Saini's words, "... By and large the inverse relationship between farm size & productivity is a confirmed phenomenon in Indian agriculture & that its statistical validity is ad-

established by an analysis of the disaggregated farm management data.⁴

Role of agriculture in Indian Economy

A prosperous system of agriculture is pre-requisite of growth of an economy.

A highly productive agriculture system contribute to economic growth in many ways -

1) Agriculture is the source of supply of basic food articles. Scarcity of food may produce imbalances in the economy & slow down eco growth.

2) Agriculture supply raw materials to a number of industries. The failure of agriculture crop in any season ~~spreads~~ spells disastrous. Those industries like cotton textile, rubber, jute etc.

3) Rising incomes in agriculture stimulate the progress of industries in two ways -

a) Rising agricultural incomes create rural purchasing power needed to buy new industrial goods.

b) These create rural savings which help to build up financial resources needed for investment.

4) Surplus agricultural production can easily be exported. Thus it may help an economy to achieve eqⁿ in BOP.

$$\begin{aligned} & \text{Credit} = \text{Debit} \\ & \text{eqⁿ in BOP} \end{aligned} \quad \begin{aligned} & C \neq D \\ & C > D \\ & D > C \end{aligned}$$

In short, it will be no exaggeration to say that all planning for development must emphasise the growth of agriculture to make this sector of the economy totally self-reliant.

The role / imp of agriculture during the process of development in India can be judged from the following point: Share in national income.

⇒ Although the share of manufacturing industries & service sector in the total national income is increasing, the contribution of agriculture continues to be significant. The share of agri in National income was as high as 51.3% in 1950-51. During 2011-12, it is about 14%, indicating thereby that agriculture remains a large source of income in India even after about 6 decades of economic planning.

2) Source of Employment - In India according to census of 2001, 56.7% of total labour were engaged in agriculture. In other countries like U.K, USA, Russia is 3, 4 & 20% respectively. It implies that occupational structure is very much characteristic of developing economy.

3) Source of Raw materials for industries -

Dependence of no. of industry on agri is evident & by the fact that the failure of agri crop in any season spells disaster for industries. This is more true of industries like cotton textile, rubber, sugar etc.

4) Role of agri in field of international trade -

Agri product - tea, sugar, oil seed constitute an main item of export of India. The contribution of agri to total export was 50% in 1950-51 came down to 9.9% in 2011-12.

5) Dependence of Trade & Transport -

This agency secure most of their business for movement of agri goods. food grains, raw materials & other agri products are transported in bulk from producing region to consuming region. This movement helps to sustain network of roads & railways.

In short it has been rightly observed that agri is the backbone of the Indian economy. No scheme of programme of economic development of India can afford to ignore the reality of Indian economic situation.

Causes of Low agri productivity in India

Factors which are responsible for the backwardness or low agricultural productivity in Indian agriculture can be grouped under 3 broad broad categories.

- 1) Gen factors -
- 2) Institutional factors
- 3) Technological factors.

- General factors -

a) Over ^{crowding} ~~counting~~ in agriculture - There is heavy pressure of population. Since the non agricultural sectors of the economy have not been able to expand at a sufficiently rapid pace over the period of last 6 decades, this pressure has continuously increased. In 2001 about 208 million workers ~~are~~ were employed in agriculture sector. Over crowding in agriculture land has resulted in gradual subdivision & fragmentation. There has also decline the area of cultivated land per cultivator. All these result in low agricultural productivity.

b) Social economic factors - Various social economic factors like farmers' conservative outlook, ignorance, illiteracy, superstition etc stand in the way of adoption of modern technology. Natural factors

c) Natural factors - The rains are totally uncertain in India. Sometimes rains are insufficient & sometimes too much of rain causing heavy floods both of which cause widespread damage & distraction. Other natural calamities such as hail storm, frost or attack by pest etc always go against Indian farmers in stepping up their agricultural productivity. Lack of

d) Lack of adequate finance - Indian agriculture remains backward due to its inadequate financial provision. Although various sources of agricultural finance i.e. both institutional & non institutional exist but their contribution are almost insignificant in quantity.

Institutional factors -

a) Small size of holdings - The average size of agricultural holdings in India is very small & uneconomical & also fragmented too. According to the national sample survey 83% holdings in 2005-6 has a size of less than 2 hectares.

b) Defective patterns of Land Tenure -

Land tenure system in India is totally defective & is standing in the way of its agricultural development. The cultivator has to pay high rent to the land & ~~land~~ lords, ^{subjected to} frequent ejectment. Further there are delay in implementation of land reform & uncertainty of about the rights of farmer on land.

The Technological Factors / Traditional method of cultivation →

Most of the Indian farmers continue to use outdated & new high yielding varieties of seeds is also extremely limited. Use of fertilizers.

b) Inadequate irrigation facilities - Indian agriculture is still suffering from lack of assured & continuous water supply.

through artificial ~~the~~ irrigation facilities. In 2007-8, only 44.6% of gross crop area has irrigation facilities.

c) Agriculture research in India is still very poor in comparison to its ~~depts~~ requirement.

Remedial Measure to raise agriculture production & productivity -

The following measure should be adopted for raising agri productivity in India -

1) Consolidation of Holdings → consolidation of holding should be done immediately enacting proper legislation, forming co-operatives & cooperative farming society.

2) Proper step should be undertaken to overcome previous flood of agri ~~world~~ of include extensive flood factors. These supplying adequate control method, & insecticides quantity of pesticide.

3) Indian farmer must apply modern technique of cultivation, by utilizing modern implements, applying adequate amount of fertilizer, using HYV seeds, by adopting scientific cultivation of crop & careful crop planning. Moreover agriculture resource should be intensified & (fruits of research should be made available to the Indian farmers.)

4) Economic measures ~~to~~ must be adopted which include the improvement of farm organisation & land management, Provision for adequate credit & marketing facilities, Estb of diff types of agro base industries etc in rural areas, etc. Moreover the govt must introduce minimum price support policy, guarantee minimum price of agri product of the country & implement crop insurance scheme to cover the various risk in agriculture.

5) The quality of farmers should be improved & they should be imparted with general & technical education & Adequate public health measure should also be undertaken in the rural areas.

Subject

Thus the agricultural production in India can be improved with the adoption of aforesaid measure in the agricultural sector in the economy.

Marketable & marketable Surplus -

Marketable Surplus is the total quantity of the commodity available for sale out of the current production after meeting the normal ~~require~~ requirements of the producer for house hold consumption, necessary payment for wages, rent, share of producer etc. In short marketable surplus is the surplus which is left with the farmer for market disposal after meeting the genuine requirement of the family consumption.

On the other hand marketed surplus is that type of surplus which a farmer actually sale, i.e. farmer's production available for purchase to non farm urban population. In other words marketable surplus refers to as gross surplus surplus refers to net surplus from agriculture.

imp about Marketable surplus -

importance -

- 1) Help full for industrialization
- 2) Increase in income
- 3) Increase in foreign exchange earnings
- 4) Growth with stability.
- 5) Capital formation

measures/steps to increase marketed & marketable surplus

- 1) Increase in agriculture output.
- 2) Inducement of consumer less.
- 3) Adequate supply of credit to agricultural farmers
- 4) Forced collection of food crops.

Trends in

Marginal - (0-1) H
Medium - (1-2) H
Large - 10

Agricultural Holdings in India

The average size of holdings is very small in India. It was merely 1.33 hectares in (2000-01) which further fell to 1.23 hectares in (2005-06). 64.8% of operational holdings in (2005-06) were marginal (less than 1 hectare). If small & marginal holdings i.e. holding less than 2 hectares are considered & together as many as 83.3% belong to this category. Thus more than $\frac{4}{5}$ th of operation holding in India were small & marginal in 2005-06 area of area operated under was by them was 40%. As again this 0.8% holding were large (more than 10 hectares), they had 11.1% of area under them.

(Source: Govt of India, agricultural statistic at a glance, 2011.)

Thus there exist extreme inequalities in land ownership in India. Not only are the majority of holdings are very small, they are fragmented into a number of units.

VARIOUS Categories of Agri holdings in India -

Agri Holdings in India are broadly classified into 5 categories, they are -

- 1) Marginal - Less than 1 ha hectare
- 2) Small - (1-2) hectares
- 3) Semi Medium - (2-4) hectares
- 4) Medium - (4-10) hectares
- 5) Large - More than 10 hectares.

Causes of Subdivision & fragmentation of Holdings -

Subdivision refers to division of land among heirs on the death of the owner of the land. With the passing of each generation the land gets subdivided further & further. After some generations only tiny plots are left with ^{descendants} of a large land owners. Thus a person gets one tiny plot at only one place & another leads to fragmentation of holdings.

25
Some of the imp cause of growing subdivision & fragmentation in India are-

- 1) with every increase in population, land gets divided & sub divided among a large no. of people & as a result size of holding goes on diminishing
- 2) growing population coupled with the system of inheritance has been responsible for the small size holdings in the country.
- 3) The decline of joint family system - under the impact of industrialization & growth of towns & also because of western culture promoting individualism, the joint families have broken down. These lead to division & sub-division of holdings.
- 4) The decline of handi-craft & village industry - owing to the competition from machine made goods, the artisans were forced to leave their ancestral occupation & fall back on agriculture. This further increased subdivision & fragmentation.
- 5) Rural indebtedness & indigenous money lenders - The village money lenders, in order to trap the needy village farmers, they encourage the farmers to borrow,

change them high rates of interest & adopt many unfair practices. As the only way of recovery loan is to acquire agri land. ultimately plots of land pass from farmers to the money lenders in lieu of debt payments.

Problems of Subdivision & fragmentation of holdings-

The continuous subdivision & fragmentation of agriculture holdings have been resulting in serious probs —

- 1) The growing subdivision & fragmentation of holdings made the adoption of modernised method in agri operation quite difficult.
- 2) Due to subdivision of holdings a good amount of land (about 3-5%) is being wasted for drawing boundaries & for fences.
- 3) It creates difficulties to the farmers to manage the agri operations smoothly.
- 4) Smaller size of holdings can't provide full time jobs. Thus disguised unemployment started to occur. Thus small & scattered farms are clearly a impediment efficient organisation of agri.

22

As a result the cost of production becomes very high as compared to large farms.

Remedies for Subdivision & fragmentation

1) Creation of economic holdings - one of the important of land reform. To tackle the problem of subdivision & fragmentation economic holdings are to be created.

Creation of economic holding requires:-

a) fixation of ceiling ^{on} land holdings & distribute the surplus land to those farmers having uneconomic holdings.

b) Inducing those farmers having tiny holding to give up their lands & shift them to other occupations.

c) To provide alternative occupation by developing agro based industries in rural areas.

~~d) Consolidation of holding~~

2) Consolidation of holdings - By consolidation we mean the bringing together one compact block of ~~all~~ plots of land ^{owned by} of all farmers, which is scattered all over the village. Consolidation of holding can be achieved achieved by-

a) Pooling all land in the village into a compact block and

b) Then dividing it into compact blocks among all the farmer in the village. Some of the important difficulties in the process of consolidation are:-

- i) The farmers are extremely attached to their ancestral land & therefore are unwilling to give up for the sake of consolidation of holdings.
- ii) Those having better quality lands don't like to combine for the fear that they may get inferior holding after consolidation.
- iii) Consolidation is a cumbersome process. The govt officials who implement the scheme are generally slow & often ever corrupt.

Co-operative Farming

According to some authorities as well as the Indian govt, a permanent solution to the problem of small & scattered holdings is cooperative farming. By the term cooperative farming we mean a kind of farming operation where agricultural practices are conducted by individuals on their own holdings with common agencies on their behalf for the collection & purchase of agricultural inputs & also for the sale of agricultural products.

Features of cooperative farming

- 1) Farmers join the system ^{voluntarily} ~~volenter~~ & not through compulsion.
- 2) Farmers retain their right to land.
- 3) Farmers pool their land, livestock & other complements.
- 4) The entire farm is managed as a single unit & the management is elected by all the members.
- 5) Each & every members are as earn a share of the total produce in accordance to their land contribution & labour performed.

can be achieved by the following measures:-

5) The govt should introduce the credit guarantee scheme so as to provide guarantee on behalf of the farmers for getting loans.

Agricultural Marketing:- The term agri

marketing includes all those activities which are mostly related to the procurement, grading, storing, transporting & ^{selling} of agri produce. Thus agri marketing comprises all operations involved in the movement of farm produce from the producer to ultimate consumer. Thus agri marketing includes the operations like collecting, grading, processing, preserving, transportation, financing etc.

Present status of agri market in India

In India There are 4 diff system of agri marketing prevailing in India

1) Sale in villages - The 1st method open to farmers is to sale away. Their surplus produce to the village money lenders & traders at a very low price. In India more than 50% of agri produce are sold in village market in the absence of organised market.

2) Sale in market - The Indian farmers used to sale their produce in the weekly village markets popularly known as 'hat' or in annual fairs.

3) Sale in Mandis - The 3rd form of agri marketing in India is to sale a surplus produce through mandis in various small & large town.

4) Co-operative marketing - The 4th form of marketing is the co-operative marketing where co-operative marketing societies are formed by farmers to sell the output collectively for obtaining a better class price.

Defects of agri marketing:-

- 1) Lack of storage facility : There is no proper storage or ~~ware~~ warehousing facilities for farmers in villages.
- 2) Distress Sale : Most of indian farmers are very poor & therefore they often had to go for distress sale of their output to village money lenders & traders at a very low price.
- 3) Lack of Transportation : In the absence of proper transport facilities, Indian farmers can't reach the nearby mandies to sell their produce at a fair price.
- 4) Unfavourable mandies :- The condition of the mandies are also not favourable. According to a study made by D. S. Sidha revealed that the share of middle man in case of rice was 31%, in case of veg it was 29.5% & in case of fruits 46.5%.
- 5) Intermediaries :- A large number of intermediaries exist betw cultivator & the customer who claim a good amount of margin & thus reduce the return of the cultivator.

6) Lack of Market Intelligence:- The farmers are unaware of the prevailing prices of their produce prevailing in markets.

7) Lack of Grading:- Indian farmers do not give imp to grading of their produce & therefore they fail to fetch a good price of their quality products.