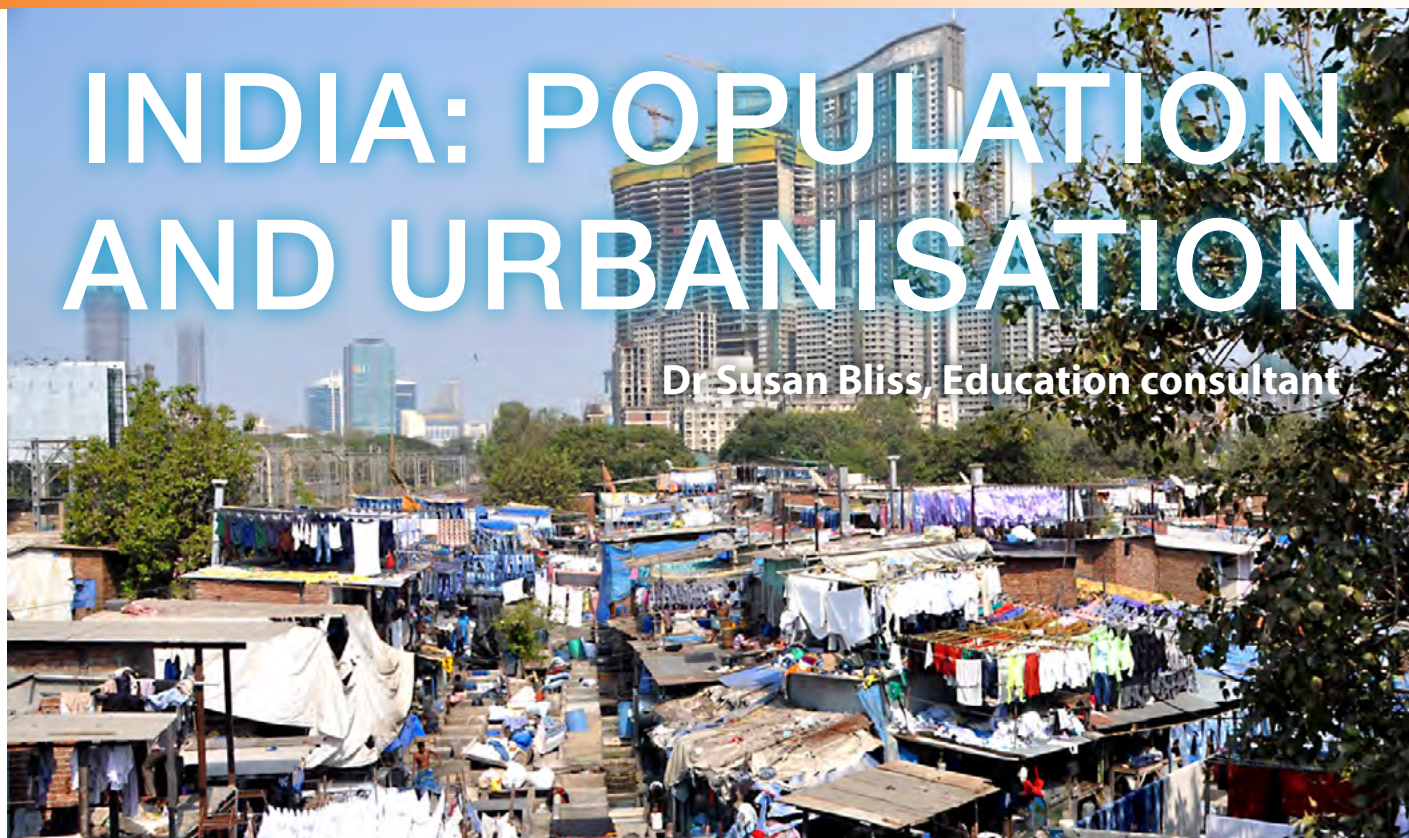


INDIA: POPULATION AND URBANISATION

Dr Susan Bliss, Education consultant



Dhobi_Ghat,_Mumbai,_India. Source: L.Chaffer

CURRICULUM: GEOGRAPHY

- Stage 4** **Liveability-spatial distribution and density of population**
- Stage 5** **Changing places – urbanisation and migration**
Environmental change and management – urban
- Stage 6** **Population – growth rates, distribution, types, volumes and movements, and its impacts on natural environments**
Urban Population – Urban Places

Integration of geographical skills: maps, graphs, population pyramids, cartoons, tables and photographs

*India's huge population of 1.37 billion people, and the sizeable movement of its populace (e.g. interstate, intrastate, rural-urban and international), has rapidly altered the distribution and density of the population, as indicated in the latest **2011 Census**, collected from '608,786 villages, 7742 towns, and 5767 tehsils across India's 640 districts'. As India only collects Census statistics every 10 years, data is frequently outdated and contradicts estimates from other sources, such as satellite imagery and remote sensing. However, the skill of identifying real and fake statistics and images, is imperative.*

Accurate and current statistics is critical for national and state governments' effective allocation of resources to infrastructure, transport, shelter, education, health services, energy, water and sewerage systems, all contributing to liveability.

Note some of the statistics in this article are debatable.

Source: <https://blog.socialcops.com/intelligence/data-stories/step-step-guide-2011-census-successes-failures-questions/>

INDIA: POPULATION & URBANISATION

CONTENT

This article on the spatial patterns of population distribution and density across India is divided into:

PART A: Overview-India's demographics-comparative global, national, state, urban/rural.

PART B: India overtakes China's population. Why? When?

PART C: Factors affecting population distribution and density in India.

PART D: Spatial distribution of population across India.

PART E: Spatial distribution of population density across India.

PART F: Changes over time to India's population distribution and density.

PART G: Spatial distribution of urban centres across India.

PART H: Predicted future population distribution-climate change

PART I: Activities

Note that India's population distribution and density are closely related.

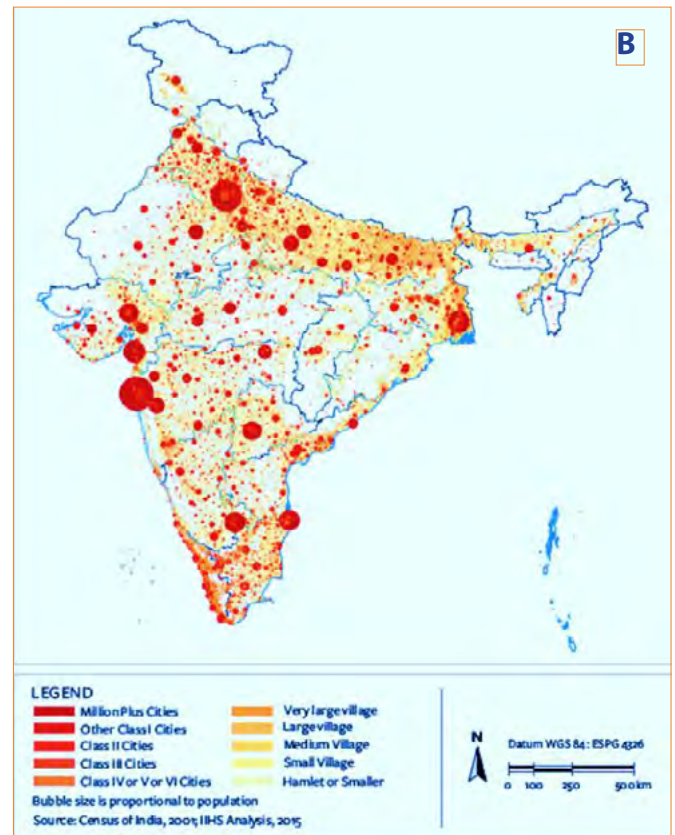
Mapping population distribution in India

A. **Gridded population cartogram** is an equal-population projection where each area is proportional to the number of people living there. Gridded population cartograms help us understand internal variations in the distribution of people within India.



Source: <https://worldmapper.org/maps/gridded-population-ind/>

B. **Proportional circle population map** illustrates India's population and distribution of settlements from 2011 Census



Source: <https://www.indiaspend.com/indias-missing-middle-24000-villages-with-populations-greater-than-towns-lose-out-on-policies-for-urban-areas/>

PART A: OVERVIEW – INDIA DEMOGRAPHICS

Global comparison

Area

India's area: 3.28 million km². **7th largest area** in the world – 2.41% of world's area

Population

India 2019: 1.37 billion people. **2nd largest** in the world – 18% of world's population

Population growth rate: 102nd highest out of 212 countries.

Population growth rate declined: 1975 – 2.34%; 2019 – 1.08%

Birth rate declined: 2000-24.7 births/1000 population; 2019-19.3 births/1,000.

Fertility rate declined: 1960 – 5.9 children per woman; 2019 – 2.3 children per woman. Rural areas generally have higher fertility rates than urban areas.

Death rate declined: 1960 – 22/1000 population; 2019 – 7.3 deaths/1,000

Life expectancy increased: 1960 – 42 years; 2019 – 68 years. Population is anticipated to grow until 2060s, and then predicted to decline.

INDIA: POPULATION & URBANISATION

Population Distribution

Rural 72.2% – 68.84%; **Urban** 27.8% – 31.16%

Largest state: Uttar Pradesh 200 million

Smallest states: Lakshadweep 64,500; Sikkim 500,000

Villages: 641,000 varying from 500–10,000 or more people

Million plus cities: More than 50 urban areas possess a population of over one million people.

Megacities: Populations over 10 million, e.g. Delhi (30 million), Mumbai (23 million) and Kolkata (28 million).

- **Urban growth:** Due to natural increase (births>deaths), net migration (push-pull factors), urban expansion/agglomerations, and new urban areas.
- **Rate of urbanisation:** Increased from 27.81% (2001) to 31.16% (2011).

Population Density Km²

Average density: 418 people per/Km² and growing

24th highest density country out of 212 countries

Densest states: Delhi 11,300 Km² followed by Chandigarh and Puducherry

Sparser state: Arunachal Pradesh 17 Km²

Cities – Highest densities: Delhi, Kolkata, Chennai and Mumbai.

Other Population Characteristics

India's gender ratio is 944 females for 1000 males. The more developed state of Kerala has highest gender ratio of 1084 females to 1000 males versus the poorer state of Haryana with only 879 females per 1000 males. Major causes of skewed gender ratios are ultrasound examinations for foetal sex determination followed by abortion of female babies, violent treatment to female children at birth, and dowry burning.

Worst child gender ratio: Mahesana – 762 girls per 1,000 boys.

Age distribution: More than 50% of the population are below 25 years.

Literacy rate: 74% but varies between states, rural/urban areas, gender and wealth.

Human Development Index (HDI): India is ranked 130 out of 189 countries on human development, covering factors such as health, education and income. The HDI varies between states and urban/rural areas/gender. Women experience a lower HDI than men.

YouTube

- Demography of India – Population of India
Source: <https://www.youtube.com/watch?v=1ail-D-XIng>

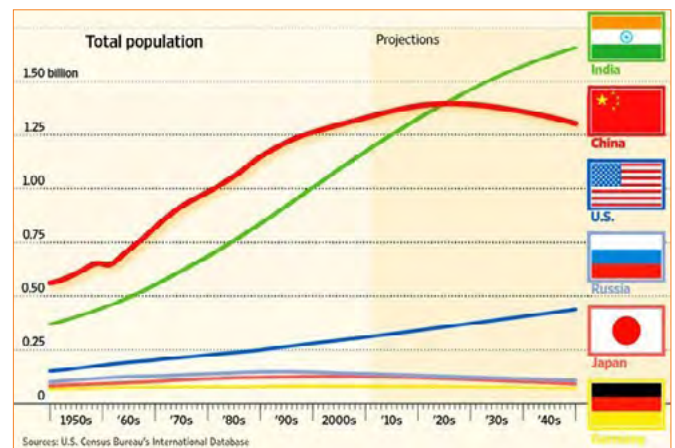


Source: https://upload.wikimedia.org/wikipedia/commons/0/0e/India_-_Varanasi_pharmacy_-_0894.jpg

PART B: INDIA OVERTAKES CHINA'S POPULATION

Around 1500 the Indian population reached 100 million people. From 1500 –1700 under the Mughal Empire, the population experienced economic and demographic upsurges resulting in the population rate accelerating from 60% to 253%, to reach 165 million people. By 1700 India possessed an urban population of 23 million creating 120 large cities (e.g. Agra 800,000), 3,200 townships and 455,000 villages. By 1880 during the British Raj era, the population was roughly 255 million. From 1975–2010 the population doubled to 1.2 billion, in 2019 it reached 1.37 billion, and by 2050 is predicted to encompass 1.7 billion people. India's decadal (2001–2011) population growth was a huge 17.64%, over three times higher than China's 5.43%. It is predicted that at the present population trajectory, India will overtake China as the most populous country around 2022.

a. Past, present and future projections of India's population growth



Source: <http://khaleejmag.com/news/main-causes-population-growth-india/>

INDIA: POPULATION & URBANISATION

b. World's most populous countries 1950 – 2050. India versus China

	1950	2017	2050 (Projected)
Top population country	China	China	India
Population	554 million	1.4 billion	1.6 billion
Percent of world's population	22%	19%	17%
Second highest population country	India	India	China
Population	376 million	1.3 billion	1.4 billion
Percent of world's population	15%	18%	14%
Third and fourth largest countries	US, Russia	US, Indonesia	Nigeria, US

Adapted: <https://qz.com/india/1051533/india-is-unprepared-for-a-near-future-when-it-will-be-the-worlds-most-populous-country/>

YouTube

- India vs China Population Growth (1950 – 2050)
Source: <https://www.youtube.com/watch?v=5ff8cL7VfrM>
- Interesting comparison of India vs China population 1950 – 2100. Animated.
Source: <https://www.youtube.com/watch?v=FNcGm2z11Qc>

c. Population: India versus China

India's estimated annual population growth rate is predicted to be 0.93% (2018 – 2030) and even lower at 0.46% (2030 – 2050). During the same period China's population growth is anticipated to be lower than India's at 0.03% by 2030, and eventually move into minus figures at -0.43% by 2050.

There are multiple factors contributing to India's larger growth in population compared to China's such as:

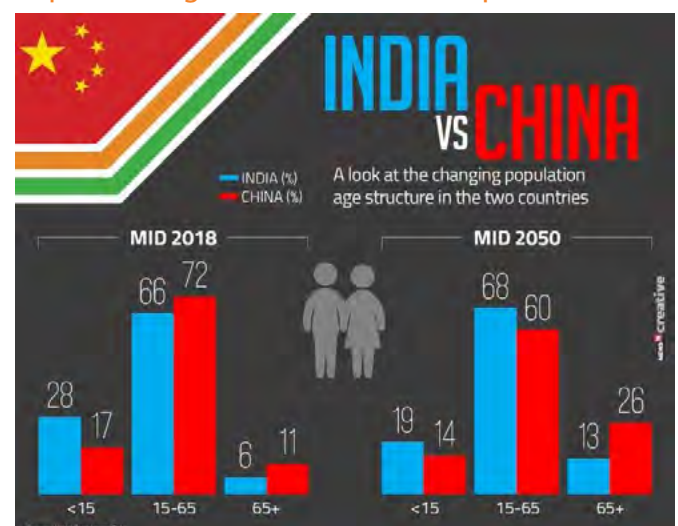
- Age-structure:** India possesses a younger population than China. The median age in India is 27 years, compared to China's 38 years. Children under 18 years account for 30% of India's population compared with 20% in China. When young people enter the workforce, India's working age population is predicted to rise to 869 million by 2020, representing 28% of the world's workforce.
- Fertility rates:** India has higher fertility rates than China. From 1960 – 2017 India's fertility rate fell from 5.9 to 2.3 births per woman, compared to China's lower rates falling from 5.7 to 1.6 births per woman.
- Rural versus urban:** India has a predominantly rural population varying from 72.2% – 68.84% in contrast to 43% in China. Urban populations generally transition

more rapidly to lower fertility rates, as experienced in the more urbanised China. Interestingly the abolition of the **One-Child Policy** in China in 2015 saw a further drop in the birth rate.

China exceeds India in the following indicators, contributing to a slower population growth rate.

- Life expectancy:** From 1960 – 2019, India's life expectancy increased from 42 years to 68 years as a result of improved health services and clean water, as well as the reduction of communicable diseases like cholera, malaria and smallpox. By contrast China's life expectancy was similar to India's at 44 years in the 1960s but reached a higher life expectancy of 76 years by 2017.
- Ageing population:** By 2050, the percentage of Indians over 65 years is predicted to double to 13%, compared to the Chinese reaching a large 44%.

Population-age structure: India compared to China

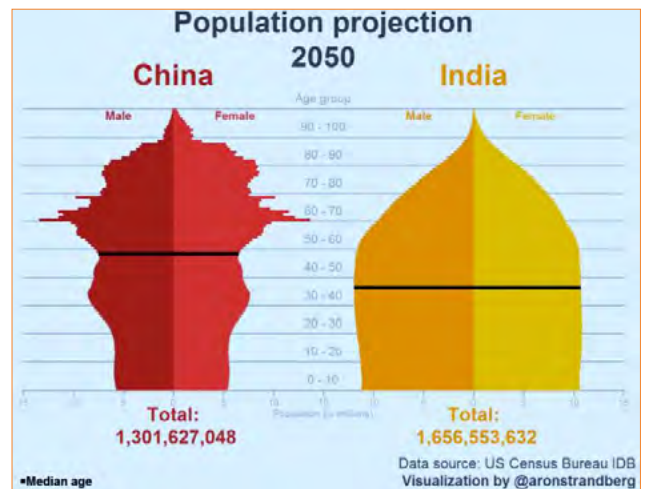
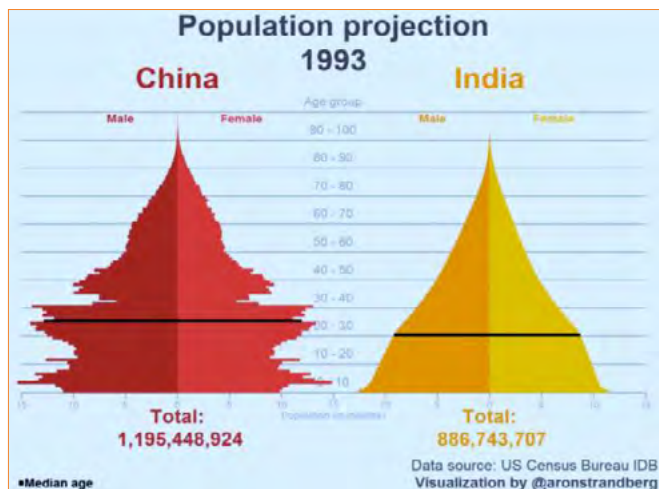


Source: <https://twitter.com/News18Graphics/status/1032878553627590656>

INDIA: POPULATION & URBANISATION

d. Population structure: India compared with China over time

The population pyramids differ between China and India over time. In 2050, China is predicted to be skewing towards an older population, compared to India comprising of a younger, working population.



Source: <https://www.visualcapitalist.com/animation-comparing-china-vs-india-population-pyramids/>

Skewed gender ratios

In both countries, **infant mortality** was higher for females than males. **Skewed gender ratios** are mainly due to the use of prenatal ultrasound scanning to abort female fetuses. The practice of sex-selective abortion, while prohibited, is difficult to eliminate.

In the coming decades, "surplus males" who can't find brides could reach 40 million. Son preference is related to their role to care for elderly parents, daughters depart to husbands' households after marriage, and a bride's parents are expected to pay a dowry to prospective in-laws.

In Mumbai the preference for boys is obvious as for every 1,000 boys there are only 899 girls. This gender imbalance is blamed on sex-selective abortions.

Source: <https://qz.com/india/1051533/india-is-unprepared-for-a-near-future-when-it-will-be-the-worlds-most-populous-country/>



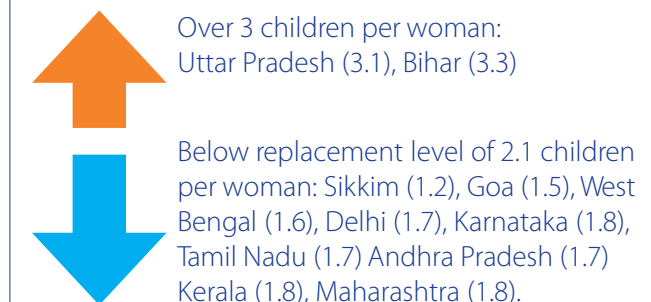
Source: [https://commons.wikimedia.org/wiki/File:Children_Reading_Pratham_Books_and_Akshara_-_Flickr_-_Pratham_Books_\(10\).jpg](https://commons.wikimedia.org/wiki/File:Children_Reading_Pratham_Books_and_Akshara_-_Flickr_-_Pratham_Books_(10).jpg)

YouTube

- China and India population development 1960 – 2060. Source: <https://www.youtube.com/watch?v=9YZQO7EFGm4>

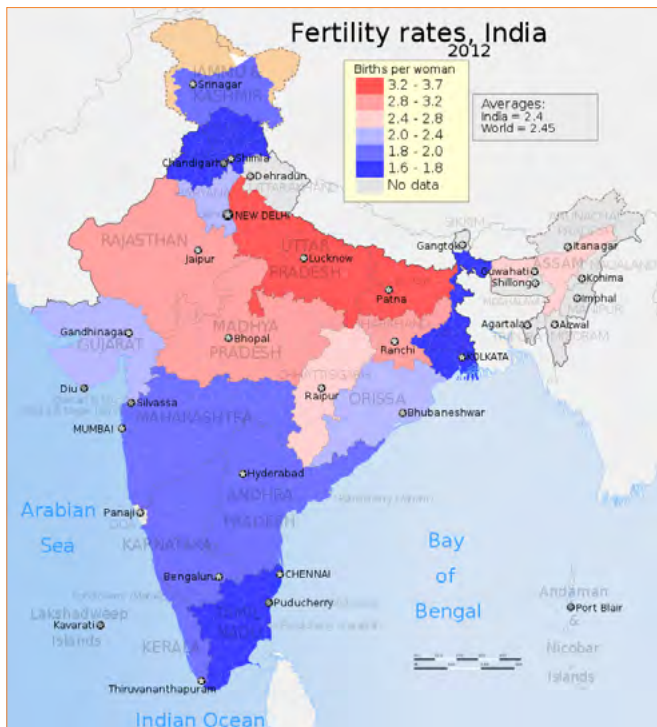
e. Fertility rates: Major contributor to India's population growth

The long-term growth of India's population, is largely a function of fertility rates. Since 1960 the fertility rate has more than halved from 5.9 to 2.3 children per woman, bolstering economic growth, reducing poverty and increasing human wellbeing. However, differentials in fertility rates exist between states, urban-rural areas; within urban centres; and between religious and caste communities For example:



INDIA: POPULATION & URBANISATION

Choropleth map: Fertility rates vary Between Indian states



Source: https://en.wikipedia.org/wiki/Demographics_of_India#/media/File:2012_Fertility_rate_map_of_India_births_per_woman_by_its_states_and_union_territories.svg

- **Urban versus rural areas:** Urban fertility and crude birth rates are generally lower than rural rates

YEAR 2016	URBAN	RURAL
Fertility rate – number of children per woman	1.75	2.41
Crude birth rate – number of live births per 1000 people	15.8	20.7

- **Within urban areas:** Delhi's urban middle-class fell to 1.7 children per woman, compared to residents living in urban slums reaching a high 6.0 number of children per woman.
- **Between religions:** The lowest fertility rate were amongst the Jains (1.2) who also reached the highest education level. This was followed by Sikhs (1.6), Buddhists (1.7), Christians (2.0) and Hindus (2.1). However the rate was higher in Muslim communities but was falling from 3.4 (2006) to 2.6 (2016).
- **Between castes:** The least developed and lowest castes referred to as the Scheduled Tribes/Castes had the highest fertility rates (2.5 – 2.3) compared to upper castes with the lowest fertility rate (1.9).

For decades, many Indian women relied on female sterilisation, as the main contraceptive. In 2017, about 30% of Indian women with one child had been sterilised

compared to 84% of women with two children. Around 77% were the poorest women and 89% the wealthiest. Family planning, abortions, sterilisation, contraceptives, two child policy (e.g. Assam), education and use of modern injectable contraceptives contributed to a decline in India's fertility rate. For example from 1981-2016 there were large reductions in fertility rates in Punjab (4.6 to 1.6) and Madhya Pradesh (5.2 to 2.7).

The future fertility rate in India is uncertain: Will it be: Same rate as today (2.3)? Replacement rate (2.1)? Below replacement rate (<2.1)?

If India's fertility rate remains unchanged (2.3 births per woman), the population would double to 2.5 billion by 2100. Even at replacement level (2.1 births per woman), the population would almost reach 2 billion by 2100.

YouTube

- Videographic: Are Asian fertility rates declining?
Source: <https://www.youtube.com/watch?v=mrQDCxGJqmc>



Source: <https://www.quora.com/What-appalls-or-disgusts-you-about-India>

PART C: FACTORS AFFECTING POPULATION DISTRIBUTION IN INDIA

India's massive population of nearly 1.4 billion people, encompassing an area of 3.28 million Km², is unevenly distributed across 29 states and 7 union territories, due to intersecting complex factors such as geographic, environmental, social/cultural, economic, technological, political and historical factors. This random population distribution is predominantly linked to its diverse landscapes-ranging from rugged snow-capped mountains (Himalaya), barren deserts (Thar), fertile wetlands (Kerala, Sundarbans), fertile plains (Indo-Gangetic), coasts (Kerala), plateaus (Deccan), islands (Andaman) and cities (Delhi, Kolkata).

INDIA: POPULATION & URBANISATION

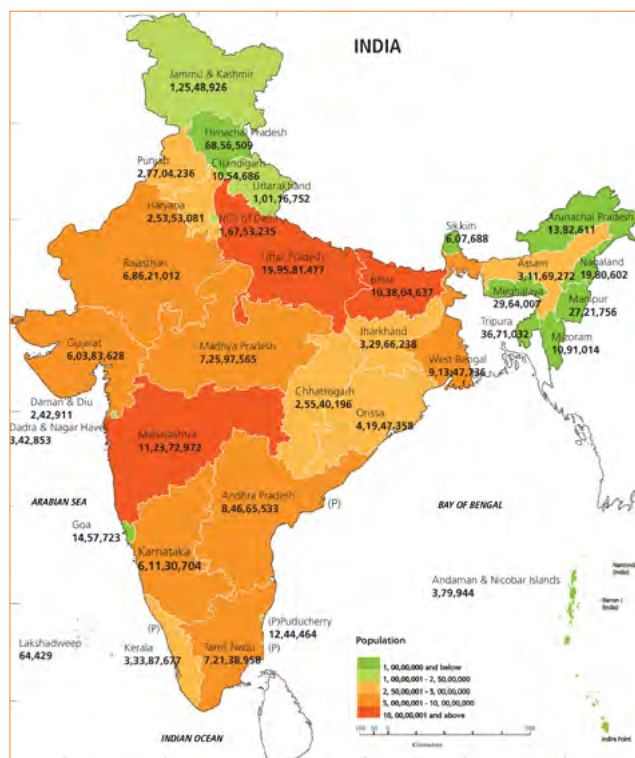
Multiple reasons for India's uneven distribution of population

- **Geographic location:** desert versus river valley. Remote and isolated settlements versus coastal
- **Demographic factors:** increase in natural population, net migration and rural-urban migration. Movement of population from Bangladesh (climate change refugees) and Indians migrating overseas for jobs
- **Infrastructure:** roads, railways, bridges, schools, hospitals
- **Urbanisation:** Development of Smart Cities
- **Employment:** industrial, agricultural, mining, technological, financial/commercial, fishing, tourism
- **Liveability:** access to jobs, shelter, education, hospitals, transport, services, clean environment, safety
- **Religion:** Varanasi – Hindu. Cultural sites

For example, **Jammu and Kashmir** located in the far northwest of India, is inaccessible, remote and a source of conflict since the partition of India in 1947. The population of only 14 million people has a low average population density of 56 persons/Km².

PART D: SPATIAL DISTRIBUTION OF INDIAN POPULATION

(2011 Census)



Source: http://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter3.pdf

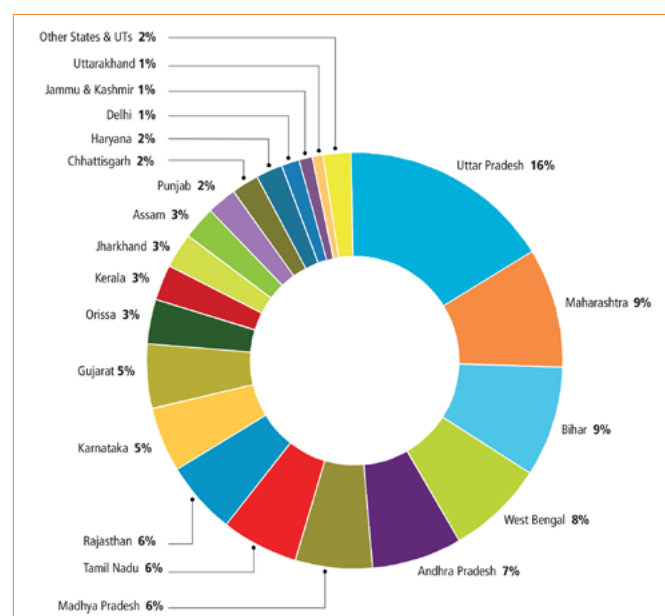


Source: https://commons.wikimedia.org/wiki/File:Mountains_pehar_devta_JK.jpg

The map illustrates the uneven distribution of the Indian population across states and rural-urban settlements.

- **Sparse population:** Only 5% of India is unpopulated and remote places possess little population such as the: large salt desert, Gujarat; Thar Desert, Rajasthan; dense forests, Western Ghats; and steep mountains, Sikkim. These places are predominantly linked to difficult environments for human survival.
- **States:** About half of India's population is concentrated around five major states – Uttar Pradesh (200 million with 16% of India's population), Maharashtra (110 million), Bihar (100 million), West Bengal (90 million) and Andhra Pradesh (80 million). In contrast the least populated states are Sikkim (6 million), Mizoram (10 million), Arunachal Pradesh (13 million), Goa (14 million), Nagaland (19 million), and only 60000 people in the island state of Lakshadweep. (2011 Census-approximate statistics).

Pie graph: Population in Indian states and territories 2011



Source: http://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter3.pdf

INDIA: POPULATION & URBANISATION



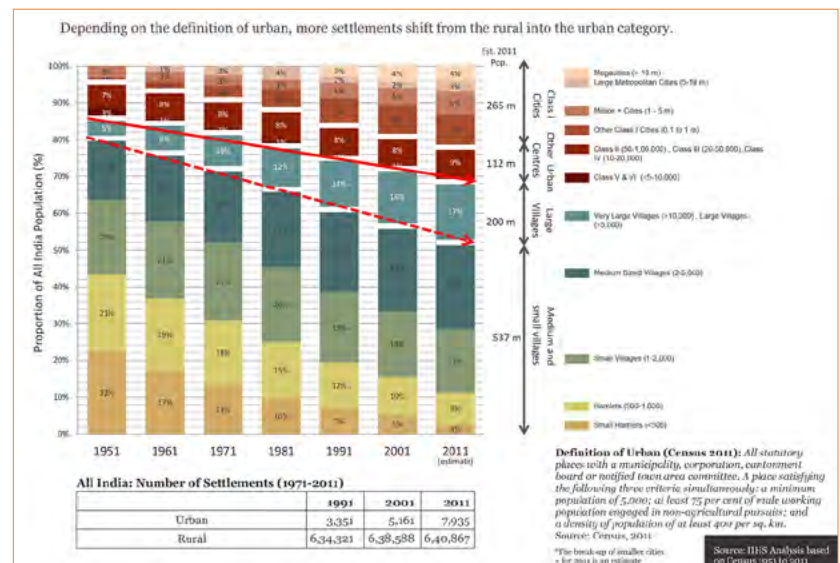
Source: [https://commons.wikimedia.org/wiki/File:India_-_Rural_-_04_-_typical_street_\(2566361495\).jpg](https://commons.wikimedia.org/wiki/File:India_-_Rural_-_04_-_typical_street_(2566361495).jpg)

a. Rural settlements

Around 68.84% of India's population live in rural areas. The predominantly rural population, concentrated in villages, generally suffers low levels of economic development and human wellbeing. Most of the rural population live in 641,000 villages varying in size from 500 to 10,000 or more people. The top five states with the highest share of the rural population are Himachal Pradesh, Bihar, Assam, Odisha and Meghalaya. However, push-pull forces have witnessed declining rural populations in Kerala (26%), Goa (19%), Nagaland (15%) and Sikkim (5%).

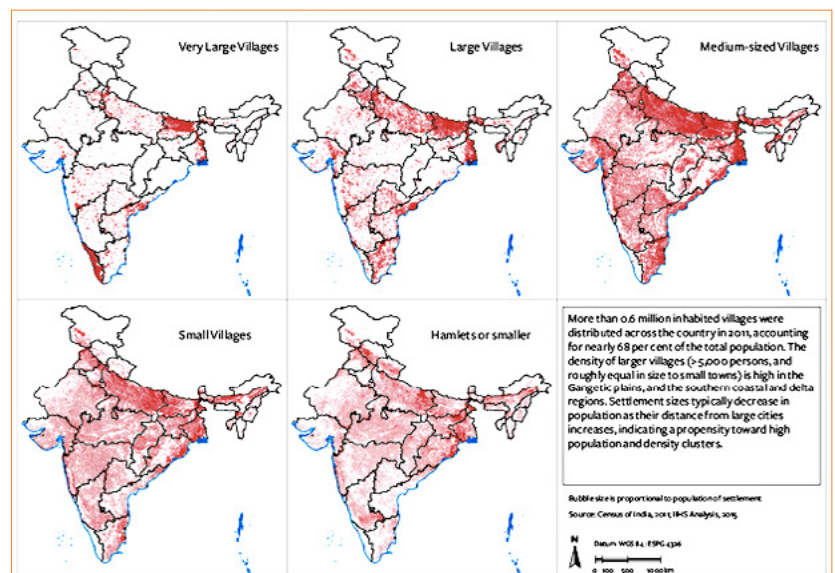
People living in rural areas experiencing droughts, floods, land degradation and desertification, such as parts of Rajasthan, Uttar Pradesh and Bihar, have been forced to move to urban areas, and as a result changed the spatial distribution of the Indian population.

Settlements – population size and distribution 1951–2011



Source: https://www.researchgate.net/publication/261697210_Urban_India_Evidence_2011

Distribution of Rural Settlements, 2011



Source: <https://www.indiaspend.com/wp-content/uploads/2019/01/Rural-settlements.png>



Image Source: L.Chaffar

INDIA: POPULATION & URBANISATION

In the decades between Independence 1947 and the Census 2011, an urban transition took place. While hamlets and small villages had housed 43% of the population in 1950, they were home to just 12% of the population in 2011. Around 24,000 settlements are now classified as 'large' and 'very large villages', where around 190 million people (more than 10% of India's population)--lived.

Source: <https://www.indiaspend.com/indias-missing-middle-24000-villages-with-populations-greater-than-towns-lose-out-on-policies-for-urban-areas/>



Ghaffar Market, Mumbai Source: L.Chaffer

YouTube

- Rural settlements in India

Source: <https://www.youtube.com/watch?v=t2aBGFFKQrs>

b. Urban settlements

The urban population of 377 million, constituting around 31.16% of the total population, live in 7,935 cities and towns. They are divided into:

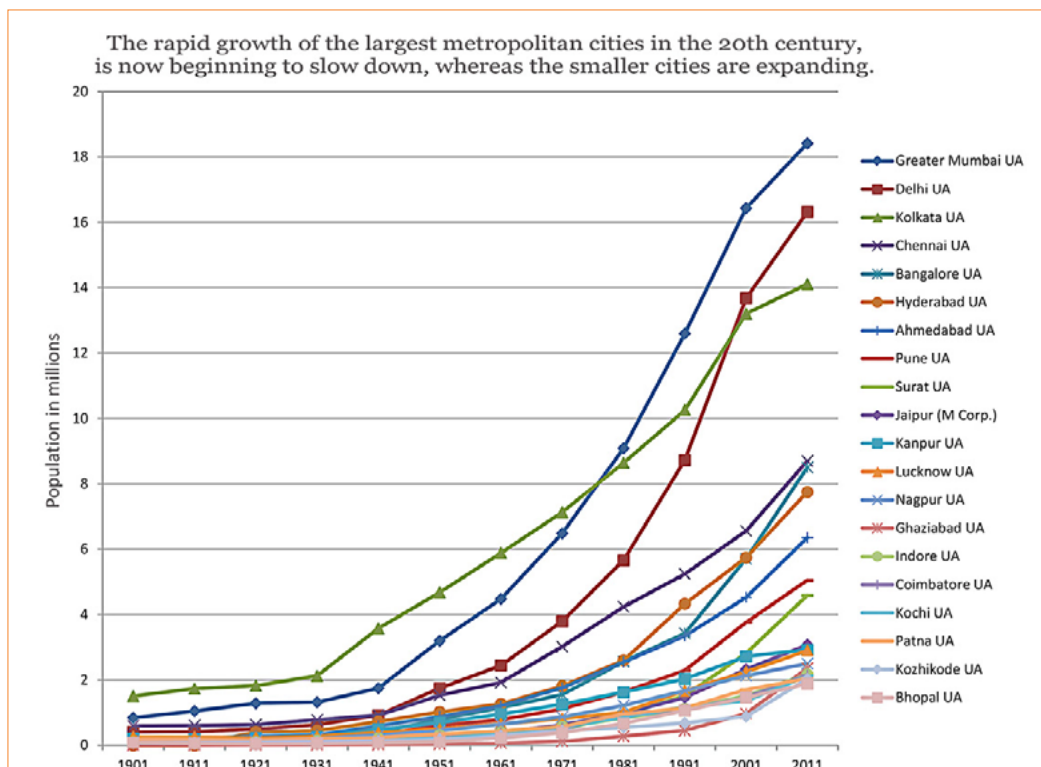
- Class I Towns or Cities: Populations of 100,000. These cities increased from 384 (2001) to 468 (2011).
- Million Plus Cities: 53 cities possess a population of 1 million and above (2011), that increased to 63 (2015)
- Megacities: Populations of 10 million and above e.g. Greater Mumbai UA (18.4 million), Delhi UA (16.3 million) and Kolkata UA (14.1 million). By 2030 it is anticipated India will have 7 megacities, with 9.6 million people moving to Delhi.

The top five states with the highest share of urban population are Goa, Mizoram, Tamil Nadu, Kerala and Maharashtra.

YouTube

- Is India becoming more urban? *The Economist*
Source: <https://www.youtube.com/watch?v=gtMeyAs7Vz0>
- Changing India: City Spaces
Source: <https://www.youtube.com/watch?v=FpZl4ZCki7g>
- "Urbanization in India" for UPSC and SSC
Source: https://www.youtube.com/watch?v=p7OQX_99itM
- Process of urbanisation in India
Source: <https://www.youtube.com/watch?v=830KUP-pNmY>

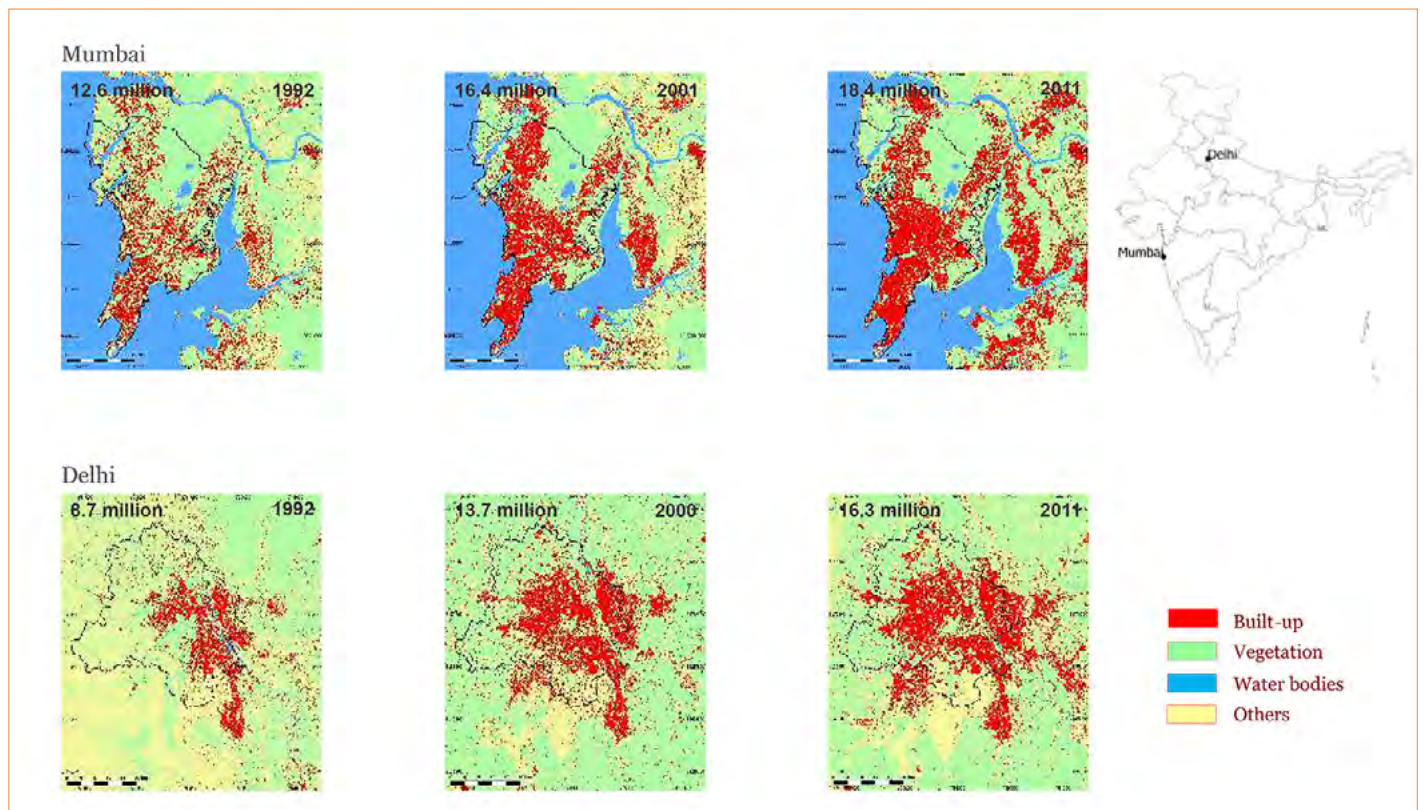
Largest 20 Urban Agglomerations by Population, 2011



Source: https://www.researchgate.net/publication/261697210_Urban_India_Evidence_2011

INDIA: POPULATION & URBANISATION

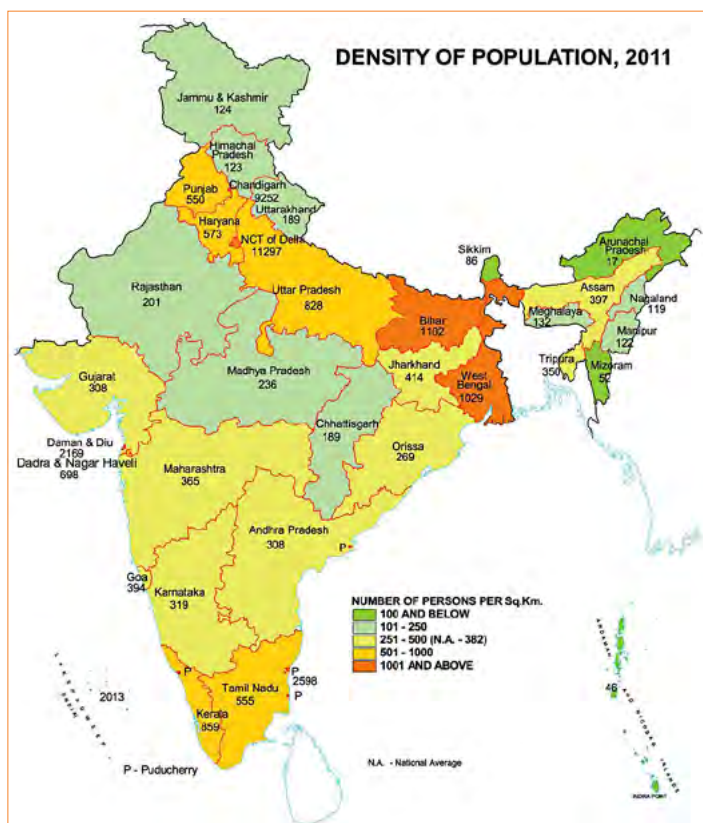
Changes to Urban Built-up Area & Land Cover: Mumbai & Delhi



PART E: SPATIAL DISTRIBUTION OF POPULATION DENSITY ACROSS INDIA

Population Density

- Urban areas:** Minimum population of 5,000 and density of 400 people/Km²
- Rural areas:** Population density of up to 400 people/Km²



As the map indicates, the spatial distribution of population density is unevenly distributed across states. Density is very high in Bihar (1102/Km²) and West Bengal (1029/Km²) and very low in Arunachal Pradesh (17/Km²).

A diversity of factors contribute to the uneven distribution of population density:

- Geographical location and environmental factors**

Physical differences in the location of places, such as landform, climate and access to natural resources such as land, clean water, fertile soils, forests and minerals varies across India. These physical distinctions resulted in differences in the spatial distribution of population and their densities. Consequently, the hilly terrain (Himachal Pradesh) and desert region (Rajasthan) have a lower population density compared to the northern flatter plains (Uttar Pradesh) and coastal areas (Kerala, West Bengal and Maharashtra).

Source: <http://cdn.yourarticlelibrary.com/wp-content/uploads/2013/12/024.jpg>

INDIA: POPULATION & URBANISATION

Rural areas – comparisons

NORTHERN PLAINS – High population density



The Northern Indo-Gangetic Plain covers the high density states of Punjab (550 people/Km²), Haryana (573 people/Km²), Uttar Pradesh (828 people/Km²) and Bihar (1102 people/Km²), with the National Capital Territory of Delhi (11,927 people/Km²).

Located at the foothills of the Himalayan Mountains, this densely populated landscape supports over 400 million people (about 1/7th of the world's population), with some rural areas reaching a high density of 2913 people/Km².

Over millions of years fertile alluvial soil was deposited, to form a large plain. Additionally, access to water such as the Ganga and Yamuna and Brahmaputra Rivers have ensured the plain is ideal for growing crops, as well as supporting high density urban populations of Kolkata (15 million people) and Delhi (19 million people).

THAR DESERT – Low population density



Rajasthan the largest state in India by area (10.41% of country's area) has a population of only 70 million (5.6% of country's population) and a low population density (200 people/Km²).

These population statistics are low compared to the fertile Northern Plains, as Rajasthan is located in the Thar Desert. The desert receives little precipitation (400mm/pa), and temperatures frequently exceed 54°C in summer. This environment makes life difficult for humans, agriculture and pastoralism.

Jaipur, the pink city and the capital city of Rajasthan, contains about 3.8 million people with a density of 595 people/Km², and is presently growing at 2.75% pa

Image source: Creative commons

Urban centres

Urbanisation is a major factor contributing to changes in the spatial distribution of India's population. As the Indian economy developed, push-pull forces such as unemployed labour in rural areas and relatively higher incomes in urban areas, resulted in rural-urban migration. The escalating movement of millions of people to urban areas in search of a better quality of life (e.g. jobs, shelter, education, health and services) resulted in over urbanisation (e.g. insufficient urban infrastructure, development of slums, and water, air and soil pollution). As population density increased, urban sprawl resulted in the emergence of unplanned development and haphazard construction of homes, and commercial and industrial areas generally located on the outskirts of cities and along major lines of communications.

Mumbai averages about 31,700 persons/Km². However, within Mumbai is located the slum Dharavi, with about one million residents containing densities varying from 66,000 – 92,000 persons/Km².

It must be noted that there are no reliable statistics. Some sources state Delhi, Kolkata and Chennai possess higher population densities than Mumbai, and that Dharavi has a population density more than ten times higher than Mumbai.



Bareilly Compound, Dharavi, Mumbai. Source: https://upload.wikimedia.org/wikipedia/commons/a/a3/Bareilly_Compound%2C_Dharavi_2016_%2829627340465%29.jpg

INDIA: POPULATION & URBANISATION

Table: Population density (total number of people per unit of area) is about 325 persons Km² for India but varies from extremely low (less than 100 persons per km²) to very high (over 1000 km²).

	EXTREMELY LOW DENSITY	LOW DENSITY	MODERATE DENSITY	HIGH DENSITY	VERY HIGH DENSITY
Population density	Less than 100 persons per Km ²	101 to 250 persons per km ²	251 to 500 persons per Km ²	501 to 1000 per Km ²	more than 1000 persons per Km ²
States and persons per Km ²	Arunachal Pradesh (13), Mizoram (42), Andaman and Nicobar Islands (43) Sikkim (76) and Jammu and Kashmir (100).	Meghalaya (103), Manipur (111), Himachal Pradesh (109) Nagaland (120), Chhattisgarh (154), Uttaranchal (159), Rajasthan (165), Madhya Pradesh (196), and Orissa (236).	Gujarat (258), Karnataka (276), Andhra Pradesh (277), Tripura (305), Maharashtra (315), Jharkhand (338), Assam (340), Goa (364), Dadra and Nagar Haveli (449), Haryana (478), Tamil Nadu (480) and Punjab (484).	Uttar Pradesh (690), Kerala (809), Bihar (881) and West Bengal (903)	Union Territories of Daman and Diu (1,413), Lakshadweep, Pondicherry (2,034), Chandigarh (7,800), and Delhi (9,340)
	Environmental factors dominate the density of population. Development of small cities		Human-environmental interactions dominate density of population. Development of large cities		
Human - environmental interactions	<ul style="list-style-type: none"> • Arunachal Pradesh and Mizoram located in remote inaccessible part of NE India. • Sikkim mountainous area. • Andaman and Nicobar Islands located far from the mainland and experienced a hot and humid climate. • Jammu and Kashmir located mostly in the rugged Himalayan Mountains. It has vast areas devoid of population, except for fertile valleys. 	<ul style="list-style-type: none"> • Himachal Pradesh and Uttaranchal located in NW Himalayan region has little level land to support high population density. • Most of Rajasthan is a sandy desert lacking water resources that cannot support a high population density. • Madhya Pradesh and Chhattisgarh have thickly forested rugged topography mostly inhabited by tribal people. 	<ul style="list-style-type: none"> • Assam has tea plantations. • Andhra Pradesh, Karnataka and Jharkhand have agricultural and mineral resources, and is highly urbanised. • Gujarat, urban and industrial growth, • Punjab and Haryana, highly developed agriculture. • Tamil Nadu, agriculture and industries. 	<ul style="list-style-type: none"> • West Bengal, Uttar Pradesh and Bihar located in the fertile Ganga plain support high density of population. Kolkata is the major city • India's biggest industrial cluster is located in the Hugli basin. • Kerala's coastal plain is very fertile. Thiruvananthapuram is the capital city 	<ul style="list-style-type: none"> • Delhi has one of the fastest population growths, and as a result of its population density increased. <p>This growth is primarily due to large scale migration of people from the surrounding areas.</p>

Adapted from source: spatial-distribution-of-population-density/19853



PART F: POPULATION DISTRIBUTION AND DENSITY CHANGES OVER TIME

International and internal migration contributed to the changing spatial distribution of the Indian population over time and space. The most important factor in the redistributing of the Indian population is internal migration. About 20% of the Indian population are internal migrants who have moved across Indian states or district boundaries, for reasons such as employment, education, marriage, family and improved wellbeing.

Internal migration flows are either permanent, semi-permanent or seasonal. However they are generally:

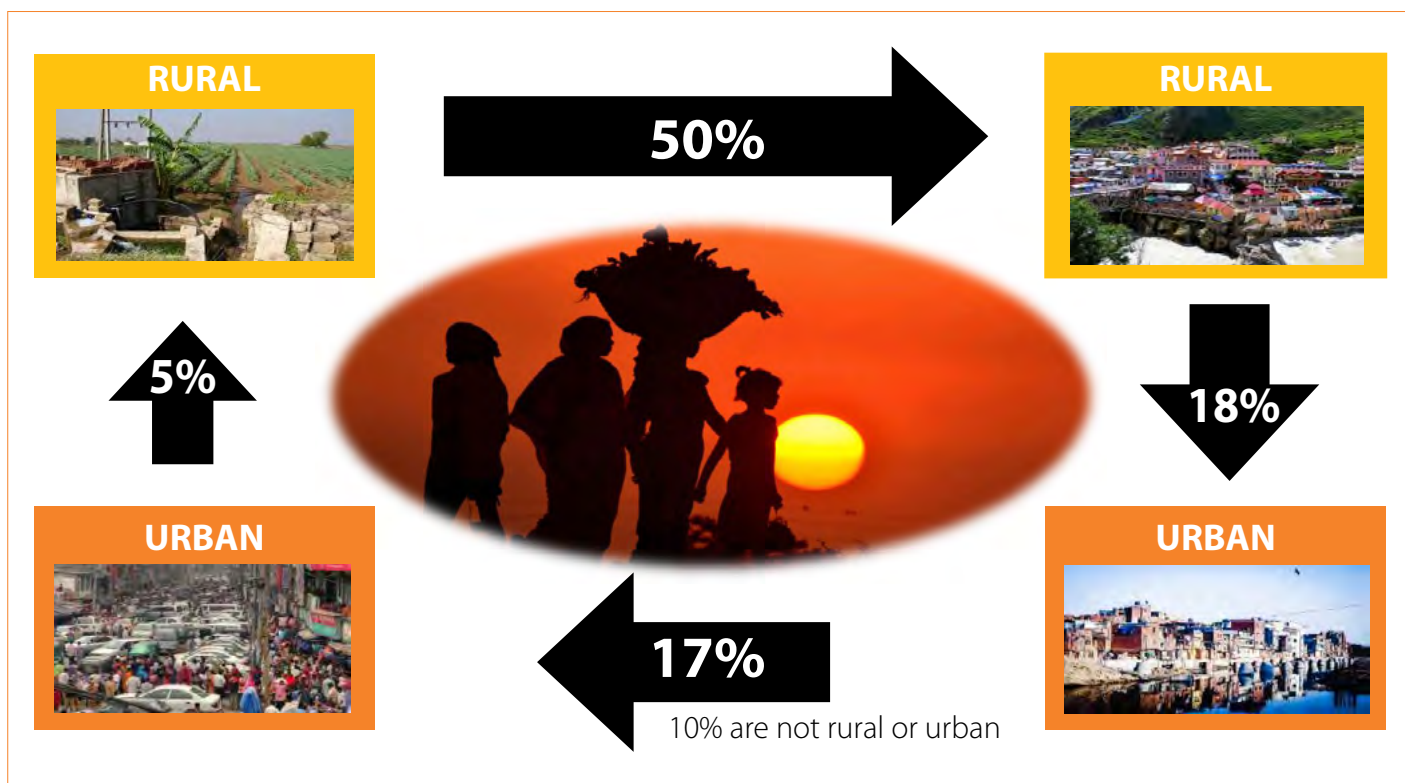
- Within the same state – *intra state* (85%)
- Across states – *interstate* (15%). Generally from high-income states to low-income states.

Four main streams of internal migration

The majority of the internal population movement is from one rural area to another rural area (50%). Even though rural-urban migration is only 18% of total internal migration, it is still huge. In fact every minute, 25–30 people migrate from rural to urban areas. If the pace of migration continues, by 2030 the Indian urban population will reach 600 million.

Delhi is the first choice for internal migrants due to its booming services economy and its high per capita income. In 2016 the population grew by nearly 1,000 a day of which over 300 were migrants.

About 9% could not be classified as 'rural' or 'urban'



Background image: <https://www.theweek.in/news/biz-tech/budget-2018-rural-india-steals-the-show.html>
<https://www.irforum.org/urban-dimensions-matter>; <https://www.indiawaterportal.org/articles/groundwater-depletes-north-and-east-india>;
<https://www.indiawaterportal.org/articles/whats-killing-ganga>

From 2001–2011, the number of migrants (inter-state and intra-state movements) was a staggering 139 million, averaging about 14 million each year. Additionally, the decadal growth in internal migration rose from 35.5% (1991–2000) to 44.2% (2001–2011).

- **Biggest migration source states:** Uttar Pradesh and Bihar, followed by Madhya Pradesh, Punjab, Rajasthan, Uttarakhand, Jammu and Kashmir and West Bengal.

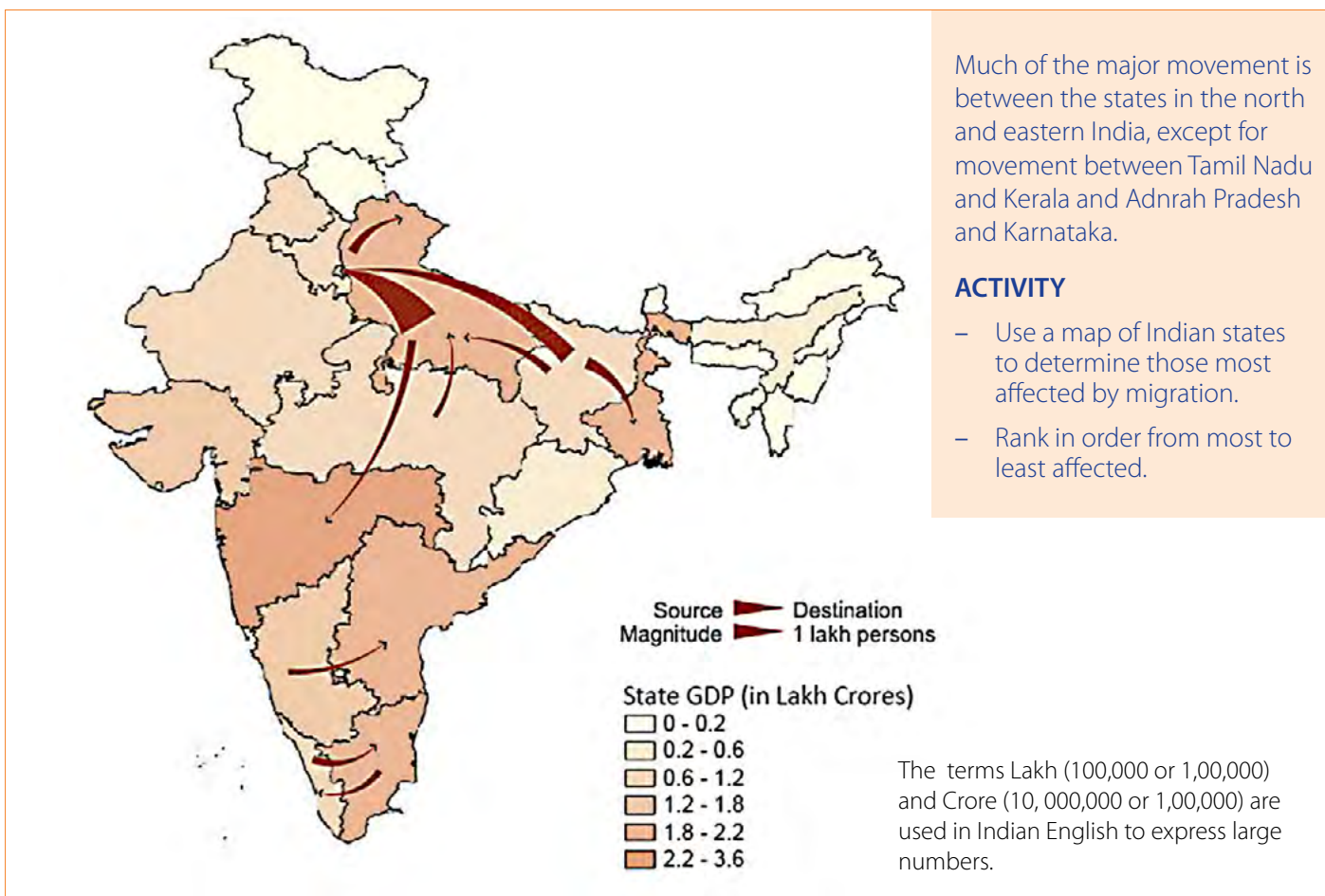
- **Major migration destination states:** Delhi, Maharashtra, Tamil Nadu, Gujarat, Andhra Pradesh and Kerala.

Rural-urban distribution of population (%), 1901, 1951 and 2011

	1901	1951	2011
Rural	89.2%	82.7%	68.8%
Urban	10.8%	17.3%	31.2%

INDIA: POPULATION & URBANISATION

Rural - Urban inter-state migration: sources and magnitude 2001 – 2011



Text edited by GTA NSW & ACT Source: <http://futurechallenges.org/wp-content/uploads/2012/09/Migration-Data.jpg>

International migration

International migration has a major impact on India's total population, its distribution and density.

- **Emigrants:** India has the more people living outside its borders than any other country. Over the past 25 years, the number of Indians emigrating has more than doubled. Approximately 50% reside in the United Arab Emirates, Pakistan and the United States.
- **Immigrants:** India is also one of the world's top destinations for international migrants. As of 2017,

about 5.2 million immigrants live in India, making it the 12th-largest immigrant population in the world. The overwhelming majority of India's immigrants arrive from neighbouring countries such as Bangladesh (3.2 million), Pakistan (1.1 million), Nepal (540,000) and Sri Lanka (160,000). India receives more remittances from migrants than any other country that contributes to economic development and improved human wellbeing.

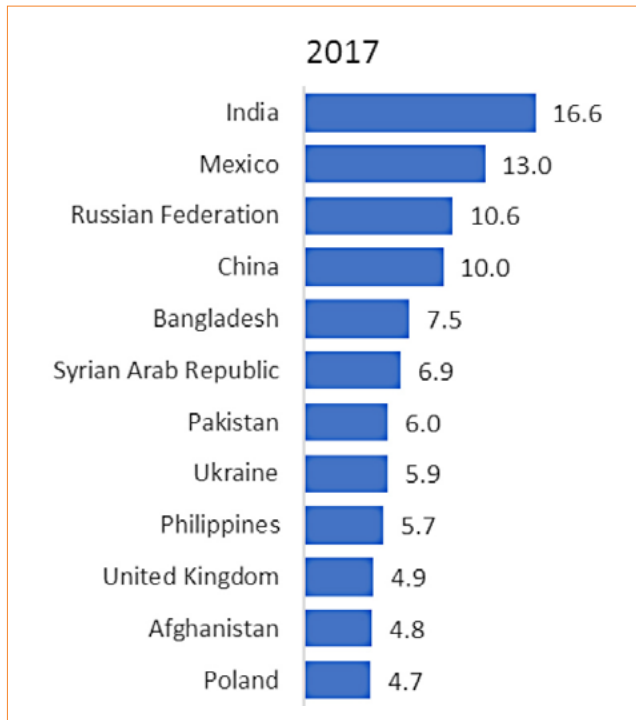
Major area, region, country or area of destination	Number of international migrants (thousands)		International migrants as percentage of total population		Females among international migrants (percentage)		Median age of international migrants (years)	
	2000	2017	2000	2017	2000	2017	2000	2017
INDIA	6,411	5,189	0.6	0.4	48.5	48.8	50.7	45.6

Source: https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017_Highlights.pdf

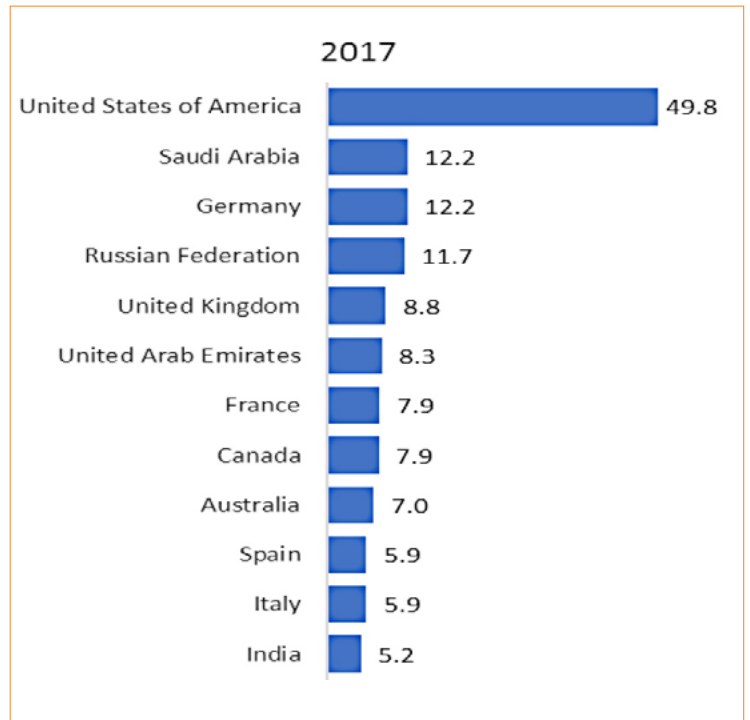
INDIA: POPULATION & URBANISATION

Largest countries of origin of international migrants

India is now the country with the largest number of people living outside the country's borders ("diaspora"),



Countries hosting the largest number of international migrants



Source: https://www.un.org/en/development/desa/population/migration/publications/migrationreport/docs/MigrationReport2017_Highlights.pdf

Interconnected reasons to migrate or stay

- Political: human rights abuses; conflicts; government planned cities
- Personal: age, education, sex, marital status, religion, ethnicity, wealth/poverty
- Social: education, families, health, communities
- Demographic: population size and density (over urbanisation)
- Environmental: exposure to hazards (e.g. floods, droughts, landslides, typhoons, storm surges – sometimes move for a short period of time), pollution, climate change
- Economic: employment, income, cost of living/prices

Migration improves human wellbeing when it:

- Fills in labour gaps (skilled, unskilled and seasonal). Increases workers' disposable income and wealth
- Enables remittances to be sent back home, that is then spent on health, education, shelter and businesses
- Brings new knowledge, skills and innovations to their original home and village

YouTube

- India – Internal Migrants
Source: <https://www.youtube.com/watch?v=aHkzl7kYHvk>
- Internal Migration in India, Significance of migration policy & challenges, Current Affairs 2018
Source: <https://www.youtube.com/watch?v=tylUds9j2Ns>

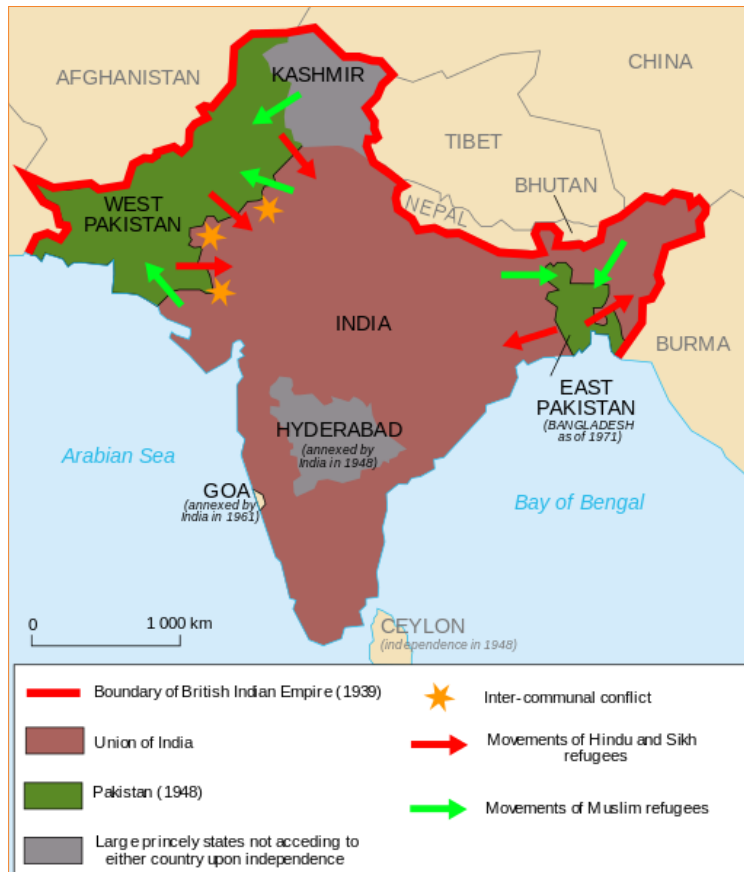
ICT: Interactive origins and destinations of the world's migrants, 1990–2017

Source: <https://www.pewglobal.org/2018/02/28/global-migrant-stocks/?country=IN&date=2017>

HISTORY PLAYS A ROLE IN THE DISTRIBUTION OF INDIA'S POPULATION

History has played an important part in the redistribution of the Indian population, after the partition of India in 1947, when populations moved in opposite directions, such as the outward movement of Muslims and the inward movement of Hindus and Sikhs.

Population exchange: partition of India 1947



Source: <https://courses.lumenlearning.com/cochise-sociology-os/chapter/population-transfer/>



In 1931, the British Raj shifted India's capital city from Calcutta (Kolkata) to Delhi creating changes to the distribution of the Indian population. Delhi was selected as the new capital city because this ancient city had previously been the capital of Mughal India (1649 to 1857). Additionally it possessed the infrastructure for the British administration of the country, rising opposition to British rule erupted in Calcutta, and its links with Hindu "sacred legends".

In 1947, thousands of Hindu and Sikh refugees from predominantly Muslim Pakistan entered Delhi, as well as the ongoing heavy flow of immigrants, mostly from other Indian states or from adjacent countries. Today, Old or Historic Delhi is located in the north of the city, and New Delhi, in the south.

YouTube

- Partition of India and Pakistan 1947

Source: <https://www.youtube.com/watch?v=H3lkxVTnxsg>

PART G: SPATIAL DISTRIBUTION OF INDIAN CITIES

Urbanisation in India is taking place at an escalating rate from 10.8% (1901) to 31.2% (2011), and predicted to reach 50% by 2050. India possesses 25 of the 100 fastest-growing cities worldwide with a few megacities and large metropolises containing a disproportionate large share of India's urban population.

Spatial distribution of Indian cities across states

The spatial distribution of urban centres has been radically transformed from a few port cities during the British rule to the emergence of a large number of cities scattered across the country.

Large cities tend to be located in states where there are more abundant natural resources and the environment more accommodating for human habitat. For example Kolkata is located on the fertile, productive Ganges Plain.

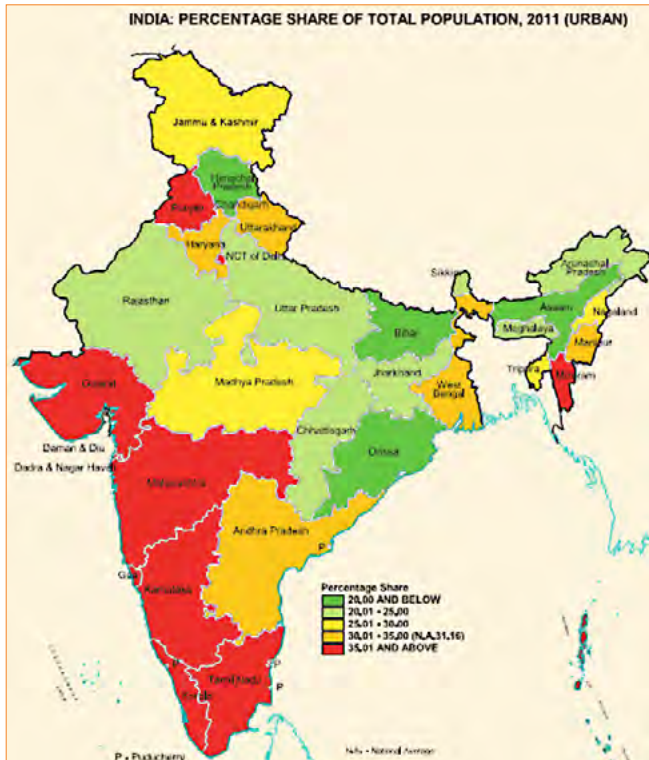
According to the 2011 Census, Maharashtra's total population living in the urban areas is the highest (50,818,259) followed by Uttar Pradesh (44,495,063) and

Tamil Nadu (34,917,440). However, considering the proportion of people living in urban areas Goa ranks first (62.17%), followed by Tamil Nadu (48.40%), Kerala (47.70%) and Maharashtra (45.22%). The Empowered Action Group (EAG) States of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Rajasthan, Uttaranchal and Uttar Pradesh have a lower percentage of urban population (21.13%) in comparison to non EAG States (39.66%). Himachal Pradesh (89.96%) has the largest proportion of rural population and therefore the smallest urban population (10.3%).

INDIA: POPULATION & URBANISATION

Choropleth map: Percentage share of total urban population for Indian states and territories –

Predominantly in East India



Source: https://makanaka.files.wordpress.com/2011/04/census_paper2_urbanpop2011.png

Indian Megacities

In 2016, India was home to five megacities, with a population of over 10 million, but by 2030 this number is predicted to rise to seven (Delhi, Mumbai, Kolkata, Bangalore, Chennai, Hyderabad and Ahmedabad). From 2001–2011, Indian cities witnessed the fastest rate of urbanisation in the world—Delhi's population rose by 4.1%, Mumbai's by 3.1% and Kolkata's by 2%. By 2035 Delhi is predicted to become the largest city in India.

Over the last decade megacities experienced a slower growth rate compared with medium sized cities. For example the megacity of Greater Mumbai UA, witnessed 30.5% population growth during 1991–2001 but declined to 12.1% during 2001–2011.

Indian Metropolises

A city with a population of one million is called a 'metropolis' or metropolitan city. Over time the size and number of metropolitan cities has increased dramatically. In 1901 Kolkata was the only metropolis in India but by 2011 there were 52 metropolises distributed across India such as:

- 14 in the Great Indian Plains
- 15 in coastal areas

- 22 in the peninsular region
- 1 in Srinagar the only metropolis in NW Himalayas
- 0 in NE Himalayas

Over the last decade over 91 million people have been added to metropolitan cities, accounting for 43% of the urban population. These metropolises grew faster in comparison to other cities in their state.

Over Urbanisation

After 1941, a rapid growth of cities across India occurred. The growth was a combination of natural increase (births greater than deaths), rural-urban migration, industrial development and expansion of government infrastructure and services (employment). However the rapid population increase resulted in over urbanisation with the development of slums and air, water and soil pollution, causing a decline in human wellbeing.

Indian cities are not equipped to cater to the accelerated speed of urbanisation and therefore, this trend is taking its toll on basic infrastructure like water supply, electricity lines and roads. As a result, not only is there an increase in slum areas and construction of unsafe and unauthorised buildings. There are issues of water and electricity shortage besides major environmental concerns which is causing a deterioration in the urban standard of living.

Source: <https://www.mapsofindia.com/my-india/society/is-village-life-better-than-city-life>

Indian cities encompass exclusionary urbanisation. This occurs where poor migrants are prohibited or discouraged to move to urban centres. Meanwhile, rich migrants or urban- elites are welcomed. It is defined as 'elite capture' or the 'big-city bias.' As a result shiny, high rise structures are displacing slums

Source: https://www.jstor.org/stable/23251688?seq=1#page_scan_tab_contents

You Tube

- Top 10 Largest Cities in India
Source: https://www.youtube.com/watch?v=LkSWrKQJ_FU
- 35 India, Delhi - City Tour
Source: https://www.youtube.com/watch?v=SGtRK_H_HNg
- Inside the Dharavi slums of Mumbai
Source: <https://www.youtube.com/watch?v=PBMDGcYWPvU>



Government responses

The inflows of migrants from rural areas and small towns to big cities has contributed to urban congestion and housing shortages in cities across India. Mumbai, Delhi, and Kolkata are known for the proliferation of slums and pavement dwellings.

One of the policy conclusions is that governments should prevent internal migration, through rural employment programs. For example, the national Inter-State Migrant Workmen Act of 1979 addresses unjust working conditions of migrant workers, such as the right of workers to equal wages to those of local employees, the right to return home periodically without losing wages, and the right to medical care and housing at the employment site. In practice, however, this act is overwhelmingly ignored by state governments.

Source: <https://www.migrationpolicy.org/article/internal-labor-migration-india-raises-integration-challenges-migrants>

New Smart Cities for tomorrow

Aimed to improve human wellbeing in Indian cities, the government has introduced its Smart Cities Mission or urban renewal program to develop 100 cities making them sustainable and liveable.



Source: <https://www.tomorrowmakers.com/real-estate/what-rise-smart-cities-means-indian-investors-article>

YouTube

- What is a smart city?
Source: <https://www.youtube.com/watch?v=Br5aJa6MkBc>
- How Successful Is Modi Government's Smart Cities Mission? Urban Reality
Source: <https://www.youtube.com/watch?v=4flqJFcADCE>
- Top 5 Smart Cities in India 2018
Source: <https://www.youtube.com/watch?v=HEGmRxTs9Jw>
- You Won't Believe This Is India!
Source: <https://www.youtube.com/watch?v=xUKjK1CfE18>

PART H: CLIMATE MIGRANTS FUTURE POPULATION MOVEMENTS AND DISTRIBUTION

Mass migration from climate change will alter the distribution and density of the Indian population. Even today, extreme weather events like cyclones, droughts, floods and tropical storms in India's disaster-prone regions have forced climate migrants to either adapt or move to big cities.

NEW DELHI, July 26 2016 (IPS)

Displacement of populations due to erratic and extreme weather (a fallout of climate change), has become a reality for millions of people across India. Flooding in Jammu and Kashmir (2015), in Uttarakhand (2013) and in Assam (2012) displaced 1.5 million people.

Deepa Kumari, a 36-year-old farmer in the Himalayan state of Uttarakhand, lives in a one-room tenement in south Delhi's Mongolpuri slum with her three children. Flash floods and incessant rain engulf Uttarakhand every year, causing casualties, deaths and loss of property. As a consequence many people like Kumari are abandoning their hilly homes to seek succour in the plains. "I was tired of putting back life's pieces again and again after massive floods each year".

Evidence of mass migration is obvious in villages that are emptying out. As per Census 2011, of Uttarakhand's 16,793 villages, 1,053 have no inhabitants and another 405 have less than ten residents. The number of such 'phantom villages' has surged particularly after the earthquake and flash floods of 2013.

Cyclone Phailin, which swamped the coastal Indian state of Orissa (2013), triggered large-scale migration of fishing communities. Researchers in the eastern Indian state of Assam and in Bangladesh estimated that around a million people have been rendered homeless due to erosion in the Brahmaputra river basin over the last three decades.

Drought-impacted Maharashtra and Andhra Pradesh are seeing a wave of migration as crops fail. Many people have been forced to leave their parched fields for India's cities in search of work. Drought has affected about 25% of India's 1.3 billion people.

Source: <https://reliefweb.int/report/india/climate-migrants-lead-mass-migration-india-s-cities>



Source: [https://commons.wikimedia.org/wiki/File:India_-_Kanchipuram_-_010_\(1885517933\).jpg](https://commons.wikimedia.org/wiki/File:India_-_Kanchipuram_-_010_(1885517933).jpg)

Over the first few months of 2018, a large section of Northeast India was ravaged by flash floods with over 100,000 affected in Assam. The situation is equally bad in the states of Tripura, Meghalaya, Manipur and Mizoram.

Caught in an endless negative spiral of instability, poverty and desperation, this is the sad plight of a growing number of people, now referred to as climate migrants or climate refugees.

A number of climate migrants from the South have moved to Mumbai as a result of land degradation and desertification, while migrants from the North have largely moved to Mumbai because of drought.

Source: <https://thediplomat.com/2018/08/taking-indias-climate-migrants-seriously/>



Source: [https://commons.wikimedia.org/wiki/File:An_aerial_view_of_flood-affected_areas_of_Assam_on_July_02,_2012_\(1\).jpg](https://commons.wikimedia.org/wiki/File:An_aerial_view_of_flood-affected_areas_of_Assam_on_July_02,_2012_(1).jpg)

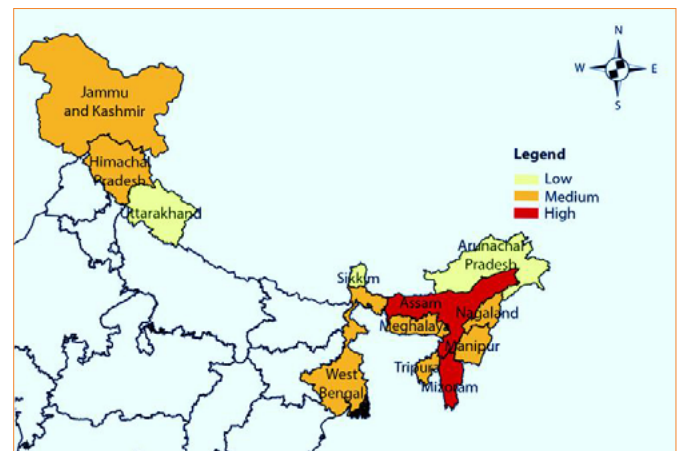
CASE STUDY: Assam – Climatechange and population movements

The large number of Bangladeshi climate migrants, have changed the demographic makeup of India's north eastern states. The most well-known case is Assam, which has long provided asylum to Bangladeshi migrants. However, tensions are brewing because the increasing number of Bangladeshi's moving across the border to Assam is threatening land, resources, rights, and identity of the state, especially the ethnic Bodo group. Growing tensions between the two groups led to violence against Bengali-speaking Muslim villages.

In recent elections in Assam, proposals for Bangladeshi deportation were at the centre of the political debate. With the already high tensions between Bangladeshi and local Indian communities, and the Indian government's security approach towards undocumented migrants, a sudden influx of Bangladeshi climate-induced migrants will not be warmly welcomed.

Source: <https://www.asiapacific.ca/blog/climate-change-redefining-migration-example-bangladesh>

Climate Change Vulnerability Index for Indian Himalayan Region (IHR)



Source: http://dst.gov.in/sites/default/files/IHCAP_Climate%20Vulnerability%20Assessment_30Nov2018_Final_aw.pdf

You Tube

- Climate refugees in Bangladesh
Source: <https://www.youtube.com/watch?v=co5uywe-1Z8>
- Bangladeshi Immigrants in India?
Source: <https://www.youtube.com/watch?v=15VQkurX5yk>
- Bangladesh: climate refugees already a reality
Source: <https://www.youtube.com/watch?v=h9FGe1sPB6Q>



Severe flooding in Bangladesh. Source: https://commons.wikimedia.org/wiki/File:Flooding_after_1991_cyclone.jpg

Assam is the most vulnerable state in the Indian Himalayan Region (IHR) to climate change due to its:

- Geographic proximity to the delta region. The region experiences a tropical monsoon climate, receives high precipitation and experiences annual floods from the Brahmaputra and other rivers.
- Poor socio-economic conditions with almost 32% of the population living below the poverty line

The majority of Assam's population is dependent on agriculture, which is subjected to floods and droughts, as well as farmers lack alternative sources of income. Rural-urban migration will rise when agriculture-dependent livelihoods come under increasing climate stress, and urban areas will be required to encompass the growing number of people.

The Climate Change Vulnerability Index, noted that Assam with an index score of 0.72 was the most vulnerable Indian state. In contrast Sikkim, with a smaller index score of 0.42 was relatively less vulnerable. Assam was exceptionally vulnerable because of high population density, over dependence on food grains and low per capita income.

PART I: ACTIVITIES

- Explain the following terms in relation to India:
 - Rural versus urban settlements
 - Interstate versus intrastate population movements
 - Emigrants versus immigrants
 - Push-pull forces in relation to migration
 - Megacity versus a metropolis
 - Over urbanisation
 - Exclusionary urbanisation
 - Smart cities
 - Fertility rate versus crude birth rate.
- Explain why you prefer a gridded population cartogram or a proportional circle population map to illustrate the scattered population distribution across India. List the six largest centres indicated on both maps.
- In pairs, summarise India's demographics as a TV report using photographs.
- Compare population growth and structure of India with China in the past, present and predicted future, using maps, graphs and tables. Present research using ICT.
- Explain what is meant by the fertility rate and how it differs between states, rural-urban areas, religions and castes in India.
- Provide two examples of the following in India – sparsely populated states and highly populated states. Provide reasons for the differences.
- India is predominantly a rural country. Explain this statement using current statistics.
- Compare density of rural population between the Thar Desert and the Ganges Northern Plain. Provide reasons for the differences.
- Distinguish between the three main types of urban settlements.
- Examine the multiple reasons for the uneven distribution of India's population. Present as a short response.
- List the four main streams of internal migration and how it impacts on population distribution.

- Review the role of history on the changing population distribution in India.
- List the reasons why Indians move to different places across the country.
- Argue how climate change is predicted to change the distribution of India's population.
- Discuss how India's population distribution and density is scattered across the country's states, using a variety of maps.

Let's go forward!

- How can policymakers integrate resilience into India's agricultural system affected by natural disasters?
- How do governments ensure that megacities are less vulnerable to mass urbanisation?
- What is India's long-term plan for rehabilitation and reconstruction in the event of climate-induced disasters?

ICT

- India population 2019
Source: <http://worldpopulationreview.com/countries/india-population/>
- List of states and union territories of India by population
Source: https://en.wikipedia.org/wiki/List_of_states_and_union_territories_of_India_by_population
- India Population
Source: <https://www.worldometers.info/world-population/india-population/>

YouTube

- Demography of India
Source: <https://www.youtube.com/watch?v=1ail-D-XIng>
- Why do some places have a greater population density than others
Source: <https://www.youtube.com/watch?v=hMOat3MAxIw>
- Population of India and the factors affecting population
Source: <https://www.youtube.com/watch?v=SisxGBUif88>