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Levels of Agricultural Development in Chhattisgarh

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Abstract - Chhattisgarh, which became India's 26th state on November 1, 2000, is geographically located between 17°46' to 24°5' north latitude and 80°15' to 84°20' east longitude. The state receives an average annual rainfall of about 1207 mm and has a total geographical area of approximately 138 lakh hectares, of which around 46.51 lakh hectares, or 34%, is under crop production. The state's terrain predominantly consists of medium to light land, covering about 57% of its area. Chhattisgarh is also recognized for its rich biodiversity, with about 63.40 lakh hectares, or 46% of the state's total area, under forest cover.

The state's population is around 2.55 crore, with approximately 70% engaged in agriculture. There are about 37.46 lakh farming families in Chhattisgarh, and nearly 80% of them belong to the small and marginal farmer categories. The primary crops during the Kharif season include paddy, soybean, urad, and arhar, while gram and tivda dominate the Rabi season. Additionally, some districts in the state are conducive to sugarcane cultivation, and currently, four cooperative sugar mills are operating successfully. Other crops include maize, small grains, moong, wheat, and groundnut, with the central plains of Chhattisgarh often referred to as the "rice bowl of Central India."
Keywords : Cultivation , groundnut and engaged.

Introduction - Chhattisgarh's government is working under a joint plan to increase the area of bi-cropping, diversify cropping systems, and enhance income through agro-based small-scale industries. To fully utilize the potential of the agricultural sector, the state government is focusing on better water resource management to reduce farmers' reliance on rainfall. Efforts are underway to expand irrigation facilities, with the state currently having a net irrigated area of about 14.76 lakh hectares, accounting for around 32% of the net production area.

Chhattisgarh is divided into three agro-climatic zones, each with distinct characteristics regarding area, soil, irrigation, and cropping systems. The state government's efforts to promote agricultural development and improve farmers' economic conditions have been recognized nationally, with Chhattisgarh receiving the "Krishi Karman" award multiple times. These awards, given for achievements in paddy and pulses production and overall food grain output, highlight the state's commitment to agricultural excellence.

Literature of review: Adelman and Morris (2006) analysed 25 social and political indicators across 74 developing countries to assess socio-economic conditions. Drewnowski (1974) further expanded this by evaluating indicators such as nutrition, clothing, housing, health, education, recreation, security, and the social and natural environment. Morris and McAlpin (1982) employed the Physical Quality of Life Index, focusing on infant mortality, life expectancy, and adult literacy. Krishnamurthy and Dhruvasan (2007) emphasized the critical role of selecting appropriate indicators for measuring socio-economic development in India. Schwartzberg (1961) utilized six groups of indicators to gauge regional development in India, while Kundu and Raza (1982) examined 109 indicators related to agriculture, rural and urban economic bases, economic infrastructure, and social facilities. Sundaram (1982) used a slightly broader set, consisting of 104 indicators.

Singh and Dubey (2007) analyzed demographic development in Uttar Pradesh, which provided valuable insights into developing economies. Smith's (1977, 1982, 1973) work in human geography and social well-being was also significant, as was Sopher's (1980) research on gender disparities in Indian literacy. Srivastava (1982) applied a taxonomic method to measure development levels across Uttar Pradesh's districts, and Sundaram (1982) focused on regional and local-level development analysis. Tiwari (1985, 1977) contributed to understanding inter-state and district-level disparities in development in Uttar Pradesh, and Tripathi and Tiwari (1993) addressed regional disparities in development across India. Uday Shankar (1982) delved into inter-state disparities in industrial development.

Internationally, the United Nations (2008) provided key definitions and measurements of living standards, while the UN Development Plan expanded this to human

development. Verma (2009, 1992) contributed to understanding population patterns and regional disparities. Williams (1965) and Wood (1977) offered geographical perspectives on regional disparities in India's development. Jacobs (1982) developed a comprehensive set of 118 indicators, grouped into categories like nutrition, clothing, housing, education, and health, to assess physical development. Srivastava (1982) utilized 32 indicators for Uttar Pradesh, while Dubey (1992) used 60 indicators to measure agricultural, industrial, and social infrastructure development.

Rai (2008) measured human development in West Bengal's Purulia district using health, education, and living standard indices, akin to the UN's Human Development Index (HDI). Forman's work on the social sciences and development issues, along with Gosal and Krishan's (1984) research on socio-economic disparities in Punjab, provided further regional insights. Mishra (1983) focused on local-level planning and development, while Dalton (1972) explored economic anthropology in traditional and modernizing communities. Singh (1992) discussed the foundations of geographical thinking, and Singh (1985) examined rural development concepts. Eisenstadt (1961, 1966) provided a social perspective on political and economic development, while Kim (1973) offered a structural perspective on development. David (1978) and Everest (1962) provided foundational insights into policy analysis and social change, respectively. Raman and Sharma (1979) studied block-level disparities in Telangana, contributing to the understanding of regional development.

Research on economic growth and fairness by Adelman and Morris, Amin (2009) on unequal development, and Anuradha and Rao's (2010) analysis of inter-state disparities in India added to the discourse on socio-economic inequalities. Bhagat (2007) explored access to basic amenities in urban India and its implications for health and well-being. Bhatut (1982) and Bose (1988) focused on geographical perspectives and population issues. Browett (1981) addressed geography's role in development, while Kantwala and Rao (1992) examined regional development and inter-state analysis in India. Bhuiyan and Banerjee (1991) focused on disparities in education levels in Bangladesh, and Nair (1983) provided insights into regional experiences in developing economies. Krishna and Mahajan (1993) studied inter-state disparities within Indian states, while Singh (1985) analyzed variations in income growth rates across Indian states.

Rao (1985) discussed inter-state development disparities, and Tiwari (1985) examined inter-state disparities in development levels. Sampat (1977) focused on income inequalities in India from 1951 to 1971, and Dholakia (1985) analyzed regional disparities in economic growth. Mathur (1978) provided an analysis of regional disparities and Indian policy planning, while Nair (1979) explored income disparities across Indian states. Suri (1982) discussed widening disparities both inter- and intra-state, and Rao (1979) presented a method for measuring economic distances between Indian regions. Nath (1980) contributed to understanding regional development in Indian planning, while Prakash and Rajan (1979) focused on rural development disparities in Madhya Pradesh.

Objectives of the study– This present study has certain research objective. The are-

1. To study the Agricultural pattern of the study area.
2. To analysed the level of agricultural development of the study area .

Research Methodology: This study based on secondary data.The secondary data is collected from the secondary sources mainly form District rural development agency, official record, economic and political weekly and other sources.

Disscussion

Classification Of Crops

i. Kharif Crops: Kharif crops dominate the agricultural landscape of Chhattisgarh, with major crops including paddy, jowar, bajra, moong, urad, maize, sesame, groundnut, tobacco, jute, and sugarcane. In 2007, out of the total crop area of 5,706,605 hectares, 80.41% was devoted to Kharif crops. Dantewada district had the highest proportion of land under Kharif crops, at 97.31%.

ii. Rabi Crops: Rabi crops are sown at the beginning of the winter season and are harvested between February and May. These crops typically require irrigation. The main Rabi crops in Chhattisgarh include wheat, barley, gram, mustard, pigeon pea, peas, and lentils. In 2007, Rabi crops accounted for 19.59% of the total cultivated area in the state. The district with the highest ratio of land under Rabi crops was Durg, with 37.87%, while Dantewada had the lowest at 2.69%.

A. Food Crops:

i. Cereal Crops: These include staple crops like paddy, wheat, grass, and oats.

ii. Coarse Grains: Maize, jowar, and millet are the main coarse grains.

iii. Small Grains: Crops like Kodo-Kutki and Sawa are categorized under small grains.

iv. Pulse Crops: These include gram, pigeon pea, tur, moong, lentils, urad, peas, soybean, cowpea, and horse gram.

B.Non-Food Crops: This category includes crops such as sesame, linseed, ramtil, safflower, mustard, groundnut, jute, and cotton.

Major Crops Of Chhattisgarh

Paddy: Paddy is the primary crop of Chhattisgarh, occupying the largest area and accounting for the highest production among all crops. It is primarily grown as a Kharif crop, covering 93.02% of the total cropped area. In 2006-07, paddy was cultivated on 990,406 hectares, contributing to 80% of the total Kharif crop area and 83% of the total food grain production area. The state produced about 5.15

million tonnes of paddy in 2006-07. Chhattisgarh is home to over 20,000 varieties of paddy, including popular varieties like Swarna, Mahamaya, IR8, Bambaleshwari, Danteshwari, Purnima, and Jawphool. Due to its extensive paddy cultivation, the state is often referred to as the "Rice Bowl" of India.

To boost paddy production, the state implements the Integrated Grain Development Program (Paddy) across all 16 districts, with 75% of the funding coming from the central government and 25% from the state. The program includes initiatives such as crop demonstrations, farmer training, distribution of certified seeds, and subsidies on advanced agricultural equipment.

The districts with the largest areas under paddy cultivation are Raipur (513,100 hectares), Durg (435,300 hectares), Bilaspur (314,100 hectares), Surguja (309,300 hectares), Bastar (258,300 hectares), and Janjgir (254,700 hectares). Janjgir has the highest average paddy yield in the state, with 1,124 kg per hectare.

Wheat: Wheat is a Rabi crop and the second most important cereal in Chhattisgarh. It is cultivated on 6,775 hectares of land, accounting for 0.54% of the state's total cultivated area. The district with the largest area under wheat cultivation is Surguja, with 17,446 hectares, while Dantewada has the smallest area, with only 29 hectares. Wheat production is concentrated in districts like Raipur (16,700 tonnes), Durg (14,400 tonnes), Rajnandgaon (15,700 tonnes), and Bilaspur (16,000 tonnes). Popular wheat varieties in Chhattisgarh include Sharavati, Vilasa 5005, Arpa 503, and Ratan 5010.

Maize: Maize is the third major food grain crop in Chhattisgarh, following paddy and wheat. It is classified under coarse grains and is primarily grown as a Kharif crop. Maize is cultivated on approximately 3,241 hectares, accounting for 0.30% of the state's total land area. The largest area under maize cultivation is in Kanker district, with 2,123 hectares. Other districts where maize is grown include Bastar, Dantewada, Rajnandgaon, Bilaspur, Surguja, Korea, Dhamtari, and Jashpur.

Other Coarse Grains: In addition to maize, Chhattisgarh also grows other coarse grains such as jowar, bajra, and Kodo-Kutki. These crops are cultivated on approximately 109,000 hectares, primarily in districts like Surguja, Bastar, Dantewada, Korea, and Jashpur.

Pulse Crops: Pulses are a vital source of protein and play a significant role in nitrogen fixation in the soil. Pulse crops are grown on 2.80% of the total cultivable land in Chhattisgarh. The crop with the largest area under pulse cultivation is gram, with 21,070 hectares, accounting for 1.99% of the total cropped area. Pulse crops are widely grown in Chhattisgarh due to their adaptability to a variety of geographical conditions and have an important place in the state's agricultural landscape.

Growth Of Agriculture's Role: Chhattisgarh's economy and its development across various sectors form the foundation for generating financial resources, which the state government can then mobilize and allocate towards socio-economic development. Given the critical role of the state's economy, it's essential to periodically review its performance, identify growth opportunities, and address constraints that hinder progress. The State Finance Commission is responsible for recommending financial devolution from the state government to local bodies, taking into account the state's economic performance and potential growth areas. This review helps prioritize development initiatives for the state.

Agricultural growth is vital for the overall economic development of Chhattisgarh. Despite some areas experiencing progress, agriculture in the state remains relatively underdeveloped. A significant portion of the workforce, about 80%, relies on agriculture for their livelihood. The total cultivable area constitutes 35.5% of the state's geographical area, with paddy being the predominant crop, covering 80% of the total cropped area. However, only 21% of the state's agricultural land has access to assured irrigation, leaving the majority dependent on monsoon rains.

Agriculture in Chhattisgarh is characterized by instability in growth rates, largely due to weather-induced fluctuations. The Green Revolution, which began in the mid-1960s, largely bypassed the Chhattisgarh region. As a result, the state's cropping intensity remains low at 121, compared to 135 in Madhya Pradesh and the national average of 133. Only 14% of the state's cultivated area is double-cropped, which is lower than Madhya Pradesh's 21% and the national average of 25%.

The use of chemical fertilizers in Chhattisgarh is also limited, at 40 kg per hectare, compared to 48 kg in Madhya Pradesh and 90 kg nationally. The adoption of modern agricultural inputs is primarily limited to large farmers in irrigated areas, and even then, fertilizer use is not balanced.

Paddy, the state's main crop, is vulnerable to fluctuations in rainfall, which can significantly impact productivity and output. Despite its economic inefficiency, paddy is cultivated on 25-30% of the state's total area. The cropping pattern in Chhattisgarh is not optimal, and there is a need to diversify into crops such as pulses, oilseeds, sugarcane, cotton, spices, horticultural crops, and medicinal plants.

The agricultural sector in Chhattisgarh has seen a decline in capital investment since 1980-81, as evidenced by the decreasing rate of investment in the state. The average landholding size is 1.8 hectares, compared to 2.5 hectares in Madhya Pradesh. Nearly 90% of farmers in the state are small and marginal, struggling with low rice production. The rural economy in Chhattisgarh retains a feudal character, with a significant portion of farming done on a crop-sharing basis. Contract farming is on the rise, with private agri-business companies increasingly engaging smallholders. Migration of landless laborers and marginal

farmers is common, particularly during droughts.

Despite the adoption of high-yielding varieties (HYV) and improved agricultural techniques, rice productivity per hectare has not seen a substantial increase. The Food Insecurity Atlas of India, prepared by the UN World Food Programme, has identified Chhattisgarh as one of the food-insecure states, along with Jharkhand, Gujarat, and Orissa. Historically known as the "Rice Bowl" of India, Chhattisgarh's focus on modern HYV varieties has led to the neglect of indigenous rice diversity, which often performs better under adverse conditions.

The absence of an organized marketing network in Chhattisgarh further exacerbates the challenges faced by farmers. Middlemen take a significant share of profits, and cultivators often do not receive fair prices for their produce. To address these issues, the state needs to develop a cooperative marketing system and implement regulatory measures to curb malpractices in agricultural markets.

To improve the agricultural sector, Chhattisgarh needs to diversify its cropping pattern, expand irrigation facilities, and launch a vigorous drive towards watershed development. It is also crucial to select crop varieties more strategically, provide greater support to small and marginal farmers, and implement employment programs for landless laborers. Additionally, there should be a focus on enhancing the quality of agricultural extension services, adding value to agricultural products, and increasing public investment in rural infrastructure.

The state also needs to create an organized marketing system, increase the flow of institutional credit, extend marketing and warehousing facilities, and strengthen decentralized planning. Integrating agricultural development programs with employment generation and poverty reduction initiatives, in a decentralized manner, will be essential for the holistic development of the state's agricultural sector.

Land Use Pattern Of Chhattisgarh State : The total geographical area of the state is approximately 13,790 thousand hectares. The largest portion of this land is covered by forests, accounting for 45.95%, followed by the net sown area at 34.06%. Other categories include land not available for cultivation (7.39%), other cultivated land excluding wasteland (2.57%), current fallow land (1.83%), and land other than current fallow (1.99%). Permanent pastures and grazing lands cover 6.20%, while miscellaneous tree crops and groves make up a mere 0.01%. The area sown more than once accounts for 7.07%, and land under culturable fallow and unculturable uses stands at 8.78%.

Between 2000-01 and 2010-11, the gross cropped area increased by 41.13%. The most significant changes were seen in current fallow land, which grew by 15.06%, followed by gross cropped area (6.48%), land not available for cultivation (0.59%), forest area (0.52%), and permanent pastures and grazing land (0.23%). Conversely, land under miscellaneous tree crops and cultivable wasteland decreased dramatically by 99.70%, while land under current fallow declined by 9.64%, and the net sown area shrank by 1.39%. The cropping intensity in Chhattisgarh increased by 9% in 2010-11, mainly due to the 72.87% rise in double-cropped areas.

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