POPULATION AND DEVELOPMENT: POPULATION POLICIES IN DEVELOPED AND LESS DEVELOPED COUNTRIES –HUMAN DEVELOPMENT INDEX (HDI) AND ITS COMPONENTS INDIA POPULATION POLICIES –POPULATION AND ENVERONMENT-IMPLICATION FOR THE FUTURE

Population growth is the increase in the number of individuals in a <u>population</u>. Global human population growth amounts to around 83 million annually,[2] or 1.1% per year. The <u>global population</u> has grown from 1 billion in 1800 to 7.8 billion[3] in 2020. It is expected to keep growing, and estimates have put the total population at 8.6 billion by mid-2030, 9.8 billion by mid-2050 and 11.2 billion by 2100.[4] Many nations with rapid population growth have low standards of living, whereas many nations with low rates of population growth have high standards of living.[5]

Absolute increase in global human population per year[1]

Population[6]		
Years passed	**Year**	**Billion**
–	1800	1
127	1927	2
33	1960	3
14	1974	4
13	1987	5
12	1999	6
12	2011	7
12	2023*	8
14	2037*	9
18	2055*	10
33	2088*	11

*World Population Prospects 2017
(United Nations Population Division)

History

World human population estimates from 1800 to 2100, with estimated range of future population after 2020 based on "high" and "low" scenarios. Data from the United Nations projections in 2019.

World population has been rising continuously since the end of the Black Death, around the year 1350.[7] Population began growing rapidly in the Western world during the industrial revolution. The most significant increase in the world's population has been since the 1950s, mainly due to medical advancements[8] and increases in agricultural productivity.[9]

Haber process

Main article: Haber process § Economic and environmental aspects

Due to its dramatic impact on the human ability to grow food, the Haber process served as the "detonator of the population explosion", enabling the global population to increase from 1.6 billion in 1900 to 7.7 billion by November 2019.[10]

Thomas McKeown hypotheses

Some of the reasons for the "Modern Rise of Population"[11] were particularly investigated by the British health scientist Thomas McKeown (1912-1988). In his publications, McKeown challenged four theories about the population growth:

1. McKeown stated that the growth in Western population, particularly surging in the 19th century, was not so much caused by an increase in fertility, but largely by a decline of mortality particularly of childhood mortality followed by infant mortality,[12][13]
2. The decline of mortality could largely be attributed to rising standards of living, whereby McKeown put most emphasis on improved nutritional status,
3. His most controversial idea, at least his most disputed idea, was that he questioned the effectiveness of public health measures, including sanitary reforms, vaccination and quarantine,[14]
4. The sometime fierce disputes that his publication provoked around the "McKeown thesis", have overshadowed his more important and largely unchallenged argument that curative medicine measures played little role in mortality decline, not only prior to the mid-20th century[12] but also until well into the 20th century.[15]

Although the McKeown thesis has been heavily disputed, recent studies have confirmed the value of his ideas.[16] His work is pivotal for present day thinking about population growth, birth control, public health and medical care. McKeown had a major influence on many population researchers, such as health economists and Nobel prize winners Robert W. Fogel (1993) and Angus Deaton (2015). The latter considered McKeown as "the founder of social medicine".[17]

Population growth rate

The "population growth rate" is the rate at which the number of individuals in a population

increases in a given time period, expressed as a fraction of the initial population. Specifically, population growth rate refers to the change in population over a unit time period, often expressed as a percentage of the number of individuals in the population at the beginning of that period. This can be written as the formula, valid for a sufficiently small time interval:

A positive growth rate indicates that the population is increasing, while a negative growth rate indicates that the population is decreasing. A growth ratio of zero indicates that there were the same number of individuals at the beginning and end of the period—a growth rate may be zero even when there are significant changes in the birth rates, death rates, immigration rates, and age distribution between the two times.[18]

A related measure is the net reproduction rate. In the absence of migration, a net reproduction rate of more than 1 indicates that the population of females is increasing, while a net reproduction rate less than one (sub-replacement fertility) indicates that the population of females is decreasing.

Most populations do not grow exponentially, rather they follow a logistic model. Once the population has reached its carrying capacity, it will stabilize and the exponential curve will level off towards the carrying capacity, which is usually when a population has depleted most its natural resources.[19]

The logistic growth of a population.

Logistic equation

The growth of a population can often be modelled by the logistic equation[20]

where

- = the population after time t;

- = time a population grows;

- = the relative growth rate coefficient;

- = the carrying capacity of the population; defined by ecologists as the maximum population size that a particular environment can sustain.[19]
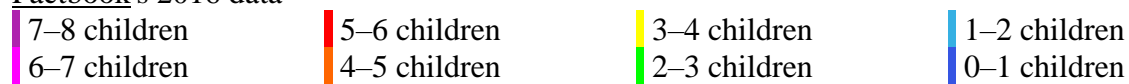
As it is a separable differential equation, the population may be solved explicitly, producing a logistic function:

,

where   and   is the initial population at time 0.

Human population growth rate

Further information: Total fertility rate, World population estimates, and Human overpopulation
See also: Population dynamics and Overshoot (population)
A world map showing global variations in fertility rate per woman according to the CIA World Factbook's 2016 data

7–8 children	5–6 children	3–4 children	1–2 children
6–7 children	4–5 children	2–3 children	0–1 children

Estimates of population evolution in different continents between 1950 and 2050 according to the United Nations. The vertical axis is logarithmic and is in millions of people.
World population growth rates between 1950–2050

In 2017, the estimated annual growth rate was 1.1%.[21] The CIA World Factbook gives the world annual birthrate, mortality rate, and growth rate as 1.86%, 0.78%, and 1.08% respectively.[22] The last 100 years have seen a massive fourfold increase in the population, due to medical advances, lower mortality rates, and an increase in agricultural productivity[23] made possible by the Green Revolution.

The annual increase in the number of living humans peaked at 88.0 million in 1989, then slowly declined to 73.9 million in 2003, after which it rose again to 75.2 million in 2006. In 2017, the human population increased by 83 million.[21] Generally, developed nations have seen a decline in their growth rates in recent decades, though annual growth rates remain above 2% in poverty-stricken countries of the Middle East and Sub-Saharan Africa, and also in South Asia, Southeast Asia, and Latin America.[24]

In some countries the population is declining, especially in Eastern Europe, mainly due to low fertility rates, high death rates and emigration. In Southern Africa, growth is slowing due to the high number of AIDS-related deaths. Some Western Europe countries might also experience population decline.[25] Japan's population began decreasing in 2005.[26]

The United Nations Population Division projects world population to reach 11.2 billion by the end of the 21st century, but Sanjeev Sanyal has argued that global fertility will fall below the replacement rate in the 2020s and that world population will peak below 9 billion by 2050, followed by a long decline.[27] A 2014 study in *Science* concludes that the global population will reach 11 billion by 2100, with a 70% chance of continued growth into the 22nd century.[28]

For further information regarding Human Population Growth, one could see the works of Al Bartlett, Hans Rosling, John Lovelock, Paul R. Ehrlich as well as Cleric Thomas Robert Malthus.

Growth by country

According to United Nations population statistics, the world population grew by 30%, or 1.6 billion humans, between 1990 and 2010.[29] In number of people the increase was highest in India (350 million) and China (196 million). Population growth rate was among highest in the United Arab Emirates (315%) and Qatar (271%).[29]

Growth rates of the world's most populous countries

Rank	Country	Population 1990	Population 2010	Estimated population 2018[30]	Growth (%) 1990–2010	Growth (%) 2010–2018
	World	5,306,425,000	6,895,889,000	7,503,828,180	30.0%	
1	China	1,139,060,000	1,341,335,000	1,384,688,986	17.1%	3.23%
2	India	873,785,000	1,224,614,000	1,296,834,042	40.2%	5.90%
3	United States	253,339,000	310,384,000	329,256,465	22.5%	6.08%
4	Indonesia	184,346,000	239,871,000	262,787,403	30.1%	9.55%
5	Brazil	149,650,000	194,946,000	208,846,892	30.3%	7.13%
6	Pakistan	111,845,000	173,593,000	207,862,518	55.3%	19.74%
7	Nigeria	97,552,000	158,423,000	203,452,505	62.4%	28.42%
8	Bangladesh	105,256,000	148,692,000	159,453,001	41.3%	7.24%
9	Russia	148,244,000	142,958,000	142,122,776	-3.6%	-0.58%
10	Japan	122,251,000	128,057,000	126,168,156	4.7%	-1.48%

Many of the world's countries, including many in Sub-Saharan Africa, the Middle East, South Asia and South East Asia, have seen a sharp rise in population since the end of the Cold War. The fear is that high population numbers are putting further strain on natural resources, food supplies, fuel supplies, employment, housing, etc. in some of the less fortunate countries. For example, the population of Chad has ultimately grown from 6,279,921 in 1993 to 10,329,208 in 2009,[31] further straining its resources. Vietnam, Mexico, Nigeria, Egypt, Ethiopia, and the DRC are witnessing a similar growth in population.

The following table gives some example countries:

Example nation	1967 population	1990 population	1994 population	2002 population	2008 population	Life expectancy in years (2008)	Total population growth from 1960s to

							2007-2011
Eritrea*	N/A*	N/A*	3,437,000[32]	4,298,269	5,673,520[33]	61[34]	2,236,520
Ethiopia*	23,457,000*[35]	50,974,000*[36]	54,939,000[32]	67,673,031(2003)	79,221,000[37]	55[34]	55,764,000
Sudan	14,355,000†[35]	25,204,000†[36]	27,361,000†[32]	38,114,160(2003)†	42,272,000†[33]	50†[34]	27,917,000
Chad	3,410,000[35]	5,679,000[36]	6,183,000[32]	9,253,493(2003)	10,329,208(2009)[31]	47[34]	6,919,205
Niger	3,546,000[35]	7,732,000[36]	8,846,000[32]	10,790,352(2001)	15,306,252(2009)[38]	44[34]	11,760,252
Nigeria	61,450,000[35]	88,500,000[36]	108,467,000[32]	129,934,911	158,259,000[33]	47[34]	96,809,000
Mali	4,745,000[35]	8,156,000[36]	10,462,000[32]	11,340,480	14,517,176(2010)[39]	50[34]	9,772,176
Mauritania	1,050,000[35]	2,025,000[36]	2,211,000[32]	2,667,859(2003)	3,291,000(2009)[31]	54[34]	2,241,000
Senegal	3,607,000[35]	7,327,000[36]	8,102,000[32]	9,967,215	13,711,597(2009)[40]	57[34]	10,104,597
Gambia	343,000[35]	861,000[36]	1,081,000[32]	1,367,124(2000)	1,705,000[33]	55[34]	1,362,000
Algeria	11,833,126(1966)[35]	25,012,000[36]	27,325,000[32]	32,818,500(2003)	34,895,000[37][41]	74[34]	23,061,874
The DRC/Zaire	16,353,000[35]	35,562,000[36]	42,552,000[32]	55,225,478(2003)	70,916,439[37][42]	54[34]	54,563,439
Egypt	30,083,419(1966)[35]	53,153,000[36]	58,326,000[32]	70,712,345(2003)	79,089,650[37][43]	72[34]	49,006,231
Réunion (overseas region of France)	418,000[35]	N/A[36]	N/A[32]	720,934(2003)	827,000(2009)[33]	N/A[34]	409,000
The Falkland Islands (British Overseas	2,500[35]	N/A[36]	N/A[32]	2,967(2003)	3,140(2010)[44]	N/A[34]	640

Territory
)

Territory							
Chile	8,935,500[35]	13,173,000[36]	13,994,000[32]	15,116,435	17,224,200 (2011)	77[34]	8,288,700
Colombia	19,191,000[35]	32,987,000[36]	34,520,000[32]	41,088,227	45,925,397 (2010)[45]	73[34]	26,734,397
Brazil	85,655,000[35]	150,368,000[36]	153,725,000[32]	174,468,575 (2000)	190,732,694 (2010) [46]	72[34]	105,077,694
Mexico	45,671,000[35]	86,154,000[36]	93,008,000[32]	103,400,165 (2000)	112,322,757 (2010)[47]	76[34]	66,651,757
Fiji	476,727 (1966)[35]	765,000[36]	771,000[32]	844,330 (2001)	849,000[41] (2010)	70[34]	372,273
Nauru	6,050 (1966)[35]	10,000[36]	N/A[32]	12,329	9,322 (2011)[48]	N/A[34]	3,272
Jamaica	1,876,000[35]	2,420,000[36]	2,429,000[32]	2,695,867 (2003)	2,847,232[49](2010)	74[34]	971,232
Australia	11,540,764 (1964)[35]	17,086,000[36]	17,843,000[32]	19,546,792 (2003)	25,727,470[50] (2010)	82[34]	10,066,508
Albania	1,965,500 (1964)[35]	3,250,000[36]	3,414,000[32]	3,510,484	2,986,952 (July 2010 est.)[31][51]	78[34]	1,021,452
Poland	31,944,000[35]	38,180,000[36]	38,554,000[32]	38,626,349 (2001)	38,192,000 (2010)[52]	75[34]	6,248,000
Hungary	10,212,000[35]	10,553,000[36]	10,261,000[32]	10,106,017	9,979,000 (2010)[53]	73[34]	-142,000
Bulgaria	8,226,564 (1965)[35]	8,980,000[36]	8,443,000[32]	7,707,495(2 000)	7,351,234 (2011)[54]	73[34]	-875,330
United Kingdom	55,068,000 (1966)[35]	57,411,000[36]	58,091,000[32]	58,789,194	62,008,048 (2010)[55]	79[34]	7,020,048
Ireland	2,884,002 (1966)[35]	3,503,000[36]	3,571,000[32]	3,840,838 (2000)	4,470,700[56] (2010)	78[34]	1,586,698
People's Republic of China	720,000,000[35]	1,139,060,000[36]	1,208,841,000[32]	1,286,975,468 (2004)	1,339,724,852 (2010)[57]	73[34]	619,724,852
Japan‡	98,274,961 (1965)[35]	123,537,000[36]	124,961,000[32]	127,333,002	127,420,000 (2010)[58]	82[34]	28,123,865
India#	511,115,000[35]	843,931,000[36]	918,570,000[32]	1,028,610,328 (2001)	1,210,193,422 (2011)[59]	69[34]	699,078,422

Singapore	1,956,000 (1967)[35]	3,003,000 (1990) [36]	2,930,000 (1994)[32]	4,452,732 (2002)	5,076,700 (2010)[60]	82 (2008)[34]	3,120,700
Monaco	24,000 (1967)[35]	29,000 (1990) [36]	N/A (1994)[32]	31,842 (2000)	35,586[61] (2010)	(2008)[34]	11,586
Greece	8,716,000 (1967)[35]	10,123,000 (1990) [36]	10,426,000 (1994)[32]	10,964,020 (2001)[62]	11,305,118 (2011)[63]	N/A (2008)[34]	2,589,118
Faroe Islands (Danish dependency)	38,000 (1967)[35]	N/A (1990) [36]	N/A (1994)[32]	46,345 (2000)	48,917 (2010) [64]	N/A (2008)[34]	18,917
Liechtenstein	20,000 (1967)[35]	29,000 (1990) [36]	N/A (1994)[32]	33,307 (2000)	35,789 (2009)[65]	(2008)[34]	15,789
South Korea	29,207,856 (1966)[35]	42,793,000 (1990) [36]	44,453,000 (1994)[32]	48,324,000 (2003)	48,875,000 (2010) [66]	(2008)[34]	19,667,144
North Korea	12,700,000 (1967)[35]	21,773,000 (1990) [36]	23,483,000 (1994)[32]	22,224,195 (2002)	24,051,218 (2010)[67]	(2008)[34]	11,351,218
Brunei	107,200 (1967)[35]	266,000 (1990) [36]	280,000 (1994)[32]	332,844 (2001)	401,890 (2011)[68]	76 (2008)[34]	306,609
Malaysia	10,671,000 (1967)[35]	17,861,000 (1990) [36]	19,489,000 (1994)[32]	21,793,293 (2002)	27,565,821 (2010)[69]	(2008)[34]	16,894,821
Thailand	32,680,000 (1967)[35]	57,196,000 (1990) [36]	59,396,000 (1994)[32]	60,606,947 (2000)[70]	63,878,267 (2011)[71]	(2008)[34]	31,198,267
Lebanon	2,520,000 (1967)[35]	2,701,000 (1990) [36]	2,915,000 (1994)[32]	3,727,703[72] (2003)	4,224,000[33] (2009)	- (2008)[34]	
Syria	5,600,000 (1967)[35]	12,116,000 (1990) [36]	13,844,000 (1994)[32]	17,585,540 (2003)	22,457,763 (2011)[73]	- (2008)[34]	
Bahrain	182,00 (1967)[35]	503,000 (1990) [36]	549,000 (1994)[32]	667,238 (2003)	1,234,596[74] (2010)	75 (2008)[34]	
Sri Lanka	11,741,000 (1967)[35]	16,993,000 (1990) [36]	17,685,000 (1994)[32]	19,607,519 (2002)	20,238,000[41] (2009)	- (2008)[34]	

Country						(2008)[34]	
Switzerland	6,050,000 (1967)[35]	6.712,000 (1990) [36]	6,994,000 (1994)[32]	7,261,200 (2002)	7,866,500[75] (2010)	- (2008)[34]	
Luxembourg	335,000 (1967)[35]	381,000 (1990) [36]	401,000 (1994)[32]	439,539 (2001)	511,840 (2011)[76]	- (2008)[34]	
Romania	19,105,056 (1966)[35]	23,200,000 (1990)[36]	22,736,000 (1994)[32]	21,680,974 (2002)	21,466,174[77] (2011)	- (2008)[34]	
Niue (associated state of New Zealand)	1,900 (1966)[35]	N/A (1990)[36]	N/A (1994)[32]	2,134 (2002)	1,398 (2009)[78]	N/A (2008)[34]	-502
Tokelau (New Zealand territory)	5,194 (1966)[35]	N/A (1990)[36]	N/A (1994)[32]	1,445 (2001)	1,416 (2009)	N/A (2008)[34]	-3,778
Jamaica	1,876,000 (1967)[35]	2,420,000 (1990) [36]	2,429,000 (1994)[32]	2,695,867 (2003)	2,847,232[49] (2010)	74 (2008)[34]	971,232
Argentina	32,031,000 (1967)[35]	32,322,000 (1990)[36]	34,180,000 (1994)[32]	37,812,817 (2002)	40,091,359 (2010)	74 (2008)[34]	8,060,359
France	49,890,660 (1967)[35]	56,440,000 (1990)[36]	57,747,000 (1994)[32]	59,551,000 (2001)	63,136,180 (2011)[79]	81 (2008)[34]	
Italy	52,334,000 (1967)[35]	57,662,000 (1990)[36]	57,193,000 (1994)[32]	56,995,744 (2002)	60,605,053[80] (2011)	80 (2008)[34]	
Mauritius	774,000 (1967)[35]	1,075,000 (1990)[36]	1,104,000 (1994)[32]	1,179,137 (2000)	1,288,000 (2009)[41]	75 (2008)[34]	514,000
Guatemala	4,717,000 (1967)[35]	9,197,000 (1990)[36]	10,322,000 (1994)[32]	12,974,361 (2000)	13,276,517 (2009)	70 (2008)[34]	8,559,517
Cuba	8,033,000 (1967)[35]	10,609,000 (1990)[36]	10,960,000 (1994)[32]	11,177,743 (2002)	11,239,363 (2009)[81]	77 (2008)[34]	
Barbados	246,000 (1967)[35]	255,000 (1990) [36]	261,000 (1994)[32]	250,012 (2001)	284,589 (2010)[31]	73 (2008)[34]	18,589

Samoa	131,377 (1967)[35]	164,000 (1990) [36]	164,000 (1994)[32]	178,173 (2003)	179,000 (2009)[33]	N/A (2008)[34]
Sweden	7,765,981 (1967)[35]	8,559,000 (1990) [36]	8,794,000 (1994)[32]	8,920,705 (2002)	9,354,462 (2009)	81 (2008)[34]
Finland	4,664,000 (1967)[35]	4,986,000 (1990) [36]	5,095,000 (1994)[32]	5,175,783 (2002)	5,374,781 (2010)	N/A (2008)[34]
Portugal	9,440,000 (1967)[35]	10,525,000 (1990)[36]	9,830,000 (1994)[32]	10,355,824 (2001)	10,647,763[82] (2011)	N/A (2008)[34]
Austria	7,323,981 (1967)[35]	7,712,000 (1990) [36]	8,031,000 (1994)[32]	8,032,926 (2001)	8,404,252 (2011)	N/A (2008)[34]
Libya	1,738,000 (1967)[35]	4,545,000 (1990)[36]	5,225,000(1994)[32]	5,499,074 (2002)	6,420,000 (2009)[33]	77 (2008)[34]
Peru	12,385,000 (1967)[35]	21,550,000 (1990)[36]	23,080,000(1994)[32]	27,949,639 (2002)	29,496,000 (2010)	70 (2008)[34]
Guinea Bissau	528,000 (1967)[35]	965,000 (1990) [36]	1,050,000 (1994)[32]	1,345,479 (2002)	1,647,000[33] (2009)	48 (2008)[34]
Angola	5,203,066 (1967)[35]	10,020,000 (1990)[36]	10,674,000 (1994)[32]	10,766,500 (2003)	18,498,000[41][83] (2009)	38 (2008)[34]
Equatorial Guinea	277,000 (1967)[35]	348,000 (1990)[36]	389,000 (1994)[32]	474,214 (2000)	676,000 (2009)[41]	61 (2008)[34]
Benin	2,505,000 (1967)[35]	4,736,000 (1990)[36]	5,246,000 (1994)[32]	8,500,500 (2002)	8,791,832 (2009)	59 (2008)[34]
Laos	2,770,000 (1967)[35]	4,139,000 (1990)[36]	4,742,000 (1994)[32]	5,635,967 (2002)	6,800,000[84] (2011)	56 (2008)[34]
Nepal	10,500,000 (1967)[35]	18,961,000 (1990)[36]	21,360,000 (1994)[32]	25,284,463 (2002)	29,331,000[41] (2009)	- (2008)[34]
Iran	25,781,090 (1966)[35]	54,608,000 (1990)[36]	59,778,000 (1994)[32]	66,622,704 (2002)	75,330,000 (2010)[85]	71 (2008)[34]	49,548,910

Canada	20,014,880 (1966)[35]	26,603,000 (1990)[36]	29,248,000(1994)[32]	31,081,900 (2001)	32,623,490 (2011)[86]	81 (2008)[34]
United States	199,118,000 (1967)[35]	249,995,000 (1990)[36]	260,650,000(1994)[32]	281,421,906 (2000)	308,745,538 (2010)[87]	78 (2008)[34]
Uganda	7,931,000 (1967)[35]	18,795,000 (1990)[36]	20,621,000 (1994)[32]	24,227,297 (2002)	32,369,558 (2009)	52 (2008)[34]

Notes

* Eritrea left Ethiopia in 1991.
† Split into the nations of Sudan and South Sudan during 2011.
‡ Japan and the Ryukyu Islands merged in 1972.
# India and Sikkim merged in 1975.

Population growth 1990–2012 (%)[88]

Africa	73.3%
Middle East	68.2%
Asia (excl. China)	42.8%
China	19.0%
OECD Americas	27.9%
Non-OECD Americas	36.6%
OECD Europe	11.5%
OECD Asia Oceania	11.1%
Non-OECD Europe and Eurasia	-0.8%

Nilkhet Mor in Dhaka by Nahid 02. Bangladesh is one fo the most densely populated countries in the world.

Growth comparison between Africa and Europe

Population growth rates vary by world region, with the highest growth rates in Sub-Saharan Africa and the lowest in Europe. For example, from 1950 to 2010, Sub-Saharan Africa grew over four and a half times, from about 186 million to 856 million. On the other hand, Europe only increased by 35%, from 547 million in 1950 to 738 million in 2010. As a result of these varying population growths, Sub-Saharan Africa changed from 7.4% of world population in 1950 to 12.4% in 2010, while Europe declined from 22% to 11% in the same time period.[89]

Into the future

 Projections of population growth
Estimated size of human population from 10,000 BCE to 2000 CE.
The majority of world population growth today is occurring in less developed countries.

According to the UN's 2017 revision to its population projections, world population is projected to reach 11.2 billion by 2100 compared to 7.6 billion in 2017.[90][91] In 2011, Indian economist Sanjeev Sanyal disputed the UN's figures and argued that birth rates will fall below replacement rates in the 2020s. According to his projections, population growth will be only sustained till the 2040s by rising longevity, but will peak below 9 bn by 2050.[27] Conversely, a 2014 paper by demographers from several universities and the United Nations Population Division projected that the world's population would reach about 10.9 billion in 2100 and continue growing thereafter.[92] One of its authors, Adrian Raftery, a University of Washington professor of statistics and of sociology, says "The consensus over the past 20 years or so was that world population, which is currently around 7 billion, would go up to 9 billion and level off or probably decline. We found there's a 70 percent probability the world population will not stabilize this century. Population, which had sort of fallen off the world's agenda, remains a very important issue."[93]

The German Foundation for World Population reported in December 2019 that the global human population grows by 2.6 people every second, and could reach 8 billion by 2023.[94]

The **Human Development Index** (commonly abbreviated **HDI**) is a summary of **human development** around the world and implies whether a country is developed, still developing, or underdeveloped based on factors such as life expectancy, education, literacy, gross domestic product per capita.

The **Human Development Index** (**HDI**) is a statistic composite index of life expectancy, education (Literacy Rate, Gross Enrollment Ratio at different levels and Net Attendance Ratio), and per capita income indicators, which are used to rank countries into four tiers of human development. A country scores a higher HDI when the lifespan is higher, the education level is higher, and the gross national income GNI (PPP) per capita is higher. It was developed by Pakistani economist Mahbub ul Haq and was further used to measure a country's development by the United Nations Development Programme (UNDP)'s Human Development Report Office.[1][2][3]

The 2010 Human Development Report introduced an Inequality-adjusted Human Development Index (IHDI). While the simple HDI remains useful, it stated that "the IHDI is the actual level of human development (accounting for inequality)", and "the HDI can be viewed as an index of 'potential' human development (or the maximum IHDI that could be achieved if there were no inequality)". The index does not take into account several factors, such as the net wealth per capita or the relative quality of goods in a country. This situation tends to lower the ranking for some of the most advanced countries, such as the G7 members and others.[4]

The index is based on the human development approach, developed by Mahbub ul Haq, often framed in terms of whether people are able to "be" and "do" desirable things in life. Examples include—Being: well fed, sheltered, healthy; Doing: work, education, voting, participating in community life. The freedom of choice is central—someone choosing to be hungry (as during a religious fast) is quite different from someone who is hungry because they cannot afford to buy food, or because the country is in a famine.

Origins[edit]

Mahbub ul Haq

The origins of the HDI are found in the annual Human Development Reports produced by the Human Development Report Office of the United Nations Development Programme (UNDP). These were devised and launched by Pakistani economist Mahbub ul Haq in 1990, and had the explicit purpose "to shift the focus of development economics from national income accounting to people-centered policies". Haq believed that a simple composite measure of human development was needed to convince the public, academics, and politicians that they can and should evaluate development not only by economic advances but also improvements in human well-being.

Old method (before 2010 Index)[edit]

The HDI combined three dimensions last used in its 2009 Report:

- Life expectancy at birth, as an index of population health and longevity to HDI
- Knowledge and education, as measured by the adult literacy rate (with two-thirds weighting) and the combined primary, secondary, and tertiary gross enrollment ratio (with one-third weighting).
- Standard of living, as indicated by the natural logarithm of gross domestic product per capita at purchasing power parity.
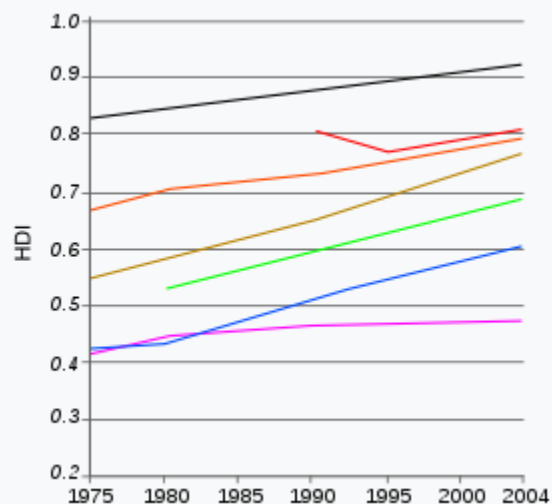
HDI trends between 1975 and 2004

The National **Population Policy** 2000 — released on Feb. 15 — aims to bring the total fertility rate (TFR) to replacement level by 2010 and to achieve a stable **population** by 2045, at a level consistent with sustainable economic growth, social development, and environmental protection.

Population Policies formulated to address the unmet needs for contraception, health care infrastructure, and health personnel, and to provide integrated service delivery for basic reproductive and child health care. The main objective is to achieve a stable population at a level consistent with the requirements of sustainable economic growth, social development, and environmental protection.

Five-Year Plans by the Government of India for population control
First Five Year Plan: India is the first country in the world to begin a population control programme in 1952. It emphasized the use of natural devices for family planning.
Second Five Year Plan: Work was done in the direction of education and research and the clinical approach was encouraged.
Third Five Year Plan: In 1965, the sterilization technique for both men and women was adopted under this plan. The technique of copper- T was also adopted. An independent department called the Family Planning Department was set up.
Fourth Five-Year Plan: All kinds of birth control methods (conventional and modern) were encouraged.
Fifth Five Year Plan: Under this plan the National Population Policy was announced on 16 April, 1976. In this policy, the minimum age for marriage determined by the Sharda Act, 1929 was increased. It increased the age for boys from 18 to 21 years and for girls from 14 to 18 years. The number of MPs and MLAs was fixed till the year 2001 on the basis of the census 1971. Under this Plan, forced sterilization was permitted which was later on given up. In 1977, the Janata Party government changed the name of Family Planning Department to Family Welfare Department.
Top10: Most Densely Populated States In India
In the Sixth, Seventh and Eighth Plans, efforts were done to control population by determining long-term demographic aims.
Ninth Five-Year Plan: In 1993, the government had established an expert group under the chairmanship of M.S. Swaminathan for formulating national population policy. Though this group had prepared the draft of the new population policy in 1994, it was reviewed in 1999 by the Family Welfare Department and was passed by the Parliament in 2000. The Central Government formulated the 'new national population policy' in February 2000. This policy has three main objectives:
Objectives of Ninth Five Year Plan
1. Temporary objective: The easy supply of birth control devices was included in it. Besides, the development of health protection framework and recruitment of health workers were also made a part of it.
2. Middle-term objective: Under it, the total fertility rate (TFR) had to bring down to the replacement level of 2.1 by 2010.
3. **Long-term objective**: Under it, the Objective of population stabilization by 2045 is to be achieved.

The population has to be stabilised at that level which must be harmonious from the points of view of economic and social development and environmental protection.

It has been announced in the new population policy to keep the composition of the Lok Sabha unchanged by 2026 so that the states could co-operate without any fear. Under current provisions, the number of MPs in different states by 2001 has been determined on the basis of the census 1971. It was to be changed in 2001 on the basis of the new census report (2001). But it might be harmful to those states which had taken part in the population control programme with great fervour. Those states which had not laid proper attention on population control could get more shares in the Lok Sabha resulting in wrong effect on the population control programme. So, the Lok Sabha would not have more than 553 elected seats till 2026 and the number of Lok Sabha seats of each state would remain the same as it is at present. While announcing this new policy, the Central Health Minister said that the people living below poverty line would be rewarded properly if they would marry after 21 years, adopt the standard of two children and undergo sterilisation after two children.

Top 10 Highly Populated Districts Of India
The following major Objectives had been set in the National Population Policy till the year 2010:
1. The 'total fertility rate' to be reduced to 2.1.

2. The high class birth control services had to be made available publically so that the standard of two children could be adopted.

3. The infant mortality rate had to be reduced to 30 per thousand.

4. The mother mortality rate had also to be reduced to below 100 per one lakh.

5. The late marriage of girls had to be encouraged.

A high level 100-membered National Population Commission has been set up under the chairmanship of the Prime Minister on 11 May 2000 to supervise and analyse the implementation of this new population policy.