

# Problems and Prospects of Agriculture A Case Study of Deoghar District (Jharkhand)



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## Abstract

Deoghar district is famous for Jyotirlinga temple of Lord Shiva (Baba Baidyanath Temple), but agriculture occupies a prominent place not only because it supplies food to the people, raw materials to the industries, but also it constitutes an integral part of culture, tradition and the general fabric of the life in the district. The present paper deals with the problems and prospects of agriculture in this district. The main focus of this paper to analyse the problems, such as; small & fragmented land-holdings, seeds, manures & fertilizers, low per cent of irrigation, lack of mechanization, low productivity, degradation of cultivable land, inadequate storage facilities and transport, scarcity of capital, under employment, lack of commercial agriculture, lack of land reforms etc. The problems of widespread poverty, growing inequality, rapid population growth and rising unemployment all find their origins in the stagnation of economic life in rural areas of the district. The paper also focus on the prospects of agriculture, such as; plantation and horticulture, mixed farming, dairy farming, increasing cultivated area, organic farming, increase in agricultural productivity, agricultural mechanization, agricultural tourism etc. So there is need for more synergy between public and private sectors and civil society organizations in decentralized, participatory approaches for sustainable agriculture and rural development of the district.

**Keywords:** Deoghar, Agriculture, Problems, Prospects, Prosperity.

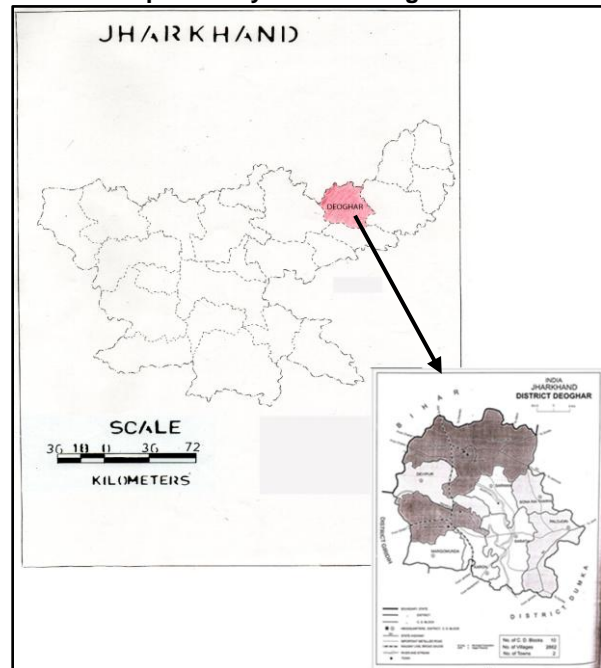
## Introduction

Agriculture is the most important constituent of man's primary occupations and forms the first vital link of human interaction with environment. It can be fairly assessed from the fact that inspite of being heavily encroached upon by growing technological and industrial developments over the years, it still employs about 80 percent of the total labour force of the district. Agriculture and allied sector play an important role for socio-economic development of the district. A large number of rural populations seasonally migrate to big cities for their employment. Therefore, development of this sector will not only improve the agricultural scenario, but also mitigate the migration by providing employment opportunities to large number of population. In Deoghar district, area under agriculture is 44.43% of the total land (108330.53 hac. against total geographical area of 243788.60 hac). Out of total cropped area of 108330.53 hectares, 16184.89 hectares are under irrigation (14.9%). In the absence of assured irrigation network, the cultivation in this region can be characterized as rainfed or monocrop. Out of total operational holdings, 71% are owned by small and marginal farmers and average size of the holding works out to 2.03 hac. The main crops grown in the district are paddy, maize, wheat, pulses, potato and oilseeds. Despite various constraints, the agriculture in the district has marched a long way since Independence especially after the creation of Jharkhand.

**District Agriculture Plan  
District: Deoghar (2014–2015)**

		(In Hec.)
<b>1</b>	Total Geographical Area	243788.60
<b>2</b>	Net Area Under Cultivation	108330.53
<b>3</b>	Topography of Cultivation Land	
	1. Up Land	24107.77
	2. Mid Land	58162.31
	3. Low Land	26060.45
<b>4</b>	Gross Cultivated Area	128841.00
<b>5</b>	Uncultivated Waste Land (Fallow Land)	38711.24
<b>6</b>	Cultivated Waste Land	23697.32
<b>7</b>	Gochar Land (Pasture)	10462.95
<b>8</b>	Forest Land	20283.76
<b>9</b>	Road, Building, River, Hills etc.	42302.80
<b>10</b>	Season wise Cultivable Land	
	1. Kharif	96050.00
	2. Rabi	29971.00
	3. Zaid	2820.00
<b>11</b>	Area Under Main Crops	
	1. Paddy	77290.00
	2. Maize	7000.00
	3. Pulses	9775.00
	4. Oil Seed	830.00
	5. Wheat	3826.00
	6. Potato	2804.00
	7. Vegetable	1323.00
	8. Others	5477.00
<b>12</b>	Irrigation Available in Deoghar District	
	1. Canals	109.34
	2. Well	2562.13
	3. Tube Well	521.81
	4. Tank	5030.35
	5. Rivers	3323.43
	6. Others	4637.33
<b>13</b>	Operational Holding in % Hectares	
	1. No. of Holding	191.62
	2. Marginal	91.24
	3. Small and Mid	44.88
	4. Large	55.00
	5. Average Holding Size (Ha)	2.03
<b>14</b>	Season wise Consumption of fertilizers (in Tonnes)	
	1. Kharif	57076.00
	2. Rabi	40608.00
<b>15</b>	Cropped area in Hectare	
	1. Single cropped	96050.00
	2. Double cropped	29971.00
	3. Tripple cropped	2820.00

**Location Map of Study Area of Deoghar District**



**The Study Area**

Deoghar district is located in the north eastern part of Jharkhand. Deoghar town is the administrative headquarter of this district. This district is known for the Baidyanathdham Jyotirlinga shrine. The district is part of Santhal Pargana Commissionary. The district extends from 24°02'N to 24°36'N latitude and 86°27'E to 87°04' E longitude. The study area are bounded by Banka and Jumai district (Bihar) in north, Dumka in east, Jamtara in south and Giridih in west. The Deoghar district covers an area of 2478.61 sq. km. It has population of 14, 91,879 persons (census-2011). Administratively the study area is divided into ten community development (C.D.) blocks viz, Madhupur, Sarath, Margomunda, Karon, Sarwan, Sonarathadi, Deoghar, Mohanpur, Devipur and Palojori and two important towns viz. Baidyanathdham and Madhupur.

**Objectives**

The objectives of the present study are as follows:

1. To identify the problems and prospects of agriculture in the district.
2. To restore efficiency for meet the growing consumption needs of agricultural products.
3. To assess the deficient areas and to formulate policy to increase the agricultural production.
4. To study the suitable mechanism for scientific management, conservation and development of agricultural resources.

**Significance of the Study**

The significance of this research paper is to study the problems and prospects of agriculture in Deoghar district. There is huge potential of agricultural development in the district. But it has faces many problems. About 80 percent of working populations are engaged in agriculture sectors either as cultivators or as agricultural labourers. Agriculture in the region is backward in comparison with Punjab and Haryana. In spite of hard work the people of the district are still

lack far behind good income from the agricultural activities. No comprehensive work in this regard has yet been initiated. So the needs and attention of appropriate plan for improvement of agricultural production in the district.

#### **Sources of Data**

The database used in the present study has been collected from primary as well as secondary sources. The required information of the problems and prospects of agriculture in the district has been obtained through questionnaire, scheduled survey by authors from many parts of the district. The district level data have been collected from District Agriculture Office, Deoghar, Krishi Vigyan Kendra Sujani, Deoghar, Agricultural Technology Management Agency (ATMA), Deoghar, District Statistics Office, Deoghar etc.

#### **Methodology**

The selections of suitable indicators have been used for finding the problems and prospects of agriculture. The paper is prepared on descriptive and analytical research study. The studies on the problems and prospects of agriculture is conducted in three stages namely- 1) pre-field stage 2) field stage and 3) post-field stage.

1. The pre-field stage involved collection, reviewing and assessment of information relevant to the area and visual interpretation.
2. The second stage involved field work, undertaken for investigation.
3. The post field stage involved analysis of the problems and prospects of agriculture.

#### **Problems of Agriculture in the District**

Although agriculture plays a pivotal role in the district's economy it is backward and traditional when compared with Punjab and Haryana state. Agricultural productivity is low and the economic condition of the farmers is poor. The investment in agricultural sector is lower than industrial and commercial sectors and the pace of modernisation is very slow. Following is brief mentions of some of the problems which are retarding the development of agriculture in the district are as follows:

1. Small & fragmented land-holdings
2. Seeds
3. Manures & Fertilizers
4. Low percentage of irrigation
5. Lack of mechanization
6. Low productivity
7. Soil erosion
8. Agricultural marketing
9. Inadequate storage facilities
10. Inadequate transport
11. Scarcity of capital
12. Under employment
13. Lack of commercial agriculture
14. Lack of land reforms

#### **(i) Small & Fragmented Land-Holdings**

The problem of small & fragmented land holdings are more serious problem in different block of Deoghar district. In some regions the average size of holdings are even 0.5 hectare in size. Here, there is a wide gap between small farmers, medium farmers & large farmers (land lords). Sub-division & fragmentation of the holdings is one of the main

causes of low agricultural productivity in the district. A lot of time & labour is wasted in carrying seeds, manure, implements & cattle from one piece of land to the other. Irrigation also becomes difficult on such small & fragmented lands.

#### **(ii) Seeds**

Seed is a critical & basic input for attaining higher crop yields & sustained growth in agricultural production. Unfortunately good qualities of seeds are out of reach of the majority of farmers, especially small & marginal farmers mainly because of high prices of better seeds. High yielding variety programme (HYVP) was launched in 1966-67 as a major thrust plan to increase the production of food grains is untouched from them in this district. In recent years the government of Jharkhand is providing HYV seeds at block level also.

#### **(iii) Manures & Fertilizers**

Red soil is found in the major part of the Deoghar district. This soil is not very suitable for food grains. So manures & fertilizers are needed for the good crop. The total consumption of fertilizers in the district is 97684 tonnes in a year. Reduction in the supply of fire wood & increasing demand for fuel in the rural areas due to increase in population has further complicated the problem. Chemical fertilizers are costly & are often beyond the reach of the poor farmers. The fertilizer problem is, therefore, both acute & complex.

#### **(iv) Low Percentage of Irrigation (Dependence on Erratic Monsoon)**

Although India is the second largest irrigated country in the world after China. But the percentage of irrigated land in Deoghar district is very poor (only 14.9%). Still most part of the agricultural land in this district is depends upon south west monsoon which is not reliable. The district cannot achieve sustained progress in agriculture unless & until more than 50% of the cropped area is brought under assured irrigation

#### **(v) Limited Use of Modern and Efficient Machineries (Lack of Mechanization)**

The use of pump-sets for irrigating lands, sprayers for spraying pesticides, weeder, iron-plough, power tillers and tractors are characterized as elements of the improved system of agriculture. Although the use of small machinery has brought efficiency in lifting water and spraying pesticides, the whole system of agriculture of this district has not been mechanized. The district is lacking the change of labour oriented traditional system of agriculture with those of modern machineries. In spite of the large scale mechanization of agriculture in this district, most of the agricultural operations are still done by manually using simple & conventional tools & implements like wooden plough sickle etc. It results in huge wastage of human labour and low yields per capita labour force.

#### **(vi) Low Productivity**

Yields of almost all the crops in this district are very low as compared to agricultural developed states such as Punjab & Haryana. Yields per hectare of major crops like rice, wheat, gram in this district is much lower than that of developed states. High pressure of population in agriculture results in low

labour productivity.

**(vii) Soil Erosion (Degradation of Cultivable Land)**

Large tracts of fertile land suffer from soil erosion by running water or river especially in rainy season due to sloppy land. Water erosion is more serious & occurs extensively in different parts of the district. It takes place mainly in the form of sheet erosion & rill erosion. Besides this indiscriminate felling of trees, careless overgrazing of pasture lands, unscientific drainage operations & improper land use are other some of the important causes which upset the balance between soil erosion & soil formation.

**(viii) Agricultural Marketing**

Agricultural marketing still continues to be in a bad shape in the district of Deoghar. In the absence of sound marketing facilities, the farmers have to depend upon local traders & middlemen for the disposal of their farm produce which is sold at throw-away price. In most of the villages of this district, the farmers sell their produce to the money lender from whom they usually borrow money.

**(ix) Inadequate Storage Facilities**

Storage facilities in the rural areas are either totally absent or grossly inadequate. Under such conditions the farmers are compelled to sell their produce immediately after the harvest at the prevailing market prices which are bound to be low.

**(x) Inadequate Transport**

One of the main handicaps with agriculture is the lack of cheap & efficient means of transportation. Even at present there are hundreds of villages in this district are not well connected with main road or with market centres. Most roads in the rural areas are Kutcha (bullock-cart roads) & become useless in the rainy season. Under these circumstances the farmers cannot carry their produce to the main market & are forced to sell it in the local market at low price. 15% of the agricultural produce is lost between the farm gate and the consumer because of poor roads and inappropriate storage facilities alone, adversely influencing the income of farmers.

**(xi) Scarcity of Capital**

Agriculture is an important industry & like all other industries it also requires capital. The role of capital input is becoming more & more important with the advancement of farm technology. In this district also, the main suppliers of money to the farmers are the money-lenders, traders & commission agents who charge high rate of interest & purchase the agricultural produce at very low price.

**(xii) Under-Employment**

In Deoghar district, most of the agricultural land is still depends upon of monsoon rainfall, so it is a seasonal process which provides employment only for a brief period & seasonal unemployment prevails for 4 to 8 months in a year. People get employment mainly at the time of sowing & harvesting.

**(xiii) Lack of Commercial Agriculture**

A large part of agriculture in this district is still of subsistence type in which the farmers do not have enough land and are unable to produce more than their own requirement. Food grains produced by small and marginal farmers are just sufficient to meet the requirements of the family members of the farmers and there is no surplus for sale.

**(xiv) Lack of Land Reforms**

The farmers of this district had been exploited for a long time as there had been unequal distribution of land. Among the three revenue systems operational during British period i.e. Mahalwari, Ryotwari, & Zamindari, the last one was most exploitative for the farmers (Khullar, 2006, Page no-554 to 560).

**Prospects of Agriculture in the District**

The conditions for development of sustainable agriculture are becoming more and more favourable in the district. By adopting recent technological advancement in agriculture, farmers can trigger greater opportunities for rural employment and economic upliftment. Following are the major prospects in agriculture which is given below:-

**(i) Plantation and Horticulture**

The agro-climatic condition of the district is warm climate with moderate to high rainfall is favourable for cultivation of fruits like mango, guava, jackfruit, citrus, litchi etc; vegetables like potato, onion, cucumber, tomato, brinjal, cabbage etc; and flowers like marigold and rose etc. Horticulture may play a significant role in improving the livelihood of the rural population. Being labour intensive, it generates a lot of direct and indirect employment opportunities. According to estimates, more than 40,000 hectares of unused land in the district which can be brought under cultivation. This move, if implemented will help the district in a big way to tackle the nutritional crisis. Horticultural products are rich source of vitamins, proteins, carbohydrates and minerals. At present in the district, the production of different horticultural crops is estimated at 16,230 MT of fruit crops and 30,195 MT of vegetables. However, taking into account the impact of additional irrigation over the coming years, improvement in extension services and other infrastructure developments, the potential of production could be doubled. Seven nurseries at block level are established under the administrative control of District Horticulture Officer, of which, four are functioning. There are 20 private nurseries in the district. Marketing is generally done by grower themselves. There is one private Agro processing unit in the district. District Horticulture department has promoted floriculture in 50 acre of land covering 20 acre in devipur block (Khirwatari village) and 30 acre in sarwan block (Sirsa and Birajpur village). The unit cost is Rs. 1.20 lakh out of which 50 % is subsidy, 20% is farmers contribution and 30% is Bank loan. The department has also promoted 20 units of integrated farming with a cost of Rs. 1 lakh per unit out of which 90% is subsidy and 10% is beneficiary contributions. To promote floriculture in the district one hi-tech progeny nursery is being developed by District Horticulture Department at Palojori block under the supervision of Florence and Flora company; Bangalore. The dept. has planted Jatropha in 20 acre wasteland in mohanpur block of Deoghar district during 2007-08 to bring waste land under plantation and horticulture. National Horticulture Mission (NHM) is being implemented in the district from 2006. The aim of NHM is to increase the horticulture production. The targets for Deoghar district under NHM for the year 2014-15 are as under Fruit plants 2400 hac. Non

perennial fruits 100 hac. Floriculture 190 hac Hi-tech green house 50 hac. Spices cultivation 500 hac. There is need to strengthen the extension services and launch vigorous awareness programme from time to time by the Department of Horticulture. Adequate quantity of quality planting materials at reasonable cost should be available to the farmers. Marketing and post harvesting infrastructure needs to be strengthened.

#### **(ii) Dairy Farming**

The rearing of the cattle for milk and milk products (butter, cheese, condensed and dried milk, etc.) is known as dairy farming. Dairy is emerging as an important avenue for income generation and employment opportunity in rural areas in the district. Agro-climatic condition of the district is suitable to support cross breed animals. Also, the vast majority of the rural population in the district being small and marginal farmers or landless labourers. They generally practice subsistence agriculture. Animal husbandry done in scientific way could substantially add to economic activity of the area. In Deoghar district, rural milk trade practices are well established through private system for indigenous milk products such as khoa, chhena, Dahi and ghee for marketing. As per livestock census 2003, the milk cattle population in district is 4.50 lakh, comprising of 3.96 lakh cattle and 0.54 lakh buffalo (Dairy Animals (i) Cows: 212987 (ii) Buffaloes: 52592). Cross breed cattle formed less than 2% of the cattle population. In the district, livestock rearing is mainly taken as a household activity, being managed by family members particularly women members. Development programmes need to keep it in view while addressing the emerging issues relating to this sector. In traditional; peda making areas such as Ghomara village, Baidyanathdham town, there is demand of milk and dairy farming on clusters need to be promoted. There area milk chilling plant operating in the district with an installed capacity of 10000 litres per day. The plant produces other dairy products, viz, curd, lassi, etc. as per the demand during the season. The total installed capacity remains unutilized on account of short procurement of milk in lean season.

#### **(iii) Organic Farming**

Organic farming is one of the methods, which advocate the use of better agricultural practices. Organic agricultural practices preserve the environment and biodiversity. It has emerged as the only answer to bring sustainability in agriculture which is good for the environment and also good for the human beings. Many farmers in the district have the potential to cultivate organic farming. At present most of the farmers cultivate subsistence farming in remote and marginal areas. The farmers should be covered by a specific programme concentrating in organic agriculture to help them self-sufficient on a sustainable basis. With full government support to promoting organic farming and assistance to help; it is estimated that about 25% of the farmers would change from traditional agriculture to organic agriculture within 5 years. Such practices will help in reducing the cost of production in agriculture. In the long run, such practices will give a sustainable growth to agricultural production of the area.

#### **(iv) Link to Markets**

Markets play an important role in maintaining the incentive for the diffusion of agriculture innovation. Many smallholder farmers still have very weak links with markets for their agricultural products. The 'Byaparis', 'Kunjara' and other 'Brokers' are the usual purchasers of agricultural products. They usually collect the produce from villages and 'Hats' and bring it to the whole sale markets at local or distant towns such as; Deoghar, Madhupur, Giridih, Asansol, etc. The present system of marketing is unable to provide incentive to the cultivators for their productions. Under the present system, the cultivators have to sell their perishable products, on a very low price, at the time of surplus production. In the district, a number of vegetables in different seasons are produced, but at local markets, the cultivators sometimes are unable to get even the cost of production. The price fluctuations also hamper the diffusion of agricultural innovations. Maintenance of price level is the primary requirement of this district, particularly the crops which are grown for market sale. The opening of co-operative marketing system is able to develop easy and efficient transportation of the commodities at the places of consumption and thereby it is able to maintain the prices. In actual condition, a very large part of the profit goes in the hands of the 'Brokers' and 'Byaparis'. The opening of cold-storage, food-grain godowns, and other channels for marketing may be able to good incentive for the cultivators for the diffusion of agricultural innovations.

#### **(v) Increase in Agricultural Productivity**

The study reveals that the variation in agricultural productivity at village level in the district has been observed. Levels of agricultural productivity have increased during the last 25 years. All the villages show positive growth in respect of agricultural productivity. The rate of growth could be much higher among all the villages, if the increase in net irrigated areas, soil fertility and use of chemical fertilizers as well as availability of high yielding variety of seeds be used. It means after the implementation of these inputs, farmers of the district could be obtained more agricultural productivity. Still the villages of the district are very far from the villages of Punjab and Haryana state in terms of agricultural productivity. Thus the main concerns of the planners should be increase the productivity. "Irrigation efficiency in agriculture can be improved by adoption of modern methods of irrigation to achieve the goal of more crops per drop of water"

#### **(vi) Agricultural Mechanization**

The use of appropriate machinery helps in reducing drudgery. The districts are huge potential of farm mechanization. Farm Mechanization is important as it leads to increased production and productivity, better utilization of irrigation potential, adoption of multiple cropping etc. Use of post harvest machinery helps in value addition and also creates employment opportunities. Apart from power operated farm implements, there is a wide range of smaller implements operated using animal and manpower. These are mainly used in small farm holdings, which form the major component in the district. The increasing costs of maintenance of bullock cart have

also lead to increased demand for custom hiring of tractors/power tillers even from small farmers. Tractors are utilized for various farm practices like ploughing, cultivating, spraying, leveling, harvesting etc. Also they are used for transportation of goods from field to storage yards/godowns or to the processing sites.

#### (vii) Agricultural Tourism

Agricultural tourism is the concept of visiting a working farm or any agricultural, horticultural or agribusiness operations for the purpose of enjoyment, education or active involvement in the activities of the farm or operation. It could be described as Agricultural Environments+Farm Commodities + Tourism Services = Agri tourism. Agricultural tourism is one of the alternative for improving the incomes and potential economic viability of small farmers and rural communities. Deoghar is an agricultural based district and most of its people live in villages. They are generally cut off from the cities and have a different kind of life. The villagers live healthy and peaceful life. Establishment of Agri tourism unit will promote livelihood security through improving the diversity and security of resources, skills and technologies that are available to agricultural communities. Hence the opportunities in this sector can boost the rural economy.

#### Findings and Conclusions

The findings reveal that the government is trying hard with holistic policies to help the farmers who are the most vulnerable group of the society. It cannot be denied that there are problems that need to be addressed quickly and firmly to explore the full potential of agriculture and allied sectors. Features like dependence of a large number of farmers on rains and small farm holdings, make it difficult to bring about fast transformation of agriculture. The only way to tackle them is to adopt focused strategies, and the government has already started with several concrete initiatives. These strategies have been rigorously tested in the last few years and they have succeeded in achieving a fast growth, better prices to farmers, adequate availability of food grains and reasonable stable food prices. So it is most important aspect that in order to improve agricultural productivity and farmers' condition in the district; solid and farmer friendly schemes have been developed in the recent years.

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Photo 1 : Mango Orchard



Photo 2 : Modi Dairy, Jasidih



Photo 3 : Well being Constructed under MNREGA



Photo 4 : Pond, Sonarai Thadi



Photo 7 : Ajay Barage



Photo 5 : Maize Field



Photo 8 : Paddy Field



Photo 6 : Bullock Cart in Village Road