

Population Projection of Saran District, Bihar

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Introduction

Population projections are estimates of the population for future dates. They are typically based on an estimated population consistent with the most recent decennial census. Population projections are based on calculations of future birth rate, death rate and migration of population based on their past and present conditions.

For population projection, the following district of Bihar has been selected which is Saran. In ancient days, modern Saran division formed a part of Kosala country. The word 'Saran' according to the Alexander Cunningham (Father of Indian Archaeology) is ascribed to the fact that the word asylum which translates to "sharan" in Hindi, is the name of an Ashokan Pillar in the area. However, it is more popularly believed that the word Saran derives from Sarangaranya, meaning "deer forest". The historical background of the district as available in the 'Ain-E-Akbari' records Saran is one of the six sarkars (Revenue Divisions) constituting the province of Bihar. It is one of the thirty-eight district of Bihar.

Saran district came in existence in 1972, initially it was a part of TIRHUT DIVISION. The Ganges constitute the southern boundary of the district beyond which lie the district of Bhojpur and Patna. To the north of Saran lies the district of Siwan and Gopalganj. The Gandak forms the dividing line with the Vaishali and Muzaffarpur district in the east. To the west of Saran lies the district of siwan and the district of Ballia in Uttar Pradesh., the Ghaghra constituting the a natural boundary between Saran and Ballia. To facilitate the administration, Saran district is further divided into 20 Blocks (Taluka/Tehsil/Tahsil) which are administrative divisions denoting sub-districts. Blocks consists of multiple villages and a few towns.

Demography

As of the 2011 India [census](#), Saran has a total population of 3,951.862 of which Rural population is 35,98660 and Urban population is 35,883. The Saran Urban Agglomeration has a population of 212,955, of which 112,280 were males and 100,675 were females. The total population in the age group of 0 to 15 years is 29,133. The child sex ratio of Saran is 926 and the sex ratio is 949. The total literacy rate is 65.96 % of which male literacy rate is 63.56 % and female literacy rate is 45.19 %.

Table 1: Population Projection of Saran

No	Towns	1971	1981	1991	2001	2011	2021	2031	2041	2051
1	Mashrah	98765	123467	145678	167854	188899	204729	213373	213510	204771
2	Panapur	67548	89765	98765	109876	121738	125920	120972	107311	87290
3	Taraiya	89076	109875	112345	125678	138721	147119	149665	145784	135699
4	Ishupur	67865	89765	109873	123456	146822	168080	184940	195266	197483
5	Baniapur	187908	209876	223676	245678	262673	276664	286999	293153	294775
6	lahladpur	34567	45321	54321	60078	79969	106978	143822	194313	263824
7	Ekma	123490	156789	189076	198765	214445	217726	207212	184031	151740
8	Manjhi	154326	176543	209876	234567	268673	307867	352926	404749	464375

9	Jalalpur	134561	156780	143567	167892	174156	173234	164936	150009	130042
10	Revelgan j	30987	45637	54678	60678	80621	103246	127261	150748	171328
11	Chapra	156789	189082	209876	229876	240287	238300	223567	197770	164358
12	Nagra	54367	89764	98765	109872	124028	118417	92447	56079	24256
13	Marhaur a	156782	187652	206786	220987	235191	239911	234119	218118	193568
14	Amnour	87653	123444	167829	189023	200395	189194	156663	111544	66474
15	Maker	15678	34452	45637	67584	84695	79479	49567	15311	-90
16	Parsa	56789	87653	109876	123456	155838	182107	195735	192037	170409
17	dariapur	167895	209876	234567	256789	296164	332030	361535	382009	391327
18	Garkha	189765	209821	223456	245788	268156	291247	314901	338935	363144
19	Dighwar a	23566	32467	54326	76543	96811	118802	141317	162780	181377
20	Sonepur	109835	125432	157654	209876	232340	254500	275807	295684	313545

Red colour= census displayed; Purple colour=predicted through mathematical analysis

Source: <http://censusindia.gov.in/DigitalLibrary/browseyearwise.aspx> (census displayed)

Method

At first, the data on population of towns of Bhagalpur was collected from town directory census from the official website of census of India. Collecting from 1971 to 2011, to get a record of all five census years, so that for further prediction it becomes easy to calculate for next years.

Then after secondary data collection, following same formula has been implemented for every future census prediction and for every towns, by making separate columns of :

Arithmetic Increase Method: It is based on the assumption that the rate of change of population with constant time period. The average increase in the population per decade is calculated from the data collected from censuses, and the increase is added to the present population to find out the population of next decade. Applied for a large and old city.

So the formula is,

$$P_n = P + nX$$

Where, 'P' is the present population

'n' is the number of decades

'Pn' is the Population after 'n' of decades of 'P' present population

'X' is the rate of change of population with respect to time constant

Geometric Increase Method: The percentage increase in population from decade to decade is assumed to remain constant. It is the geometric mean to find out the future increment in population. Applied for industrial towns at the beginning of development.

So the formula is,

$$P_n = P (1 + r/100)^n$$

Where, 'P' is the present population

'n' is the number of decades

‘Pn’ is the Population after ‘n’ of decades of ‘P’ present population

‘r’ is the geometric mean (%)

Incremental Increase Method: It is done for each decade from the past population and the average value is added to the present population along with the average rate of increase. Increase in increment is considered for calculating the future population. Applied for an average size town under normal condition where there is increasing order of growth rate.

So the formula is,

$$P_n = P + nX + \{n(n + 1)/2\} * Y$$

Where, ‘P’ is the present population

‘n’ is the number of decades

‘Pn’ is the Population after ‘n’ of decades of ‘P’ present population

‘X’ is the average increase

‘Y’ is the incremental increase

Decreasing rate of Growth: It is to check the growth rate that is declined due to changes in birth, death and migration rate.

Finally comes the census year predicted population. It has been performed in the excel sheet to give accurate results in tables for each town.

Findings and Analysis

According to table 1, there is an increase in population of all towns of Saran district. So based on the findings following towns can be understood through analysis:

- 1. Revelganj:** Revelganj is a town and one of the oldest nagar panchayat in Saran district in the Indian state of Bihar. It is situated at a distance of 9kms. in the west from the administrative headquarter of Saran District.

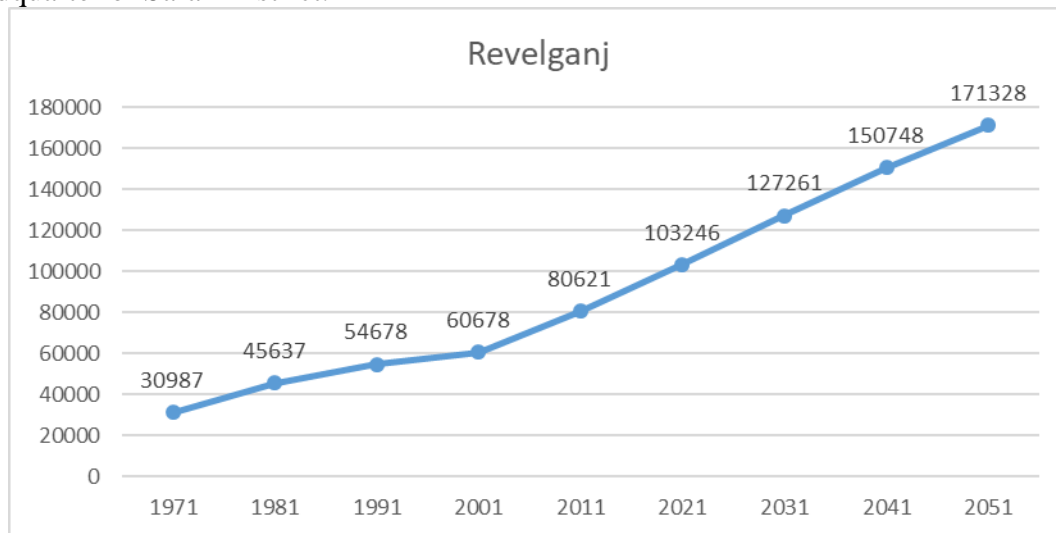


Figure:1: Population of Revelganj

Its population initially calculated 30987 in 1971 and in 2011 having 80621. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is increase in the growth that can be predicted, from year 2021 to 2051.

- 2. Panapur:** It is one of the twentieth block under [Saran district](#). Most of the people in the

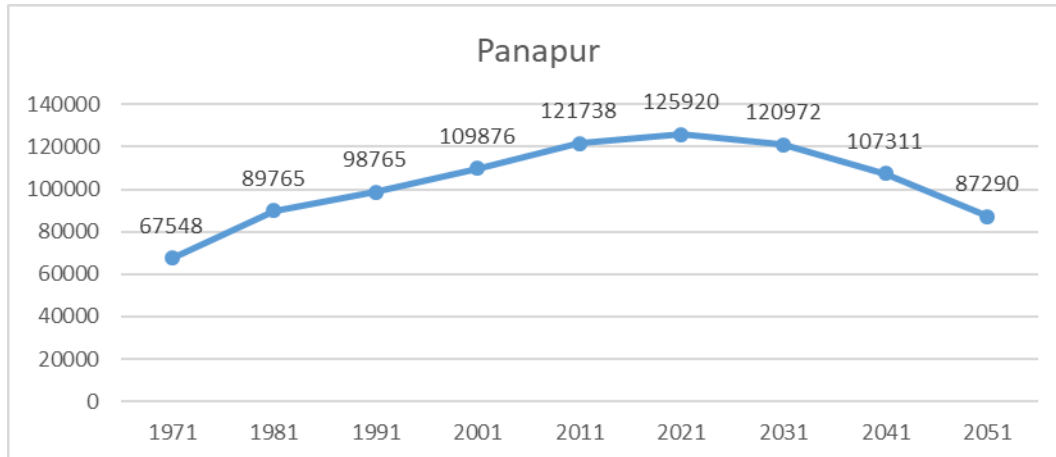


Figure:2 Population of Panapur

Its population initially calculated 67,548 in 1971 and in 2011 having 121738. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is increase decrease in the growth that can be predicted, from year 2021 to 2051.

3.Tariya: Tariya is (Vidhan Sabha Constituency) composed of the following: Tariya, Panapur and Ishuapur community development blocks. It is also one of twentieth block of Saran district. Its population initially calculated 89076 in 1971 and in 2011 it was 138721.

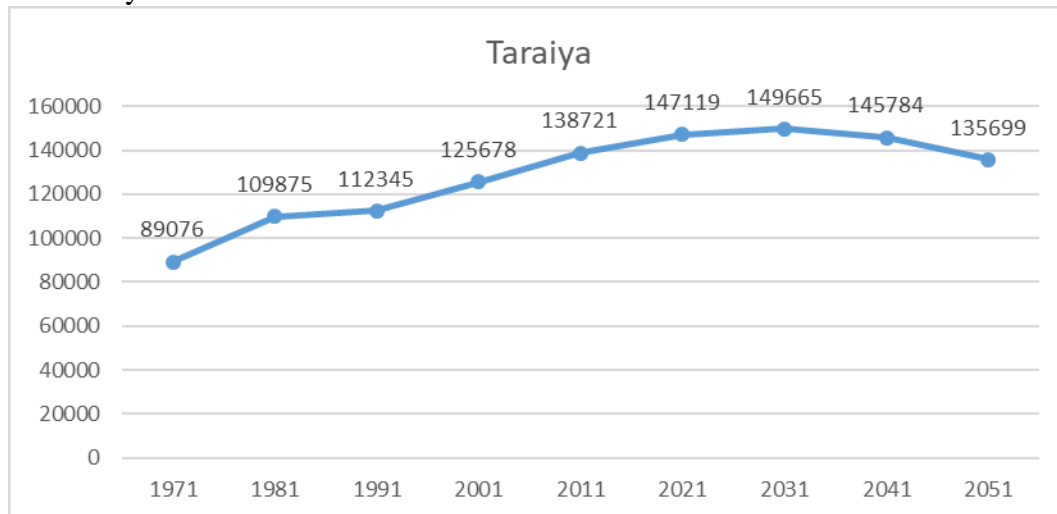


Figure:3 Population of Tariya

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is slight increase and then decrease in the growth that can be predicted, from year 2021 to 2051.

4.Dighwara: Dighwara is a town and a Nagar Panchayat in the Saran district, state of Bihar, India. The name probably derives from ‘Dirgh-dwar’, literally “lagre gate”, as Dighwara is claimed to be entrance to the mythological city of King Daksha. During the British Rule it was a Feudal Estate ruled by the Raghuvanshis. Its population initially calculated 23566 in 1971 and in 2011 having 96811.

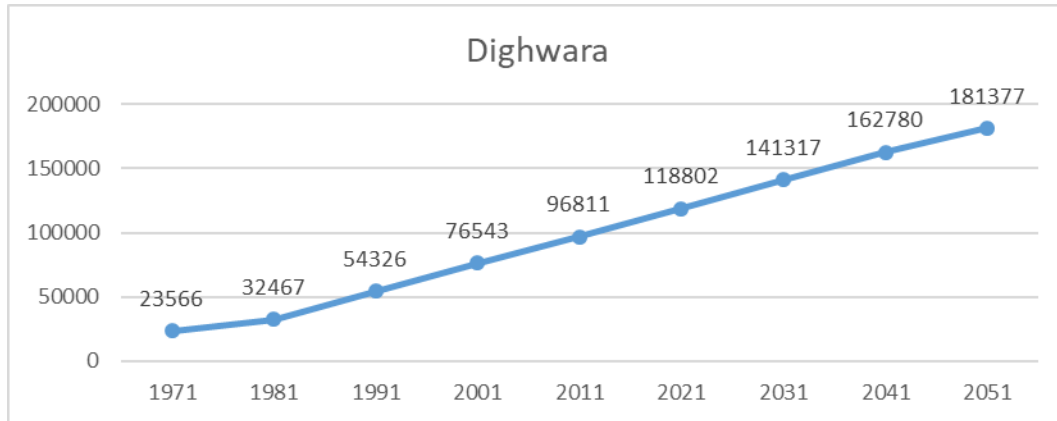


Figure:4 Population of Dighwara

From 1971 to 2011, there is a growth in population as explained before, further calculation was conducted on the basis of above explained methods and this increase seems remain to be continued from year 2021 to 2050.

5- Manjhi: Manjhi is an assembly constituency in Saran district in the Indian State of Bihar. It is composed of the following: Jalalpur community development block, Sarbisarya, Sitapur, Tajpur, Bareja, Madan Sath, Ghohat,, Dumari, Jaitpur, Inayatpur etc.. Its population initially calculated 154326 in 1971 and in 2011 it was 268673.

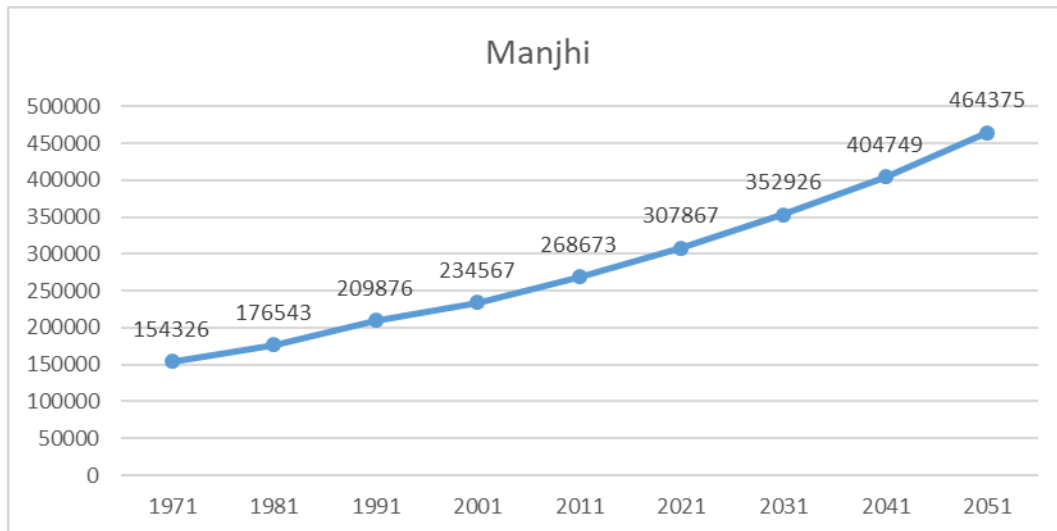


Figure:5 Population of Manjhi

From 1971 to 2011, there is a growth in population as explained before, further calculation was conducted on the basis of above explained methods, This increase in population remains to be continued and population growth can be predicted, from year 2021 to 2051.

6:Jalalpur Its population initially calculated 134561 in 1971 and in 2011 having 174156.

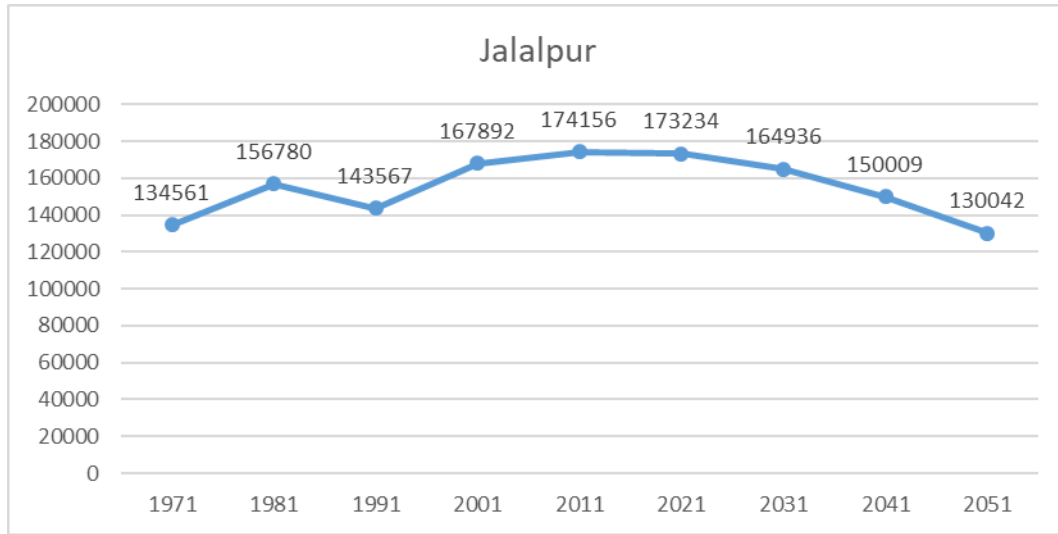


Figure:6 Population of Jalalpur

From 1971 to 2011, there is a growth and decrease in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is decrease in the growth that can be predicted, from year 2021 to 2051.

7-Chapra: Its population initially calculated 156789 in 1971 and in 2011 having 240287.

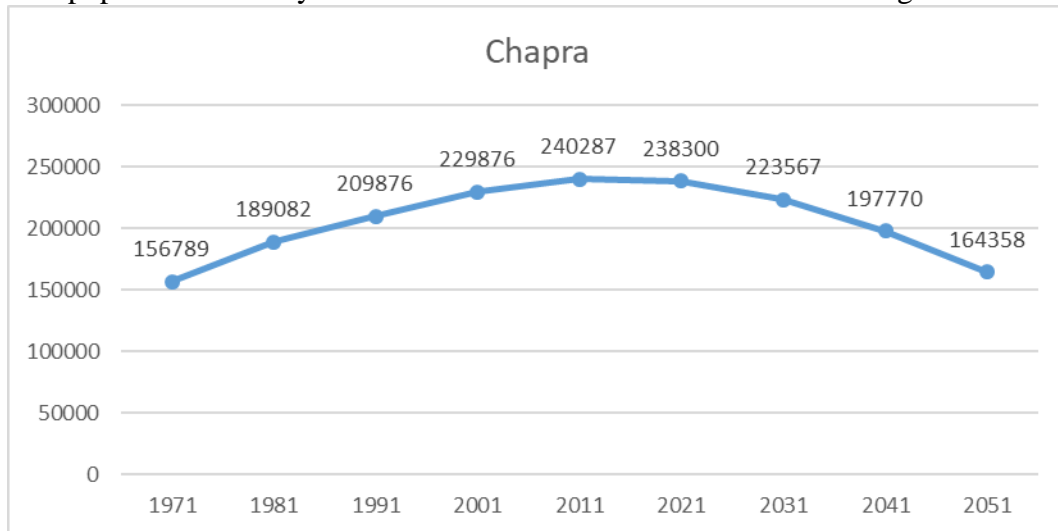


Figure:7 Population of Chapra

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is decrease in the growth that can be predicted, from year 2021 to 2051.

8-Nagra: Its population initially calculated 54367 in 1971 and in 2011 having 124028.

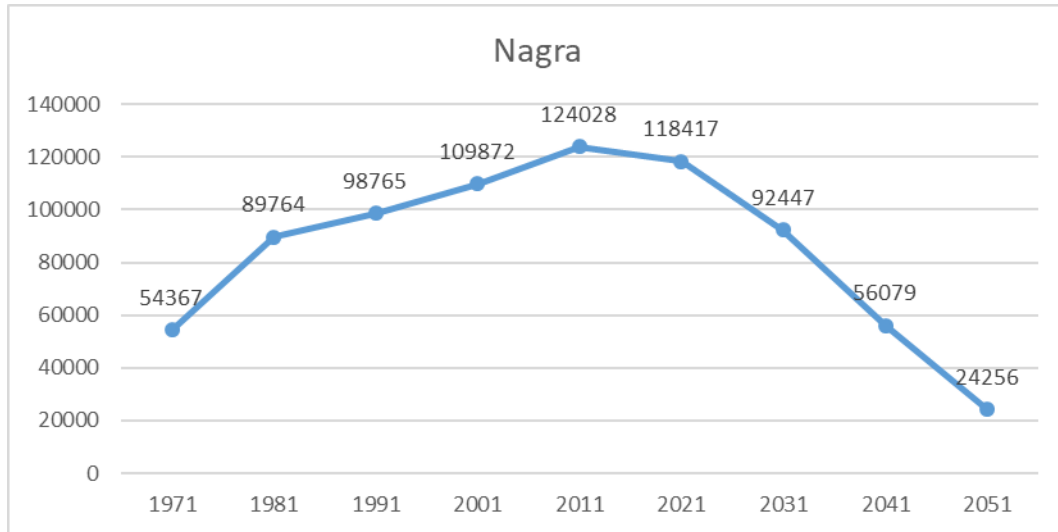


Figure:8 Population of Nagra

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is noticeable decrease in the growth that can be predicted, from year 2021 to 2051.

9-Lahladpur: Its population initially calculated 34576 in 1971 and in 2011 having 79969.

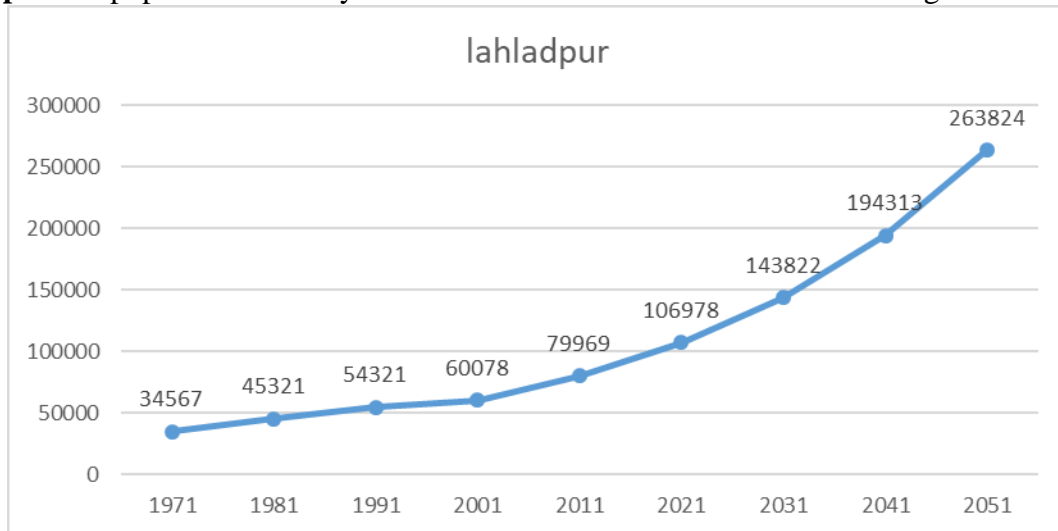


Figure:9 Population of Lahladpur

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is increase in the growth that can be predicted, from year 2021 to 2051.

10-Baniapur: Its population initially calculated 187908 in 1971 and in 2011 having 262673. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is slight increase in

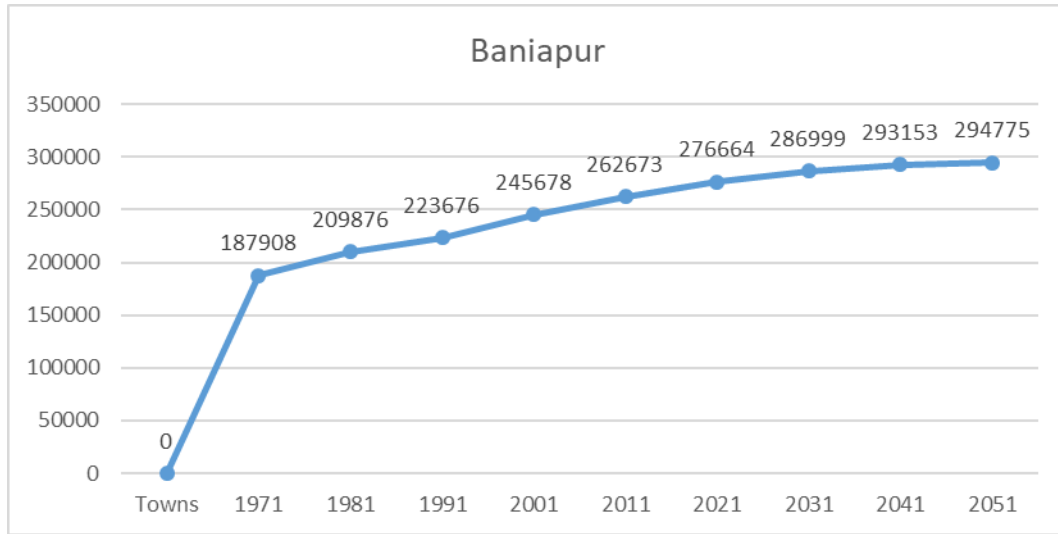


Figure:10 Population of Baniapur

the growth that can be predicted, from year 2021 to 2051.

11-Eisuapur: Its population initially calculated 67865 in 1971 and in 2011 having 146822. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is increase in the growth that can be predicted, from year 2021 to 2051.

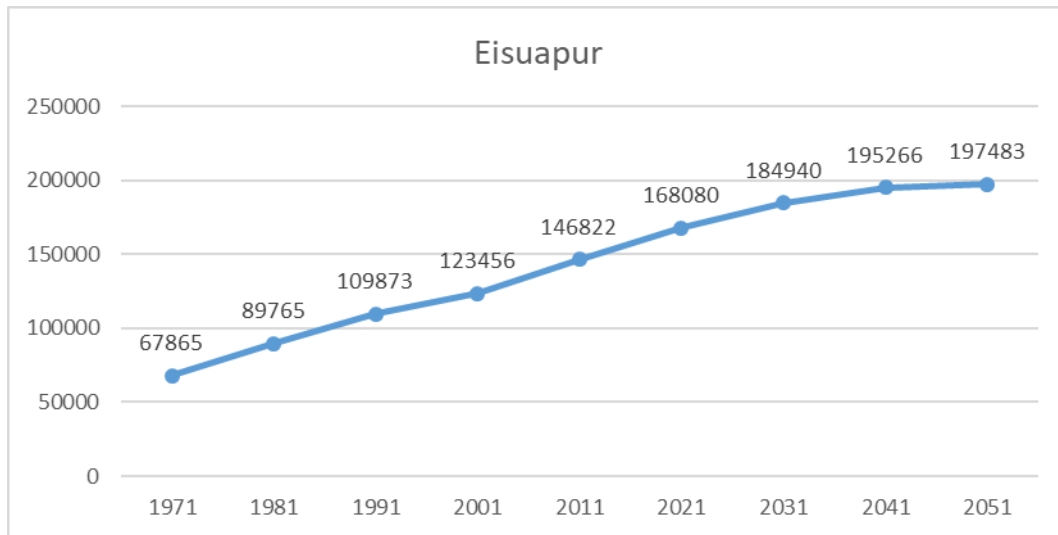


Figure:11 Population of Eisuapur

12-Masrakh: Its population initially calculated 98765 in 1971 and in 2011 having 188889. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is slight increase and then decrease in the growth that can be predicted, from year 2021 to 2051.

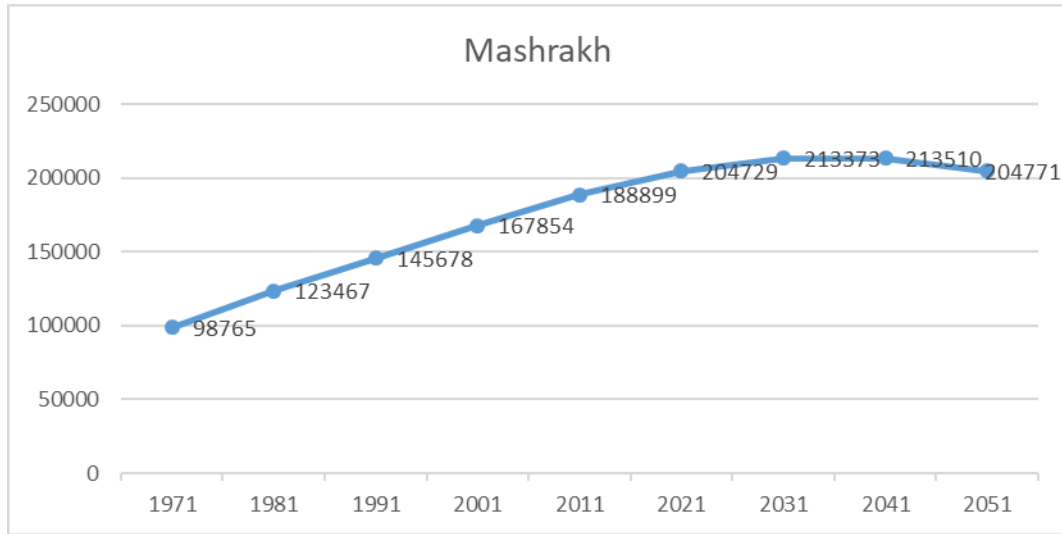


Figure:12 Population of Masrakh

13- Ekma: Its population initially calculated 123490 in 1971 and in 2011 having 214445. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is slight increase and then decrease in the growth that can be predicted, from year 2021 to 2051.

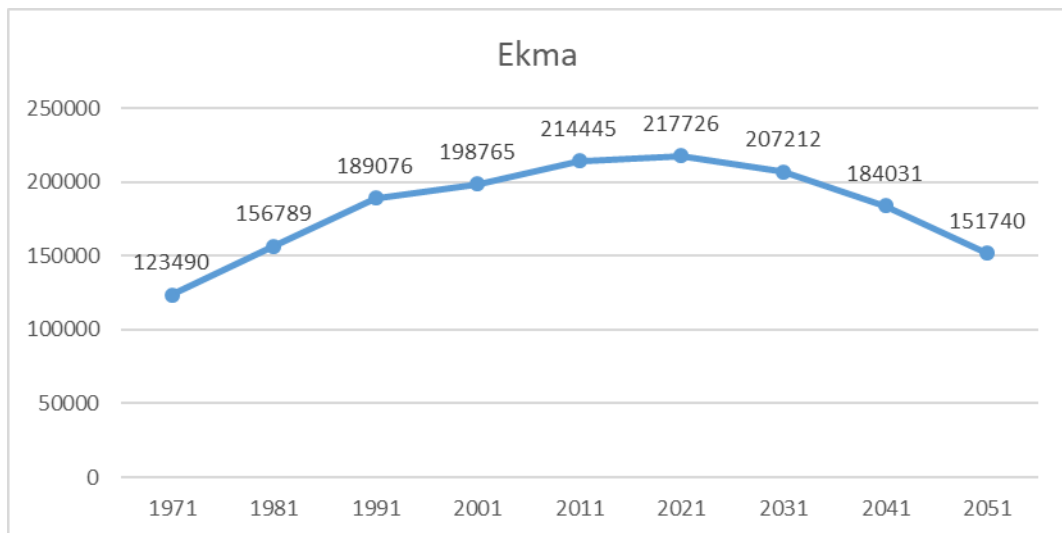


Figure:13 Population of Ekma

14-Annour: Its population initially calculated 87653 in 1971 and in 2011 having 200395. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is decrease in the growth that can be predicted, from year 2021 to 2051.

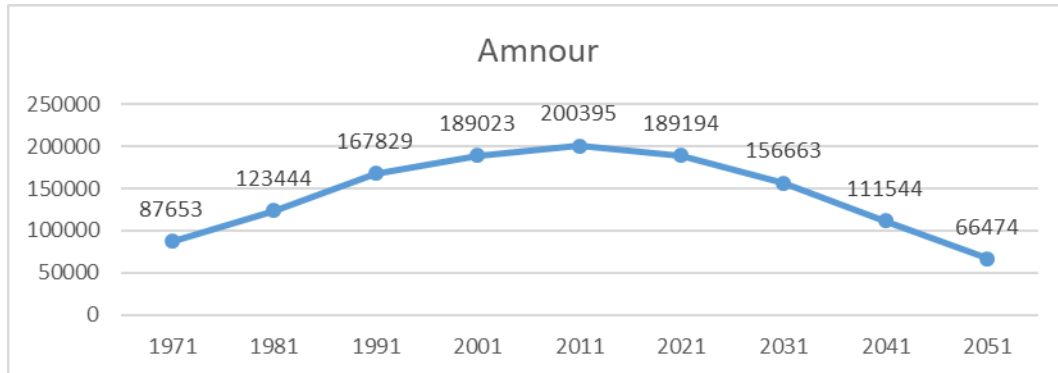


Figure:14 Population of Annour

15-Marhaura: Its population initially calculated 156782 in 1971 and in 2011 having 235191.

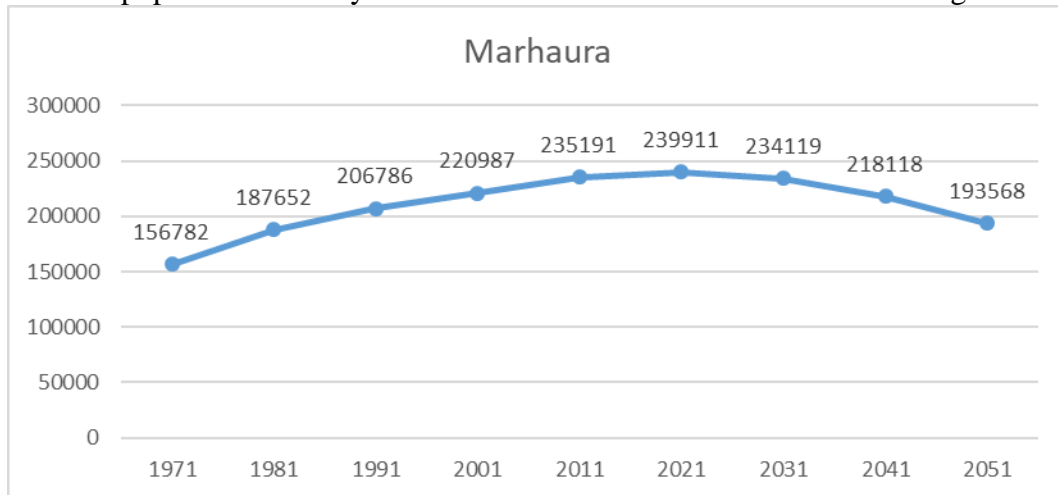


Figure:15 Population of Marhaura

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is slight increase and then decrease in the growth that can be predicted, from year 2021 to 2051.

16-Maker: Its population initially calculated 15678 in 1971 and in 2011 having 84695.

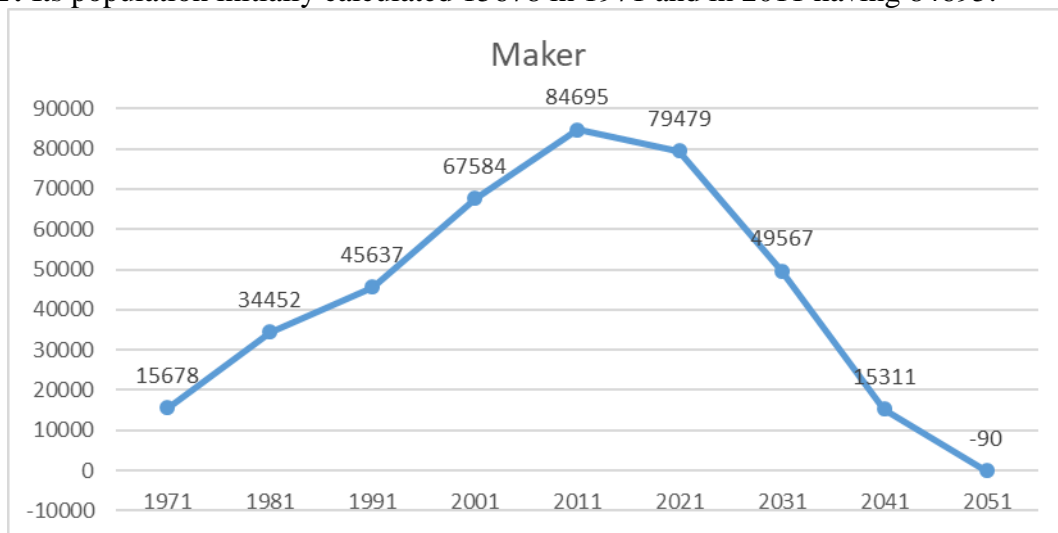


Figure:16 Population of Maker

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is decrease in the growth that can be predicted, from year 2021 to 2051.

17-Parsa: Its population initially calculated 56789 in 1971 and in 2011 having 155838.

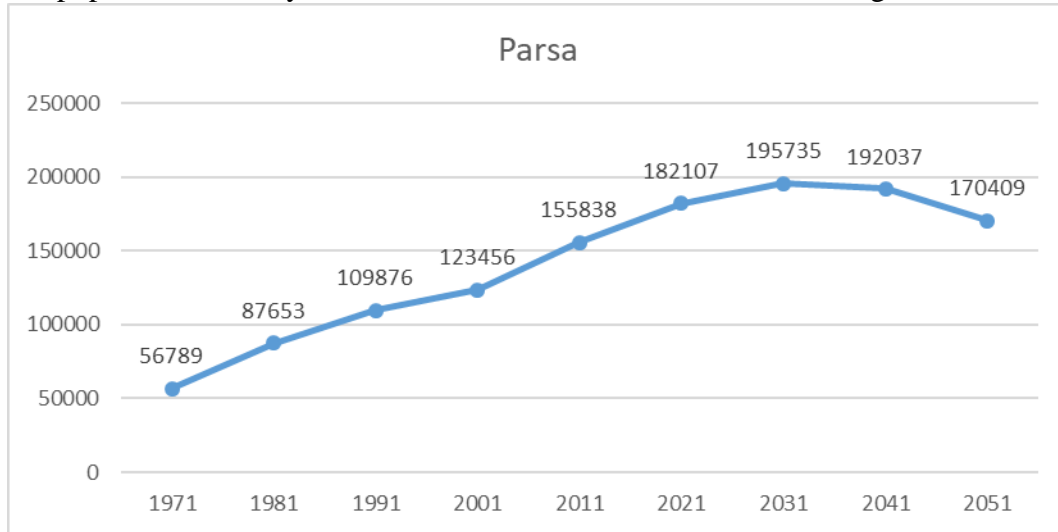


Figure:17 Population of Parsa

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is slight increase in the growth that can be predicted, from year 2021 to 2051.

18. Dariapur: Its population initially calculated 56789 in 1971 and in 2011 having 155838.

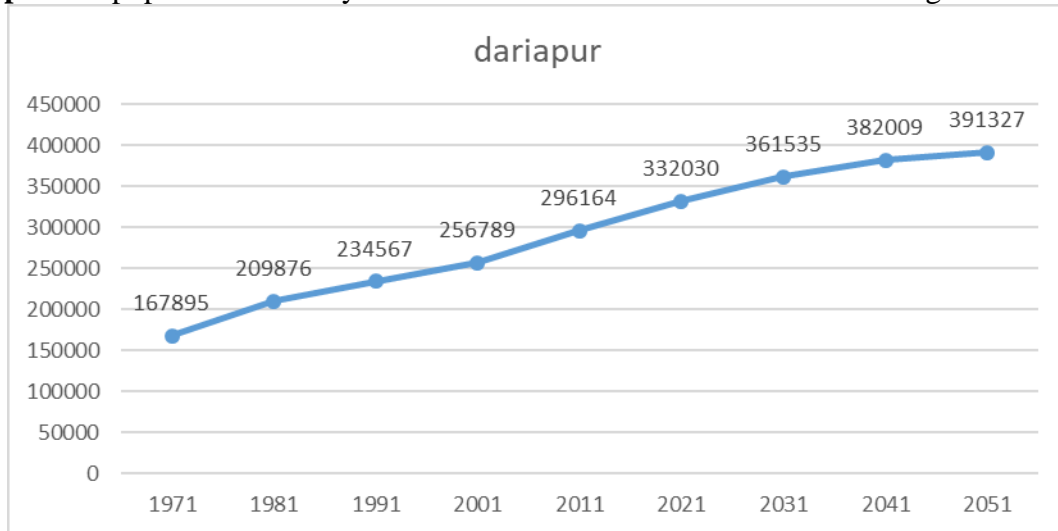


Figure:18 Population of Dariapur

From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is slight increase in the growth that can be predicted, from year 2021 to 2051.

19-Sonpur: Its population initially calculated 109835 in 1971 and in 2011 having 232340. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is increase in the growth that can be predicted, from year 2021 to 2051.

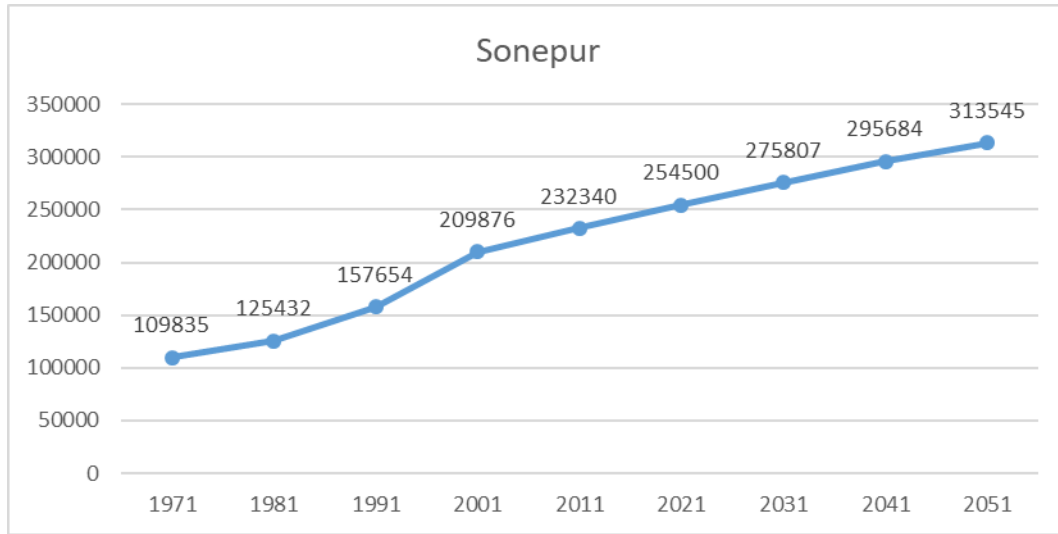


Figure:19 Population of Sonepur

20. Garkha: Its population initially calculated 189765 in 1971 and in 2011 having 268156. From 1971 to 2011, there is a growth in population as explained before, but as further calculation was conducted on the basis of above explained methods, there is increase in the growth that can be predicted, from year 2021 to 2051.

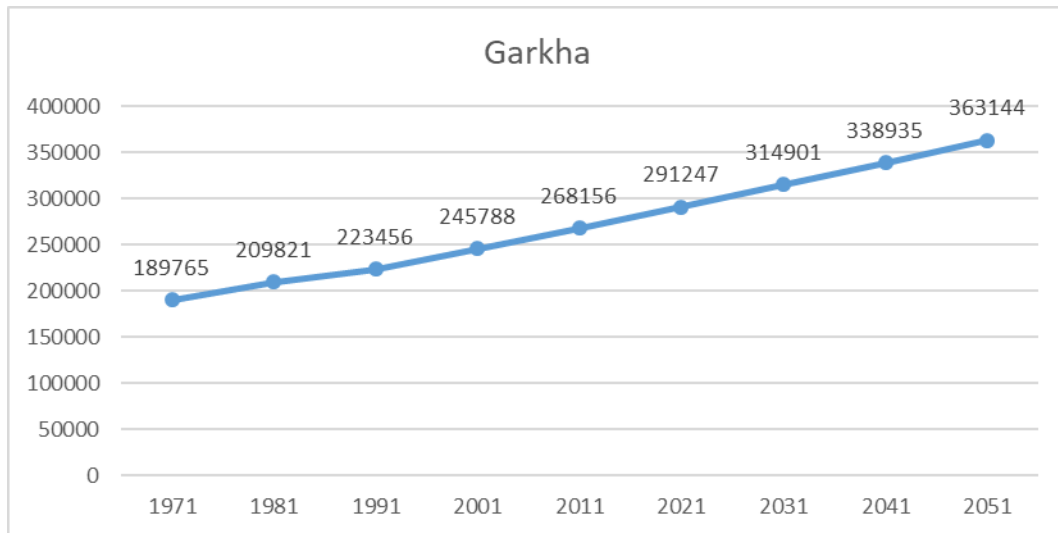


Figure:19 Population of Garkhs

Conclusion:

Based on the findings and analysis it has been understood that towns (Panapur, Taraiya, Ekma, Jalalpur, Chhapra, Nagra, Marhaura, Amnour and Maker) in Saran district are likely to face decrease in population in future coming years, and other towns (Mashrakh, Eisupur, Baniapur, Lahladpur, Manjhi, Revelganj, Parsa, Dariapur, Garkha, Dighwara, Sonepur) are in pace of increasing rapidly or in the same constant manner. This method is only provided on the basis of past data calculation therefore numbers can't be assumed accurately, because any physical and socio-economic changes can affect the population of the towns. So this method is not including the physical and socio-cultural aspects.

References:

- <http://www.biharispot.com/Saran/about-amritsar-bihar.html>
- <http://censusindia.gov.in/DigitalLibrary/browseyearwise.aspx>
- <https://www.citypopulation.de/php/india-bihar.php>