

Within the space of a few decades, Shenzhen, formerly a small fishing village, has become an industrial megacity





# Demographics & International Migration



## KEY MESSAGES

In the next thirty years, the world will undergo significant demographic restructuring: an increase in the population of over 25% (peaking between 2015 and 2025), ageing (median age rising by eight years), and a worsening of the male/female digital imbalance, to the detriment of the female population.

The increase in regional and transcontinental migrations will fuel the *disembedding* dynamics (permeability of borders and of individual and collective identity), and should raise the question of migrant status with increasing urgency.

These developments, which will constitute opportunities for certain countries (demographic dividends) and challenges (economic, political, social, societal, security) that will be difficult to face for others, should in any event make the management of territories more complex (pressure on resources, increasing urbanisation, *coastalisation*, and *heliotropism*<sup>□</sup>). This could exacerbate tensions or even the risks of confrontation.

## 1 The new contours of the world population

### 1.1 - A general increase in world population, reflecting strong regional disparities

Between now and 2040, the world population should grow by almost 29% to reach 8.9 billion inhabitants<sup>1</sup>, compared to 7 billion today. This increase, which will cover major regional disparities, will mainly be the result of strong natural growth<sup>2</sup> in the developing countries, which will contain 7.5 billion inhabitants, compared to the current value of 5.6 billion.

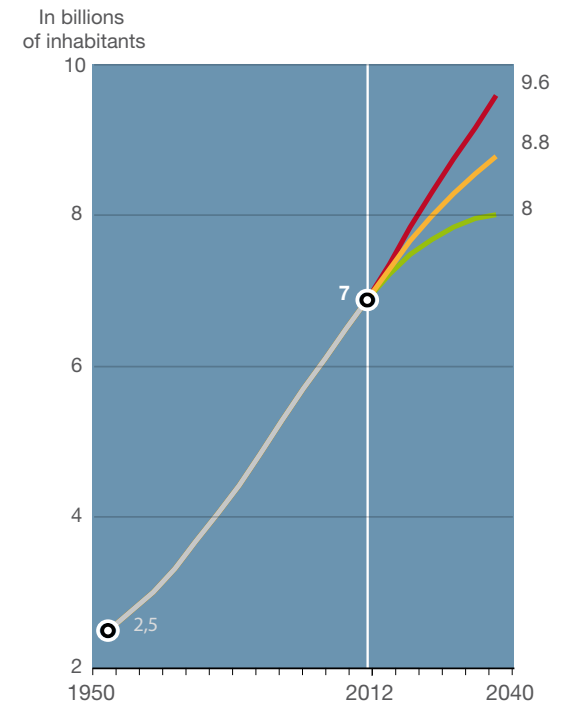
The "demographic growth diagonal" should cover a zone extending from Sub-Saharan Africa to the Arabian Peninsula, Afghanistan, Pakistan, and Northern India<sup>2</sup>. In terms of value, Sub-Saharan Africa will experience the highest growth rate (+90% between now and 2040<sup>3</sup>), whilst Asia will remain the primary contributor of additional inhabitants (+ 1.1 billion). Latin America and the Caribbean, which will experience much less steady growth, will gain 145 million people.

1- *World Population Prospects: the 2010 Revisions*, United Nations, 2010. These figures reflect the median value of UN projections, for a population of between 7 billion and 9.6 billion.  
 2- Fertility rates in these countries currently still exceed three children per woman, or as many as six in some exceptional cases (Afghanistan, Niger, Uganda, etc.).  
 3- 1.8 billion inhabitants in 2040, compared with 1 billion in 2010 (*World Population Prospects: the 2010 Revisions*, United Nations, 2010).

On the contrary, in the vast majority of developed countries, low total fertility rates (TFR)<sup>4</sup> will affect natural growth: in Europe (including Russia), with 1.74 children per woman, this index should remain below the replacement threshold (2.1 children). This trend, however, covers a wide variety of situations, since France and the UK should continue to benefit from more dynamic demographic growth.

The USA will be relatively sheltered thanks to a fertility rate that is still relatively high<sup>4</sup> and significant immigration (1.5 million new migrants per year in 2010, compared to two million about thirty years from now).

4- 2.09 at constant projections (*World Population Prospects: the 2010 Revisions*, United Nations, 2010).

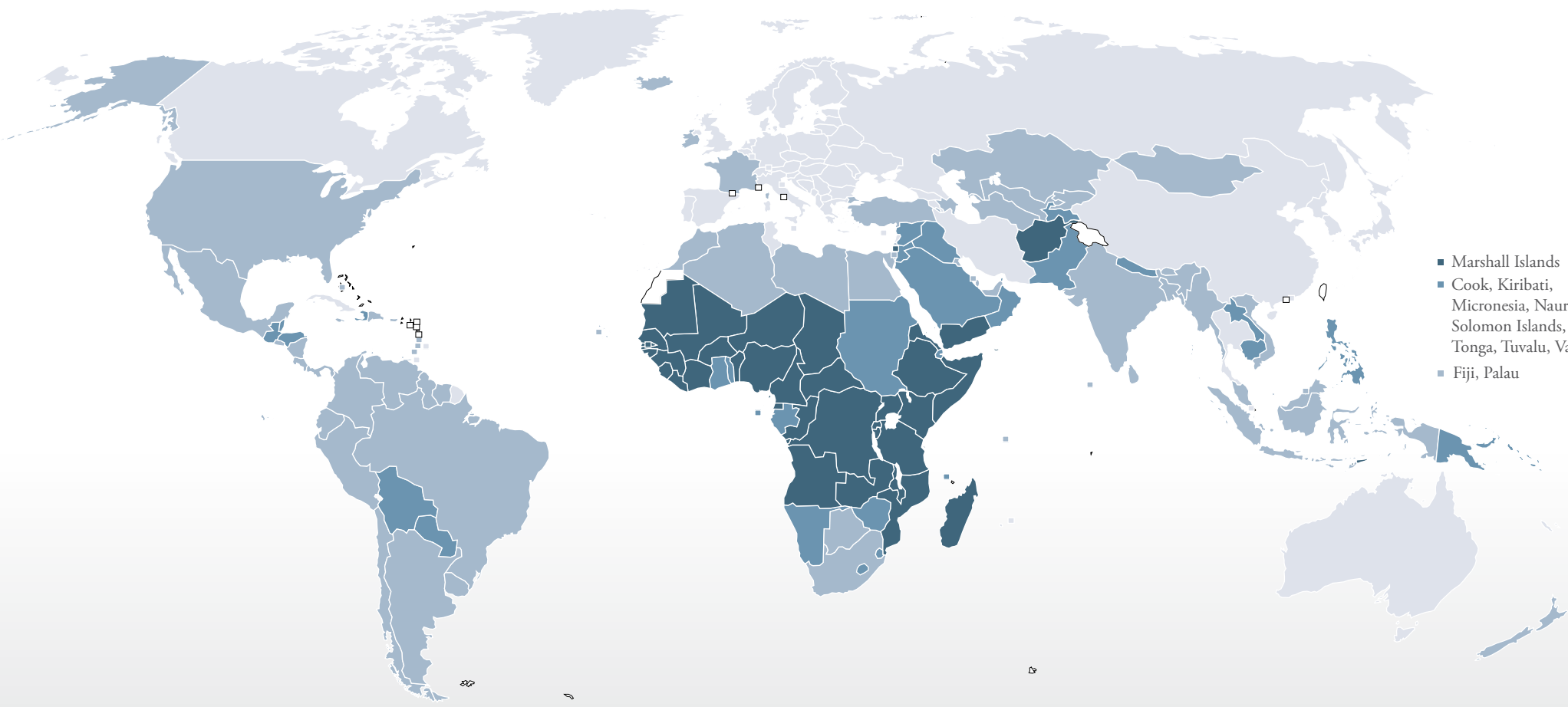


Variants of world population prospects up to 2040

Variants: High Medium Low

Source: UN, <http://esa.un.org/unpp>

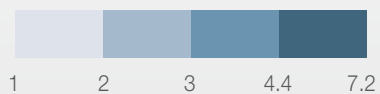
Map Department of Sciences Po, 2011



- Marshall Islands
- Cook, Kiribati, Micronesia, Nauru, Solomon Islands, Samoa, Tonga, Tuvalu, Vanuatu
- Fiji, Palau

### Fertility rate, 2005-2010

Number of children per woman of childbearing age



□ No information available

NB: most countries can provide figures for the period 2005-2010, except for some Pacific islands for which the data is spread out over the period 1991-2008.

Source: UN Statistics Division, <http://unstats.un.org/unsd/default.htm>

Map Department of Sciences Po, 2011

## FOCUS

### Sub-Saharan Africa facing the demographic wave

One out of four births in the world today takes place in Sub-Saharan Africa, whereas this continent accounts for barely more than 12% of the world's population (2010). By 2050, the population of the subcontinent could double to reach two billion, unless there is a major change in social behaviour and economic and political constraints. The completion of the demographic transition begun in the early 20<sup>th</sup> century and due to reach its conclusion by 2040 constitutes a central issue for the stability and development of the continent.

Africa's impressive demographic growth is due to the combination of a high birth rate<sup>1</sup> - approximately 4.8 children per woman at present (with a peak of 7 in the Sahel) - and a falling mortality rate<sup>1</sup>, particularly with respect to infant mortality, thanks to improvements in hygiene, nutrition and, especially, medicine, particularly concerning the handling of malaria and AIDS, the main mortality factors in Africa. The high fertility rate will also remain high because the age pyramid favours it<sup>1</sup>.

African demographic growth is taking place in a historical context of under-population and massive urbanisation. This population rise will favour economic development provided that the societies concerned are able to take advantage of human capital and invest in infrastructure (education, health, transport, etc.), and take induced conflict factors into account (social tensions between farmers and shepherds, the sharing of water which is often in short supply, ecological degradation, etc.).

In certain emerging or developing countries with sustained economic growth, the rapid improvement in health and welfare systems, combined with a change in behaviour concerning fertility, could lead to an abrupt reduction in birth rates.



#### STEP CHANGE

An increased birth rate in the developed countries, and European countries in particular, would be a step change in reproductive behaviour, but would have limited results in terms of volume because the acceleration of demographic growth would be applied to a limited population base.

Whilst half of the world's population already lives in countries where the fertility rate is below 2.1 children per woman, the continual fall in TFR (2.45 children per woman in 2010-2015 and 2.2 from 2045) is the main factor in the reduction of the worldwide natural population growth rate by 2040 (which might not exceed 0.3% in 2050).

<sup>1</sup> - 45% of the population is under 15 years of age (age pyramids for Africa, 1950-2050, INED, 2010).

This demographic transition will affect every region of the world, including those that still have high rates. In Asia, for example, the total fertility rate has already dropped by 20% between 1995 and 2005, and certain countries (China, Sri Lanka, Thailand, etc.) have fallen below the replacement threshold. In most of the developing countries, the completion of this demographic transition could have a positive impact in terms of social and political stability, thanks to the gradual reduction in the proportion of young urban unemployed persons, liable to constitute a recruitment pool for criminal or rebel groups.

For others, the trend should be more critical and, in the absence of migratory compensation, could lead to demographic decline. In Japan, the population could fall by 12%. In Europe<sup>1</sup>, the total fertility rate could remain significantly below the population replacement rate<sup>2</sup> and, with a zero contribution by migration, the population would fall by 12 million persons between now and 2045.

1- Caution: in UN data, Russia, Ukraine and Belarus are included as part of Europe. Note that the population of these three countries alone is set to fall by 28 million in the time frame under consideration.

2- Southern, Central and Eastern Europe. The fertility rate in Germany was 1.4 children per woman in 2008.

## FOCUS

# The decline of the Russian population

The Russian population has been falling steadily since the early 1990s. Russia has lost 5.8 million inhabitants since 1992, despite a clearly positive migration balance, for a present-day population of 142.9 million. Moreover, the preliminary results of the general census carried out in 2010 reveal a loss of 2.2 million inhabitants in eight years, or 1.6%, since the 2002 census. The greatest losses are recorded in the far eastern and Siberian regions, as well as in Central Russia.

This trend should accelerate in the next thirty years because of a low birth rate unable to compensate for high mortality caused by rising rates of cardiovascular disease, high-risk behaviour (alcoholism, drug use, HIV, etc.), more cases of diseases such as tuberculosis, and more suicides, all of which contribute to a fall in life expectancy, particularly for men. These factors are exacerbated by the fact that, although the country benefits from advanced medical techniques, it has insufficient resources to maintain an efficient health care system.

This demographic crisis is a serious risk factor in terms of development and security, most notably because of the accelerated ageing of the population. The median age could reach 44.9 years in 2040, making the Russian population one of the oldest in the world. Over the next ten years, according to various estimates, the active population could shrink by 7 to 8 million. Moreover, the significant reduction in the number of men aged between 18 and 35 is already having an impact, most notably on conscription.

After taking a long time to start dealing with the demographic issue, the Russian authorities have now made it a high-priority national project<sup>3</sup>. Management of the labour force and the pension, education, and healthcare systems, which requires very flexible and high-cost mechanisms, will constitute a large-scale challenge in the years to come. Nationalistic and xenophobic pressure could limit the option of using immigration to make a contribution - the only solution that would compensate for the demographic decline.

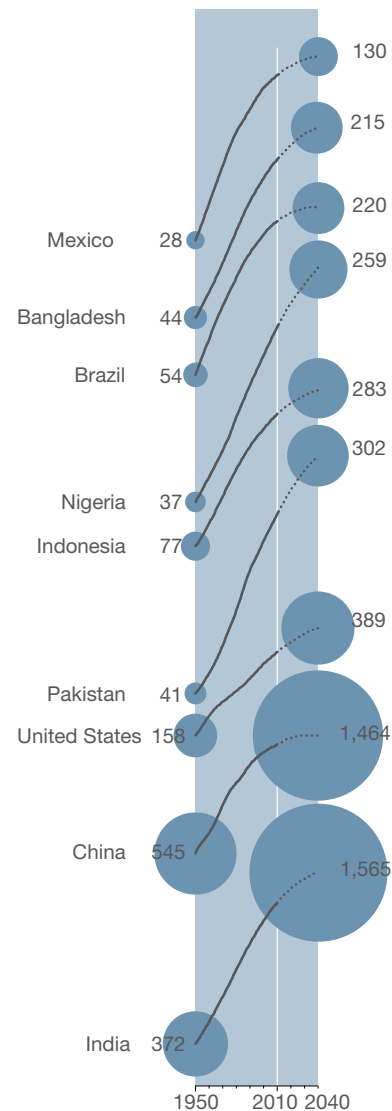
3- In a bid to curb this trend, the government has implemented measures to encourage childbirth, reduce the death rate and to develop a selective migration policy, encouraging Russian nationals that live abroad to return home.

# Demographics and International Migration

## 1.2 - In 2040, humanity lives in the south

The predominance of the proportion of world population accounted for by emerging and developing countries should increase by 2040, with Asia and Africa containing 78% of the world population (compared to 75% at present). Conversely, the proportion accounted for by the developed nations should continue to drop (14.5% in 30 years, compared to 19% at present).

The hierarchy of demographic powers should be changed due to the differences in natural growth rate between the developed and emerging countries on the one hand, and within these countries on the other hand. By 2040, India (1.65 billion inhabitants), the leading demographic power, should overtake China (1.36 billion). Brazil and Russia are likely to take divergent paths, with strong growth in Brazil (224 million, compared to 195 million today) and Russia facing demographic decline (130 million compared to 143). The USA, for its part (383 million in 2040, compared to 315 today) should continue to catch up with Europe<sup>1</sup>, which is due to stagnate (537 million in 2040, compared to 541).



Population trends in the most populous countries in 2010, 1950-2040

NB: average estimate in millions of inhabitants  
Source: UN, <http://esa.un.org/un pp>

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## 1.3 - An ageing population phenomenon affecting all the continents

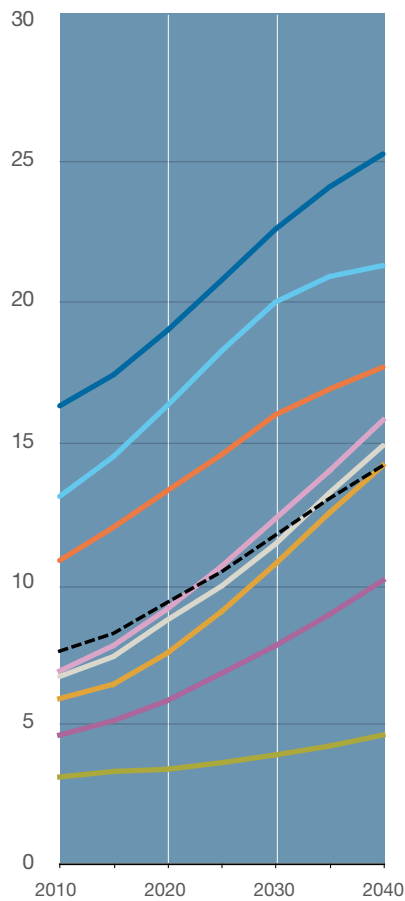
For the first time in history, humanity is ageing. Through the combined effects of two trends: longer lives and lower fertility rates (spread of the smaller family model), the median age<sup>2</sup> should be 36.3 years by 2040, compared to 29 today. The proportion of the population aged over 60 should thus rise from 11% to 19% in 2040. This acceleration of the phenomenon on a global scale should be favoured by the changes in reproductive behaviour (rise in the average age of procreation) and the fall in infant mortality<sup>2</sup>.

Although the phenomenon will undoubtedly affect every region, it will be faster in the developing countries than the developed countries. Whereas the number of fourth-age persons (over 80 years old) will have doubled worldwide between 2005 and 2040, it should more than treble in the developing countries, where the ageing of the population will become a major issue in countries without welfare protection, such as India and China. China, where the ratio of active population to retired population runs the risk of falling from 10-to-1 in 1993 to 2-to-1 in 2040, could thus 'become old before becoming wealthy'<sup>2</sup>.

With a median age that has risen from 30 years in 1950 to 40 today, European societies are already facing the accelerated ageing of their population. Over the next thirty years, this phenomenon could be considerably more intense and more durable than predicted in the past twenty years. If today's low fertility rates continue, the ageing of the generation of baby boomers will need to be catered for in both financial and human terms by an increasingly small number of younger people. This inversion of the age pyramid is likely to accelerate the increase in the demographic deficit, raise the pressure on state budgets, and change economic behaviour (less acceptance of risk, larger proportion spent on human services, etc.)

2- 27% of the population will be over 60 in thirty years time, compared with 11% currently.

1- Not including Russia, Belarus and Ukraine as in the UN nomenclature.



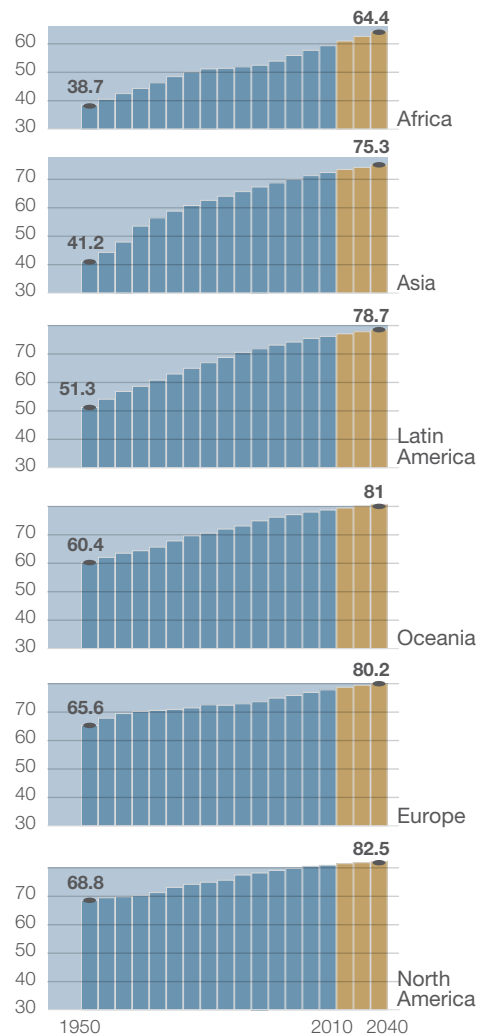
Proportion of people over 65 in the population 1910-2040

NB: average estimate as a percentage

- Europe
- North America
- Oceania
- Lat. America and Caribbean
- South-East Asia
- North Africa
- Sub-Saharan Africa
- Asia
- World average

Source: UN, <http://esa.un.org/unpp>

Map Department of Sciences Po, 2011



Trends in life expectancy at birth, 1950-2040

NB: average estimate for men and women combined

Source: UN, <http://esa.un.org/unpp>

Map Department of Sciences Po, 2011

American society will experience the same trend, although less markedly than Europe: the proportion of the population aged over 65 should reach approximately 21% in 2040 (13% in 2010), and the dependency rate<sup>1</sup> should grow by almost 70%<sup>1</sup>.

In the developed countries, this continuing trend towards an ageing population cannot fail to weigh heavily on the pension and welfare systems, healthcare, and services to the elderly. It could moreover, lead to a significant increase in public spending and, in certain cases, tension between the generations, with the dependent population constituting an increasingly heavy burden on the active population, whose pensions would no longer be guaranteed, and with unemployment affecting more and more young people.

The ageing of the population could also cause internal tensions, which could be critical in certain very non-egalitarian countries with weak solidarity between generations, requiring major political, economic and social reform to preserve social cohesion, ensure the viability of welfare systems, and keep the economy energised. This challenge could slow the progress of certain emerging countries, especially China, which should reach its Lewis turning point<sup>2</sup> in the decade 2010-2020 and see its economic growth potential fall to 6% by 2040.

1- *The next four decades: the older population in the United States, 2010 to 2050*, US Census Bureau, Department of Commerce, May 2010.

2- This phase, brought to light by Arthur Lewis (*Economic with unlimited supplies of labour*), marks the transition from economic development based on an "unlimited" labour pool – mainly related to under-employment in the farming sector – to a more strained phase, during which the decline of such massive flows of workers will entail substantial rises in wages and improved working conditions.



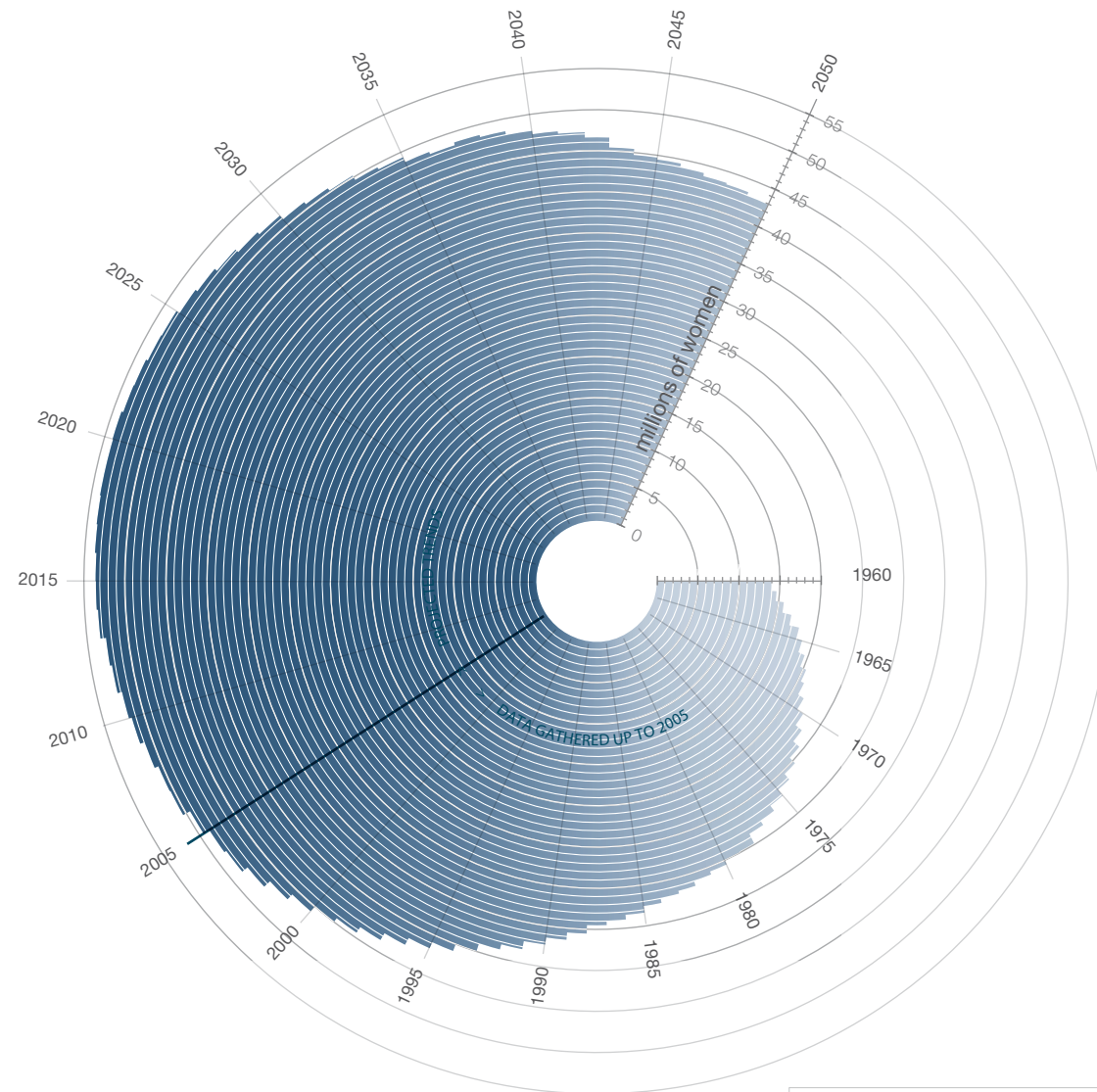
# Demographics and International Migration

## 1.4 - Inequality between men and women

Whereas, in a system of perfect male–female equality, particularly in terms of access to healthcare, women would naturally outnumber men, the deficit of women in the world population is estimated at 100 million<sup>1</sup>, and this difference is especially acute in certain Asian countries (China, Pakistan, India, Bangladesh, South Korea, and Taiwan) and in the Caucasus (Georgia, Armenia, and Azerbaijan).

Asia is the only continent currently populated by a male majority (51%) because of selective abortions and the excessive mortality rate of female infants through lack of care or infanticide. Even though this demographic anomaly should be partially reduced by 2040<sup>2</sup>, it will still have significant consequences on society when the populations concerned reach marrying age. In China, where the one-child policy in fact became a 'one-son policy', by 2030 there will be almost 40 million men unable to find a wife. This situation is liable to fuel the growth of criminal acts such as the sale and abduction of wives and, more generally, it can cause social destabilisation.

Moreover, the matter of male–female equality (access to education, healthcare, social and matrimonial status, career status, etc.) will remain a decisive issue in the coming decades, particularly in developing countries, where the absence of progress regarding women's rights could hinder development or reconstruction, but also in the developed countries.



1- 100 women are born to every 105 men. Given that the male death rate is higher than the female death rate at all ages, the number of men balances out against the number of women. The difference again opens up as of the 3<sup>rd</sup> age.

2- In Asia, the male/female ratio should change from the current level of 105 (compared with 101.7 globally) to just over 103 by 2040. Source: *World Population Prospects*, United Nations, 2009. Median value given.

Trends in female shortage in China 1960-2050

Source: UN, <http://esa.un.org/unpp>

2033, *Atlas des futurs du monde*, by Virginie Raisson (Published by (Robert Laffont) © www.lepac.org

# 2 Migration, a decisive challenge

Stimulated by globalisation, the opening up of borders, the development of networks and communications, labour requirements and also widening inequality and intensifying conflict, migration has considerably increased over the last few decades, contributing to the rearrangement of the world map.

## 2.1 - An ever-increasing number of migrants

Migration forecasting is especially random and complex because it is difficult to anticipate the factors that trigger migration, which are often related to conditions of human suffering such as crises, civil war, catastrophes, etc. In addition, the concept of 'migrant'<sup>2</sup> encompasses a number of very different profiles: settlement migration, migrant workers, students, refugees, asylum seekers, and illegal migrants, whose numbers have not been reliably estimated.



Refugee camp  
on the Libyan border,  
10 March 2011,  
Choucha, Tunisia

JOËL SAGET/AFP IMAGE FORUM

# Demographics and International Migration

While three major factors may affect the economic, political, and environmental migration dynamics, the number of intercontinental migrants, currently 240 million, compared to 740 million regional migrants<sup>1</sup>, could reach 450 million in 2050<sup>2</sup>.

The scale and the scattered nature of today's migratory flows<sup>3</sup> are unprecedented, and they concern every country on earth (country of origin, host country, transit country). This dynamic will continue over the next thirty years.

There should be just as many factors triggering the decision to leave as there are today, based on the attractiveness/rejection dichotomy (economical, political, environmental, family, etc.):

- strong endogenous demographic growth;
- deterioration of the political and security situation;
- sluggish local job market;
- growing instabilities in the world (increased tension between communities, weakening of the country of origin and host country, etc.);
- development of areas of economic, political, social and demographic divide generating migration which is often clandestine;
- development of transnational allegiances;
- opening of borders by countries that were previously closed;
- education (the 'skills for sale' effect);
- relative fall in transport costs;
- role of the media (television in particular);

- fast urbanisation of the major cities in developing countries, where departure plans are formulated; in thirty years, migrants will less often be poor, illiterate country-dwellers, and will increasingly be educated city-dwellers seeking personal fulfilment.

These present-day factors, which should contribute to amplifying the migration phenomenon on an international and regional scale, are now joined by new motives, which should be long-lasting:

- economic development of the emerging countries, which should lead to increased mobility of their populations, including internationally, and attractiveness effects favouring increased immigration flows into these countries;
- the initial effects of climate change (extreme climatic phenomena, drought, desertification, rising water levels, floods, etc.), which should affect the populations of states that are already fragile and unstable, particularly in delta zones or areas where there is tension concerning water. Sub-Saharan Africa (Gulf of Guinea, Senegal, Gambia, Egypt, southern and eastern African coastline), the Near and Middle East (Gaza, Yemen, etc.), and South Asia (Bangladesh, India, Mekong Basin, etc.) should be the most exposed and most vulnerable regions. Beyond 2040, the number of climate refugees could reach 220 million, including 14 million from Bangladesh alone<sup>3</sup>.

## 2.2 – Towards a reconfiguration of international migratory flows

Intercontinental migratory flows should be similar to those of today, with a large proportion of migrations taking place from Asia (particularly the Afghanistan/Pakistan zone) and from Africa towards Europe and North America, and from South America to North America. The Maghreb countries, and Morocco in particular, should remain a significant transit zone for labour, both legal and illegal, travelling from Sub-Saharan Africa to Europe and North America.

Although South-South migrations are currently equivalent to South-North migrations (61 and 62 million, respectively), both should undergo significant growth by 2040. Currently, three-quarters of international migrants head for a country with a higher human development index than their country of origin, however, their destination is less often a developed country than another developing country.

1- *United Nations Human Development Report*, UNDP, 2009.

2- *World Migration Report*, International Organization for Migration, 2010.

3- United Nations High Commissioner for Refugees, *Communiqué* of 10 December 2008.

In terms of absolute value, the two major host poles should remain Europe and the USA. Despite a lower rate of economic growth than that of the emerging countries and the USA and some difficulty in accepting its role as a land of immigration, Europe should maintain strong attractiveness in terms of immigration (employment/resource market, languages, political regime, geographical proximity, networks already in place, attractive way of life, etc.).

### STEP CHANGE

Another scenario, however, is foreseeable. Europe could undergo a significant deterioration of its economic attractiveness (long-lasting economic lethargy and mass unemployment\*) and political attractiveness (measures to restrict immigration flows, deterioration of the social and political climate with respect to the immigrant population), at the very moment when many developing countries could emerge as poles of growth and stability. Combined with the slowing of demographic growth in the migrant countries, this development would lead to a scenario in which the European countries would no longer be able to attract the migrants required for their demographic renewal and their economic needs. A downward demographic and economic spiral could then begin.

\* The average unemployment rate for immigrant populations is twice that for the indigenous population.

### STEP CHANGE

The gradual adoption of a 'low-carbon' growth model could result in redirecting migratory flows directed towards the Persian Gulf oil powers\* to the benefit of other regions.

\* These countries currently have the highest net migration, in ratio to their populations, in the world (United Arab Emirates: 5% annual average; Qatar: 4%; Kuwait: 2%).

Moreover, the constitution of networks supplied by the dynamics of globalisation and geopolitical reorganisations could be the source of new migratory flows on an international scale, which would not be based on historical ties (with the old colonial powers) or geographical or cultural proximity. Thus, with the increasing number of exchanges between Asia and Sub-Saharan Africa, certain countries beside the Indian Ocean (Somalia, Kenya, Tanzania, etc.) could become host countries and transit zones towards Asia.

Except for refugees, the logic that now prevails no longer necessarily implies permanent exile, but rather a regular movement of migratory traffic. Many migrants wish to travel without settling permanently in a country. The more open the borders, the more the migrants can travel, and the less their tendency to settle. Greater ease of leaving, returning, and leaving again encourages this new nomadism. Conversely, the closing of borders encourages migrants to settle, for fear of not being able to return if they should leave. The durability and development of this migratory model will therefore largely depend on the policies implemented in the host countries.

Increasingly restrictive policies and the closure of borders would favour circumvention strategies and strengthen criminal channels, which are themselves increasingly reactive, because the closure of certain routes oblige them to adapt by securing the new emigration channels (which partially explains the average price of the migratory plan, multiplied by four since 2002). Whilst the scrappy, segmented channels have been replaced by structured channels (agreements between mafia groups), through which the entire journey to the destination country is organised, this trend should continue, or even be reinforced, with the increase in irregular flows.



## 2.3 – Migration: a factor in regulation

Throughout the history of human population, international migration has always been a necessary adjustment variable to deal with the changes in environments, and has become globalised with the appearance of new forms of network. It has risen enormously in the last forty years. The question of the advantages and disadvantages it will generate between now and 2040 now arises with particular urgency. The potential to generate a crisis, related to sudden and massive movements, must be balanced out with the benefit it can provide in terms of relieving an environment (pressure on real estate, natural resources and water, job market, etc.) and development policy (the phenomenon of *returnees*).

International migration represents an essential issue in terms of regulating flows and as a possible response to the ageing of the population in certain countries. By 2030, the deficit in the active population of the European countries could therefore be as high as 30 million persons whilst, at the same time, the labour markets in the African countries should be unable to absorb the significant growth of their active population.

Although logically these two trends would tend to favour the implementation of policies to adjust and internationalise the labour market, which would benefit all of these countries, this type of dynamic, generating a sudden swelling of the migratory flows, would collide with the nationalistic or xenophobic sentiments of certain fringes of public opinion.

Nevertheless, in a context where borders increasingly constitute passages, the sometimes antagonistic approaches opposing the state (protectionist temptations / closed borders) to the market (needs for labour and desire for mobility, relaxing of borders) could, by 2040, turn in favour of the market and result in a movement towards relaxing conservative measures aimed at immigration.

For their part, the emigration countries will continue to be affected by '*brain drain*' effects in favour of the immigration countries and by new forms of economic dependence<sup>1</sup>. Overall, however, emigration should continue to generate beneficial effects: knowledge transfer and technology transfer, limitation of unemployment by relieving the pressure on the employment market (and, indirectly, on the State) in the country of origin, transfer of migrants' funds, etc. These financial transfers ('remittances'), which have accounted for more than 300 billion dollars per year since 2007, or three times the volume of public aid to development, constitute an essential element of the development of the originating countries. Whilst transfers represent an average of 2% of GDP of developing countries, and often a source of foreign currency, many emigration countries have realised the economic and political benefits it can bring (creation of a Ministry of Emigration in Morocco and in Turkey, for example, to encourage migrants to reinvest in their country).

## 2.4 - The migrant, a new player in international relations

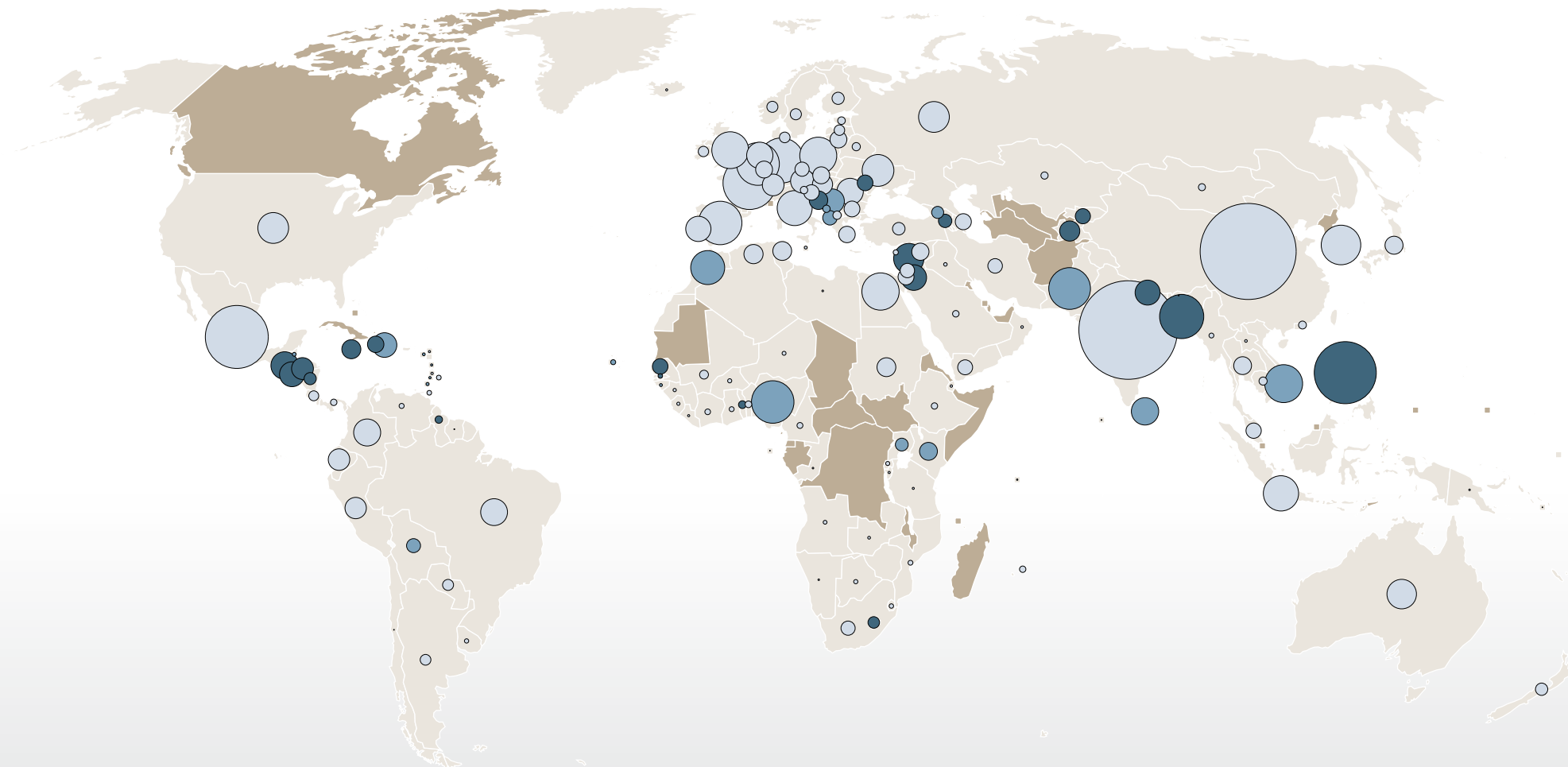
Long ignored by States, migrants have gradually asserted themselves on the international stage as transnational players, calling into question and blurring the very principles and symbols of the state — sovereignty, borders, and identity.

Driven by the need to regulate the flows on a global scale, laws governing the rights of movement of individuals now hinge on two main principles<sup>2</sup>: the implementation of an intergovernmental dialogue on the migratory policies of states and the constitution of a legal *corpus* that will stem the tide of human traffic and facilitate remittances by migrants.

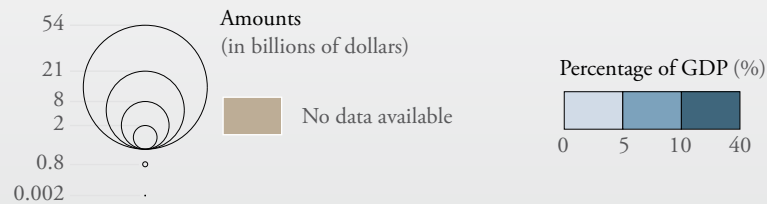
A form of international governance (the demographic version of Bretton Woods) associating host countries and departure countries, unions, and NGOs, most notably in order to agree on a minimum threshold of migrant rights, could also emerge and favour the regulation of these flows.

1- Financial transfers made by migrant populations to their home countries may result in new types of consumption ('prestige' expenditure, reproducing western lifestyle) leading to an increase in imports.

2- Forums organised by the UN on the subject in Brussels in 2007, Manila in 2008, Athens in 2009 and Madrid in 2010.



Remittances sent by migrants to their home countries, 2010



Source: World Bank, <http://data.worldbank.org>

Map Department of Sciences Po, 2011

## 3 Demographic trends, a question of territorial management

### 3.1 – Ever-increasing urban densities<sup>1</sup>

By 2040, the urbanisation movement<sup>□</sup> will have continued to advance, albeit more slowly<sup>2</sup>, and cities<sup>□</sup> will contain 65% of the world's population (50% in 2010). This increasing urbanisation will be the result of both natural growth and the continuing mass exodus from rural areas<sup>□</sup>.



#### STEP CHANGE

The rural population should therefore undergo a trend reversal by 2020-2025 and begin its absolute decline beyond 2040.

95% of world demographic growth will be absorbed by the cities<sup>□</sup> of developing countries, which will house four billion persons, or 80% of the world's city dwellers. This ongoing growth will result in the spreading and increase in number of cities. The number of megacities<sup>□</sup>

1- UN projections regarding urban demographics are based on a sample of around 170 statistical systems, corresponding to the same number of definitions of 'urban'. Given that there can be considerable differences in terms of meaning and scale (unit ranging from 100 to 10,000 inhabitants), this report uses the French definition and endeavours to take account of global trends.

2- The annual urban population growth rate should decrease from 1.9% in 2010 to 1.6% in 2030, and 1.2% in 2040.

with a population of more than 10 million should therefore exceed thirty<sup>3</sup>, even though the relative proportion of their population should sustain a level of 10%.

On a regional scale, Sub-Saharan Africa<sup>4</sup> and East Asia will have the highest rate of urban population growth in the world. By 2040, the Asian urban population alone should grow by 1.8 billion. With an urbanisation dynamic that could be the fastest in history, Sub-Saharan Africa would then have 900 million additional city dwellers. In Latin America, North Africa, and the Middle East, on the other hand, urban growth will slow down, since those countries have already begun their urban transition. In Europe, the urbanisation rates, only slightly higher than the current rates, would settle around 80%, whilst it would reach approximately 85% in North America.

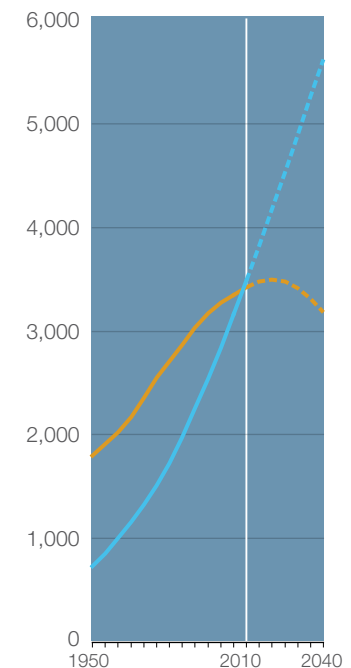
This urbanisation of the world will be accompanied by the growth of shanty towns which, by 2020, will contain between 1.5 and 2 billion inhabitants, or approximately 50% of the total urban population<sup>5</sup>. The increasingly anarchic settling of these populations in potentially dangerous areas that are very difficult to control could constitute the main cause of urban catastrophes, especially since many metropolitan areas or densely populated regions are already threatened by large-scale natural hazards<sup>6</sup>.

3- Compared with two in 1950 (New York and Tokyo) and 21 currently (*World Urbanization Prospects*, UN).

4- In particular, the 16 West African States. To recall, the urban population in Africa has increased 11-fold over the last 50 years.

5- Compared with 1 billion currently (UN Centre for Urban Settlements).

6- Earthquakes, volcanic eruptions, tidal waves, etc.



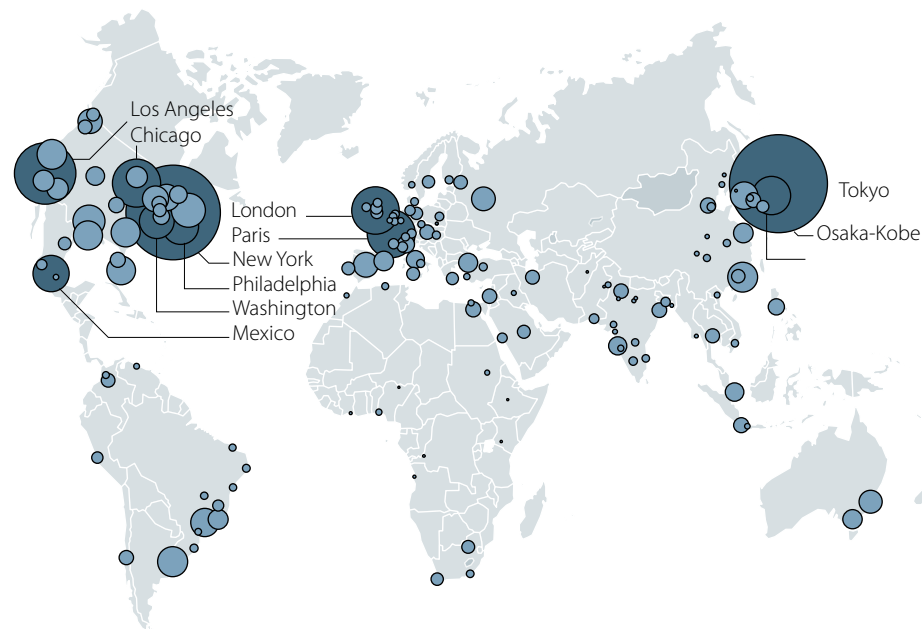
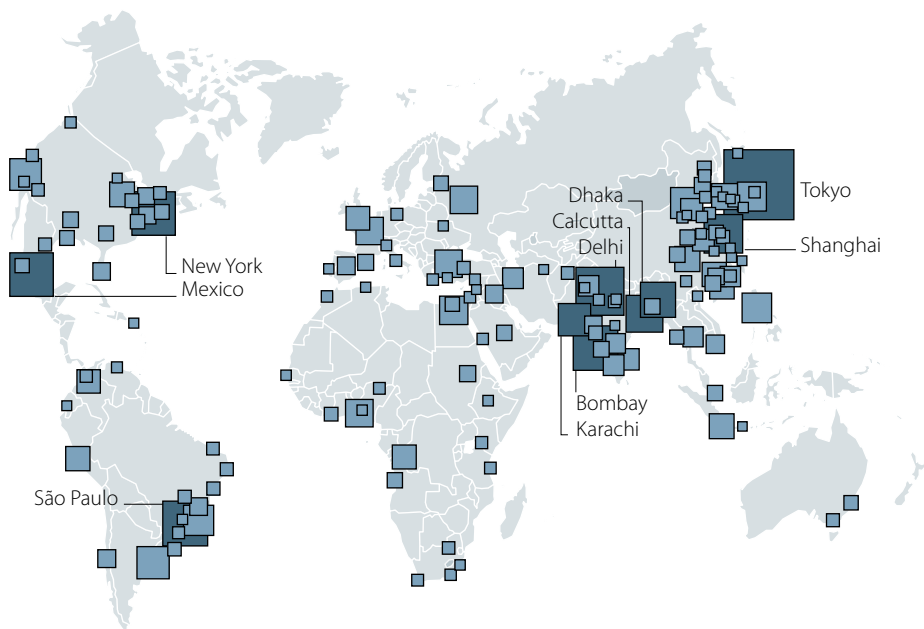
Urban and rural population trends, 1950-2040

NB: average estimate in millions

Urban population Rural population

Source: UN, <http://esa.un.org/unpp>

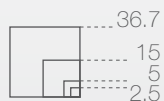
Map Department of Sciences Po, 2011



### Population and wealth produced by the largest urban agglomerations, 2010

*The 150 most populous agglomerations*

Population, 2010  
(in millions of inhabitants)

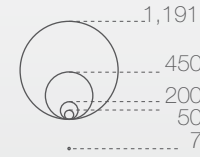


**the 10 most populous**

1	Tokyo	36.7
2	Delhi	22.1
3	São Paulo	20.3
4	Bombay	20.0
5	Mexico	19.5
6	New York	19.4
7	Shanghai	16.6
8	Calcutta	15.6
9	Dhaka	14.7
10	Karachi	13.1

*The 150 wealthiest urban agglomerations*

Gross Urban Product,  
2005 (in millions of dollars)



**the 10 wealthiest**

1	Tokyo	1,191
2	New York	1,133
3	Los Angeles	639
4	Paris	460
5	Chicago	460
6	London	452
7	Osaka-Kobe	341
8	Mexico	315
9	Philadelphia	312
10	Washington	299

Sources: United Nations, Population Division, World Urbanization Prospects: the 2007 Revision, New York (NY), February 2008, [www.un.org](http://www.un.org); City Mayors, Urban Statistics, March 2007, [www.citymayors.com](http://www.citymayors.com)

MF Durand, P Copinchi, B Martin, P Mitrano, D Placidi-Frot, Atlas de la modernisation, Presses de Sciences Po, Paris, 2010





## STEP CHANGE

On 11 March 2011, Japan suffered a massive catastrophe (earthquake/tsunami/nuclear disaster) whose medium- and long-term consequences are still difficult to evaluate. Other over-populated major cities, such as Lima and Istanbul, are also threatened by earthquakes that would be devastating to the human population and the economy. A major earthquake could also occur in California, where the Los Angeles–San Diego megacity (population of more than 18 million) contains one of the highest concentrations of human activity anywhere in the world. Because massive breaks in the southern part of the San Andreas Fault occur practically every century and the last one happened in 1857, a 'Big One' seems foreseeable in the next thirty years. Given that this would affect the American superpower, it would be a major strategic step change with incalculable consequences on the whole world: world economic crisis on a very large scale, geostrategic restructuring, increased instability, etc.

The development of megacities and the continuous growth of shanty towns cause enormous difficulties in terms of town and country planning, waste management, direct and indirect greenhouse gases due to the energy consumed and, finally, governance problems. The most polluted cities of today (Mexico, Beijing, Cairo, Jakarta, Los Angeles, and Sao Paulo) should still be the most polluted in the time frame under consideration, in view of their demographic and economic growth prospects.

Certain studies have established that the risk of civil war is twice as high in countries whose urban population grows at a rate above 4% per year. This will apply to a large part of East Africa and Central Africa until 2020-2025. The fast urbanisation of certain regions, combined with high densities, will accentuate the risk of conflicts.

In the Northern countries, the town–country balance should be restored thanks to policies driven by ecological and economic criteria. Whilst urban sprawl is chosen in the North, in the South it is the result of public policies aiming to resolve the tensions inherent in cities, and may result in populations being displaced and shanty towns being destroyed.

The highest densities are concentrated on shores and zones with access to water: three out of five inhabitants live within 100 km of the coast. Because the cities that polarise the rural exodus are frequently in coastal areas, the *coastalisation* dynamic, which is often combined with heliotropism\* in developed countries, should continue during the next thirty years.

### 3.2 - Demographic pressure on resources

The development and densification of population centres caused by urbanisation will place a heavy burden on natural resources, with an ecological footprint<sup>1</sup> up to a thousand times greater than the physical territory concerned. Given that 2/5 of humanity lives alongside rivers or lakes that are shared by at least two countries, water management will constitute a major issue for development, co-operation, and conflict. With regard to food production, demographic changes suggest that production should be doubled to cope with the increasing quantitative and qualitative needs of the world's population.

As countries act on the knowledge of their weaknesses and dependencies generated by demographic growth, this might result in the establishment of new strategic relationships, unrelated to the old political and military co-operations, following the example of the current partnerships between major agricultural producers.

The demographic pressure on the middle should also constitute an important issue, both in terms of territorial management (resources, waste, natural risks) and the reduction of inequalities. The dependence of displaced populations on natural resources, for example, could fuel the tensions between displaced persons and local populations obliged to share their resources.

Overall, combined with economic, social, environmental or political factors (old conflicts, inter-ethnic tension, etc.), the demographic trends could increase the risks of strong tensions or local or regional conflict. The 'demographic arc of crisis' covering West Africa, Central Africa, the Near and Middle East, as far as Afghanistan, Pakistan, and Northern India thus largely coincides with the regions where political and security tension is the most severe.

» In Sub-Saharan Africa, with the highest demographic and urban growth rates in the world, the difficulties generated by climate change and access to resources will be amplified. Emigration alone will not be enough to calm the sometimes brutal tensions that might arise. Scenarios leading to the 'failure' of certain states or armed conflict in high-immigration areas cannot be ruled out.

» Asia will still contain the majority of the world's population and two of the biggest demographic powers (China and India). The demographic and urban threshold effects might be limited by slower natural growth (with the notable exception of the 'Afghanistan – Pakistan – North India' region, where growth will continue) and the the expected economic growth. The question of access to resources will still arise, both in terms of regional governance and cross-border co-operation and in terms of hostilities, whose effects could go far beyond the regional context and trigger an interplay of alliances or even an escalation (e.g., the management of large cross-border water reservoirs).



The dried-up bed of the Gan River, 22 July 2011, China – the drought has a huge impact on industry and on residents



## ⇒ CONSEQUENCES FOR DEFENCE

The major demographic trends that will be seen in the next thirty years could have significant repercussions on the tasks assigned to armed forces and could exacerbate constraints, particularly in terms of human and financial resources.

### Increasing diversification of missions

The continual increase in the number of European migrants worldwide could result in French and European armed forces being called upon more often to assist their nationals (RESEVAC).

In parallel, steady demographic growth in Sub-Saharan Africa throughout the period under consideration and its inability, particularly in economic terms, to absorb such flows, will increase the number of candidates for emigration to Europe, which is seen as a pole of attraction in geographical, historical, and cultural proximity. In this context, the armed forces will be required to reinforce their contribution to monitoring the air, sea and land routes into the territory, in particular to secure any weak points or to deal with specific situations (sudden mass movements of people, major humanitarian crises, etc.).

### Increased demand in a more restrictive environment

The ageing population and demographic decline in Europe will influence societal choices. The order of priority between financing the social welfare system (pensions, care for the elderly) and preserving the resources required for operational modern armies might be re-examined, to the detriment of the armed forces.

An ageing Europe will face a shortage of soldiers. By 2040, the pool of persons aged from 16 to 25, from which armies recruit, will account for less than 10.4% of the European population and 11.5%<sup>1</sup> of the French population. This will inevitably affect the army's ability to recruit personnel. European countries could take inspiration from the American army's recruitment policy, whereby undocumented immigrants are recruited in exchange for long-term residence permits, or even naturalisation.

The ongoing growth of the urban population raises the question of the suitability of the French and European armed forces (in terms of equipment, doctrines of deployment, etc.) for operational engagements in these specific theatres of operation. The growing probability of certain extreme scenarios (armed engagement inside a megacity with tens of millions of inhabitants) could thus lead to circumvention manoeuvres, or 'encagement' rather than engagement.

The armed forces of the EU, already facing a situation of dwindling personnel numbers that is likely to be aggravated by a human resource shortage, might have to deal with operational engagements involving an unprecedented case of numerical inequality. Moreover, pressure on personnel numbers will raise questions concerning the level of engagement of French and European forces in the event of simultaneous crises.

Faced with an ageing population - although to a lesser extent than the EU - the USA could be forced to reduce their potential level of engagement in external operations, particularly in the event of multiple engagements. This scenario would require the European states to count solely on their own forces in certain crisis situations, particularly in cases where American interests are not directly at stake.

In this general context, the question of the capability limits of the armed forces of developed countries, particularly in Europe, will become increasingly urgent and could be reflected in an attitude of partial or total abandonment, and more frequent use of coalitions, or increased outsourcing of certain specific capabilities and skills.

<sup>1</sup>- *World Population Prospects, the 2010 revision*, UN.



Evacuating nationals in Beirut using Caracal helicopters (EC725) and the *Mistral* Strategic Projection Ship, July 2006, Baliste Operation