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# " POPULATION GROWTH AND AGRICULTURAL DEVELOPMENT:A GEOGRAPHICAL ANALYSIS OF EAST CHAMPARAN, BIHAR"

*DR. ARUN KUMAR SHARMA*
*PGT(Geo, D.A.V. Public school)*
*Maharajganj, SIWAN*

The human resources play a very significant role in the economic development of a nation. As population is an asset for a country while it has qualitative growth rather than quantitative growth. Population refers to a number of person residing in a particular reason within stipulated period of time. Population has many dimensions like density, distribution, settlements, growth, sex-ratio, age composition, literacy, health, migration, etc. Growing population is a major challenge and combat for the development of a country. Increasing necessities can be fulfilled only by dint of agricultural development. India is a populous nation where agriculture is the back bone of national economy which would be greatly affected by growing population. As The Earth is increasing population by 90 million per year and get we till we have 5.9 billion people left to feed and to give shelter (Mitchel, 1998). Along with the increase in the population, there are also more people on earth who are living longer lives. The global population boom has coincided with the improvement of health, and of productivity, around the world. On average, the population today lives longer, eats bitter, produces more and consumes more than of any other time period in past (Ederstadt - 1995). Agriculture feeds people, but will it be able to feed the expanding global population, especially with its exponential increase.

**Location of study area:**

As Champaran the land of Satyagraha movement, derived from Champakaranya, the land of Champa tree as mentioned in the vedic period Hindu Epics. The district came into existence in 1866 during the British period however it splits into West Champaran & East Champaran in 1972after independence. The present rest in the north western part of Bihar having the extension between $26^0 16'$ N to $27^0 02'$ N latitude and $84^0 30'$ E to $85^0 16'$ E longitude. All the study areas fall mainly in the Gandak basin which is an agricultural zone of the middle Ganga plain. It covers the area of 3968.1 sq. Km. with 4.2% area of Bihar and population50,82,868 with 4.9% and density 1,281 person/Sq.Km. with literacy 58.26% as per 2011 census of Bihar. It constitutes 6 subdivision and 27 administrative block with Motihari, the district head quarter having Moti lake and bounded by West Champaran from the west, Gopalganj from the south west Muzaffarpur from the south east, Sitamarahi from the east and Nepal acts as the northern international boundary.

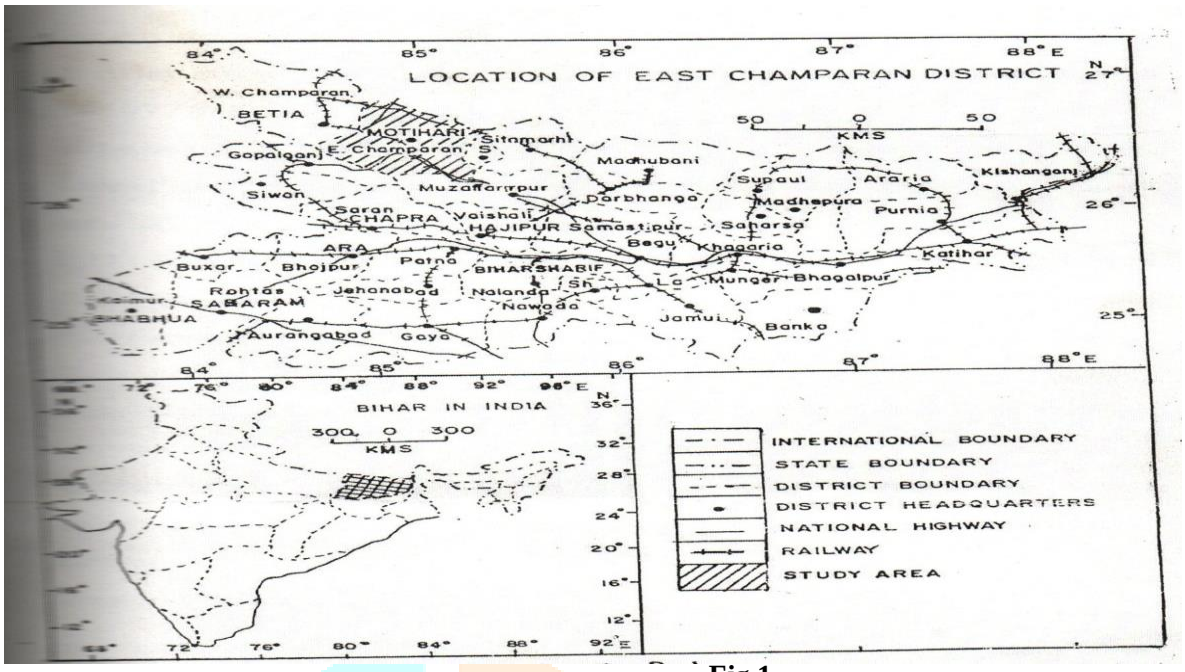


**Fig.1**

The study area covers an area of 3968.1 sq.km with 4.2 % area and population of 5,082,868 with 4.90 % (2011) of Bihar respectively. The district is predominantly stretched along the Gandak basin which provides an ideal agricultural ground for better agro-produce and livelihood to the large population by using agro-biotechnology. Minimizing agricultural areas through intensification would seem like a great idea for pressurizing more land. Technology has been viable part of higher productivity on agriculture. Innovations and implementation of agro-tools, seeds, chemicals, fertilizers, bio-technology, modern agro-techniques and methods of irrigation have played vital role in raising yields sustainably. But modern technology is the key to ensuring sustainable agriculture for growing population. Unfortunately, yields have been decreasing while population continues to increase. Along with, population-growth, there is a growing demand for a more calorie-filled diet especially with the unprecedented rise in affluence in East Champaran.

**OBJECTIVES:-**

1.To highlight the present physical and socio-conditions of East-Champaran.
2.To asses the growth of population in study area.
3.To examine the agricultural development.
4.To find out the present condition of rural and urban population.
5.To motivate the people towards diversifying the agriculture

**METHODOLOGY:-**

As the study is based on primary as well as secondary data which have been collected through the various sources to analyze details about population growth and agricultural development of locality. For this, data is represented with appropriate analytical,statistical and cartographical methods. After processing, the data have been cartographically represented with maps, diagrams, and tables which are apt for the justification of methodology

**Population growth:-**

The district of East Champaran encompasses 39,39,77 population (2001) over an area of 3968 sq. kms. under which the male and female populations include 20,77,047 and 18,62,726 respectively. The average density of population is 991.31 persons per sq. km. The percentage of male population stands 52.72, whereas the percentage of female population is 47.28. Altogether the annual growth rate of the district population is 2.92 per cent, a little bit more than the average growth rate of 2.84 in the state.The sex-ratio of the district comes to 897 per 1000 male, which is lower than the state sex-ratio of 919. The share of Scheduled Caste and Scheduled Tribe population in the district is 13.05 and 0.12 per cent respectively. However, table.1 indicates the blockwise population in the district which is distinct on the map of Bihar. It mentions blockwise population and density of population in the district.

**Table – 1**
**Density of population 2001**

| Sl. No. | Block | Area in sq. km. | Male | Female | Total | Density |
|---|---|---|---|---|---|---|
| 1 | Motihari | 251.56 | 156272 | 134105 | 290377 | 1154.31 |
| 2 | Turkaulia | 136.11 | 73308 | 66112 | 139420 | 1024.31 |
| 3 | Kalyanpur | 256.61 | 112194 | 104782 | 216976 | 847.19 |
| 4 | Kesaria | 196.25 | 76362 | 71301 | 147663 | 813.45 |
| 5 | Areraj | 189.47 | 69342 | 63993 | 133335 | 703.72 |
| 6 | Harsidhi | 190.58 | 89059 | 81012 | 170071 | 892.38 |
| 7 | Sugauli | 167.25 | 94021 | 83001 | 177022 | 1064.75 |
| 8 | Ramgarha | 107.66 | 83254 | 73385 | 156639 | 1459.94 |
| 9 | Paharpur | 154.56 | 73255 | 67325 | 140580 | 909.54 |
| 10 | Raxaul | 131.37 | 92796 | 80466 | 173262 | 1318.88 |
| 11 | Adapur | 153.16 | 83222 | 73132 | 156354 | 1020.85 |
| 12 | Narkatia | 134.96 | 69305 | 61058 | 130363 | 965.93 |
| 13 | Ghorasahan | 118.01 | 72568 | 62850 | 135418 | 1137.87 |
| 14 | Dhaka | 161.06 | 128772 | 116710 | 245482 | 1524.16 |
| 15 | Chiraiya | 204.94 | 112955 | 98872 | 211827 | 1033.60 |
| 16 | Patahi | 118.49 | 65622 | 59417 | 125039 | 1055.27 |
| 17 | Pakridayal | 116.55 | 58219 | 52502 | 110721 | 949.98 |
| 18 | Madhuban | 121.56 | 64861 | 58698 | 123559 | 1016.44 |
| 19 | Mehsi | 124.58 | 69065 | 63094 | 132159 | 982.00 |
| 20 | Chakia | 173.35 | 89099 | 82174 | 171273 | 988.02 |
| 21 | Banjaria | 139.36 | 65397 | 56703 | 122100 | 876.15 |
| 22 | Bankatwa | 88.48 | 48284 | 42226 | 90490 | 1022.71 |
| 23 | Sangrampur | 147.66 | 60708 | 56139 | 116847 | 791.32 |
| 24 | Kotwa | 152.08 | 66594 | 61506 | 128100 | 842.32 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 25 | Piprakothi | 48.82 | 30896 | 27716 | 58612 | 1200.57 |
| 26 | Phenhara | 54.59 | 30191 | 27644 | 57835 | 1059.44 |
| 27 | Tetaria | 80.35 | 41446 | 36803 | 78249 | 973.85 |
| Total | | 3968.5 | 2077047 | 1862726 | 3939773 | 992.75 |

The distribution pattern of population is not very uniform considering the blocks. The most distinctive block which shows high distribution of population is Motihari. It is because the population of Motihari town is added to the total population of the block. The next important block is Ramgarha where distribution of population is more than others. Other important blocks are Chiraiya and Kalyanpur

where distribution of population is high. As regards the density of population, the most important block stands to be Dhaka with 1529.16 persons per sq. km. The next block that follows is Ramgarha with 1454.94 density of population. The growth of this town is due to its market value because it is located on Bihar-Nepal border. Other important blocks regarding density that follow are Sugauli (1187), Motihari (1140), Mehsi (113), Chiraiya (1033) and Adapur (1921). The lowest density of population is displayed by Areraj with only 703 persons per sq. km. The reason behind the low density rests with the inclusion of diara area attached with the block.

**Table – 2**

**Growth of Population, 1951-2001**

| **Sl. No.** | **Block** | **1951** | **1961** | **1971** | **1981** | **1991** | **2001** |
|---|---|---|---|---|---|---|---|
| 1 | Motihari | 97 | 122 | 191 | 144 | 254 | 290 |
| 2 | Turkaulia | 99 | 120 | 143 | 176 | 216 | 139 |
| 3 | Sugauli | 66 | 77 | 89 | 108 | 130 | 177 |
| 4 | Adapur | 59 | 66 | 75 | 93 | 116 | 156 |
| 5 | Narkatia | 52 | 58 | 65 | 80 | 98 | 130 |
| 6 | Raxaul | 56 | 66 | 78 | 103 | 135 | 173 |
| 7 | Ramgarha | 59 | 67 | 78 | 98 | 124 | 156 |
| 8 | Dhaka | 86 | 94 | 111 | 143 | 186 | 245 |
| 9 | Chiraiya | 79 | 86 | 101 | 125 | 155 | 211 |
| 10 | Ghorasahan | 85 | 95 | 110 | 139 | 173 | 135 |
| 11 | Patahi | 54 | 61 | 71 | 88 | 109 | 125 |
| 12 | Pakridayal | 61 | 69 | 81 | 100 | 131 | 110 |
| 13 | Kesaria | 72 | 85 | 99 | 116 | 137 | 147 |
| 14 | Kalyanpur | 95 | 113 | 129 | 156 | 189 | 216 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 15 | Pipra/Chakia | 70 | 80 | 92 | 115 | 140 | 171 |
| 16 | Madhuban | 73 | 88 | 101 | 121 | 145 | 123 |
| 17 | Mehsi | 46 | 55 | 66 | 82 | 101 | 132 |
| 18 | Areraj | 106 | 123 | 145 | 175 | 215 | 133 |
| 19 | Harsidhi | 67 | 84 | 101 | 127 | 169 | 170 |
| 20 | Paharpur | 51 | 63 | 75 | 89 | 109 | 140 |
| 21 | Banjaria | - | - | - | - | - | 122 |
| 22 | Bankatwa | - | - | - | - | - | 90 |
| 23 | Sangrampur | - | - | - | - | - | 116 |
| 24 | Kotwa | - | - | - | - | - | 128 |
| 25 | Piprakothi | - | - | - | - | - | 58 |
| 26 | Phenhara | - | - | - | - | - | 57 |
| 27 | Tetaria | - | - | - | - | - | 78 |
| Total | | 1443 | 1681 | 1956 | 2425 | 3042 | 3939 |

Table 2 mentions the growth of population in the district, which indicated that during different periods there has been varying growth. The figures on the block level population growth are significant. Among all the blocks the most distinctive growth is shown by Motihari where growth is from 97950 in 1951 to 290400 in 2001. Other important blocks, where growth of population is high, are Dhaka from 86670 (1951) to 245480, Kalyanpur from 95810 to 216970 and Chiraiya from 79340 to 21183 in 2001. The growth of seven newly constituted blocks are not indicated as these blocks themselves came into being in 2001. A high growth of population in agriculturally dominated area indicates towards low literacy, high pressure on land and out-migration for livelihood. The impact of such environment can be observed in the light of spatial distribution of population in different blocks where declining share of arable land per capita is visible over time. The rapid growth in population has created a number of problems to be solved for future development of the area. Hence, the long term planning for development is needed aiming at reduction or control of growth rate in population.

**Agricultural Development**

Under the general land use pattern, agriculture commands a major proportion of share and is backbone of economy of the district. It is primary activity supported by better quality of soil and enjoys growing a number of crops. Each crop is grown under separate conditions of seasons in a year. The crops grown in each season are put under a group and their growth is controlled properly in those seasons. The agricultural operations vary according to crops, rainfall, irrigational facilities and the nature of the soil. The agricultural operation and harvesting are the main pursuits in the district. Besides these two activities, the digging, ploughing, weeding, manuring and irrigational activity are also performed before harvesting the crops. It is common practice that crops are named after their harvesting period, falling in Hindi months. The harvesting period varies from crop to crop as mentioned below :

| Crops | Harvesting period |
|---|---|
| 1. Paddy (Rice) | December (Kartik-Agahan) |
| 2. Maize | October (Ahwin) |
| 3. Marua | September (Bhado) |
| 4. Wheat/Barley | March (Chaitra) |
| 5. Gram | March (Chaitra) |
| 6. Sugarcane | November (Kartik to Baisakh) |

**Table 3**

**Average Under Seasonal Harvests, 2009-10**

| Sl. No. | Name of C.D. Block | Kharif (in Hectares) | Rabi (in Hectares) | Total |
|---|---|---|---|---|
| 1 | Motihari | 7446 | 8852 | 16298 |
| 2 | Turkaulia | 5904 | 7264 | 13168 |
| 3 | Kalyanpur | 12034 | 7821 | 19858 |
| 4 | Kesaria | 10488 | 8621 | 19109 |
| 5 | Areraj | 3281 | 6271 | 9552 |
| 6 | Harsidhi | 6064 | 11667 | 17731 |
| 7 | Sugauli | 6298 | 5325 | 11623 |
| 8 | Ramgarha | 9714 | 4625 | 14339 |
| 9 | Paharpur | 10035 | 7685 | 17720 |
| 10 | Raxaul | 6701 | 4316 | 11017 |
| 11 | Adapur | 9134 | 5337 | 14471 |
| 12 | Narkatia | 7030 | 5010 | 12040 |
| 13 | Ghorasahan | 5976 | 2806 | 9782 |
| 14 | Dhaka | 5941 | 6641 | 12582 |
| 15 | Chiraiya | 10296 | 7791 | 18087 |
| 16 | Patahi | 7009 | 6546 | 13555 |
| 17 | Pakridayal | 6708 | 6811 | 13519 |
| 18 | Madhuban | 6441 | 5227 | 11668 |
| 19 | Mehsi | 5246 | 5921 | 11167 |
| 20 | Chakia | 9816 | 7619 | 17438 |
| 21 | Banjaria | 5588 | 3735 | 9323 |
| 22 | Bankatwa | 6172 | 2358 | 8530 |
| 23 | Sangrampur | 7462 | 5619 | 13081 |
| 24 | Kotwa | 8520 | 4759 | 13279 |
| 25 | Piprakothi | 2797 | 1459 | 4256 |
| 26 | Phenhara | 2196 | 1235 | 3431 |
| 27 | Tetaria | 9859 | 1885 | 11744 |
| District | | 190886 | 154540 | 345426 |

Source : District Agriculture Officer, Motihari (East Champaran).

The harvesting period of different crops shows variations, but it is notable that sowing time of some crops goes simultaneously. Therefore, crops are put according to the harvesting or period of their growth. These are Bhadai, Aghani, Rabi and Garma which are grouped under Kharif and Rabi harvests. Under kharif harvest come Bhadai and Aghani crops, which include paddy, maize, millets (jowar, bajra, marua, etc.), whereas, under Rabi harvest come wheat, barley, oilseeds and pulses. Garma is an intermediary farming which is harvested during summer.

**Conclusion:**

As per overall analysis it can be observed that population growth is a major issue on agricultural development of the study area. In present scenario, agricultural development is highly influenced by increasing population. Presently there is an urgent need to put stress on agro-development and to adopt the strategy of sustainable development to meet the requirements of present and future generations otherwise rapid growth of population posses a serious threat to our environment. Since agricultural development has brought about a tremendous change in the mental makeup and setup of the people of East Champaran and more emphasis is being paid on agro-development with a view to bring economic soundness and source of inspiration for life of the people.

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