

POPULATION & SOCIETIES

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The world population... and what about me? An Exhibition at the Cité des Sciences et de l'Industrie in Paris

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After reaching 6 billion in 1999, the world population will attain 6.5 billion this year and should total 7 billion in seven years' time, in 2012 or 2013. To inform the public about key population issues, answer their most frequently asked questions and dispel a few myths, an exhibition called "The world population... and what about me?" has been running since 5 April at the Cité des Sciences et de l'Industrie science museum in Paris. Gilles Pison and Sabine Belloc, the exhibition organizers, explain the show's content and approach.

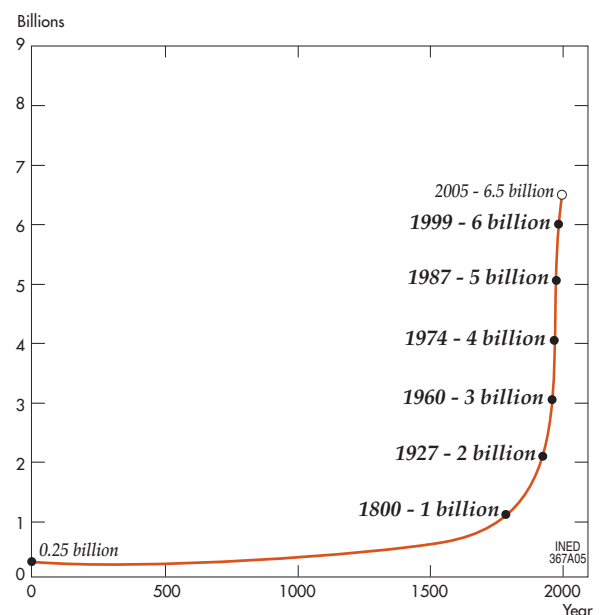
The world population will top 6.5 billion in December 2005. In France the first cohort of baby boomers will celebrate their 60th birthday, heralding a rapid increase in the number of over-60s in the years ahead.

These two events raise two concerns about population: for developed countries, the risks of decline associated with a low birth rate and population ageing, and for the world population, the fear of uncontrolled "explosive" growth. To familiarize the general public with population issues of the future, an exhibition called "The world population... and what about me?" will run at the Cité des Sciences et de l'Industrie in Paris until November 2005. The exhibition explains the universal mechanisms of population growth, which, in all places at all times, is regulated by similar processes. It is only the relative intensity of these mechanisms which varies between peoples and over the course of history.

The exhibition opens with the observation that the world population is growing rapidly. It is expected to reach 6.5 billion (1) in December 2005. The world birth rate is close to 21 per 1,000, which is 133 million births

a year (360,000 a day or 4.2 a second), and the death rate is close to 9 per 1,000, which is 57 million deaths a year (160,000 a day or 1.8 a second). The world natural increase is therefore 75 million people a year, 200,000 a day, 2 every second or 1.2% per year.

Figure 1 - Number of humans over the last 2,000 years



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(1) The exhibition refers to the figures published by the United Nations Population Division (World Population Prospects, 2004 Revision).

With a growth rate of 1.2% per year, the population doubles approximately every 60 years. If this rate remains stable, the population will go from 6.5 billion today to 13 billion by 2065, 26 billion by 2125, etc. However, the United Nations forecasts a world population of "only" 9 billion in 2050. Its central assumption is that the population will stabilize at around 10 billion by the end of the 21st century. The exhibition seeks to explain the grounds upon which this estimate is based.

◆ Birth and death rates

It is generally accepted that any human group numerous enough for averages to be meaningful is biologically capable of achieving a fertility of 15 children per woman. Yet, over the entire history of humankind, groups with average fertility above 7 children per woman have been very rarely observed. Births have therefore always been limited, at least by the institution of marriage, which delays the age at which people have their first child, and by breast-feeding, which spaces births. Moreover, in many countries today, couples voluntarily limit births and have only a small number of children, with the result that average world fertility is currently estimated at 2.6 children per woman.

The limit of human life is approximately 120 years. However, average life expectancy in the world is still only 65. Life expectancy has increased substantially as a result of medical and socio-economic progress, but this increase is far from benefiting all countries equally. Average life expectancy on the sub-continent ranges currently from 45 years in southern Africa to 79 years in Western Europe. By country, life expectancy ranges from an estimated 37 years in Zimbabwe to 82 years in Japan.

◆ From one balance to another

The exhibition next focuses on demographic transition. This transition began two centuries ago and is still far from over. It might be completed by the end of this century.

In the old population balance, which lasted thousands of years, sudden mortality peaks, caused by epidemics and famines, resulted in an average life expectancy that oscillated between 20 and 25 years, mainly due to very high infant mortality. Offsetting that level of mortality required high average fertility, of around six children per woman. The population increased only very slowly, at a rate of a few percent per century.

Two centuries ago, that balance was upset and the world population started to increase rapidly, attaining 1 billion around 1800, and was multiplied by 6.5 over the next 200 years (Figure 1).

From the second half of the 18th century onwards, with economic growth and the first advances in hygiene and medicine, mortality – particularly infant mortality – began to fall. Births far exceeded deaths and the population increased.

After several generations, parents became aware that most of their children survived, so they no longer needed to have as many as before to replace themselves. A new pattern of behaviour spread through Europe and North America, that of voluntary birth control. The number of children per woman decreased. However, mortality also continued to decline, so that births still outnumbered deaths and the population continued to increase.

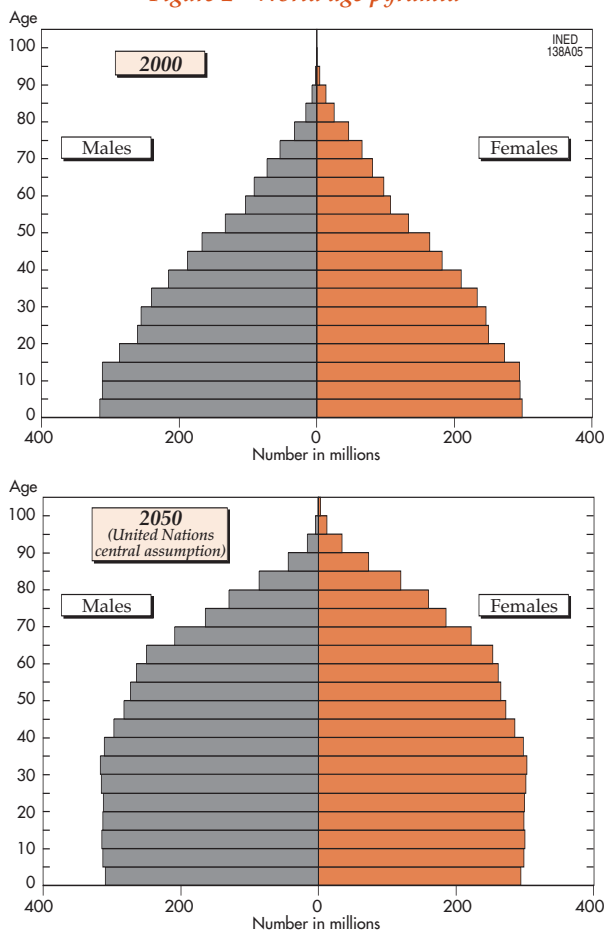
It is only in later generations that population growth began to slow gradually, as the number of deaths stabilized at a level closer to the number of births. This demographic transition, first experienced by today's developed countries, has now started in other countries. The population is expanding rapidly and rates of natural increase of around 3% per year (doubling in 23 years) are not uncommon.

Mortality has already fallen substantially, including in the least advanced countries. Fertility has also decreased, both spontaneously and as a result of progress in education and family planning programmes. The United Nations expect birth control to be common everywhere within the next 50 years. The average number of children per woman will then be low throughout the world. Simultaneously, average life expectancy will rise to at least 70 world-wide. World population growth is expected to slow gradually and finally stabilize by the end of the century. In the space of 300 years, from 1800 to 2100, the world population will have increased from 1 billion to a forecast 10 billion.

◆ The inevitable ageing of the population

The decline in fertility and the increase in life expectancy are causing the population to age. Already well under way in the North, this transition is only just beginning in the South. Population ageing is still ahead of us and will be one of the biggest social changes of this century. According to the United Nations, the world age pyramid in 2050 will have the same base as today, but with many more adults and old people (Figure 2). The exhibition dispels several myths: it is an illusion to think that the population can be rejuvenated without returning to the high fertility of the past which, unless mortality were also to rise again, would lead to unlimited growth! Population ageing does not herald an explosion of dependency, since the years of life gained have, until now, been years of good health. Pension systems in the North must nevertheless be adjusted to ensure a similar standard of living as now for tomorrow's

Figure 2 - World age pyramid



Source: United Nations, 2005, *World Population Prospects (2004 Revision)*.

senior citizens. But the real challenge lies in the South, where population ageing will be much faster than in the North and where family solidarity is disappearing without any collective solidarity in the form of a pension system to take over. A system needs to be designed to ensure that today's adults do not end their lives in poverty. In many European countries, deaths now outnumber births, which could lead to a significant decrease in their populations in the decades ahead, even as the population in the South continues to rise. Added to the development lag, this trend suggests that migration might spontaneously increase to correct the population and wealth gaps. The theme of international migration is addressed in the last section of the exhibition, which explains that migration has always existed, that migration has enabled people to inhabit the entire planet, and that it is continuing today in new forms.

Though the future of the world population raises many questions, there is also one certainty: we are on the way to controlling population growth. But for 10 billion people to live comfortably on our planet, we must learn to manage its resources better and share them more equitably. In the long term, the survival of the human race depends as much – if not more – on how we live than on how many of us there are.

Box 1

A fun, interactive exhibition

Designed to surprise and dispel a few myths, the exhibition mixes serious information with anecdotes and history, plus plenty of humour and imagination.



Not afraid of figures, the exhibition puts them on display and magnifies them! It takes demographers' charts – pyramids, curves and histograms – and turns them into three-dimensional objects to touch or animates them on screen.

As its name suggests, "The world population... and what about me?" enables visitors to see where they belong among the 6.5 billion people on the planet. With a barcoded ticket, visitors can consult a series of consoles throughout the exhibition, which provide personalized information. The first console asks visitors their age and tells them the size of the world population at the time of their birth and by how much it has increased since they were born. Visitors then find out the number of people born in the same year as themselves and what proportion are still alive; how many years people of their age and sex can expect to live on average; and lastly where they sit – young or old? – in the world pyramid. The world median age is 28 – that age divides the population into two equal halves, a younger half and an older half. A 30-year-old visitor is therefore in the world's older half. But in Europe (s)he is in the younger half because the median age in Europe is 39. The concepts of young and old are only relative!

At the exit, visitors receive a printout of their visit with their answers, the time and the size of the world population at the end of the visit. Back home, they can log on to the Cité des Sciences website to view their personalized data and photo and access more information.

A travelling exhibition

"The world population... and what about me?" exhibition was designed by the Cité des Sciences et de l'Industrie and the Institut National des Etudes Démographiques (INED) and produced with the support of two French pension schemes, AGIRC and ARRCO. After its presentation at the Cité des Sciences et de l'Industrie from April to November 2005, the exhibition, which covers an area of 300 will travel around France and abroad. Cities and regions wishing to host the exhibition should contact the Cité des Sciences et de l'Industrie:

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Box 2

25th International Population Conference

In Tours from 18 to 23 July 2005,
France will play host to the world's leading population specialists



After China in 1997 and Brazil in 2001, France will host the International Population Conference, organized by the International Union for the Scientific Study of Population (www.iussp.org/France2005), at a time when population issues and their implications for health, the environment, families, migration and sustainable development are at the heart of public debate.

Some 2,000 researchers from 110 countries will attend the conference. Participants will be not only demographers, but also geographers, sociologists, economists, historians, town planners and public health experts. Some 1,500 scientific papers and posters will present scientific progress in each of these fields while stimulating research and international dialogue on new issues.

Key issues

If there are 6.5 billion people in 2005, **how many of us will there be in 2050?** Around 8 to 9 billion, because world population growth is slowing down sooner than expected. Already half of the world population lives in a country with low fertility. Almost one person in six lives in a region where fertility is closer to one child per woman than to two. Low fertility also affects the South, and very low fertility seems to be a long-term trend.

What will the **consequences of population ageing** be? The reduction in fertility and the increase in life expectancy are leading to population ageing over the entire planet, including in the South. The share of people aged 60 and over is now 20% in Europe and 10% in the world. What is the balance between the economically active and inactive populations, how should pensions be funded, how can dependency be taken care of?

Where is the family going? The shock wave from the sexual revolution of the 1970s continues to shake up the traditional family model: today in France 45% of children are born outside wedlock, one family in six is a single-parent household, almost one child in ten lives in a recomposed family, and divorce rates are high even among older couples. These changes are starting to spread to developing countries.

There are **an estimated 170 million international migrants**, i.e. 2.7% of the world population. How do migrants circulate (both legally and illegally) and what is the impact of international migration on both countries of origin and countries of destination?

Both a cause and a consequence of demographic change, gender relations and the fight against sex discrimination have become key research topics for demographers.

One day of the conference dedicated to the population of Europe (21 July)

In 2003, for the first time, there were more deaths than births in Europe. **Will Europe disappear?** The European Union of 25 members, which has a population of 460 million today, might only have 445 million in 2050, i.e. less than 5% of the world population. Does the ageing population – a sharp drop in the proportion of children and adults, and a substantial increase in old and very old people – jeopardize Europeans' prosperity and standard of living? To what extent can immigration counter the effects of an ageing population?

A daily debate

The themes to be discussed at the daily evening debates in Tours are: "ICPD Vision: how far has the eleven-year journey taken us?", "Will policies to raise fertility in low-fertility countries work?", "Should we worry about the future of Europe's population?" and "Should couples have the right to choose the sex of their children?"

For more information about the conference: <http://www.iussp.org/France2005>