



Lilli Sippel, Tanja Kiziak, Franziska Woellert, Reiner Klingholz

# Africa's Demographic Challenges

How a young population can make development possible

ulation +++ East Asia is ageing +++ education and family planning are requirements for development +++ take advantage of the demographic dividend  
+++ sustainable development policies need population dimensions +++ meet the unmet need +++ create access to family planning +++ integrated proje

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**DSW**



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# WHEN GROWTH LIMITS DEVELOPMENT

Children are a great source of joy to their parents and an asset for each society. Having too many children, however, can cause serious worries for families and entire countries. This applies especially to less developed countries, mainly in South Asia and sub-Saharan Africa. Wherever the number of children grows faster than the possibility to provide the younger generation with the necessary schools, health institutions or food, and the ability to give young people jobs is lacking, the situation of the entire country deteriorates.

These countries find themselves in a vicious circle of poverty, high infant mortality and high fertility rates. They cannot easily escape this circle because where many young people live today the population will continue to grow: in the coming years, most young people will reach the age in which they start to have families. In countries like Niger or Uganda, half the population is under the age of 15. Demographic development is like a slow moving barge because based on today's age structure, its path is predetermined for decades.

Poor countries with high population growth only have a chance for development if growth slows down and if birth rates decline. What are the conditions determining how many children people have? Which factors influence the desire to have children?

Ultimately all decisions should be made freely and independently by self-determined people, including those concerning the number of children. The demographic transition, meaning the point when birth and death rates change from a high to a low level, which all countries have experienced or will experience during their development, is also an educational and emancipatory transition. With improved living conditions, more personal freedoms and access to education and knowledge, having children becomes a conscious decision rather than something determined by fate. In fact, this right to decide the number of one's own offspring was for example, confirmed by the International Conference on Population and Development in Cairo in 1994 as a human right.

A decisive factor for this transition is education – especially for women. Equally important is health care. Where many children die at a young age, it is understandable that people have many children simply to protect themselves against the worst-case scenario. Health care includes the availability of information and family planning methods. Only with this information, can young people fulfil their responsibility to plan their families. Approximately 215 million women worldwide who want to avoid pregnancy lack access to modern contraceptives.

Development opportunities for families and entire societies grow with a decline in birth rates. They can then invest more, and in an improved manner, in the young people. In turn, succeeding generations will profit, thus setting in motion a chain reaction of lowered birth rates, continuously improving levels of education and increasing productivity.

All of the formerly poor societies took this path during their rise to the newly industrialised level, such as the Asian Tigers and later the Latin American countries. Even a nation like Bangladesh, which once was considered a hopeless case for the then so-called development aid, is on a promising track. These countries have shown that there are no hopeless cases. Why should the states of sub-Saharan Africa not be able to follow this path as well, provided they receive proper international support?

So far development cooperation has hardly had a chance to keep up with the very high population growth of some African countries south of the Sahara. With population doubling in less than 20 years, even rich countries would have been unable to cope. Development cooperation should concentrate more than ever on the crucial points of development, on education, health and family planning. Only then can human capital, the most important resource of each individual state, be increased.

A development policy focused on people is essential. People empowered by education are better able to provide for their own economic progress and therefore for the future of their society. This is particularly true for women, who can attain a different status in family and community through education. They obtain much more assertiveness, also in regards to the question how big their future family should be. Education is not only the best “contraceptive”, but also the best instrument to achieve gender equality.

The Millennium Development Goals, adopted by the United Nations at the turn of the millennium, have made eight resolutions to be reached by the year 2015. They range from the fight against hunger and poverty to the reduction of child and maternal mortality, from combating the HIV/Aids pandemic to gender equality and access to primary school for all children. Some countries like Thailand or Brazil have, for the most part, reached these goals. Others, like Burkina Faso or the Central African Republic lie far behind. Among other reasons, they fail to meet the Millennium Development Goals because high population growth makes it nearly impossible to even come close.

Currently, there is no international development framework beyond 2015. It is highly imperative to agree on one though, because much remains to be accomplished in many countries and because many of the old problems have yet to be solved. In current debates over the goals, demographic aspects, such as the strong population growth in many countries, have to be taken into account more seriously than before as obstacles to development. Also, one must not lose sight of the programme for action decided upon at the 1994 International Conference on Population and Development in Cairo because the goals envisioned there in terms of family planning and maternal and child health have only been partially reached.

Above all, the upcoming UN Earth Summit in 2012, which takes place in Rio de Janeiro like the first conference of this kind, is unthinkable without the topic of population growth. Its major themes “fighting poverty” and “sustainable development” are directly connected to the question of how fast the number of people on earth is

growing. Whereas population growth was not mentioned in the closing documents of the last Earth Summit in Johannesburg in 2002 due to pressure by the US Bush administration, there is now a chance to move the subject into the centre of the development discussion. All participants in development cooperation work need to understand that the future of the earth depends on the capabilities of people, especially on their good health, educational background and peacefulness. Those who invest in these factors will also solve the problem of high population growth.

Hannover/Berlin/Vienna, July 2011

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# EXECUTIVE SUMMARY

## Population growth: reasons and consequences

The world population has reached a number of approximately seven billion and continues to grow strongly by about 79 million people each year. This growth is almost exclusively taking place in the less developed countries.

The continuous population growth there can be attributed to three factors: Firstly, women in developing countries have significantly more children than in the developed regions of the world. Secondly, the populations in the developing countries are on average very young because of their high birth rates. As a result the number of women of child bearing age is high and will increase even more in the future. And thirdly, most people in the poorest regions are living longer due to improved health care and better food security.

Several risks and development obstacles arise from high population growth for example, lack of food security, pressure on the health and education systems, overburdening of the infrastructure or scarcity of resources. All of this ultimately results in larger conflict potential.

In our study of 103 current and former developing countries, we could show that no single country has developed socio-economically without a parallel decline in the birth rate. Therefore, the development status of a country is closely linked to its population structure.

## Demographic challenges in Africa

For development policy, the most prevalent and severe problems today occur in sub-Saharan Africa. Of the 48 least developed countries in the world, 33 are located in this part of Africa. At the same time, this region stands out with the highest birth rates in the world. By the year 2050, the number of people in sub-Saharan Africa may double and by the end of the century it may quadruple.

Population growth could turn out to be even larger, if, for example, contraceptive use in sub-Saharan Africa does not become significantly more widespread than today. As far as the use of modern contraceptive methods is concerned, West Africa falls particularly far behind.

## What leads to smaller families

Population growth and high birth rates can in no way be fully attributed to the desire to have large families. Rather, they are in part due to the fact that women and couples lack effective birth control methods. When people are able to exercise their sexual and reproductive rights, i.e. if contraceptives are available, sexuality education is provided and reproductive health and information services are expanded, the number of children will decrease in accordance with the wishes of the people. However, more needs to be done. Since, on average, women in developing countries wish to have fewer children than men, the way to lower the birth rates is mainly through the empowerment of women.

Birth rates decrease demonstrably,

- if women have more of a say in their families and in society, and if they have alternatives to their role as mothers.
- if girls and women have unrestricted access to sexuality education, family planning and contraceptives.
- if girls and women attain a better education. In particular, attending secondary school causes women to have children later and to be more actively engaged in family planning.
- if new opportunities are created, such as by moving from the country to the city, through improved earning possibilities or through a new family image conveyed by the media.
- if child mortality is decreased. Couples are only willing to have fewer children if there is a higher chance of survival for each individual child.



## Opportunities of demographic development

If mortality and fertility decrease, a young population can become the engine for the national economy. The experience of the Asian Tigers is proof of this. At the beginning of their impressive development, these countries had a demographic starting point similar to that of many sub-Saharan countries today and their level of development at that time was just as bad. The development boost of the Asian Tigers was made possible by two fundamental changes:

**1** A **demographic bonus** was created because the **number of people of working age** increased in relation to the number of **dependant young and old people**. In order to create such a favourable age structure, the many children and adolescents have to grow up, mortality in the working age group must decrease, and fertility must decline so that the upcoming young generations (and the related burden) will shrink.

**2** The demographic bonus could be transformed into a **demographic dividend**, i.e. into a gain for the national economy, because the many **employable people** actually had the opportunity to become **employed**. For this, people must be educated and jobs have to be created.

The Asian Tigers have simultaneously invested in education and family planning, and have carried out necessary economic reforms and initiatives. In addition, these societies recognised that the labour participation by women is absolutely necessary for economic progress and that education is a crucial prerequisite for this goal. It was exactly this comprehensive approach which made the successes of the Tiger States possible.

Even if the concept of demographic dividends cannot simply be transferred from the Asian Tigers to the countries of sub-Saharan Africa due to cultural, political and economic differences, the way to the demographic dividend, in principle, is open for the African states. Yet politics have to determine the correct course.

## Focal points for action

As long as mortality, especially child mortality, and fertility remain as high in sub-Saharan Africa as they currently are, a demographic bonus cannot emerge and therefore no opportunity for economically favourable development will arise. Investments in health and family planning, as well as in education can be identified as the most important starting points to attain a demographic bonus.

The national governments and the various partners of development cooperation should see it as their job for the **health sector**,

- to strengthen the health systems,
- to establish and expand basic health care,
- to make disease prevention possible through simple means,
- to carry out vaccination campaigns for children,
- to improve sexual and reproductive health,
- to offer sexuality education,
- to facilitate the access to contraceptives and
- to find advocates and use the media to create knowledge about health issues and acceptance of contraceptives.

**Education** must be recognised as the key factor for development. It prepares the way for the demographic bonus because mortality and fertility will decrease with the population's rising standard of education. In addition, the human capital increases through education. Education thus becomes the most important tool to achieve the demographic dividend. Therefore it is necessary

- to create equal education opportunities for girls,
- to expand secondary education in particular because it is crucial for a decrease in fertility and an economic upswing,
- to establish vocational training as a hinge between school and the working world, and
- to provide microcredits to improve the education of adult women and to empower them. At the same time, this will promote entrepreneurship.

The human capital, which decidedly improves through education and lower numbers of children, must also be utilised by the national economy. In order to achieve this, **jobs** must be created. It is essential

- to create productive employment opportunities for men and women, and in doing so,
- to first invest mainly in sectors with a high need for low-skilled workers, and
- to create jobs in knowledge-intensive sectors that achieve greater added value as a second step once the population's level of education has increased.

When the formal employment sector grows, social security systems should be developed. On the one hand, this will cause birth rates to decrease because children will become less important as old age security. On the other hand, this is a first step to prepare for the long-term ageing of the population.

# 1

# MANY CHILDREN – A RISK FACTOR?

Africa currently belongs to those regions experiencing the highest economic growth worldwide. While for the longest time international news merely focused on Africa's wars and famines, and on malaria and AIDS, many experts now draw an optimistic picture of the continent. Economic performance is growing and is accompanied by increased buying power and the emergence of a middle class. Foreign direct investments have gone up almost sevenfold in only one decade.<sup>1</sup> More jobs are being created, not just in agriculture and the manufacturing industry, but also in the service sector and, above all, the building industry. Yet, differences between Africa's various countries are substantial with Ghana, Mozambique, Namibia and South Africa all profiting from the current upswing, and failed states, such as Somalia, Liberia or Eritrea lacking any signs of economic success.

However, it is not just the investments that determine the future development of the individual countries, but also the structure of the population, most importantly, the number of old and young people living in a country, as well as the population's health status and level of education. It is not so much the absolute number of inhabitants that counts, but rather the way the population is composed and the existing human capital. Development can be inhibited if more children are born than available schools can handle or if the population grows faster than the economy and infrastructure, ultimately resulting in insufficient job creation.

## Divided World: Between Growing and Shrinking

At present, the world population has reached seven billion and still continues to grow rapidly – at around 79 million a year. This is equivalent to an increase of about 216,000 people a day.<sup>0</sup>

This growth largely takes place in the less developed countries. But even within this group, growth varies markedly: The population in developing countries is growing by 1.2 per cent a year, whereas the population in the 48 least developed countries is growing by 2.3 per cent, which means the population in these countries will double in only 30 years.<sup>0</sup>

The ongoing population growth in poor countries is based on three factors: Firstly, due to improved health care in poor regions, most people live longer. In Asia, for example, average life expectancy has risen from 42 years at the beginning of the 1950s to currently 75 years.<sup>0</sup> Secondly, women in developing countries bear more children than women in the developed regions of the world. On the African continent, women have an average number of 4.5 children, in contrast to Europe where the number is 1.5 per woman.<sup>0</sup> Thirdly, the populations in developing countries are on average very young in age due to high birth rates. In countries of sub-Saharan Africa alone, 42 per cent of the population is younger than age 15<sup>0</sup> – meaning that in the future, there will be clearly more women of childbearing age. Even if women today had fewer children than their mothers, the population would continue to grow.

## Population projections – making growth predictable

Population forecasts are crucial planning tools. The projections by the United Nations Population Division, which are prepared for individual countries or groups of countries, are the most well known.

The size and composition of the future world population depends on how birth and mortality rates will change over time. In addition to those variables, there is a third which is crucial for the projections for individual countries: migration flows. The above mentioned three variables are affected by diverse factors, such as medical care, the population's level of education, the availability of contraceptives, the economic situation, civil wars, and many more. The United Nations make assumptions concerning the future developments of these three variables, calculating different variants only with respect to the birth rates. Essentially, they assume that the fertility rates in those countries in which people have a lot of children will continue to decline, as this is in line with trends in other countries.

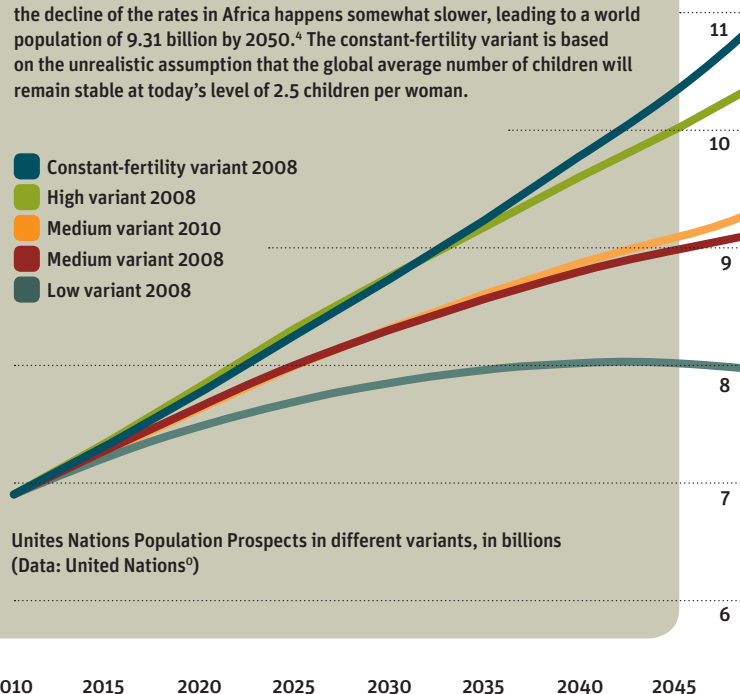
To incorporate new empirical data, the projections are revised on a regular basis, which occasionally also leads to changes in the estimates for the future. For example, in the most recent UN projections from the year 2010, predictions made on future fertility were higher compared to those in 2008 while simultaneously the time horizon was extended to the year 2100. Further calculations quoted in this study (particularly the ones by the IIASA/VID and the Futures Group in chapter 4) are based on original data from the 2008 UN projections. For the sake of consistency, we therefore refer to these projections throughout the entire study. Nonetheless, the fundamental observations and conclusions apply without restrictions, even for the newer projections.

It should be mentioned that the UN projections are not uncontroversial. Experts disagree as to how much China's fertility rate has dropped to this day. There is reason to assume that the United Nations may overestimate the fertility there, which may result in unreasonably high global projections since China accounts for at least a fifth of today's world population.<sup>2</sup> There are, however, researchers who believe the UN projections are too low for Africa because, particularly in the poorest countries, the number of children per woman may not decline as rapidly as expected by the United Nations. Based on these considerations, the world

population would grow to reach eleven billion people by 2050 – more than the United Nations estimate even with their high fertility variant.<sup>3</sup> This underlines the fact that the future development of the world population, and particularly the fertility rates, are highly uncertain. Although in the longer term, one can assume fertility rates will drop even in current high-fertility countries, the speed with which this process will take place, however, is uncertain and we also do not know yet at what point this development will end. This will depend on future political priorities and actions. Consequently, population scenarios are a useful tool to help politicians realise the scope of their political actions.

### Uncertain future

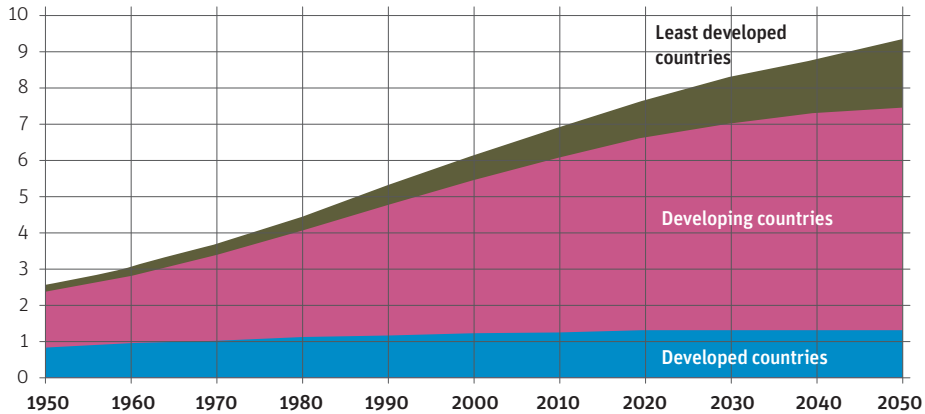
For their projections, the United Nations present three variants which are based on different assumptions concerning future fertility trends. In the 2008 calculations, the medium variant is based on the assumption that in all countries of the world the fertility rates will converge one day at an average of 1.85 children per woman. The high variant is 0.5 children above the medium variant and the low variant is 0.5 children below, which amounts to 2.35 and 1.35 children per woman, respectively. The medium projection by the United Nations is quoted most frequently. It assumes that the world population will grow to reach about 9.15 billion people by 2050.<sup>9</sup> The newer 2010 projections assume that the fertility rates converge at 2.1 children per woman and that the decline of the rates in Africa happens somewhat slower, leading to a world population of 9.31 billion by 2050.<sup>4</sup> The constant-fertility variant is based on the unrealistic assumption that the global average number of children will remain stable at today's level of 2.5 children per woman.



United Nations Population Prospects in different variants, in billions  
(Data: United Nations<sup>9</sup>)

## Growth mainly in poor countries

The global population continues to grow, whereas at the same time the proportion of people living in highly industrialised countries decreases: While in 1950, one in three people lived in Western industrialised countries or in Japan, only one in five people do today. In 40 years, it may very well be only one in seven. Until then though, many of today's newly industrialised countries may have reached a development level comparable to current industrialised nations.



World population in billions, medium variant, by types of country  
(Data: United Nations<sup>9</sup>)

With its demographic giants China and India, Asia ranks highest in the world in terms of population size, yet Africa, due to its young population structure, will see the largest population growth in percentages. Africa's population size is likely to double to almost two billion people by the year 2050, whereas Asia and Latin America will probably face a population increase of about 20 per cent each – in absolute terms their populations will grow by approximately 1.1 billion or 140 million people, respectively. Europe, on the other hand, is the only continent that has to adjust to a six per cent population decline down to 690 million people.<sup>9</sup> Thus, for the first half of this century, no end to the global population growth is in sight, even if it has been slowing down compared to previous decades.

## Taking a closer look at development

The Western industrialised countries also experienced phases with a strong population growth once. At the beginning of the 19<sup>th</sup> century, due to improved living conditions, medical progress, hygiene and the availability of clean drinking water, fewer children died, while at the same time, the number of children per woman remained high. Population growth, however, happened much slower at that time than in today's developing countries since the average age at marriage was higher and many women remained childless. Furthermore, the growth problem was partially "exported", as many people left their home country searching for a better life. At the peak of the 19<sup>th</sup> century emigration wave, in only one decade, 14 per cent of the Irish turned their backs on their home country. Around 1900, millions of Europeans every year found a new home in

the new world.<sup>5</sup> A social change caused by industrialisation and urbanisation, as well as an increased level of education and economic growth, ultimately also led to declining fertility rates. In science, the shift from high to low mortality and birth rates is referred to as the **demographic transition**.

When in the course of the demographic transition fertility declines, the population's age structure changes as well. At first there are proportionally fewer children, and instead, more people of working age. The number of older people, however, remains low and does not increase until the large group of working age people gradually grows older. The lower the proportion of dependent children and elderly in a society, the more productive a society can be. In a society's demographic development, this particular window of time between falling birth rates and ageing is referred to as a **demographic bonus**. To take advantage of this bonus, people of working age need to be trained, find employment and have as long and productive a career as possible before they turn old and dependent themselves. If a society successfully achieves this, the bonus becomes a **dividend**. In all this, the key to success is investing in education and the labour market.

## Falling birth rates and economic upswing: The example of South Korea

Fifty years ago hardly any development expert would have thought that agrarian-oriented South Korea, battered by the Korean War, would one day grow to become the ninth largest export nation, and – given its gross national income – would belong to the 20 richest nations of the world.<sup>8</sup>

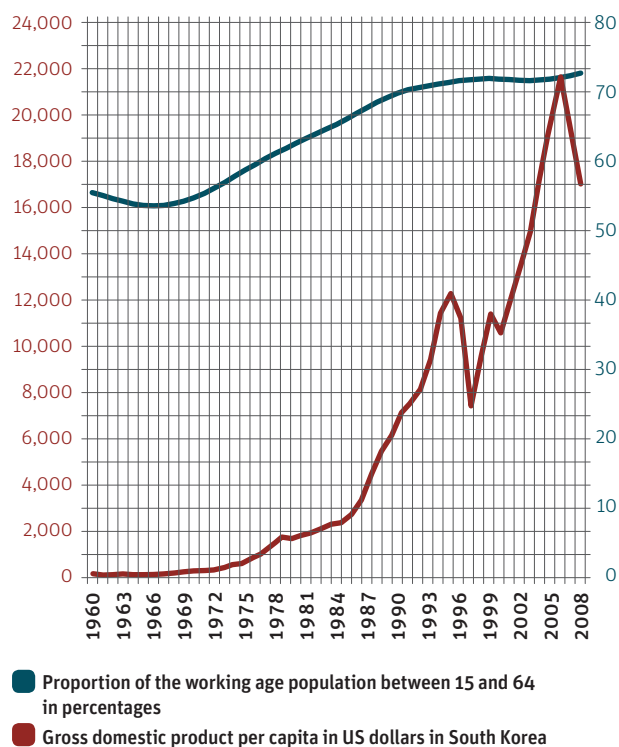
The success story began with massive investments to educate the general population and the establishment of an effective policy on family planning, including the dissemination of contraceptives and the improvement of maternal and child health.<sup>9</sup> As a consequence, birth rates drastically fell. Whereas a South Korean born at the beginning of the 1960s had an average of about five siblings, he was a father of not more than two children 25 years later, and today has only one grandchild from each of his children. This means that between 1970 and today, the working age population in South Korea ages 15 to 64 has doubled to reach 35 million people, whereas the total population in younger age groups has declined.<sup>10</sup> South Korea managed to use this demographic bonus by starting to educate the population, including women, at an early point and by successfully integrating them into the labour market.

Shortly after the decline in the birth rate, South Korea's economy began to grow. This resulted in more and more capital available for the state to further invest in the education and health care systems as well as in the infrastructure and development of remote areas. With its increasingly better educated inhabitants, South Korea started to be of interest for private and foreign investors. During the past 30 years, the South Korean economy's growth rates reached an average of 6.3 per cent despite the 1997/98 Asian crisis and the 2008 financial crisis.<sup>10</sup>

The price paid for the demographic bonus is population ageing. Since fertility rates in South Korea in the 1960s and 1970s fell more rapidly than anywhere else, being at one of the lowest levels worldwide with only 1.2 children per woman today, the population there ages faster than anywhere else. While presently the proportion of South Koreans over the age of 64 merely lies at eleven per cent, population forecasts project that by 2050, it is likely to have risen to 34 per cent.<sup>10</sup> Less and less young people will then have to care for these elderly people. The state has to prepare for this early enough by investing in social security systems and by ensuring that people stay healthy, qualified and productive longer.

## Where a large workforce has created prosperity

Since the end of the 1960s, declining numbers of children have led to an increasing proportion of the working age population in South Korea. The fact that the working age population had to care for relatively few young people, freed up capital to create jobs and invest in education. The gross domestic product per capita rose and people decided to have even less children, but to invest all the more in their education.



(Data: for dependency ratio United Nations,<sup>9</sup>  
for gross domestic product World Bank<sup>11</sup>)

Today's Tiger states (South Korea, Taiwan, Hong Kong, Singapore) followed the model of the demographic dividend. In the 1960s and 1970s, they invested heavily in education and family planning programmes, an effort which triggered strong economic growth. Once poor countries with a high population growth, they have progressed to become wealthy, low-fertility countries.<sup>6</sup> An estimated one third of the economic growth in East and Southeast Asia can be attributed to taking advantage of the demographic bonus.<sup>7</sup> In addition to the impacts of the age structure, the countries also experienced the positive effects better education and economic reforms had on the upswing.

Many states on the Latin American continent have been following this development path as well, albeit with less marked and varying success. Active family planning was hampered by the influence of the Catholic Church, and the economic development suffered from domestic policy disputes in some of the countries. Nonetheless, today the large Latin American states at least belong to the newly industrialised countries, and they assume an increasingly important role in the global community.

### Sub-Saharan African countries following a different path

With a few exceptions, things look quite different in Africa. While in North Africa the age structure has been developing in a positive way, its countries have so far not managed to benefit from the demographic bonus due to a lack of jobs. In the region of sub-Saharan Africa, there are not enough

working age people to create a bonus because fertility rates there amount to an average of almost five children per woman, consequently resulting in the fact that, to date, children and adolescents dominate the population composition.<sup>8</sup> It is not by coincidence that many sub-Saharan African countries belong to the poorest in the world. According to estimations by the World Bank, 73 per cent of sub-Saharan Africa's inhabitants live on less than two US dollars a day.<sup>12</sup>

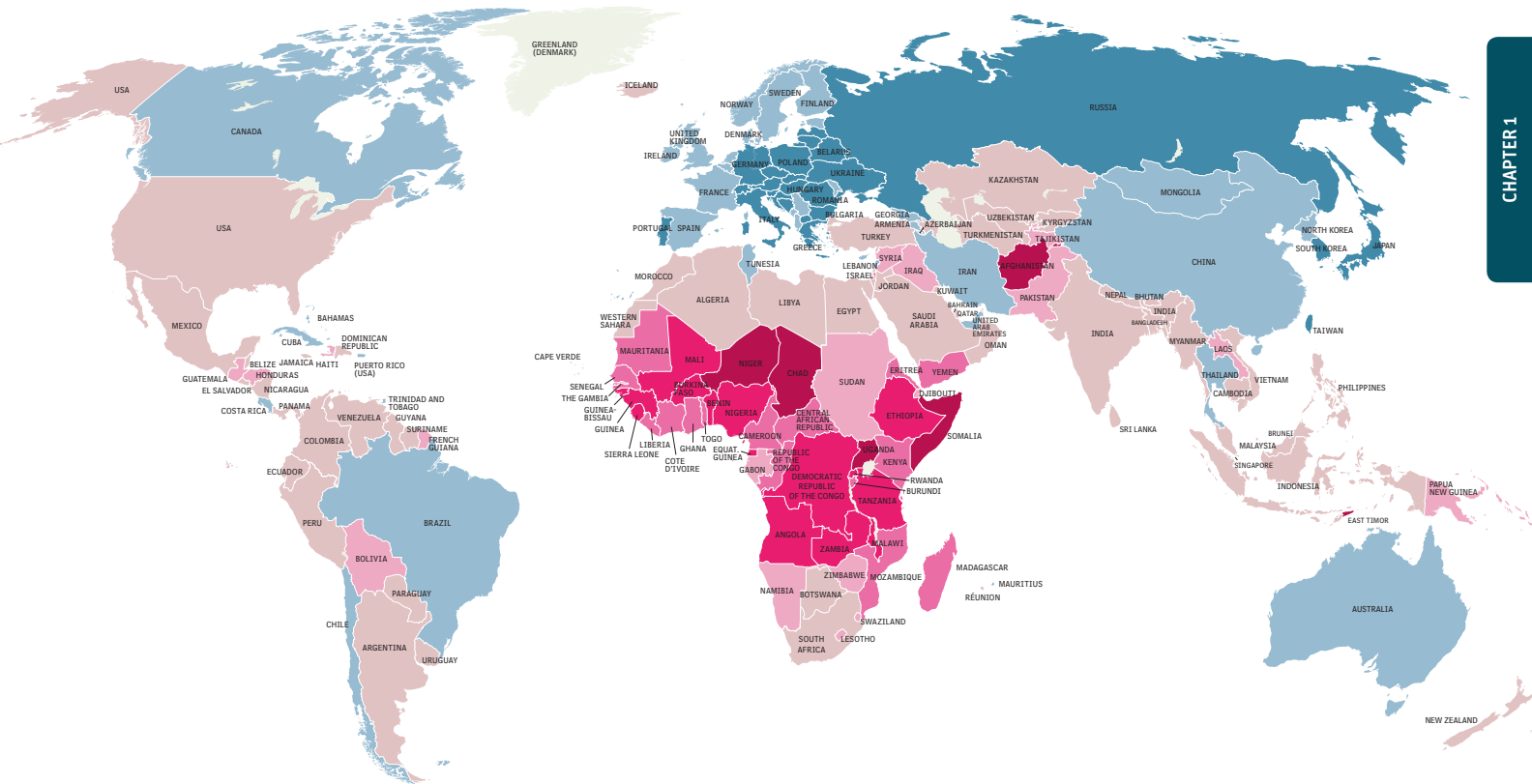
In absolute figures, the region will most likely see more poor people in the future than today despite the countries' efforts and the aid launched by the international community. The relatively high economic growth in the past years and the achievements of development cooperation are not sufficient in order to take care of the growing populations. The example of Chad clearly demonstrates that. With an average of six children per woman, the Sahel state has one of the highest fertility rates and one of the highest population growth rates in the world. During the past 20 years, the number of inhabitants has nearly doubled to over 11 million. By 2050, it is likely to have climbed by two and half times, well up to 27 million.<sup>9</sup> Such growth will overburden the already fragile state.

### How population growth slows down development

There are various risks and development obstacles resulting from high fertility rates, the associated high population growth as well as from the disproportionately high share of young people.<sup>13</sup>

**Infrastructure.** Especially in rural areas, there is often already a lack of available schools and health facilities. The enormous population growth exacerbates these problems because a larger population means that there is increased demand for teachers, physicians and other service providers. Lack of prospects in rural areas lead to intensified migration into urban areas, some of which develop into megacities. These megacities are barely able to manage the increase in city dwellers because they also lack the necessary infrastructure, housing, running water and formal jobs. This is why, initially, most migrants end up in slums.

**Food security.** While enough food is produced worldwide, it is not always produced where it is needed. Especially in countries with a strong population growth, there are barely yield increases through modern farming methods. An estimated additional 90 to 125 million people in developing countries may go hungry by the year 2080.<sup>14</sup> The food problems are further aggravated by climate change, which



## Places where there are many children

While most children are born in Asia, at least in absolute terms, women in sub-Saharan Africa have on average the highest number of children. At the same time, they carry a greater health risk during pregnancy and birth because maternal and infant mortality are higher than anywhere else in the world. Unlike in Africa, the population is shrinking in some countries of Europe and Asia because fewer children are born than are necessary to replace the parents' generation.

Average number of children per woman in 2010:

- under 1.5
- 1.5 to less than 2.0
- 2.0 to less than 3.0
- 3.0 to less than 4.0
- 4.0 to less than 5.0
- 5.0 to less than 6.0
- 6.0 and above

(Data: United Nations<sup>9</sup>)

hits the developing countries the hardest, predominantly in the sub-Saharan region. However, the developing countries are the ones with the least opportunities to adapt to climate change. The impacts are most serious where many people live under conditions of limited natural resources, such as in the Nile Delta. According to projections, 350 to 600 million people in Africa alone are likely to suffer from a shortage of water in 2050.<sup>15</sup>

**Environment.** In some regions, yields in agriculture are low because fertile ground erodes through incorrect cultivation techniques or because the groundwater level drops and land becomes salinised due to artificial irrigation. This is exactly the reason why more and more land is needed in order to feed more people. Since tropical countries experience the strongest population growth, it is predominantly the species-rich tropical rain forests that disappear.<sup>16</sup> The Amazon rainforest has lost about 20 per cent of its land since 1970 because of this.<sup>17</sup> Another example: 80 per cent of the worldwide fish supplies, feeding more than 2.9 billion people, have already been overfished today.<sup>18</sup> In addition, there are shortcomings regarding environmentally acceptable sewage disposal especially since industrial sewage mostly

flows untreated into rivers and oceans in developing countries. As a consequence, the regional natural habitat is lost; a situation which is all the more problematic if the population continues to grow.

**National Security.** The shortage of vital resources, such as drinking water and fertile soil, has the potential to trigger major conflicts and may even create cross-border refugees and migration. This could lead to a security risk if neighbouring countries are overburdened with receiving more refugees or migrants. Studies also show that countries with a disproportionately high percentage of adolescents are highly susceptible to political unrest and armed conflicts.<sup>19</sup> Young adults, especially young men, have a tendency towards violence if they are denied any prospects, such as education and jobs. Most of the fragile states lie in Africa and in the Hindu Kush, i.e. in the regions with the highest population growth.<sup>20</sup>

## Population growth – a taboo subject of today’s development policy

Given the many links between population dynamics and development success, it is surprising how little attention is currently paid to this subject in the area of international development cooperation.<sup>21</sup> One of the reasons is the fierce debate on whether and how states should intervene in private issues, such as giving births. From the very beginning, feminists, politicians, especially those concerned with population growth, and the church have had irreconcilable positions, that to some extent, they still hold today.

As early as the 1960s, the international community has been responding to the massive population growth in developing countries. Until well into the 1980s, the focus was solely on high birth rates that needed to be reduced due to the limit of natural resources and out of concern for famines. Many developing countries incorporated family planning into their development strategies by creating easy access to

contraceptives. Yet, programmes involving coercive measures were also implemented, such as China’s strict one-child-policy.<sup>22</sup>

Some politicians and social actors did not feel comfortable with the fact that development policy was focused so much on family planning programmes. With the slogan, “Development is the best contraceptive,” the representatives of this group brought this point to the table at the first International Conference on Population and Development in Bucharest launched by the United Nations in 1974. They campaigned for a policy, which would move forward social and economic development – fertility reduction would then happen on its own. The proponents of the idea were mostly religious leaders and politicians from poor countries who, in light of the support of family planning programmes, felt somewhat patronized by the West. Nonetheless, by the end of the conference the participants passed the so-called World Population Plan of Action, in which family planning was combined with further development measures.<sup>23</sup>

### Sexual and reproductive health and rights (SRHR)

The somewhat unwieldy terminology “sexual and reproductive health and rights” stands for a human rights-based approach, which was embedded in the international population policy at the 1994 International Conference on Population and Development in Cairo. The conference’s programme of action defines reproductive health as “a state of complete mental, physical and social well-being in all matters relating to the reproductive system and to its functions and processes”.<sup>28</sup> People should be able to have a satisfying and safe sex life and to decide when to have children and how many.

Firstly, reproductive health implies access to safe, effective and affordable contraceptives and information about it. Secondly, reproductive health implies medical care during and after pregnancy, including medical care for new-born children. And thirdly, reproductive health refers to all health services treating or curtailing all sexually transmissible diseases, as well as diseases of the reproductive organs. The emphasis lies on individual rights regarding the best possible health, integrity of the body, self-determination and non-discrimination based on gender.



Yet the dispute continued and escalated in 1984 at the second International Conference on Population and Development in Mexico City. The United States, which up to that time had been the greatest supporter of and investor in a regulative population policy, withdrew from this area. The former Reagan administration reacted in response to the pro-life activists in its own country, who demanded that the United States no longer be part of those family planning and reproductive health programmes which allowed abortions in the broadest sense. Following this new course, the United States found close allies in the Vatican and conservative Islamic states.<sup>24</sup>

The third International Conference on Population and Development in Cairo in 1994 represents a turning point in international population policy. The concept of the unmet need for contraceptives (see chapter 3 and glossary) helped to mediate between politicians focused on population growth, on the one hand, and feminists, on the other.<sup>25</sup> In lieu of demographic target values, there was an increased focus on women's and men's individual rights and needs. The issue of population growth disappeared from the political agendas – among other reasons because in Asia and Latin America birth rates had already declined significantly, and the HIV/Aids pandemic caused concern in Africa. Cairo is viewed as a victory of the international women's movement. The

international community agreed upon a detailed programme of action focusing on voluntary family planning, maternal and child health, as well as on gender equality.<sup>26</sup> The donor countries pledged to bear a third of the expenses incurred until 2005, an estimated 6.1 billion US dollars.<sup>27</sup> The funds actually provided clearly fell short of expectations. The pressure that came from the anti-family planning activists, who ultimately succeeded in bringing US President George W. Bush to their side, was too big.

The views of different groups, political directions and cultures still clash with one another when it comes to these issues. Even at the 2000 UN Millennium summit, the significance of population dynamics was misjudged although the development goals, which are supposed to be reached by 2015, had been laid out with measurable criteria. If, however, poverty and hunger shall be halved (MDG 1) and child mortality decreased by a third (MDG 4), development efforts will need to keep up with population growth. Among the millennium development goals, there are some concerning the area of reproductive health, such as the reduction of maternal and child mortality, as well as the curtailment of the HIV/Aids pandemic. However, there is no mention of possibilities to slow down population growth, for instance by improving the supply of contraceptives in developing countries. This is all the more surprising, since it is predominantly the strong population growth that has interfered with achieving the millennium development goals. In fact, since these goals have been formulated in 2000, the world population has grown by just under 15 per cent, from 6.1 billion to about seven billion.<sup>9</sup>

## A necessary reorientation

The goal of this study is to contribute to a situation that allows for a fact-based and human rights-oriented discussion about demographic issues and contexts. With the help of analyses, links between population dynamics and socioeconomic development are shown and a comprehensive examination of the factors influencing the number of children is presented. We will see that measures viewed as desirable, such as the access to education, contraceptives and health services, as well as the empowerment of women, will cause birth rates to fall and create the conditions for a demographic dividend.

Ultimately, this implies that demographic issues need to be more of a focus again when it comes to planning development policy. Development cooperation can only be successful and sustainable if strong population growth is realised to be and acknowledged as one of the reasons for scarce resources, violent conflicts and deficits in education or health care systems. Suitable countermeasures can be catered to the needs of the people.

# 2 HIGH BIRTH RATES AND DEVELOPMENT ARE MUTALLY EXCLUSIVE

Looking at all the countries which are or have been developing from agrarian-oriented to modern societies, such as the so-called Asian Tigers in East Asia, the large newly industrialised countries China, India, Indonesia and Brazil, or small states, such as Mauritius, and Trinidad and Tobago, it becomes apparent that over time many of the framework conditions have fundamentally changed: Some of today's newly industrialised countries have a long history of colonialisation, the Cold War has ended, and some of the formerly poor countries have become prosperous due to the commodity boom. Development did not happen uniformly in all of the countries, but strikingly enough, there was one thing they all had in common: In all of the countries, the number of children per woman declined in the course of development. Conversely, it can be observed that in virtually all countries with low socioeconomic development, the number of children per woman has remained at a high level.

This chapter focuses on the question whether the apparent link between decreasing fertility and increasing development can actually be confirmed by scientific analyses. The parallel between the two factors “fertility” and “development” does not automatically signify a causal relationship between the two, since a correlation does not necessarily imply interdependence. Thus, in order to find an answer to the question if countries exist that have developed quite well despite high fertility rates, more in-depth investigations are required.

## Four clusters based on fertility development

In a first step, a so-called cluster centre analysis was performed. The goal was to build groups of countries with similar fertility developments, i.e. to cluster countries in order to identify similarities and differences. The analysis was based on data on the number of children per woman from 103 current and former developing countries. The figures used were organised in five year intervals between 1950 and 2010.<sup>9</sup> During this time, fertility rates dropped in all of these countries, oftentimes rather continuously. Still, there are differences between the countries with respect to the speed in which fertility dropped and the point at which the process started. The analysis identified four typical patterns of fertility decline and thus four clusters:

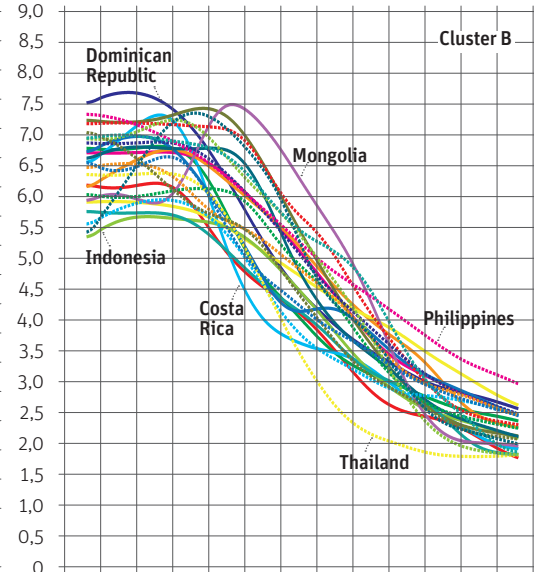
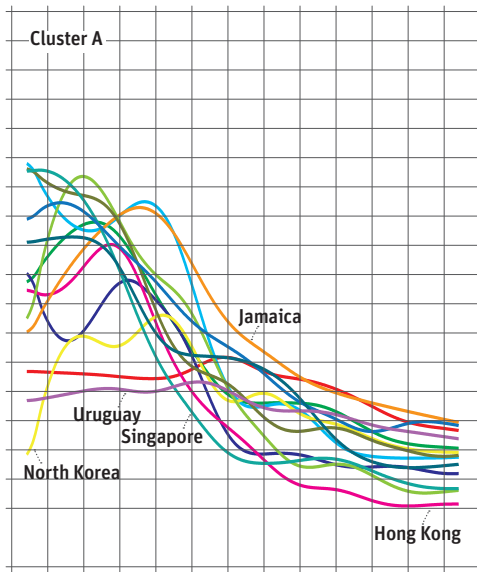
In cluster A, there are countries where the trend to have less children started early, in part already prior to 1950. These are countries that have fertility rates today that lie slightly above or even below the replacement level of 2.1 children per woman, i.e. the number of children which is necessary to replace the parent generation. Cluster B contains nations in which the number of children in 1950 tends to be higher than in cluster A. These nations began to have decreasing fertility rates later, currently either approaching, having already reached, or – in some cases – having even fallen below two children per woman. Overall, these countries show a very sharp decline in fertility in the analysed period – in some, women do not even have one third of the children they had in the 1950s. Countries in cluster C are still in the middle of the transition, since the fertility decline started later than in cluster B. The average number of children per woman has been cut in half or has dropped even further in some places compared to in the 1980s. On average, the number of children per woman now stands around three. Finally, the countries in cluster D virtually sustained their high fertility rates in the first four decades of the analysed period. Since 1990 though, the number of children per woman has also declined in almost all of these countries. However, fertility rates are still very high at somewhere between four and seven.

### Growing trends towards nuclear families

The trend is clear: During the past 60 years, the number of children per woman has fallen worldwide – in some countries even down to a third of what it used to be. When dividing the 103 examined countries according to similarities in the dynamics of their fertility declines, they fell into four different clusters. Individual countries may deviate from the centre of the cluster, in some cases even substantially. In cluster A, the number of children per woman had in some instances already dropped during the 1960s and has since then reached a value of fewer than 2.1 children per woman almost everywhere today. In clusters B and C, fertility rates at the beginning of the analysed period were, in most cases, between six and eight children per woman, but they have dropped significantly during the past decades. In cluster D, after about four decades of stagnation, development has only just begun.

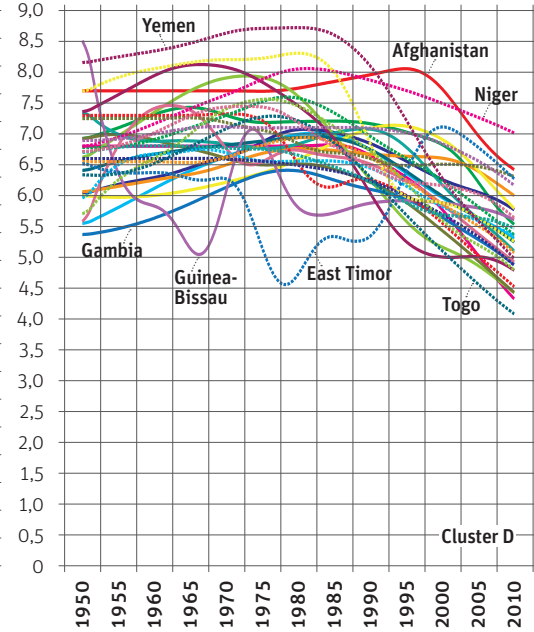
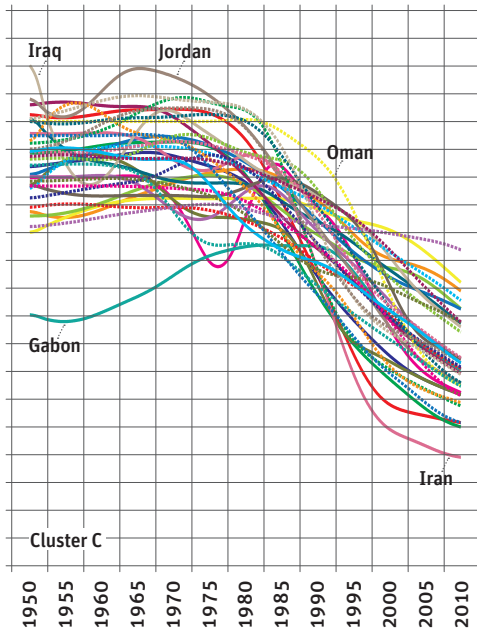
Development of the average number of children per woman per cluster (Data: United Nations<sup>9</sup>)

- Argentina
- Chile
- China
- Cuba
- Mauritius
- South Korea
- Sri Lanka
- Trinidad and Tobago

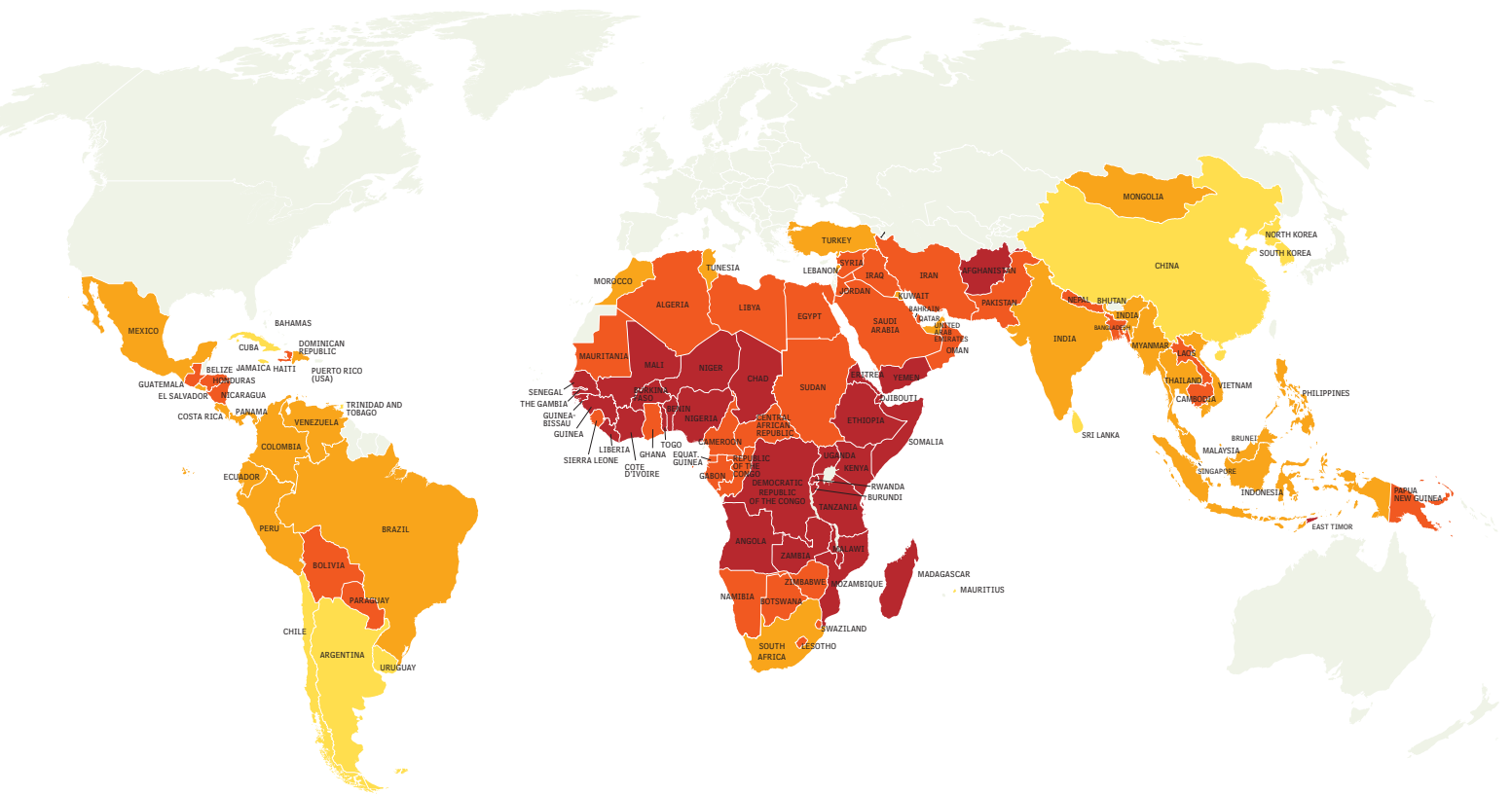


- Brazil
- Colombia
- Ecuador
- El Salvador
- India
- Kuwait
- Lebanon
- Malaysia
- Mexico
- Morocco
- Myanmar
- Panama
- Peru
- South Africa
- Tunisia
- Turkey
- United Arab Emirates
- Venezuela
- Vietnam

- Algeria
- Bangladesh
- Bolivia
- Botswana
- Cambodia
- Cameroon
- Central African Republic
- Egypt
- Ghana
- Guatemala
- Haiti
- Honduras
- Laos
- Lesotho
- Libya
- Mauritania
- Namibia
- Nepal
- Nicaragua
- Pakistan
- Papua New Guinea
- Paraguay
- Qatar
- Republic of the Congo
- Saudi Arabia
- Sierra Leone
- Sudan
- Swaziland
- Syria
- Zimbabwe



- Angola
- Benin
- Burkina Faso
- Burundi
- Chad
- Côte d'Ivoire
- Democratic Republic of the Congo
- Eritrea
- Ethiopia
- Guinea
- Kenya
- Liberia
- Madagascar
- Malawi
- Mali
- Mozambique
- Nigeria
- Rwanda
- Senegal
- Somalia
- Tanzania
- Uganda
- Zambia



Division of clusters by fertility rates of selected years between 1960 and 2009

- Cluster A
- Cluster B
- Cluster C
- Cluster D

(Data: United Nations<sup>9</sup>)

### Similar fertility patterns accumulate in certain world regions

Global decline in fertility has followed typical regional patterns. Sub-Saharan Africa has the highest and most stable fertility rates (cluster D). By contrast, in East Asia and the southern region of South America, the rates began to drop early and are now the lowest (cluster A). Particularly in Central America and Southeast Asia, fertility rates dropped later, but also quite substantially (cluster B). A fertility belt at an intermediate level at an average of 3.4 children per woman extends from North Africa to West Asia (cluster C). The grey coloured countries were not considered in the cluster analysis.

Two questions emerge: Firstly, whether countries in one cluster have further similarities in addition to similar fertility rates, such as comparable economic output or similar success in education and health care. And secondly, whether they differ from the countries in the other clusters. To answer these questions, various development indicators were used. These indicators are explained in the following section. The results are described in order of the type of cluster.

## Development Indicators

### Human Development Index

The Human Development Index, established by the United Nations (UNDP), provides information on three basic areas of human development: health, education, and standard of living. Based on the indicators of life expectancy at birth, mean and expected years of schooling and gross national income per capita, an index value is calculated. Index values starting at 0.788 indicate very high human development, values starting at 0.677 represent high human development, values starting at 0.488 point to medium human development and all other lower values signify low human development.<sup>1</sup>

### ECONOMY

#### Gross domestic growth rate

The gross domestic growth rate indicates by per cent how much the gross domestic product grows per year. Data is provided by the World Bank and is available for most countries for the period from 1961 to 2009.<sup>2</sup>

#### Gross national income per capita

The gross national income per capita indicates how much income is available for the citizens of a country on average each year. Internationally these numbers can be easily compared because they are listed in US dollars for each country. Data is provided by the World Bank and available for the period of 1962 to 2009.<sup>3</sup>

#### Gini coefficient

The Gini coefficient measures the inequality of income distribution in a country. For instance, it indicates whether there is a broad middle class with a similarly high income or a few rich individuals and many poor. Data is taken from the 2010 Human Development Report and refers to the years between 2000 and 2010.<sup>4</sup>

### Population living below US\$1.25 per day

The percentage of people living below US\$1.25 per day (purchasing power parity) represents an internationally adopted indicator for poverty. Data taken from the 2010 human development report refers to the most recent year during the period between 2000 and 2008.<sup>5</sup>

### EDUCATION

All educational data is based on calculations by the International Institute for Applied Systems Analysis (IIASA)/ Vienna Institute of Demography (VID).<sup>6</sup> Data is listed in absolute figures by sex for the period of 1970 to 2010. For the analyses by clusters, the population, ages 20 to 64, was considered. To allow better comparability, the proportion of people with different educational backgrounds was calculated in percentages (overall and by sex).

**Without education:** This refers to the percentage of people having no basic formal education. These people have either never attended school or have dropped out of primary school within the first year. Presumably, they are unable to read, write or do math.

**Primary school education:** This refers to the percentage of people who either attended primary school longer than a year or completed it. Presumably, these people have basic skills in reading and writing.

**Secondary school education:** This refers to the percentage of people who have at least completed the lower secondary level of secondary school. Presumably, these people have a good knowledge of reading, writing and mathematics, as well as basic knowledge of natural sciences.

**University education:** This refers to the percentage of people who have completed a university degree comparable to a Bachelor, Master, Ph.D. or Post-Doctoral Degree.

Due to insufficient data, no information on the educational situation can be provided for Afghanistan, Botswana, East Timor, Iraq, Jamaica, Kuwait, Lebanon, Libya, North Korea, Oman, Papua New Guinea, Qatar, Sudan, Trinidad and Tobago, the United Arab Emirates, Venezuela, and Yemen.

### HEALTH

#### Life expectancy

Based on the average life expectancy at birth, conclusions can be drawn for the population's health status and medical care. Data is based on United Nations' estimates and is available for the period of 1950 to 2010.<sup>0</sup>

#### Incidence of tuberculosis

Tuberculosis is a bacterial lung disease, which mostly occurs in developing countries and may be fatal. Countries with a large number of tuberculosis patients face substantial shortcomings in their health care systems because modern medicine can actually treat and contain this disease. The prevalence of tuberculosis is estimated by the World Health Organisation in absolute figures per 100,000 inhabitants. The figures are taken from the World Bank's database and refer to the year 2009.<sup>7</sup>

#### Prevalence of HIV/Aids

HIV/Aids is an immune deficiency disease, which is mostly transmitted by sexual intercourse, from mothers to their babies during pregnancy and childbirth, or by blood transfusion. It affects predominantly the adult working age population, which is why it impedes development. The spread of HIV/Aids is listed in percentages and refers to a country's population in the age group between 15 and 49. Data was compiled by UNAIDS and the World Health Organization and refers to the year 2009. It is provided by the World Bank's database.<sup>8</sup>

We refrained from providing information on the tropical disease malaria because not all of the examined countries lie in the tropics.

## REPRODUCTIVE HEALTH

### Infant mortality rate

The infant mortality rate indicates how many infants per 1,000 births die before reaching their first birthday. Data is based on United Nations estimates for the period between 1950 and 2010.<sup>9</sup>

### Maternal mortality ratio

The maternal mortality ratio includes all deaths in connection with pregnancy or birth per 100,000 live births. Data is based on estimates by the World Health Organisation, Unicef and UNFPA and the World Bank for 1990, 1995, 2000, 2005 and 2008.<sup>9</sup>

### Antenatal care

This indicator provides the percentage of women aged 15 to 49 who are attended to at least once during their pregnancy by skilled health personnel (doctor, nurse, midwife or auxiliary midwife). Data is made available by Unicef.<sup>10</sup> Data originates from different sources, among them are national statistics and demographic and health surveys, and refer to different years.<sup>11</sup> The data should be interpreted with caution, because it has not been collected consistently.

### Delivery care

Births attended to by skilled health personnel – i.e. physicians, nurses or midwives – are listed in percentages. Data was provided by Unicef the same way as data on antenatal care. Its reliability is therefore limited as well and it should rather be understood as a point of reference.<sup>12</sup>

## EQUALITY

### Gender-related Development Index

The United Nations Gender-related Development Index provides information on how the various countries score in the areas of health, education and income, while taking gender differences into account. The index is based on the year 2007 and is calculated using the indicators of life expectancy at birth, gross enrolment ratio, adult literacy rate and gross domestic product per capita.<sup>13</sup>

### Accessing institutions

In 2009, the World Bank, among other things, has investigated whether women have the same legal rights as men to interact with public authorities. When this is not the case and women first have to ask for their husband's permission, then they have lower chances to work as an employee or as an entrepreneur. This information is available for 128 countries.<sup>14</sup>

### Property rights

Furthermore in 2009, the World Bank has examined the same 128 countries in order to find out if men and women can own, control, manage and inherit land or goods to an equal degree.<sup>15</sup>

## POLITICAL AND ECONOMIC FRAMEWORKS

### Failed States Index

The Fund for Peace, a non-governmental organisation, evaluates states using twelve social, economic and political indicators. An evaluation is made as to what extent a country is threatened by grave, undesirable developments and state disintegration. The ranking, therefore, includes only a few states which are already considered as failed in the sense of having collapsed. By means of a point system, the countries are classified into four categories: alert, warning, moderate and sustainable.<sup>16</sup> The standards for this evaluation are strict: among the 177 assessed countries, only 13 fall into the highest category "sustainable", all of them OECD members. The category of "moderate" includes the USA and Germany, countries that are actually viewed as stable democracies. The quoted index values are from the year 2010.

## Political rights and civil liberties

Regarding civil liberties and political rights, the study is based on the assessment of the American non-governmental organisation Freedom House, which has assessed the freedom of opinion, freedom of assembly, freedom of association, freedom in education, freedom of religion, as well as equal opportunity and stability of the law in different countries. In addition, countries are judged as to whether or not elections are conducted freely and fairly and whether or not minorities or opposition parties have the chance to defend their political interests. Countries are classified as "free", "partly free" and "not free". The estimates stem from the year 2010.<sup>17</sup>

### Corruption Perception Index

The Corruption Perception Index of the non-governmental organisation Transparency International estimates the perception of corruption in the public sector (officials and politicians) of a country. Corruption is defined as "the abuse of entrusted power for private gain". The index consists of various scientific analyses on the issue of corruption and includes information and estimates of experts and managers from June 2009 through September 2010.<sup>18</sup>

## Oil

Oil deposits may be a chance for development because money is flowing into the country. Yet oil can also become a problem, for instance, if the money is not invested in the country's development, but instead in prestigious projects or if it goes directly into the pockets of the ruling elite. The analyses consider the oil-producing countries listed by BP's oil statistics: Algeria, Angola, Argentina, Brazil, Chad, China, the Republic of Congo, Cameroon, Columbia, Ecuador, Egypt, Gabon, India, Indonesia, Iran, Iraq, Kuwait, Libya, Malaysia, Mexico, Nigeria, Oman, Peru, Qatar, Saudi Arabia, Sudan, Syria, Thailand, Trinidad and Tobago, Tunisia, United Arab Emirates, Venezuela, Vietnam, and Yemen.<sup>19</sup>

## Landlocked countries

The countries geographically located in the middle of a continent with no harbour have difficulty accessing the world market. The situation is even worse if neighbouring countries are war-torn and crisis-ridden. The landlocked countries considered in this cluster analysis are: Afghanistan, Bolivia, Botswana, Burkina Faso, Burundi, Central African Republic, Chad, Ethiopia, Laos, Lesotho, Malawi, Mali, Mongolia, Nepal, Niger, Paraguay, Rwanda, Swaziland, Uganda, Zambia, and Zimbabwe.<sup>20</sup>

## Global Competitiveness Index

The Global Competitiveness Index evaluates a country's economic conditions. It consists of three sub-indices, which measure each institutional, infrastructural, socio- and macroeconomic, as well as other frameworks, providing information on the efficiency of existing markets and possibilities for innovations. Depending on a country's level of development, these sub-indices are given different weights for the total evaluation. Data is taken from the 2010 to 2011 report published by the World Economic Forum.<sup>21</sup>

## The share of agriculture in the gross domestic product

This indicator shows the percentages of the gross domestic product generated through forestry, hunting, fishery, agriculture and livestock farming, thereby providing information on the general economic structure of a country. Data is taken from the World Bank's database and refers to the year 2009.<sup>22</sup>

## Urbanisation rate

The urbanisation rate indicates what percentage of a country's population lives in cities. In developing countries, people in cities have better access to education, health services, the labour market, as well as the media, than they would have in rural areas. Data refers to the year 2010 and is based on United Nations estimates.<sup>9</sup>

## DEMOGRAPHY

### Age structure

To assess a population's age structure, this study refers to a country's number of inhabitants based on different age groups. For better comparability, percentages are used. The following age groups were considered: young people between the ages of 0 and 14, the population of typical working age between 15 and 64 years, as well as people ages 65 or older. Data is based on the United Nation's estimates and prospects for the years from 1950 to 2050.<sup>9</sup>

### Dependency ratio

The dependency ratio provides information on how high the share of people is who theoretically have to be supported by others (see glossary). It is expressed as the number of those under the ages of 15 and over 64 per 100 persons of working age. These figures are taken from the United Nations' estimates for the years 1950 to 2010.<sup>9</sup>

## Difficult data situation

The data situation in developing countries is problematic. There are rarely any exact figures. For the most part there are neither registration offices nor church records, and events such as births, deaths or weddings are not officially recorded. Therefore, most figures are based on estimates or extrapolations of certain trends – this also applies to demographic data if, for example, the last census was conducted a long time ago.

Other indicators are based on samples collected in household surveys, which are then extrapolated to the country's total

population. Because these types of surveys are time-consuming and expensive, many countries do not repeat them on a regular basis or deliver only incomplete data.

Censuses and surveys are frequently performed by insufficiently trained personnel and those processing, managing or collecting data often lack the necessary statistical knowledge in order to guarantee quality data.

While education data is relatively reliable, at least as far as school enrolment and completion rates are concerned, information on the population's health status, such as the prevalence of HIV/Aids, is viewed as unreliable. The quality of this data also depends on whether people have any contact with medical personnel. Actual figures might be far higher than the reported figures because not every ill person knows about

their disease or because deaths are not always attributed to the correct cause. On the other hand, overestimated figures may be circulating in order to raise more aid funds.

For all the above-mentioned reasons, the results of this study may not represent the exact level of development, especially for the poorer countries, but at least they reflect a certain trend. One can only hope for the future that data collection and analysis will gain significance as drafting conclusive action concepts requires a solid empirical basis.

## Cluster A: Low number of children, high level of development

There are 13 countries that belong to cluster A: Argentina, Chile, and Uruguay from South America; Cuba, Jamaica, Trinidad and Tobago from the Caribbean; China, Hong Kong\*, North Korea, Singapore, South Korea, and Sri Lanka from Asia; and the African island state of Mauritius.

In all the above-mentioned countries, the average number of children today lies below or slightly above the simple replacement level of 2.1 children. In most of these countries fertility dropped sharply between 1950 and 1980, from four to six children per woman to less than three, remaining at a low level comparable to that of many industrial nations ever since.

\* Since 1997, Hong Kong belongs to the People's Republic of China as a special administration region. Due to its different history, Hong Kong is analysed separately from China in the study.

### High level of development

About three quarters of these former developing countries are rated high or very high on the United Nations Human Development Index, which takes income, education, and life expectancy into account. In none of the other clusters did countries score that well. The only exceptions are China and Sri Lanka with a medium level of development. In Sri Lanka, the long civil war has set the country back, blocking its development. As the most populated country in the world, China, which also has to overcome enormous regional differences, faces major difficulties caring for its more than 1.3 billion inhabitants. No data is available for North Korea and Cuba. A look at additional indicators will give the reader a more detailed picture of the economy, education and health in cluster A.

### Powerful economy

The economy of the so-called Asian Tigers, i.e. South Korea, Singapore, and Hong Kong, experienced a strong upswing as early as the 1970s. In 1998, the Asian crisis slowed down the economic growth. Nevertheless, the countries recovered rapidly so that they were soon able to reach an annual gross domestic growth rate of up to nine per cent again. China also has an excellent record: Since 1990, the People's Republic has had average gross domestic growth rates of over ten per cent, though admittedly they started from a much lower level. By contrast, in Chile and Mauritius, the economy has been growing somewhat slower, since these two countries have already reached a relatively high level of development. The island state in the Indian Ocean succeeded in diversifying its economy and developing profitable tourism. In May 2010, Chile was the second Latin American state after Mexico to become a member of the OECD.<sup>23</sup> Cuba and North Korea play

a special role in this cluster because both states are ruled by communist parties, which also control economic life. Based on what we know, they both have economies of scarcity.

About three quarters of the states from cluster A belong to the countries with upper middle or high income. However, some of them differ greatly with respect to their per capita income: In the year 2009, a citizen of Singapore earned an average of US\$37,220 per year, and thus almost as much as a Japanese citizen, whereas the inhabitants of Sri Lanka had to live on an average of only US\$1,990 a year. According to the Gini-coefficient, which measures the inequality of income within the population, the gap between the poor and rich is particularly large in South America. Extreme poverty still plays a role in China and Sri Lanka, where 15 per cent of the population lives on less than US\$1.25 per day. This kind of hardship mostly affects less than two per cent of the population in the other countries in the cluster – at least where data is available.

### Major successes in education

In the field of education, the countries from cluster A have been very successful in the last 40 years: the proportion of those that never went to school or have only attended primary school has decreased overall – the proportion of those that have attended secondary school or university is steadily rising. In all countries investigated (except for North Korea, Jamaica, Trinidad and Tobago, for which no data is available), at least 91 per cent of those ages 20 to 64 have attended primary school for at least some period of time. For 62 to 94 per cent of the population in this age group,



education continued beyond primary school. Singapore and South Korea have, with over 30 per cent, the highest percentage of university graduates. Women in the countries of the cluster are generally as well educated as men.

### Healthy population

The overall high level of development is also evident in the health sector. The average life expectancy has been continuously rising, and in all countries, excluding North Korea and Trinidad and Tobago, it is now at over 70 years. While tuberculosis still occurs everywhere, the risk of contracting the disease is rather low. In East Asia and Sri Lanka, the disease is more prevalent than in the Latin American countries. Compared to countries from other clusters, the number of patients is low even there, with less than 100 cases for every 100,000 inhabitants. Only in North Korea is the number of cases higher with over 300 sick. The HIV/Aids pandemic barely hinders development in the countries of this cluster: less than two per cent of a country's population are infected.

### Guaranteed access to obstetrics

Data on reproductive health is not available for all countries – not even for the highly developed city states of Hong Kong and Singapore – but it can be assumed that there are hardly any problems with insufficient care. Since the middle of the 1980s, usually about 30 infants or less per 1,000 will die before reaching their first birthday. Maternal mortality is relatively low, with figures between nine and 89 deaths per 100,000 live births. The only exception is North Korea, where medical care is insufficient, which is the reason why 250 expectant mothers die per 100,000 live births. Almost all pregnant women receive medical care at least once and are attended to by qualified medical personnel when giving birth.

### Far-reaching gender equality

Gender equality is satisfactory in the countries of cluster A. According to the Gender-related Development Index of the United Nations Human Development Programme, which shows women's equality in the areas of economy, education and health, the countries of cluster A are internationally well positioned. Hong Kong has the best record: In the international ranking it is located between the Western European states of Greece and Austria.

In six countries (Argentina, Uruguay, Singapore, South Korea, Hong Kong, and China) women legally have the same rights as men to interact with public authorities. In these countries, women also have the same property rights as men, meaning that they are equally able to own, manage and inherit land or goods. In Chile, Jamaica and Sri Lanka, women are underprivileged when it comes to property and interaction with third parties. No data is available for the remaining four countries.

### The better women are doing, the fewer children they have

The Gender-related Development Index indicates to what extent women have equal opportunities in the fields of economy, education and health. Where women are less likely to be disadvantaged in comparison to men – in the countries from clusters A and B – birth rates are low. Conversely, if women are faced with more barriers to lead a self-determined life, birth rates turn out to be higher. Gender equality is best where the Gender-related Development Index is highest.

Number of countries per cluster according to their ranking in the Gender-related Development Index (GDI) in 2007, as far as available. (Data: UNDP<sup>24</sup>)

	Cluster A	Cluster B	Cluster C	Cluster D
Very high GDI ( $\geq 0.900$ )	2	0	0	0
High GDI (0.899 – 0.800)	5	10	4	0
Medium GDI (0.799 – 0.500)	4	13	24	5
Low GDI ( $< 0.500$ )	0	0	2	21

## Political stability

Most countries from cluster A are politically stable. Yet there are two states in this group, Sri Lanka and North Korea, that have a relatively high ranking on the Failed States Index. Hermetically sealed off, North Korea is ranked 19th, while Sri Lanka stands in the 25th position. Since the end of the Sri Lankan civil war in May 2009, the situation has somewhat stabilised despite the continuing human rights problems: the year before, Sri Lanka was ranked even worse on the index in the 22nd position.

China, Cuba and North Korea are the only states in cluster A considered “not free” by the organisation Freedom House, due to the way they handle political rights and civil liberties. There is no assessment for Hong Kong, which belongs to China. According to the non-governmental organisation Transparency International, corruption is a problem that needs to be taken seriously in about half of the countries. At the same time, the cluster contains Singapore, which together with New Zealand and Denmark, is considered the least corrupt country of the world.

## High degree of competitiveness

Economic framework conditions in cluster A are relatively good. It is rather striking that only three states, China, Argentina, and Trinidad and Tobago, have crude oil. All countries have access to the ocean, which facilitates the inexpensive transport of goods.

The Global Competitiveness Index assesses, among other things, the legal framework, the existing infrastructure, the labour market, the population’s qualification, as well as financial markets and technological progress. Singapore ranks third among 139 states. Hong Kong, South Korea, China and Chile also rank in the upper third. The remaining six countries rank lower – this is especially true for Jamaica, where mainly crime, an inefficient government and corruption hinder the economy. There is no information on Cuba and North Korea, since due to their socialist central administrations, both countries are largely sealed off from the world market.

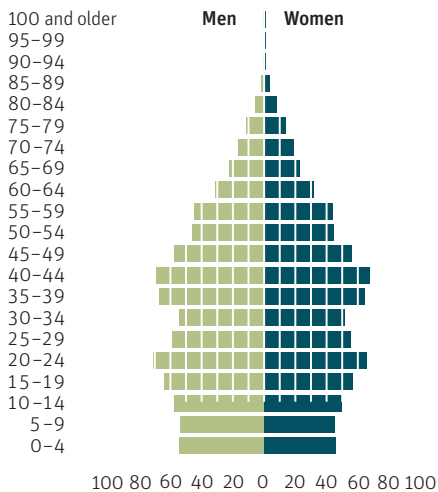
Agriculture no longer plays a prominent role in the industrial and service societies of this cluster. With over ten per cent, agriculture is the biggest share of the gross domestic product in China and India in this cluster. There is no data available for North Korea, Singapore and Hong Kong. Since economic life takes place mostly in cities, urbanisation rates provide information on what percentage of the population is living close to market areas and potential industrial employers. Aside from the city states of Hong Kong and Singapore, Argentina and Uruguay have, with over 90 per cent, the highest quotas. In contrast to the other countries of the cluster, Trinidad and Tobago, as well as Sri Lanka, are more rural; there, only one in seven people live in a city.

## The demographic window is gradually closing

As the overall positive development demonstrates, the states of cluster A have evidently managed to use their demographic bonus. At present, the demographic situation is still favourable for this cluster. Between 63 and 76 per cent of the population are between the working ages of 15 and 64, and are, at least theoretically, productive parts of society. This positive ratio will not prevail because many of these people are beyond 40 years old and, therefore, have already half of their professional life behind them. The proportion of those over age 64 is by now between seven and 14 per cent and is higher than in any other cluster. In most of the countries, the proportion of those over 64 has been gradually increasing for over 30 years, so there is not much time left to take advantage of the demographic dividend as this window of opportunity already begins to close again. Especially the “Tigers”, Hong Kong, Singapore, and South Korea, and, increasingly China, are faced with a problem: they have barely enough young people that could slow down the ageing of the population. In Hong Kong, for instance, only 11.5 per cent of the inhabitants are under the age of 15, fewer people than in any other country in the world. The countries of Latin America and Sri Lanka are ageing more slowly. There, over 20 per cent of the population is presently younger than 15. All in all, the countries from cluster A are faced with the future challenge to maintain their high level of development despite severe demographic ageing.

## On the way towards ageing

In cluster A the largest age groups are within the working age, which ensures high economic power in the individual countries. As there are only few retirees to date and since the numbers of children continue to decline, the demographically favourable window is still open. Yet, just as in the industrial nations, the countries of cluster A must be prepared to face demographic ageing soon with simultaneously shrinking employment rates.



Number of persons of the respective age group in all countries of the cluster in millions for the year 2010 (Data: United Nations<sup>9</sup>)

## THE EXAMPLE OF SINGAPORE

### A U-turn in demographic policy

Having quintupled its number of citizens since 1950, the city state of Singapore now has 4.8 million people. In 1950, every woman had an average of 6.4 children. However, as early as the mid-1970s, the fertility rates reached the replacement level of 2.1 children per woman. With this development, Singapore has gone through the pattern of demographic transition quickly. Mortality rates have rapidly decreased and life expectancy is now at about 81 years, which is partially due to today's excellent medical care. There were mainly two factors that accelerated the unusually fast decline in fertility rate that followed the drop in the mortality rate: the government's family planning programmes and the successful education policy.

Today, fertility amounts to 1.27 children per woman and is even lower than in Germany. In vain, the government has been trying to take countermeasures against this development, pursuing a policy aimed at boosting birth rates since the 1980s. It has replaced the old slogan "Stop at two children" with "Have three or more if you can afford it" and has introduced tax incentives for larger families.<sup>25</sup> The fact

that Singapore's population is still growing despite low fertility rates is something the country owes to its migrants: according to UN estimates, 76,000 people immigrated into the country in 2010 alone. For the mainly Asian immigrants, Singapore is an attractive destination because in international rankings, the city state is ahead of all other neighbouring countries. Among 169 states, Singapore is ranked 27<sup>th</sup> in the United Nations Human Development Index. In the Global Competitiveness Index, Singapore is ranked third, directly behind Switzerland and Sweden. Even in terms of education policy, the country takes a leading international role. In the 2009 Pisa study, Singapore was ranked fifth following Shanghai, South Korea, Finland and Hong Kong. In the academically oriented education system, 33 per cent of those ages 20 to 64 have graduated with a university degree.

The growing number of elderly and very old people is a demographic challenge. In 2050, a third of the inhabitants are likely to be over the age of 65. If the country continues to heavily invest in education and to attract migrants from neighbouring countries, Singapore should be able to maintain its high level of development despite demographic ageing.

## Cluster B: Few children, medium high level of development

Cluster B includes 25 countries, the majority of which – Brazil, Columbia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Mexico, Panama, Peru, and Venezuela – belong to the American continent. In addition, it includes eight Asian nations, India, Indonesia, Malaysia, Mongolia, Myanmar, the Philippines, Thailand, and Vietnam; three Arab states, Kuwait, Lebanon, and the United Arab Emirates, and also Turkey. Only three countries from Africa made it into this cluster: Morocco, South Africa, and Tunisia.

With 2.3 children per woman, the average fertility rate in cluster B is just slightly above the simple replacement level and therefore, not much higher than in cluster A. It varies between 1.8 children in Thailand and three in the Philippines. In contrast to cluster A, though, the starting level in 1950 was higher by up to four children and fertility receded much slower.

### Moderate level of development

Among the 25 states mentioned above are the newly industrialised countries Brazil, India, Mexico, and South Africa, but also the successful second-generation Tiger States, Indonesia, Malaysia, the Philippines, and Thailand. Ten states have reached a medium level of development and half of the countries are highly developed. Only Myanmar is considered less developed and there is no data available on Lebanon. With regard to the level of development measured by the Human Development Index, the countries from cluster B come second to those from cluster A.

### Mixed economic record

In terms of their economic performance, the countries in cluster B show mixed results. Whereas in about half of the countries, the economy shrank in the year following the 2008 financial crisis, the other half recorded positive gross domestic growth rates. At nine per cent, economic growth was strongest in India and Lebanon. No data is available for Kuwait and Myanmar. In terms of per capita income, which has been significantly increasing in most countries for about a decade, there is a wider spectrum in cluster B than in cluster A. According to the World

Bank, nine states fall into the group with a lower middle income, 13 into the group with an upper middle income, and none of the states fall into the group of either low or high income. However, there is no current data available for Kuwait, the United Arab Emirates and Myanmar. With about US\$10,000 per capita a year, Venezuela's inhabitants earned the highest incomes in 2009. On the other end of the spectrum within this cluster are the Vietnamese who earned an average of US\$1,000 a year per person. Therefore, based on per capita income, they belong to the poorest 25 per cent in the world. According to the Gini coefficient, especially in South Africa and the Latin American states, incomes are very unequally distributed. 26 per cent of South Africa's population has to live on less than

### Cluster differences in gross national income per capita

Incomes tend to be high in those countries where birth rates are low. Consequently, most countries from clusters A and B have high or high medium incomes. Countries from clusters C and D, in which fertility so far has dropped little or not at all, generate lower per capita incomes of mostly under US\$4,000 a year. Only the rich oil states are exceptions. The high income in cluster C is generated by Saudi Arabia's inhabitants.

Number of countries per cluster by respective income levels according to the World Bank in 2009, as far as available. (Data: World Bank<sup>28</sup>)

	Cluster A	Cluster B	Cluster C	Cluster D
High income: above US\$12,195 per capita	4	0	1	0
Upper middle income: between US\$3,946 and US\$12,195 per capita	5	13	7	0
Lower middle income: between US\$996 and US\$3,945 per capita	2	9	15	5
Low income: less than US\$996 per capita	0	0	9	22

US\$1.25 per day, which may be due to the unemployment rate that is rather high for a newly industrialised country.<sup>27</sup> Only in India and Indonesia is the proportion of the poor higher. In most of the other countries of the cluster, poverty plays much less of a role. The proportion of those having to live on less than US\$1.25 per day is only four per cent in Mexico and five per cent in Brazil. For Myanmar, Kuwait, the United Arab Emirates and Lebanon, there is no data available.

## Major progress in education

The countries in this cluster, just like the ones in cluster A, have also made progress in the field of education. By the turn of the millennium, the number of people ages 20 to 64 without formal education had fallen significantly and has reached a relatively low level of under ten per cent in most states. The only exceptions are India and Morocco, where about 35 per cent of those ages 20 to 64 have never attended any school. In the entire cluster, the number of those advancing to other educational institutions following primary school has been increasing during the past four decades. In all countries except for Thailand and Morocco, in so far as data is available, about 30 per cent of the population have attended secondary schools, in Malaysia and Mongolia even 60 per cent or more. In some countries, such as South Africa, the quality of school education, however, leaves much to be desired.<sup>29</sup>

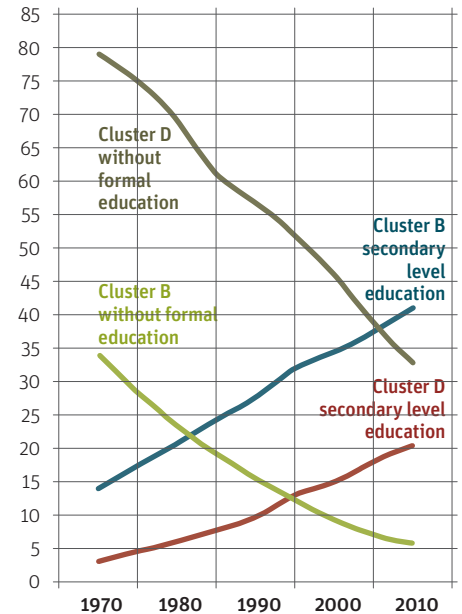
The Philippines, Mongolia and some Central American countries have been especially successful in relation to higher education. Within the age group of 20 to 64-year-olds, more women than men have completed a university degree. In male-dominated societies such as Tunisia, Morocco, India, and Turkey, on the other hand, women are clearly disadvantaged in education.

## Educational successes at different levels

In the countries from clusters B and D, the proportion of people without formal education has significantly dropped, whereas the proportion of those with secondary school education has been continuously rising. In cluster B, almost all children by now have a chance to receive an education and in many countries, half of the inhabitants ages 20 to 64 have at least completed secondary school. In cluster D, however, it is mostly the high population growth, which hampers nationwide educational successes. So in these countries, the proportion of the population without formal education is many times higher. Additionally, less than half of the population in almost all countries of cluster D have attended a secondary school.

## Good medical care

The population's health status in cluster B is relatively good. Just like in cluster A, the average life expectancy is high at more than 70 years in most of the countries. The exceptions are South Africa, Myanmar, India, Mongolia, and Thailand. Recently, due to the high prevalence of HIV/Aids, the average life expectancy in South Africa has even been declining and is now at an average of 52 years. 18 per cent of the population is infected, one of the highest rates worldwide. The number of tuberculosis infections in South Africa is, with 970 patients per 100,000 inhabitants, at a correspondingly high level, since HIV/Aids weakens the immune system, contributing to the spread of further infectious diseases. In the other countries of the cluster, the HIV/Aids pandemic affects only a small proportion of people and tuberculosis is rather rare, only occurring in some Asian states.



Proportion of the population ages 20 to 64 without formal education, and accordingly, with a secondary level education, compared to the total population of the same age group by cluster, average values for the clusters in percentages.  
(Data: IIASA<sup>30</sup>)

## Mainly attended births

The supply of reproductive health services still causes difficulties in some of the countries of cluster B, yet the overall situation is significantly better than in clusters C and D. Infant mortality, for example, amounts to less than 20 deaths per 1,000 births in most countries by now. Maternal mortality is, with less than 100 deaths per 100,000 births, often just as low as in the countries of cluster A. Only South Africa, Myanmar, Indonesia, and India have a significantly higher maternal mortality rate of over 200 deaths per 100,000 births. In 20 of the 25 countries, over 80 per cent of pregnant women are medically examined at

least once during their pregnancy and more than 80 per cent of the births are attended to by skilled health personnel. India though has major problems: 47 per cent of women have to do without the assistance of qualified staff when giving birth.

## Differences in gender equality

Over one third of the countries – predominantly Latin American states – score high in the Gender-related Development Index. Compared internationally, the scores of the remaining countries are more or less in the middle range. India, Morocco, and South Africa are at the bottom of the rankings of cluster B. These countries score much lower than the others. There is no data available for Ecuador and Myanmar.

From a legal point of view, women and men are equal in most countries of the cluster. With the exception of some Arab states, Malaysia, Indonesia and the Philippines, women are granted the same property rights as men and are able to interact equally with public authorities.

## Mixed political successes

The political frameworks of the individual countries in the cluster vary: Just like in cluster A, there are only two fragile states according to the Failed States Index: Myanmar and Lebanon. However, Costa Rica, Panama and the United Arab Emirates are the only states viewed as politically “moderate”. The remaining 20 countries are placed under the “warning” category with respect to their government functionality. According to Freedom House, the majority of the countries, just like in cluster A, are considered politically “free” or “partly free”. In most of the countries of the cluster, however, corruption is a problem, with Costa Rica and the United Arab Emirates having the least problems.

## Broad range of competitiveness

The economic framework conditions are also mixed in the states of this cluster. The fact that all countries, with the exception of Mongolia, have access to the ocean has a positive effect on foreign trade. More than half of the countries produce oil. With a volume of over two million barrels a day, Mexico, the United Arab Emirates, Kuwait, Venezuela, and Brazil each produce the most oil of the cluster. Still, the second-generation Asian Tigers – Malaysia, Thailand, and Indonesia – but also Tunisia, Kuwait and the United Arab Emirates, have the best political and institutional conditions for international competitiveness. In the Global Competitiveness Index they rank in the upper third. In contrast, there are major deficits in Ecuador, the Dominican Republic and Mongolia, where particularly corruption and an inefficient bureaucracy hinder international competitiveness. For military-controlled Myanmar there is no data available.

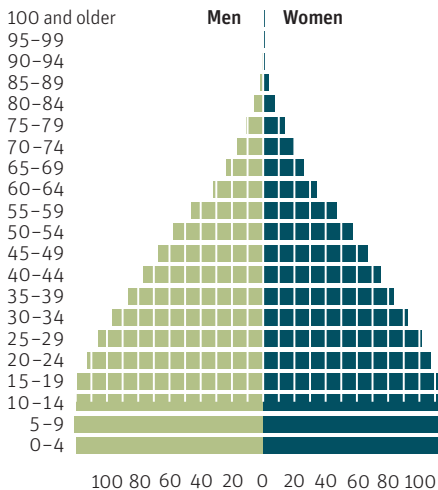
Agriculture also represents only a small portion of the gross national product in this cluster. With over 20 per cent, its share is highest in Vietnam and Mongolia among the 21 countries for which data is available. With the exception of Vietnam, India, Myanmar, and Thailand, at least half of the population lives in cities. Kuwait, a small country by area, is largely urban with an urbanisation rate of 98 per cent.

## The demographic window is open

There are good prospects for development in the countries of cluster B because the time window, during which the demographic bonus can be used, is already open. Since the 1970s, the proportion of working age people has continually grown, while the proportion of those under the age of 15 has declined and is currently, in most cases, under 30 per cent. In the Gulf States of Kuwait and the United Arab Emirates, there is a particularly high number of working age people, namely 74 per cent and 80 per cent, respectively. Yet, just like in cluster A, the advantageous age structure is bound to change in the future when the relatively large group of the working age population is going to age. In many countries, the number of those over 64 will increase significantly beginning as early as 2015. Their numbers have been increasing since 1990 and currently amount to one per cent in the United Arab Emirates and almost eight per cent in Thailand. Therefore, countries in this cluster have the second oldest population following cluster A.

## Favourable age structure

For populations in cluster B, the conditions for using the demographic bonus are ideal: As of now, there are hardly any retirees and there are no longer strongly growing young age groups who are flooding the labour market. If states are able to provide enough jobs for the large working age population, then there should be a positive and dynamic economic development.



Number of persons of the respective age group in all countries of the cluster in millions for the year 2010 (Data: United Nations<sup>9</sup>)

## THE EXAMPLE OF MEXICO

### Rural poverty accompanied by strong economic output

The newly industrialised country of Mexico, with a gross domestic product just slightly over US\$875 billion, has the strongest economic output in Latin America, second to Brazil. Based on the gross domestic product, this places Mexico amongst the 15 largest economies in the world.<sup>31</sup> A member of the OECD, Mexico is the seventh largest oil producer in the world<sup>32</sup> and belongs to the 20 largest import and export nations in the world.<sup>33</sup> 80 per cent of all exports go to the United States, which is why Mexico is highly dependent on the economic well-being of its big neighbour. Indeed, the financial crisis led to a severe drop in economic growth; however, in the meantime the country has recovered from this decline.<sup>34</sup>

About 65 per cent of the 110 million Mexicans are of working age. Only six per cent of those ages 20 to 64 have no education, whereas 40 per cent have a secondary school degree. Therefore, Mexico has a great chance to profit from its demographic bonus. However, there is not an unlimited amount of time left to implement the necessary reforms in economy and politics because as of 2035, the proportion of working age population could drop, whereas the proportion of

elderly is likely to have doubled by then. It is one of the greatest challenges to integrate the many poor into the economy. While the per capita income in Mexico has doubled in the last decade, only parts of the population profit from this upswing. Income is very unequally distributed: While only four per cent of Mexicans live on less than US\$1.25 a day, 40 per cent of the population is still considered poor according to the national poverty definition established by the country's official administration on the basis of national evidence.<sup>35</sup> The rural population in Mexico, accounting for a quarter of the entire population, has the highest risk of poverty – more than half of the people living there are poor.<sup>36</sup>

The Mexican government has already made ambitious and partially successful efforts to reduce poverty, for instance, with its development programme “Oportunidades”, from which about five million households are benefiting. Families in need receive money when they fulfil certain demands, such as sending their children to school regularly.<sup>37</sup> If the government wants to use and successfully shape demographic development, it has to make sure that there will be sustainable success in the fight against poverty. It also has to do more to counteract unequal income distribution and to take measures to alleviate structural dangers, such as the threatening power of drug cartels.

## Cluster C: Decreasing number of children, medium level of development

Thirty-five countries follow the typical fertility development of cluster C. Among these are the North African countries Algeria, Egypt, and Libya; the Asian countries Bangladesh, Cambodia, Laos, Nepal, Pakistan and Papua New Guinea; the Arab countries Iran, Iraq, Jordan, Qatar, Oman, Saudi Arabia, and Syria, as well as the Latin American countries Bolivia, Haiti, Honduras, Guatemala, Nicaragua, and Paraguay. From sub-Saharan Africa, the following countries are present in cluster C: Botswana, Cameroon, the Central African Republic, Gabon, Ghana, Lesotho, Mauritania, Namibia, the Republic of the Congo, Sierra Leone, Sudan\*, Swaziland, as well as Zimbabwe.

The average fertility in cluster C is slightly under three children per woman today. The most children – five per woman – are born in Sierra Leone. The Republic of Iran is the only country where the number of children per woman has already dropped to less than 2.1, which is largely due to the country's national family planning programme.<sup>38</sup> The average base level of more than six children per woman in this cluster was as high as in cluster B in 1950, but fertility for the most part did not start to fall before the late 1980s and thus, about 10 years later than in cluster B. There has been only a slow decrease since 2000.

\* Although the Republic of South Sudan has become an independent country as of July 9, 2011, it is not treated separately from Sudan in this study, since during the time of investigation only data for the entire former territory of Sudan was available.

### Medium level of development

The countries from cluster C show a relatively broad spectrum of development: Countries such as the oil-producing Arab states of Qatar, Libya, Saudi Arabia, Iran, Algeria, and also Jordan have, according to the United Nations' Human Development Index, a high or very high level of development. In contrast, the poor Asian countries of Bangladesh, Nepal, Papua New Guinea, as well as many African countries in the cluster and Haiti, have a low level of development. The Latin American states rank in the middle range. Overall, there are 15 states classified as countries with a medium level of development. This means they show mixed results in the areas of economy, education and health. For war-torn Iraq and for Oman, the index does not calculate any ranking.

### Isolated economic successes

With slightly under nine per cent, Qatar has the highest economic growth. At the bottom end of the cluster are the Latin American states, which were severely hit by the financial crisis with negative gross domestic growth rates. According to the World Bank, 15 countries have a lower middle income and nine countries even have a low income with less than US\$1,000 per capita a year. Seven countries, among them the diamond exporting countries of Botswana and Namibia, have an upper middle income. People in Saudi Arabia earn the most with over US\$17,000 per capita a year, which is almost as much as in the Czech Republic. At the bottom of the cluster are Zimbabwe and Sierra Leone, with less than US\$400 a year per person. No data is currently available on Qatar, Oman and Haiti. The Gini coefficient, which measures the inequality of income

within a population, is especially high in countries of Southern Africa and Latin America. In Swaziland, the Central African Republic, Nepal, Haiti, the Republic of the Congo, and Sierra Leone, over half of the population has to live on less than US\$1.25 per day.

### Major differences in education

Like in the other clusters, the proportion of the population in cluster C without a formal education has decreased during the last four decades, whereas the proportion of people that attended secondary school has increased. There are major differences between the countries if one looks at the details. For example, 20 per cent of the population ages 20 to 64 in Bolivia and Egypt have a university degree. Yet for three quarters of Namibians, education ends with primary school. But almost all of the total population in this age group has at least been enrolled and thus possesses a minimum of a basic education. Sierra Leone has the worst record in terms of education: 63 per cent of those ages 20 to 64 have never attended school. In Pakistan, Algeria and Nepal, there are major gender differences in the field of education to the disadvantage of women.



## Weaknesses in health care

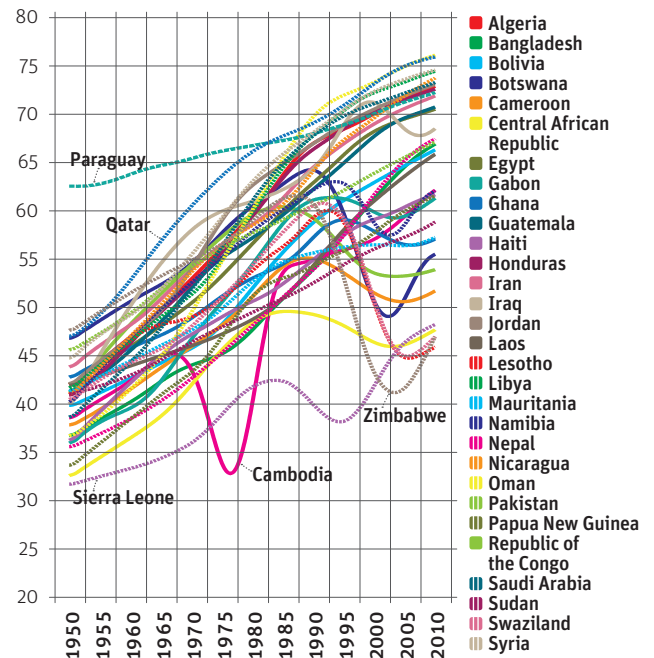
The strong development disparity manifests itself also in the health sector. While in 13 countries of the cluster life expectancy is over 70 years, which is in fact as high as in most of the countries in cluster A and B, there are five states where people do not even reach the age of 50. The low life expectancy in Swaziland, Lesotho, Zimbabwe, the Central African Republic, and Sierra Leone is due to the high prevalence rate of HIV/Aids. With over 20 per cent, Swaziland and Lesotho, together with Botswana, have the highest prevalence rate of HIV/Aids in the world. The disease has reached an unprecedented dimension in Southern Africa and since most of the countries from this area are concentrated in cluster C, HIV/Aids poses a much bigger problem here than in the other clusters. Tuberculosis occurs particularly often in combination with HIV/Aids and is therefore a prominent problem in Southern Africa as well. Yet, with a prevalence of 100 to 400 cases per 100,000 inhabitants, the number of tuberculosis patients is also relatively high in the South Asian countries of the cluster, indicating insufficient medical care and a lack of hygiene. In Arab states the disease is almost non-existent.

## Life expectancy is increasing – but not everywhere

While in most countries of cluster C average life expectancy has been increasing over the course of development, just like everywhere else in the world, countries in southern Africa – especially Zimbabwe, Lesotho, Botswana and Swaziland – have experienced a significant decline during the past ten years. This is due to HIV/Aids. Those infected frequently lack medication, thus causing Aids patients to die early. The severe drop in average life expectancy in Cambodia of the 1970s, however, has to do with the country's history: In only four years, over one million Cambodians fell victim to the reign of terror by the Khmer Rouge, 21 per cent of the population at the time.<sup>39</sup>

## Barriers to reproductive health

As far as reproductive health care is concerned, the heterogeneous picture remains in this cluster. While in almost all countries infant mortality has been continually declining since the 1950s, the rate varies considerably from eight deaths per 1,000 births in the Emirate of Qatar up to approximately 100 in the Central African Republic and Sierra Leone. Maternal mortality in this cluster is highest in Africa. In many of these countries over 500 pregnant women per 100,000 births die, in Sierra Leone even almost 1,000. In the Arab states maternal mortality is rather low because countries like Qatar, Iran, Jordan, and Oman are relatively successful when it comes to medical care during pregnancy and birth. There are, however, shortcomings in Nepal, Laos, Pakistan, and Haiti. In Nepal, for instance, only slightly fewer than 19 per cent of births are attended to by qualified staff



Average life expectancy at birth  
(Data: United Nations<sup>9</sup>)

and in Laos, only 35 per cent of the pregnant women are examined prior to the expected day of birth.

## Deficits in gender equality

In many of the countries of this cluster, gender equality is poor. The higher developed Arab states achieve better values in the Gender-related Development Index in comparison to the African or poorer Asian states, but this is mostly due to women's higher life expectancy achieved by relatively good health care. As far as it is documented, women are granted the same property rights as men, except in Nepal and Mauritania, but in only nine of 23 states for which data is available, are women able to interact equally with public authorities.

## Political barriers

Compared to the countries in clusters A and B, the countries of this cluster are less stable politically. According to the Failed States Index, there are twelve alert countries: Sudan, Zimbabwe, Iraq, the Central African Republic, Pakistan, Haiti, Bangladesh, Cameroon, Nepal, Sierra Leone, the Republic of the Congo, and Iran. 21 states are placed in the “warning” category with respect to their ability to function. Only Oman and Qatar are considered politically “moderate”. More than half of the 35 countries, 19 in number, are listed as “not free” by Freedom House. In most of the countries of this cluster corruption is a major problem.

## Differences in competitiveness

In most of the countries of this cluster, the economic framework conditions look rather bad. While 13 countries produce oil, – among others, the OPEC states Saudi Arabia, Iran, Iraq, Algeria, Libya, and Qatar – a quarter of the states are landlocked, which makes access to world markets both difficult and expensive. More than half of the states for which data is available rank very low on the Global Competitiveness Index: they appear in the bottom third. In most of the countries, infrastructure problems, corruption and inefficient bureaucracy are the main obstacles, interfering considerably with economic competitiveness. The Arab states though achieve high values on this index: Qatar, Saudi Arabia, and Oman rank 17th, 21st, and 34th, and are therefore in immediate proximity to economically successful countries such as Australia or Luxembourg. No data is available for Haiti, Papua New Guinea, Gabon and Laos.

In about a third of the countries for which data is available, agriculture does not play a major role. With just under ten per cent, agriculture contributes little to the gross domestic product. Nonetheless, some countries, such as Cambodia, Nepal, and Papua New Guinea, generate over 30 per cent of their gross domestic product with the help of agriculture, the Central African Republic and Sierra Leone even over 50 per cent. These countries are thus rather agrarian-oriented, which manifests itself in a low urbanisation rate. In the countries mentioned, more than half of the population lives in the rural areas, whereas in the higher developed Gulf States of Oman and Qatar, 70 per cent of the population lives in cities.

## The demographic window opens

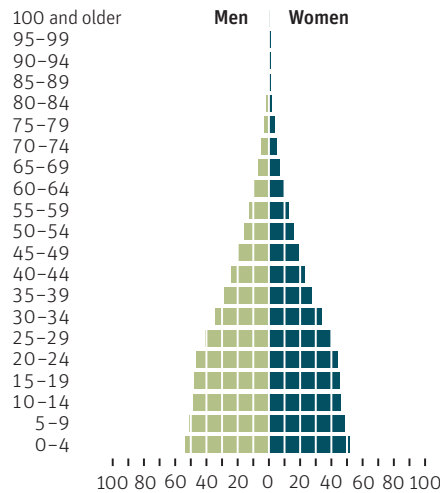
From a demographic perspective, the framework conditions for the future economic development look promising as the window for using the demographic bonus is just about to open. As a consequence of the fertility decline in the 1980s, the proportion of working age population has been rising since the mid-1990s. This rise will continue into the 2030s until the first baby boom generation reaches retirement age. As to the age structure, cluster C lies between the other clusters: populations in countries from cluster A and B are older and the ones from cluster D are clearly younger. The proportion of working age population lies in the middle as well: In cluster D, due to the many young people, the proportion is generally lower and in cluster A and B, it is still higher, but the population there will age much faster in the future. The average middle position in that cluster is somewhat deceiving because the age structure in the various countries varies significantly. African countries in that cluster are clearly much younger than, for example, Arab countries. In Sierra Leone, Guatemala, Cameroon, Iraq, the Central

African Republic, and the Republic of the Congo, at least 40 per cent of the population is under 15. These countries will reach the peak of the demographic bonus much later than Iran or Algeria, where only 25 per cent of the population is under 15. Qatar has currently the most preferable age structure in the world: 100 working age people have to support an average of only 21 older or younger persons. A considerable portion of this working age population, however, consists of guest workers who have entered the country without their families. In Iraq, Guatemala and some of the African countries, this age structure is very disadvantageous. In Zimbabwe, there are 100 working age persons for every 77 older or younger, non-working age Zimbabweans, which may have something to do with the fact that every year more than 100,000 Zimbabweans leave the country due to political unrest and economic decline – 40 per cent of those who leave have a university degree.<sup>40</sup>

## Stable birth rates, few elderly

On average, the population in cluster C is still relatively young. With further declines in fertility and investments in education and jobs, the countries in this cluster have good development prospects in the medium term. The ageing of society is not yet an issue in cluster C.

Number of persons of the respective age group in all countries of the cluster in millions for the year 2010  
(Data: United Nations<sup>9</sup>)



## Cluster D: Many children, little development

30 countries belong to cluster D, only three of which are not in sub-Saharan Africa: Afghanistan, East Timor, and Yemen. The African states in cluster D are Angola, Benin, Burkina Faso, Burundi, Chad, the Democratic Republic of the Congo, Ethiopia, Eritrea, Gambia, Guinea-Bissau, Guinea, the Ivory Coast, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Niger, Rwanda, Senegal, Somalia, Tanzania, Togo, Uganda, and Zambia.

While this cluster is the second largest, fertility has developed relatively homogeneously in the individual states. Today in the countries of this cluster, an average of 5.4 children per woman are born, but the numbers vary between seven in Niger and just under four in Togo. Fertility has remained practically unchanged at a high level for decades with a slow decline since the 1990s. The average number of children even increased between 1950 and 1980 in some countries such as Gambia, the Democratic Republic of the Congo, and Burkina Faso.

### Low level of development

With respect to the level of development, the countries of this cluster also vary only slightly. According to the United Nations Human Development Index, not one single country in this cluster is highly developed. Almost all countries are classified as states with a low level of development, the only exception being East Timor, which has reached a medium level. For Somalia and Eritrea, which are considered to be failed states, no data is available.

## THE EXAMPLE OF ALGERIA

### High youth unemployment despite wealth from oil

Algeria has a mixed economic record. At the beginning of the millennium, it had a stable average gross domestic growth rate of 4.5 per cent and by 2009, the unemployment rate had declined from slightly under 30 to ten per cent.<sup>41</sup> As the second largest oil producer in Africa behind Nigeria, oil is the country's most important export.<sup>42</sup> After 2008, when the demand for oil in Europe dropped and the price of oil fell, it became apparent how strongly Algeria's economy depends on this resource. In 2009, there was only a 2.1 per cent gross domestic growth rate, whereas for 2011, the country is predicted to have a four per cent growth rate once again.<sup>43</sup>

Fertility, which in 1980 was a little under seven children per woman, is currently at a stable level of 2.3 children. Even if fewer children are born today than in the past, Algeria's population will still continue to grow significantly because many Algerians born in the 1980s are probably in the process of starting a family. Slightly less than half of the 35 million Algerians are under 25 years of age. 23 per cent of those under 20 are said to be unemployed<sup>44</sup> – although more than 80 per cent of young men and women have completed secondary school. This demonstrates, just like the situation in many other countries of North Africa and the Middle East, that education alone is not a guarantee for development.

The future development of the country depends on whether or not the government can successfully integrate young people into the labour market. If the young lack positive prospects for the future and are threatened by long-term unemployment, then this may create a breeding ground for social tensions or violent conflicts like the ones that have been developing in North Africa since the beginning of 2011.<sup>45</sup>

## Marginal economic successes

Like in all other clusters, economic performance of countries in cluster D is mixed: The economies of Ethiopia and Malawi, for instance, grew by almost nine per cent and eight per cent, respectively, in 2009, whereas the economies in Madagascar, Chad and Guinea shrank. According to the World Bank, 22 of the 30 countries generated a low income – and in just less than half of the countries, the average yearly income is lower than US\$500 per person. Only five countries, among them the oil producers Angola and Nigeria, have managed to rise into the class of states with a lower middle income. The average citizen in Burundi lives on only US\$150 a year, thus having the lowest income worldwide. Since 2005, a slight increase in the per capita income in many countries indicates that things may improve. With US\$3,750 per person per year, Angola ranks at the top of the cluster.

According to the Gini coefficient, income is unequally distributed in most of the countries. Whereas the elites are very well off in some African countries, large portions of the population live in poverty. Especially in Angola, Liberia and Zambia, there are extreme income disparities. In ten of 27 countries for which data is available, more than half of the population lives on less than US\$1.25 per day. In Tanzania, Liberia, and Burundi, it is even over 80 per cent of the population. Therefore, cluster D includes the world's poorest countries.

## Major shortcomings in education

Results in the field of education are worst in cluster D in comparison to the other clusters. Although the proportion of people between the ages of 20 and 64 without formal education has decreased, and although the proportion of those having attended a secondary school has gradually increased, the differences between the individual countries are still large. In Niger and Ethiopia, almost 70 per cent of the aforementioned age group remain without formal education. In contrast, nearly half of the population in the Democratic Republic of the Congo has completed secondary school. Overall, in nine countries, more than half of the population between ages 20 and 64 has never attended any school. Unsurprisingly, a university degree is rare: Only in Nigeria and Kenya is the proportion of university graduates over ten per cent. In nearly all states, boys have better chances than girls in all levels of education.

## Poor health care

The population's health status in the countries of cluster D is clearly worse than in the other clusters. In only five countries is life expectancy higher than 60 years and in nine countries, it is even under 50. In most countries of the cluster, there are 100 to 500 people sick with tuberculosis per 100,000 inhabitants – a very high level when compared internationally. With an HIV/Aids prevalence rate at 13.5 per cent, Zambia is hit the hardest by the pandemic in this cluster, but even in other African countries, such as Mozambique, Malawi, Uganda, Kenya and Tanzania, the disease poses a major problem with rates of about six to twelve per cent.

## Only a few midwives

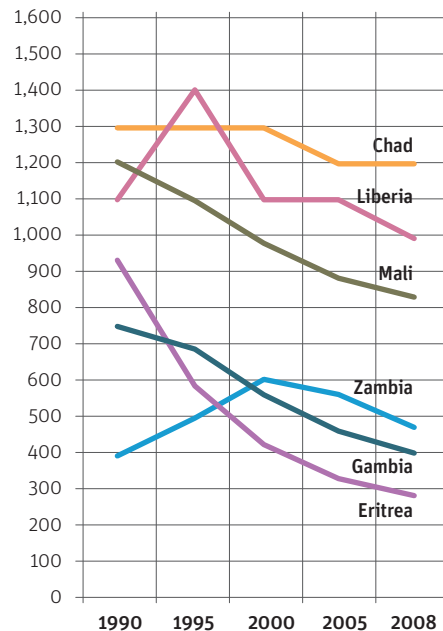
There are also considerable shortcomings in reproductive health care. Although for 60 years infant mortality has been continuously declining in almost all of the countries, there are still eight countries reaching figures of over 100 deaths per 1,000 births. Afghanistan has the highest infant mortality rate in the world. Out of 1,000 children, 152 never reach their first birthday. In four countries – Afghanistan, Somalia, Chad, and Guinea-Bissau – more than 1,000 women per 100,000 live births die from complications during pregnancy or childbirth. Maternal mortality is higher than in any other cluster. The situation is particularly alarming in Ethiopia, Afghanistan and Chad, where less than 15 per cent of births are attended to by skilled health personnel and respectively, only 28, 16 and 39 per cent of pregnant women are examined at least once prior to delivery. By contrast, in Gambia and Rwanda, up to over 95 per cent of pregnant women have at least one examination during pregnancy. In the Democratic Republic of the Congo and Benin, 74 per cent of births are attended to by qualified staff.

## Women count less than men

As far as gender equality is concerned, the countries from cluster D do not fare well. According to the United Nations' Gender-related Development Index, women are clearly disadvantaged with respect to education, life expectancy and income. Niger and Afghanistan have by far the lowest index scores in the world. There are no index calculations for Angola, Somalia, Togo and East Timor.

## Giving life and dying at the same time

In many countries of sub-Saharan Africa, such as in Mali, Eritrea or Gambia, women now die less frequently as a consequence of pregnancy than they did in 1990. However, in some countries, mortality rates have increased in the meantime. Rising maternal mortality may have something to do with an increasing HIV/Aids prevalence and with the fact that infected women suffer more from complications during pregnancy or birth than healthy women. During the 1990s, the immune deficiency syndrome spread mostly in southern Africa, among others in Zambia. Another reason could be that in fragile states like Liberia or Chad, the healthcare system has been collapsing during war or in times of crisis: physicians are leaving the country and aid organisations are withdrawing. Also, the structural adjustment programmes of the World Bank and the International Monetary Fund have led to developing countries having less money available for health or education policy.



Maternal mortality ratio: deaths per 100,000 births (Data: World Bank<sup>46</sup>)

The only countries where women are equally able to interact with local authorities are Angola and Ethiopia. In the Democratic Republic of the Congo and Togo, women are granted less property rights than men. Ten of the countries were not assessed by the World Bank.

## Difficult political situation

In none of the other clusters are the political conditions as bad as in cluster D. According to the Failed States Index, none of the countries are politically stable. 19 states are considered “alert”, which means there is acute danger of state failure. The remaining eleven countries are classified under the

“warning” category. Only two countries, Benin and Mali, are classified as politically “free” by Freedom House. Corruption constitutes a major problem everywhere.

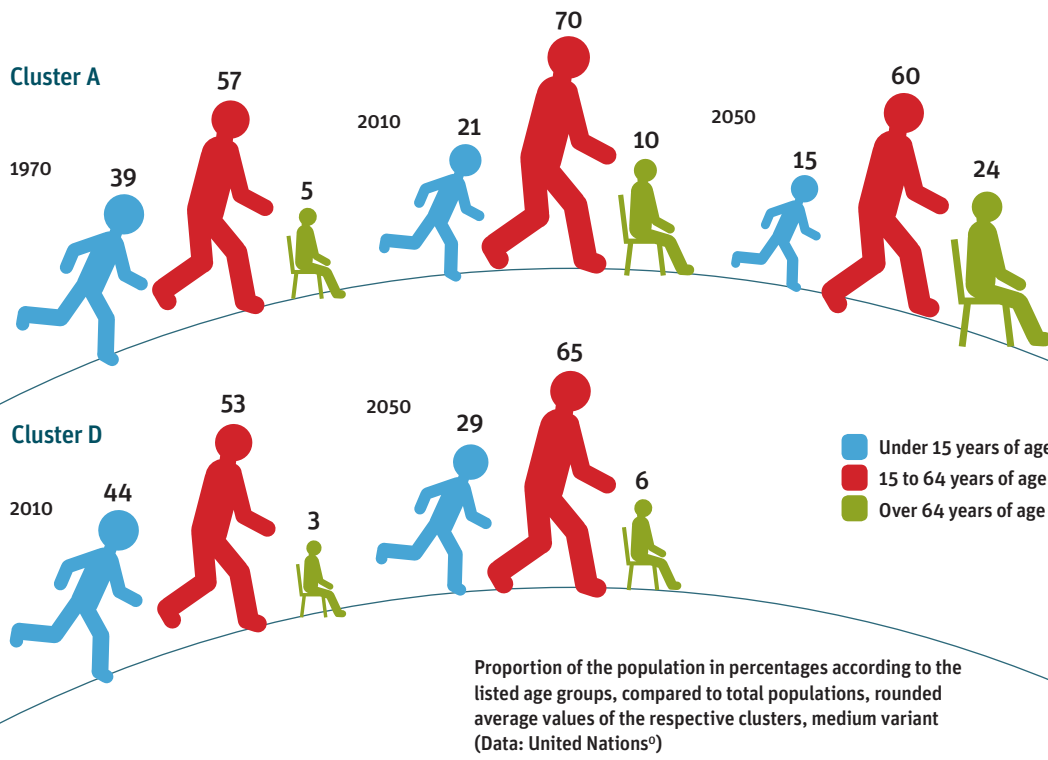
## Very limited competitiveness

The conditions for economic development are also very poor in the countries in cluster D. Although Nigeria, Angola, Yemen, and Chad produce oil, the income generated from oil production does not reach the local population in any of these countries. Eleven states do not have unlimited access to world markets because they are landlocked. With the exception of Rwanda and Gambia, the 20 countries for which an assessment can be made score very poorly on the Index for Global Competitiveness. All of them rank in the lower third.

In nine countries, agriculture makes up more than a quarter of the gross domestic product; however, current data is only available for just over half of these countries. In Ethiopia, agriculture is the most important economic sector, accounting for a little over 50 per cent of the gross domestic product. Correspondingly, the urbanisation rate is low in most countries. Only in Liberia, Angola and Gambia does the urban population represent more than half of all inhabitants in the country.

## The demographic window is still closed

The demographic window is still closed for the countries of cluster D. This means that the conditions for development are currently unfavourable. The countries of this cluster have the youngest populations in the world and there are hardly any elderly people. As a consequence of the late fertility decline since the beginning of the millennium, the proportion of the working age population has slightly increased; however, the dependency rates are still extremely high due to the many young people. In Niger, the country with the youngest population worldwide, half of the inhabitants are under 15 and there are 100 working age persons per 109 inhabitants that have to be cared for. Yet in Burundi, the demographic bonus is slowly moving closer: Here, the working age population constitutes slightly less than 60 per cent of the overall population and the dependency rate amounts to 100 persons of working age supporting 70 dependent people. Compared to most of the countries from the other clusters, this is still very high.



### Future development chances

The average age structure in the countries from cluster A 40 years ago bears a striking resemblance to the current age structure in the countries from cluster D. Within the past 40 years, most countries from cluster A, previous developing countries, have become industrial or newly industrialised countries. Whether or not today's very poor countries from cluster D will follow the path of the cluster A countries, highly depends on whether birth rates will shrink and on the countries' capacities to educate the large number of working age people and create jobs for them. At the same time, countries from cluster A have to be prepared for the fact that the proportion of the elderly population will have doubled by 2050. For that situation, new concepts are required.

### Challenging Growth

The classic form of the pyramid demonstrates that the countries in this cluster are still at the beginning of the demographic transition. Consequently, there is enormous population growth. In most of these countries the number of inhabitants will have more than doubled by 2050. Without a fertility decline, these countries have hardly any chance for development.



Number of persons of the respective age group in all countries of the cluster in millions for the year 2010 (Data: United Nations<sup>9</sup>)

### THE EXAMPLE OF TANZANIA

#### Poor health care and hardly any access to contraceptives

Tanzania is one of the poorest countries in the world. According to the United Nations Development Programme, 89 per cent of its population lives on less than US\$1.25 a day. Three quarters of the people live in rural areas; however, agriculture makes up only one third of the gross domestic product.<sup>47</sup> Currently, the country is ranked 148th on the United Nations Human Development Index, putting it in the lower third of the index. Life expectancy is only 57 years and almost one in ten children dies before his or her fifth birthday. Diseases, such as tuberculosis and HIV/Aids, are widespread, which is also due to the poor

health care in the country: there is only one physician per 50,000 inhabitants.<sup>48</sup>

Only 43 per cent of all births are attended to by qualified medical personnel, i.e. a nurse, midwife or physician. Every woman gives birth to an average of 5.5 children, with the risk of mortality with each delivery at a rate of eight to 1,000. Only one in five women between the ages of 15 and 49 uses modern contraceptive methods for birth control, such as the pill, a condom or the contraceptive coil. Just as many women have an unmet need for modern contraceptives, i.e. they would like to use birth control, but have no access to it. Five per cent of all pregnancies are unintended and the proportion of women having an abortion under hygienically and medically unsafe conditions is likely to be high.<sup>49</sup> In a scientific study, over 60 per cent of the women surveyed in Tanzania reported

## Noticeable connections

In the analysis of the clusters, some clear links have emerged:

**Economy:** Economic development tends to go hand-in-hand with a decline in fertility. This can be clearly seen with the per capita income, which is significantly higher in clusters with low fertility than in the other clusters.

**Education:** Generally the population's level of education is higher where the number of children has declined. In countries with high fertility rates, education is insufficient. In these countries there also often exist major differences between the sexes.

to have had an abortion under health endangering conditions.<sup>50</sup>

For decades, highly indebted Tanzania has been a preferred country for state and private development cooperation. In 2008, it received US\$2.3 billion in official development assistance.<sup>51</sup> About 13 per cent of that money was meant to support sexual and reproductive health care, including the fight against HIV/Aids.<sup>52</sup> Compared to other countries in sub-Saharan Africa, this is a high proportion, yet so far, even for Tanzania, these funds were not sufficient to make visible progress towards meeting the Millennium Development Goals. The country has not yet made any substantial progress in meeting goals four and five, which concern the reduction of child and maternal mortality.<sup>53</sup>

**Health:** The same picture can be seen in the health sector: Where fertility is low, life expectancy tends to be high, whereas in countries with high fertility, life expectancy tends to be low. The greatest shortcomings with respect to reproductive health exist in countries with the highest fertility rates.

**Gender equality:** Fertility is high where women experience socioeconomic and legal disadvantages in everyday life. Women who are as equally well educated as men and who are able to participate in economic life frequently decide to have fewer children.

**Political stability:** Positive political framework conditions are not necessarily associated with a decline in fertility. "Alert" states, which lack security, perspectives and order in every respect, often have high fertility rates. Yet, even where fertility is low, there are authoritarian regimes – for example in North Korea, China or Cuba.

**Competitiveness:** Clusters with low fertility show better economic conditions than those with high fertility: None of the countries from cluster D with the highest fertility are considered successful on the Global Competitiveness Index. However, the geographic situation also seems to play a crucial role: Clusters A and B only include one landlocked country. Conversely, cluster D contains eleven landlocked countries.

**The oil factor:** The oil states in the individual clusters are doing relatively well and thanks to the income from oil exports, they mainly have a medium to high level of development according to the Human Development Index. However, oil neither guarantees economic development for all levels of society nor a decline in fertility – for example, cluster A with the lowest fertility rates contains only three oil producing countries. In some oil states, such as Yemen, Iraq, Nigeria or Angola, it is not the citizens who profit from

the oil earnings, but instead a small circle of influential individuals. In addition, there is danger that politicians, in light of all this prosperity, forget to invest in jobs outside of the oil industry. Yet, some oil states, such as the United Arab Emirates, Kuwait or Qatar, have by now achieved major successes in education and health care. Under such conditions, fertility rates have significantly dropped there as well.

**Urbanisation:** Worldwide, the highest numbers of children per woman are born in rural, oftentimes traditional, societies in which agriculture accounts for a large portion of the gross domestic product. Where the majority of the population lives in cities, fertility is, by comparison, rather low.

**Conclusion:**  
Development reduces  
the number of children –  
and vice versa

A comparison of the four cluster groups demonstrates that there is indeed a correlation between the degree of fertility decline and the present level of development of a country. Even occasional exceptions do not call into question the overall picture: If some countries from clusters A and B, such as North Korea, Cuba or Myanmar, have problems with their economic performance, the reason for this lies in their respective history, their political regime and the oppressed economy.

The question of what came first – fertility decline or socioeconomic progress – cannot be answered solely on the basis of this

cluster analysis. Taking a look at the history of the successful Asian Tigers suggests, though, that both developments have been interacting: The wish to limit the size of one's own family may have already been present or was triggered by better education and new economic prospects. Family planning programmes further facilitated the realisation of this wish and so the number of births declined. In turn, families and the state were able to unlock more financial resources for health, nutrition and education. With increasing opportunities for personal development, birth rates dropped even more. Economic conditions continued to improve so that families and the state were able to assure that younger generations grew up with even better health care and qualifications, contributing further to economic growth.

There is one generalisation resulting from this cluster analysis: Not a single country has had a positive socioeconomic development without a fertility decline. The countries of cluster A, for example, where fertility had sharply declined early on and which are now at a similar level as in Europe, are the most developed countries. They have already earned a demographic dividend. In the countries of clusters B and C, where fertility rates have also dropped, albeit at different points and different levels, some progress in the level of development can be seen – even if not to the same extent in all countries. Right now it is very important for these countries to make the best possible use of the demographic bonus because they currently have a favourable age structure. Cluster D with its continuously high birth rates includes most of the countries and in terms of economic development, consists of poor and very poor states – with three

exceptions (Ivory Coast, Kenya, Nigeria), they all belong to the least developed countries in the world. For them, there is no demographic bonus in sight because the majority of the population is very young. However, the many young people theoretically represent a high development potential because they will reach working age at some point.

### How sub-Saharan Africa can catch up

For development policy, the most prevalent and severe problems today occur in sub-Saharan Africa. Among the 42 countries south of the Sahara, 27 belong to cluster D, which includes countries with the highest fertility rates and simultaneously the largest development problems. 13 other states from the region belong to cluster C; however, compared to other countries in that cluster, they are doing rather poorly. Only the newly industrialised country of South Africa and the holiday paradise of Mauritius have managed to make it into cluster B and A due to their declining birth rates, and they also perform better according to the development indicators. Compared to the other African countries, the ones from Southern or Northern Africa tend to be more advanced in terms of fertility decline and development.

At the beginning of their impressive development, the countries in cluster A and B had a demographic starting point similar to that of the countries in cluster D today and their level of development at that time was just as bad. The fact that the countries from cluster A and B developed so positively is due to the vision of their political leadership. They have simultaneously invested in education and family planning and have carried out necessary economic reforms and initiatives. In addition, these societies recognised that the labour participation by women is absolutely necessary for economic progress and that education is a crucial prerequisite for this goal.

Even if the concept of demographic dividends cannot simply be transferred from the Asian Tigers to the countries of sub-Saharan Africa due to cultural, political and economic differences, the way to the demographic dividend, in principle, is open for the African states. If both the right course for education and employment opportunities were set, then given a fertility decline, the prospects of development in today's poorest countries would significantly improve.

It is impossible to gain a demographic dividend when there is violence, corruption or mismanagement. A functioning state, an efficient administration and effective governance have to create a sound health, education and labour market policy, so that a fertility decline can lead to a boost in development. A fertility decline is therefore not a guarantee for socioeconomic development, but it is a precondition because a continuously high birth rate will cause stagnation in the development process. The cluster analysis confirms this assumption. It shows that so far no country has managed to achieve sustainable development when fertility was high. Under what conditions does fertility decline? Chapter three looks into this question.



# 3

# WHAT LEADS TO SMALLER FAMILIES

How many children a couple has is closely related to the prevailing concept of what an ideal family size should be. This concept is influenced by many social factors, which can be expressed through questions such as: How strong is the influence of traditional values when it comes to the family's continued existence, size and cohesiveness? Do people in the immediate environment have no, many or a few children? To what extent are children needed as a labour force or to ensure their parents old age security? How many children can a couple afford? Society and economic considerations have a large impact on what initially seems like an individual and emotionally driven decision: the decision to have one's own children. Frequently, however, this decision is not based on rational considerations or made consciously because having children is generally viewed as determined by fate and as a simple fact of life. Finally, sexuality has its own dynamics, which, in a heterosexual relationship, leads to the conception of children unless one of the partners is infertile or contraceptives are available and are used.

Whoever wants to decrease the number of children and slow down population growth has to be aware of the complex network consisting of social norms, power structures, individual wishes, emotions and sexual desire. No matter how well-founded and necessary reducing population growth is, the individual's private life and freedom of decision must be respected. Therefore, only indirect influence can be exercised by creating changes at certain points within this network and by attempting to shape decisions. Coercive measures that have been practiced more than once in the history of population policy are incompatible with fundamental human rights.

To alleviate strong population growth, politics can take advantage of how rising education levels, better health care, economic progress and gender equality are interconnected with one another and also with fertility. Demographic research demonstrates that parents have fewer children when their living conditions improve.

Above all, population policy should listen to those most directly involved with childbearing: women. If women in developing countries were able to determine and implement what they want themselves, they would have fewer children than is still the case today. After all, it is women alone who carry the physical burden of childbearing, and they are well aware of the health effects and risks involved.

## Pregnancy as a life-threatening risk

In developing countries, pregnancy is still the greatest health risk for women. Complications during pregnancy and childbirth occur especially in women younger than 18 and older than 35, as well as in women whose pregnancies are too closely spaced or who already have had many children. Pregnancy is also associated with an increased risk for women who are malnourished or suffer from HIV/Aids, tuberculosis, malaria or other diseases. In addition, the still widespread practice of genital mutilation causes problems during delivery.<sup>1</sup>

Globally, maternal mortality is highest in the region of sub-Saharan Africa. In the Central African Republic, Malawi, Chad, and Sierra Leone, it exceeds 1,000 deaths per 100,000 births.<sup>3</sup> Assuming that in these countries every woman has an average of six children, then every seventeenth woman dies during childbirth.

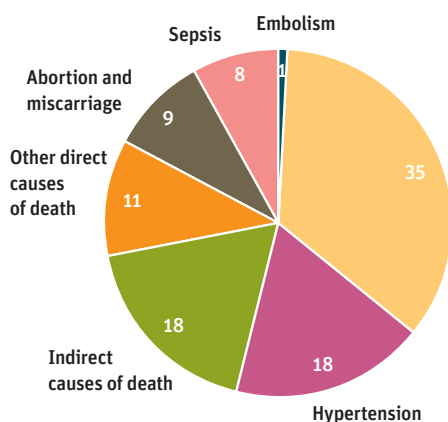
Most deaths and health impairments women incur through pregnancy and childbirth could be prevented or alleviated through simple means. Obstetric fistulas, resulting from complicated births, for example, can be removed by minor surgeries. Yet frequently,

## Genital mutilation

In some countries, especially in Eastern and Western Africa, over 90 per cent of women are circumcised. Sometime between birth and adulthood, girls are subjected to this very painful ritual of having their external genitalia partially or entirely removed. This causes physical and psychological damages: infections, chronic pain and trauma that burden women in everyday life. In many cases, pregnancies result in complications, often fatal or disabling – either for the mother or the child – if the vagina had been sewn up during the circumcision.

The practice of female genital mutilation has been internationally banned for decades. In some states, the gruesome ritual is now illegal. Nonetheless, it is still practiced even in these countries because it is so deeply anchored in the cultural beliefs. Women give in to the social pressure because they are concerned about their daughter's chances of getting married and those performing circumcisions worry about their businesses. A lasting impact can only be achieved through culturally sensible education and information that reaches the entire population, including local and religious leaders, and by generating alternative sources of income for those that perform circumcisions for a living.<sup>2</sup>

the range of reproductive health services continues to be completely insufficient in many developing countries, the reason being that to a great extent, women are disadvantaged compared to men and therefore less is invested in women's health. To date, in developing countries, only about half of all expectant mothers are given medical care prior to, during and following birth, but even this is not always to the extent that is necessary.<sup>4</sup>



## Why mothers die

Worldwide, around 260,000 women die each year from complications prior to, during or shortly after birth.<sup>6</sup> Many of these deaths could be prevented if there were medically trained personnel around at the time of delivery because midwives or nurses can stop severe bleeding, for example, which accounts for more than a third of the deaths. Tubal pregnancies, as well as medically necessary caesarean sections, which were not performed or which were unsuccessful, are among the direct causes of death. Diseases, such as malaria, HIV/Aids or heart diseases, which considerably raise the mortality risk during a pregnancy, are among the indirect causes.

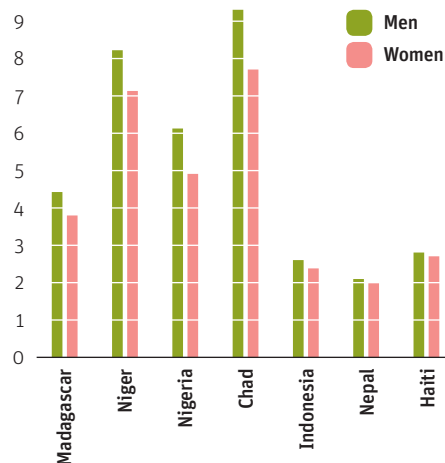
Causes of maternal mortality in developing countries, in percentages, 1997/2007 (Data: United Nations<sup>5</sup>)

## Women want fewer children than men

In many traditional African and Asian societies, a man's social standing and influence rise with the number of his children. It is mainly women who carry the burden of a large number of children: firstly, bearing the health risks and secondly, having to care for the children. Under these circumstances, it comes as no surprise that in developing countries women tend to want fewer children than they actually have. The number of children women desire is also less than what is wanted by their husbands. In Chad and Niger, for example, childless men and women differ in their opinions about how many children they would like to have by one child according to statistics. The more children a couple already has, the further apart their preferences grow with respect to the number of children they desire.<sup>7</sup>

## Differences in the number of desired children

Frequently, women and men have differing ideas concerning the ideal family size. In developing and newly industrialised countries, men's desire for children is usually higher than that of women because women know about the burden and the health risks associated with pregnancy. Therefore, their desire for many children is usually much smaller.



Number of desired children of (still) childless men and women, different years (2004 to 2009) (Data: Demographic and Health Surveys<sup>8</sup>)

## Strong women: Gender equality ensures a low number of children

Millions of women worldwide have little control over their own bodies and the number of children they have. This is particularly the case in patriarchal societies, where a man's words and wishes have more weight and are often the deciding factor. If it is the man who determines what a woman is allowed to do, she frequently lacks access to knowledge about reproduction and contraceptives. Even if she possesses this knowledge, she may not be able to assert herself against her partner. Moreover, when there are no alternatives for women apart from being a mother, then they are faced with enormous social pressure.

### Being a mother as the sole mission in life

Perceptions regarding the role of men and women vary according to culture and time, but worldwide it has been traditionally considered a woman's duty to become a mother. In many societies today nothing or very little has changed in terms of this ideal and in many cases, motherhood, in particular giving birth to a male heir, is still viewed as a woman's main mission in life.

Girls are prepared for motherhood early on; oftentimes they even have to take on this role at a young age. In almost 40 South Asian and African countries, a third or more of young women were married or in union, i.e. in a marriage-like relationship, before their 18th birthday, according to the most recent representative surveys.<sup>9</sup> In Chad, Niger and Bangladesh, even a third of women were already married or in union at the age of 15.<sup>10</sup>

In most cases, the wedding was arranged by their parents. Early marriages or unions are often followed by early pregnancies, which is why adolescent pregnancy rates are high in these countries. In the least developed countries, the rate is 121 births per 1,000 young women between the ages of 15 and 19.<sup>0</sup>

In many countries, the bride leaves her own family after the wedding and has to adapt to the hierarchy of her husband's family and work there. She is then no longer able to support her own parents.

This leads to girls being disadvantaged from the beginning because parents do not find it worthwhile to send their daughters to school. In their minds, once the daughter is married, her school education will only benefit the groom's family in the long run. Take India for example: Here, a wife traditionally lives with her husband's family. In the new family, the mother-in-law is in charge and the young daughter-in-law only gains influence if she ensures the family's continued existence by bearing sons. Having children is thus the only chance for women to gain respect, both within their own families and within society.

### Early marriage

Under-age marriage is practiced in many countries – even in those which have a legal minimum age for marriage. It violates the UN Human Rights Convention because those that are married are strongly limited in their personal development.<sup>11</sup> For example, once married, girls have to leave school because from then on they are expected to be in charge of the household and family.

In some societies, such as in Nepal, particularly poor families have their daughters marry early because girls are frequently considered a financial burden, even if they help with the work at home. If the dowry is lower for younger brides, then this is an additional incentive for early marriage.<sup>12</sup>

The birth of a child following an early marriage represents a major health risk for the girls, especially when they are malnourished or still not fully matured. For young women ages 15 to 19, complications during pregnancy and birth count as the most frequent cause of death worldwide. In fact, the maternal mortality rate is twice as high among these women compared to women between the ages of 20 and 24. Girls younger than 15 years have an even higher mortality risk.<sup>13</sup>

For the offspring, the future does not look bright when mothers are still very young. A 13- or 14-year-old mother not only has to give up her prospects for personal development, but additionally she has to take on care duties and responsibilities for which she is actually too young and unprepared.

## More say, fewer children

Different studies demonstrate that the average number of children will decline when women have more say in the family. In Northern Tanzania, for example, women, who need their husband's agreement for even the smallest household decisions, consider a high number of children to be desirable. Women who have an equal say in household decisions, prefer fewer children.<sup>14</sup> In Oman, women, who have a greater freedom of decision, have their first child later in life compared to women who have less control over their lives, and there is a greater interval between births. Women allowed to leave the house without asking for permission have fewer children than those not able to move around freely.<sup>15</sup>

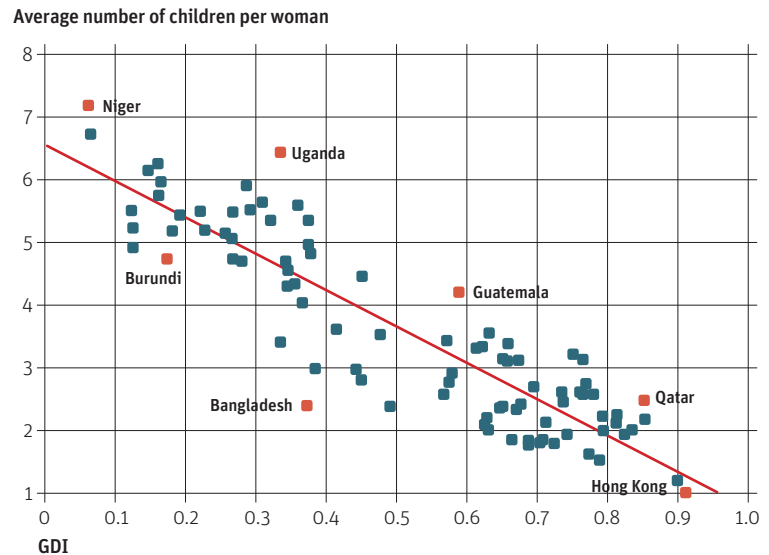
The number of children is not just affected by women's status within the family, but also by the status they enjoy within society. In fact, by now it is well proven that population policy must also, in many respects, be gender policy. Women will be able to assert their preference for smaller families only when they have been empowered to do so. Women's empowerment aims to give women more autonomy and more freedom to make decisions and to change existing power structures. Women ought to have the same rights, duties and opportunities as men.<sup>16</sup>

Gender equality is viewed as one of the most crucial tools for changing reproductive behaviour.<sup>17</sup> The lower the Gender-related Development Index (GDI), which measures among other things, women's and men's equality in society, the higher fertility rates tend to be. Niger, for example, has the lowest GDI-value worldwide. At the same time, they have the highest fertility rate.

## Lack of gender equality leads to higher numbers of children

Women who are disadvantaged in family and society tend to have more children. Various factors account for this: Women may not be able to assert themselves against their partner with respect to the number of children they wish to have. They frequently have no or only very limited access to contraceptives. A lack of school education and a lack of access to the labour market are also reasons why women have to resort to being a mother. However, the number of desired children is also dependent on the general living conditions in a country. These factors are included in the GDI.

Correlation between average number of children per woman and gender equality, measured by the Gender-related Development Index (GDI), in the year 2007 (Data: average number of children: United Nations<sup>9</sup>, GDI: UNDP<sup>18</sup>)



## Numerous disadvantages for women

Despite some progress, women in developing and newly industrialised countries are still affected by numerous disadvantages:

Since in many countries sons are more important, daughters of poor families frequently receive less to eat and are vaccinated less often than their brothers, leading to a higher mortality risk for them. The fact that in parts of India, China and South Korea, millions of women are missing is, however, mainly due to the prohibited practice of gender-based abortions. Expectant parents use modern prenatal diagnostic methods for determining the sex of the unborn child and specifically abort female foetuses.

Due to an insufficient health infrastructure, women do not always have any or sufficient access to reproductive health services and family planning. In some cases, women are directly denied access by their families or they are discriminated against by the health care system. As a consequence, they may not be able to use contraceptives if they want to. As long as women have no opportunity to make their own decisions regarding reproduction, they will be denied the possibility to shape their lives in an essential field. Thus, women's empowerment must include a sufficient and easily accessible supply of information and methods for family planning.<sup>20</sup>

### Four wives and two dozen children

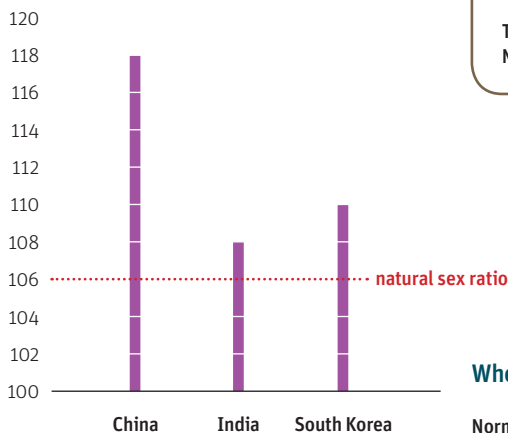
Peter Lol has a Christian name, four wives and about two dozen children. He does not know how many exactly, just like he does not know his own age. However, he is well aware that the chief of the neighbouring village has twice as many wives as he has.

Peter Lol lives in southwest Ethiopia, in the Gambella province. The lowlands consist of savannahs and forests, and are extremely hot and sparsely populated. Malaria and the Guinea worm are widely spread. The region is viewed as one of the least developed in Ethiopia.

Lol belongs to the ethnic group of the Anuaks who live in family clans. As a semi-nomadic farmer, he moves with his family to the banks of the Baro River during the dry season and to the higher-lying areas in the rainy season. At the time of the interview, he was staying with his family in a small cluster of round huts about two kilometres from the river. They were located right next to a gravel road, the only road in the region. The next town – the regional capital of Gambella – is about 50 kilometres away. This is the only place where physicians and shops can be found.

The area around the huts is very swampy in some places. Drinking water is taken from the nearby ponds and during dry season from the river. The family lives on corn, fish, and wild plants. They have no income. Most of the naked children have extremely bloated bellies, the women look emaciated, and only Lol looks well-fed. The children are born in the huts without any medical assistance. According to Lol, they are God's gift. He does not use any contraception. The age of marriage is 20 years; the agreed price for a bride is 25 heads of cattle. A tree nearby serves as a school; in its shade, the children are educated for four years.

This text was written by the Geo reporter Ines Possemeyer based on an interview conducted in November 2010.



Sex ratio at birth, number of boys born for every 100 girls, medium variant of the United Nations, 2010 to 2015  
(Data: United Nations<sup>9</sup>)

### Where girls have less value

Normally about 106 boys are born for every 100 girls. Nature compensates for this difference by the fact that the so-called “stronger sex” is less healthy during the first years of life, thereby having a higher mortality risk. Where parents prefer sons though, the sex ratio may change: Today, prenatal diagnostics make it possible to determine the sex of the foetus. Despite a legal ban, many female foetuses are aborted, for example in India, because girls are viewed as a burden to their families.<sup>19</sup> In the long run, an unbalanced sex ratio will lead to social problems. Social tensions will arise, at the latest when millions of Indian and Chinese men are ready to marry and there are not enough women.

## Compulsory education for teenagers: Especially women's secondary education lowers birth rates

Education is absolutely crucial for paving the way for development and it is important for men and women alike (see also chapter 4). A country's fertility rate, which is the focus of this chapter, is, however, predominantly influenced by women's level of education. By comparison, the number of desired children is only marginally affected by how well men are educated.<sup>24</sup>

### Secondary education for women: Children come later and in greater intervals

There is a broad consensus among researchers that secondary education for women has the greatest impact on fertility.<sup>25</sup> It is less certain if women also have fewer children if they can only attend primary school. For instance, the average number of children among Philippine women with primary school education is 4.5 children, which is almost as high as among women without any education. By contrast in Angola, women who have attended primary school have an average of six children, about two children less than mothers who have never attended school.<sup>26</sup>

In some countries, girls are taken out of school so that they can marry. Yet, in general, the age of marriage rises everywhere when education is prolonged. After Turkey raised compulsory education from five to eight years in 1997, only half as many girls are still married at the ages of 12, 13 or 14.<sup>27</sup> Statistics from the end of the 1990s show that women in Kenya who receive secondary education become married an average of 2.5 years later than women without education.<sup>28</sup>

Thanks to longer school education, instead of being married as a minor and giving birth to a child as early as age 15, many women do not have children before they reach adulthood. This shortens the time span for having children. Better educated women also space their pregnancies further apart.<sup>29</sup> As a consequence, they have fewer children than other women who have attended no school or only primary school. In the Philippines, women who have regularly attended school following primary school have an average of only three children; in Angola even as few as two to three.<sup>30</sup>

Overall, women with secondary school education want fewer children than less educated women.<sup>32</sup> Generally, they also know how they can realize their wishes because they are well or adequately informed about birth control and reproductive issues.<sup>33</sup> This is reflected in the demand for and the use of modern contraceptives. Ultimately, the advanced knowledge also contributes to fewer unwanted pregnancies among better educated women.<sup>34</sup>

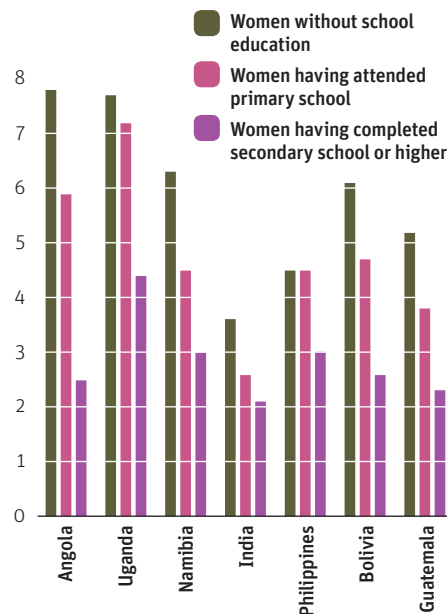
### Well-educated mothers have fewer children

Everywhere in the world, educated women have fewer children than uneducated women. This is especially true for women who received a secondary education. Employment prospects open the possibilities to find alternatives to being only a mother. In addition, they have access to both information and modern family planning methods, which gives them the chance to decide how many children they wish to have and how to space the pregnancies.

The fact that women with a higher education have fewer children is not only due to their knowledge about contraceptives. Education also influences who they choose as a partner. Better educated women usually look for well-educated men or stay single and childless.<sup>35</sup> Therefore, the men they choose are normally also more open and more tolerant. In marriage, well-educated women tend to have more say and power to make decisions.<sup>36</sup>

### Children benefit from educated mothers

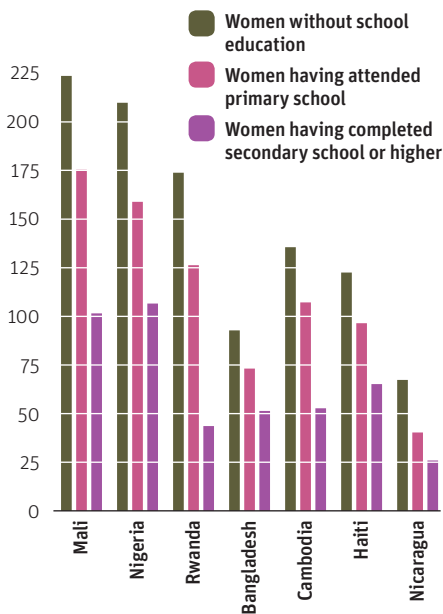
Women's level of education does not only affect the number of children, but also their well-being. A child with fewer siblings has a greater chance to attend school than one with more siblings. Moreover, in comparison to women who never had a formal education, women who had the chance to attend school during their childhood will more actively encourage their own children to attend school.<sup>37</sup>



Average number of children per woman by educational degree, different years (2005 to 2008)

(Data: Demographic and Health Surveys<sup>31</sup>)

Most importantly, child health is dependent on the mother's education. The level of education, for example, has more impact on infant survival than the prosperity of the household.<sup>38</sup> Mothers who are able to read and write have their children vaccinated more frequently and pay attention to clean drinking water because they know more about diseases and hygiene than uneducated women. Women with secondary education also have better knowledge of mother-to-child transmission of HIV/Aids and, therefore, of preventive measures. The 2011 Education For All Global Monitoring Report assumed that in sub-Saharan Africa 1.8 million fewer children would die if child mortality dropped to a level that is standard for children of mothers with secondary education.<sup>39</sup>



Number of children in 1,000, who died before reaching their fifth birthday, according to their mother's level of education, different years (2005 to 2008) (Data: Demographic and Health Surveys<sup>40</sup>)

## Teacher and mother of four children

### CASE STUDY

Branda Mwenza<sup>41</sup> and her husband live in the suburbs of Kampala, Uganda's capital. She is 48 years old and has given birth to five children, one of whom died from malaria. After the birth of her last child, she decided to be sterilised. When Branda Mwenza became pregnant for the first time, she was 22 years old and the average number of children per woman in Uganda was seven – since then, this average has hardly changed; it is still over six children per woman.<sup>0</sup>

From the very beginning, the couple did not want to have more children than they could afford. "Afford" means sending the children to school while putting money aside, as education and material prosperity are of great importance to the family. Both Branda Mwenza and her husband have completed secondary school. Branda Mwenza significantly contributes to the household income. She works as a primary school teacher and additionally runs a corner shop in the evenings to generate more income. The three oldest children have all attended college; the youngest is still in school.

Important decisions are made together by the couple. For example, they decided together how many children they wanted to have. Financial issues regarding the family are jointly discussed as well. In sub-Saharan Africa, where households are traditionally run in a patriarchal and hierarchical fashion, it is not common that women have much of a say concerning financial issues or contraception.<sup>42</sup>

By Ugandan standards, living conditions are good: There is clean drinking water and a physician nearby. When she was pregnant, Branda Mwenza received medical care and she even delivered all of her children in a hospital. She wants a better future for her children. They shall receive a very good education, earn the highest income possible and own a piece of land to build a house.

This text is based on an interview conducted in November 2010 by Carmen Kommer, associate at DSW (Deutsche Stiftung Weltbevölkerung).

## Well-educated mothers have healthier children

Whether or not children in poor countries will reach the age of five highly depends on their mother's level of education. The longer women have attended school, the more they know about preventative measures, such as vaccinations, hygiene and healthy nutrition. Being able to read makes it easier to be informed. Children, whose mothers have attended secondary school, have the lowest mortality risk. These mothers also tend to have fewer children than less well-educated women. Each individual child will therefore receive better care and in small families there is also less competition for food, medication and financial resources to pay for education.

## Healthy children: When fewer children die, fewer children are born

Historically, the demographic transition of the industrial countries reveals a link between infant and child mortality on the one hand, and birth rates on the other: At first, fewer children died thanks to better hygiene, more vaccinations and clean drinking water, and after a slight delay, birth rates started to drop.<sup>43</sup>

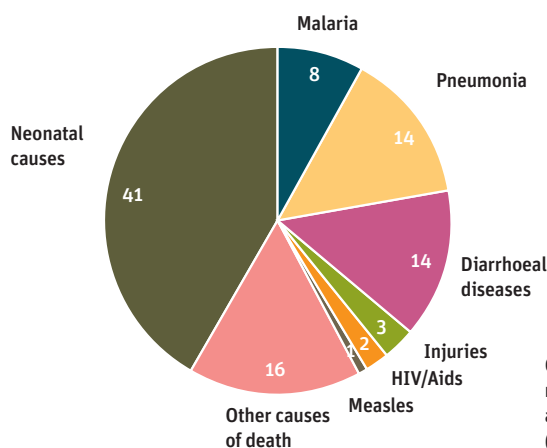
By now, children's living conditions have also improved in many developing countries. Medications against malaria and vaccinations against measles or pneumococcus, the main pneumonia pathogen, have turned out to be life-saving. Sanitary facilities and clean drinking water help to reduce diarrhoea, which still accounts for 14 per cent of deaths among children today.<sup>44</sup> Nonetheless, every seventh child in sub-Saharan Africa dies before reaching his or her fifth birthday. In 2010, 4.5 million children born in this region did not live to their fifth birthday – which accounts for about half of the worldwide deaths in this age group.<sup>9</sup>

When it is uncertain how many of their children will survive, parents usually have many children to ensure that some of them will reach adulthood.<sup>46</sup> From an economic viewpoint, children and adolescents in developing countries still count as additional workers and as a type of assurance of old age support, since most of the countries lack a social security system.

A study in rural Ethiopia observed, for example, that mothers who lost a child had more children than women who were spared such an experience, even though both groups had wanted the same number of children prior to their marriage.<sup>48</sup> Child mortality does not only have an effect on the number of children, but also on how far apart births are spaced. At the end of the 1990s, women in Ghana whose first child had died after birth had their next child on average of 23 months later, which was 13 months earlier than women whose first child had survived. In Kenya, the difference between both groups was six months.<sup>49</sup> Yet, it is exactly the short intervals between births which cause high infant and maternal mortality.

### Why children die

**Most child deaths could be avoided if clean drinking water, mosquito nets, vaccinations and medication were available. Oftentimes though, there is not enough food either: For about a third of all children who died worldwide, illnesses turned fatal because their bodies were already weakened by malnutrition. The lack of professional care for newborns manifests itself also in the fact that most deaths, 41 per cent, are attributed to neonatal problems.**



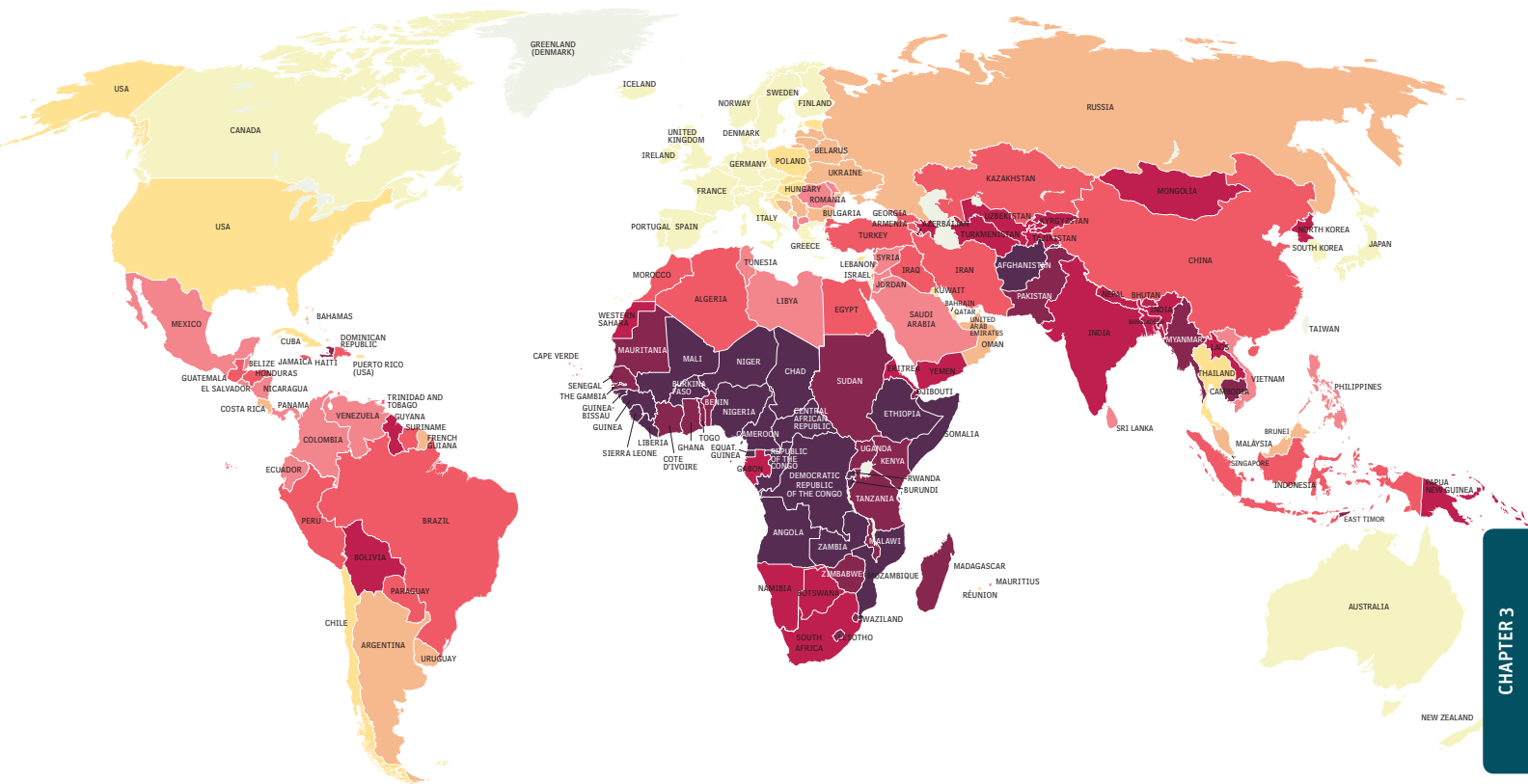
Causes of child deaths worldwide in 2008, referring to children less than five years of age, in percentages (Data: United Nations<sup>47</sup>)

## More infants survive when reproductive health improves

About 40 per cent of deaths during childhood worldwide affect newborns in their first month of life. The Guttmacher Institute – a non-governmental organisation seeking to advance sexual and reproductive health through research, policy analysis and public education – assumes that this number could be halved from 3.2 down to 1.5 million if reproductive health services and family planning methods were accessible.<sup>50</sup>

How important medical care is for newborns prior to and after birth can be seen from the fact that most deaths occur within the first week of life. About 25 to 50 per cent of the deaths occur within the first 24 hours after birth. Premature birth, suffocation, maternal death during delivery, as well as infections, such as pneumonia, tetanus or diarrhoea, make up the main causes.<sup>51</sup> Apart from immediate medical care, it is the health education that may be offered as part of assisted births, which also leads to better survival chances. Mothers can be advised, for example, about how important breastfeeding is for protecting their newborns from contracting diarrhoea or other illnesses. Furthermore, they can be informed about the need to vaccinate their children.





### Where life is short

One of the Millennium Development Goals, which the international community committed itself to until the year 2015, is to cut child mortality in half. Since 1990, the mortality rate among children less than five years old has decreased by almost a third. The North African, Latin American, Caribbean, as well as Asian states, have been the most successful. In sub-Saharan Africa, more efforts are still necessary so children can grow up healthy.<sup>45</sup>

Number of children per 1,000 live births who die before reaching their fifth birthday, in 2010

- Less than 6
- 6 to less than 10
- 10 to less than 16
- 16 to less than 25
- 25 to less than 40
- 40 to less than 80
- 80 to less than 120
- 120 and more

(Data: United Nations<sup>9</sup>)

Information and education is also necessary regarding family planning and contraceptives because the many high-risk pregnancies contribute to the high infant mortality. For example, babies are frequently born prematurely with low birth weight or with complications when mothers are younger than 20. Child survival rates are also related to the spacing of births. When a woman waits for at least two years until her next pregnancy, then she can breast-feed the first child longer and the second child will benefit from the fact that the mother was better able to physically recover from the previous pregnancy. Therefore, with a spacing of two or more years, the survival chances for the second child double.<sup>52</sup>

The access to reproductive health services also plays a crucial role in curtailing the HIV/AIDS pandemic. In 2009 alone, 370,000 children and adolescents under age 15 contracted the virus – the majority were infected by their own mother, for example at birth.<sup>53</sup>

## Reproductive health services and women

Reproductive health services do not only save the lives of newborns. Rather, they also contribute substantially to the improvement of health care for mothers and the lowering of maternal mortality rates as envisioned by the fifth Millennium Development Goal. In all probability though, the fifth MDG will fall short of its goal to a greater extent than all the others, even if there has been some success in the past years: Between 1990 and 2008, maternal mortality decreased by 65 per cent.<sup>54</sup> The Guttmacher Institute assumes that more than two thirds of maternal deaths could be prevented if the need for maternal health services and family planning were met.<sup>55</sup>

## Increasing or decreasing birth rates through HIV?

There is a debate among scientists whether and how the HIV/Aids pandemic affects fertility. Some researchers expect behavioural changes in light of the disease, such as a consequential usage of condoms, less sexual intercourse, less frequent change of partners or a postponement of sexual activity among adolescents.<sup>56</sup> In countries strongly affected by HIV/Aids, the disease may in fact lead to fewer children being born. For instance, HIV-positive women in southern Africa use condoms to a greater extent than non-infected women and do not wish to have any more children when they

learn about their disease.<sup>57</sup> However, this is not the case everywhere and in all situations. A study in a Nigerian hospital revealed that the majority of the 262 HIV-infected men and women in the survey wished to have (more) children.<sup>58</sup> In a similar study in north-eastern Brazil, 91 of 229 HIV-positive females stated that they would like to have a (or have another) child despite their disease.<sup>59</sup>

Instead of the expected fertility decline, HIV/Aids may thus also stop the course of the demographic transition or turn the wheel back to where the country started: Death rates could increase again and along with them, birth rates. Parents who are confronted with a higher mortality risk for their children due to the HIV/Aids pandemic – who see for example, that more and more young people in their neighbourhood are becoming infected – may have more children to compensate for possible losses.<sup>60</sup>

## Widow and HIV victim

## CASE STUDY

The 51-year-old Herriet Kazimbu<sup>61</sup> lives in a small village in the Caprivi Strip in the northeast of Namibia. The village lies a little off the main street and the next city is 120 kilometres away, but there are several wells, one primary school, one health facility, small shops, churches and even a state-run agricultural consultation office. There is no electricity in the village though, and during the rainy season, the roads are hard to use. The 850 people in the village mostly live on what they grow in their fields and on livestock: cattle, goats and chickens. Houses are made of clay and have straw roofs; only a very few can afford a tin roof.

Herriet Kazimbu's family does not own much: a few chickens, a small field with corn and some vegetables have to suffice. In addition, the family earns a bit of money through temporary work in their neighbours' fields. This way they can afford the costs of sending the children to school, the water bill and some extra groceries.

Herriet Kazimbu was married at the age of 15, right after she completed her eighth year of primary school. Today, her family consists of five children and four grandchildren. Her husband, her sixth child, as well as one of her sons-in-law, died from the immune deficiency disease HIV/Aids. According to official estimates, the infection rate in the Caprivi region is almost 36 per cent, the actual number is most likely higher.<sup>62</sup> Herriet Kazimbu is also HIV-positive, but she makes use of the free medication on a regular basis and is thus doing relatively fine.

The struggle against HIV/Aids has made family planning an obvious necessity in the Caprivi region – which nonetheless does not stop the disease. Condoms are available everywhere. Women protect themselves from unwanted pregnancies mainly through the help of injections offered for free at the village's health facility.

This text was written by Franziska Woellert based on an interview conducted in January 2011.

## Access to family planning: Decreasing birth rates through fewer unwanted pregnancies

While reproductive health services alone already considerably lower the risk of expectant mothers and infants from becoming sick or dying, they are not fully effective until opportunities for family planning are made available and used. Otherwise pregnancies cannot be spaced reliably. Unlimited access to modern contraceptives provides, in addition to better health care, declining fertility rates. In 2008, 186 million women became pregnant in developing countries. 40 per cent of these pregnancies were unintended, i.e. the women wanted to have no (more) children or postpone childbearing by at least two years.<sup>63</sup>

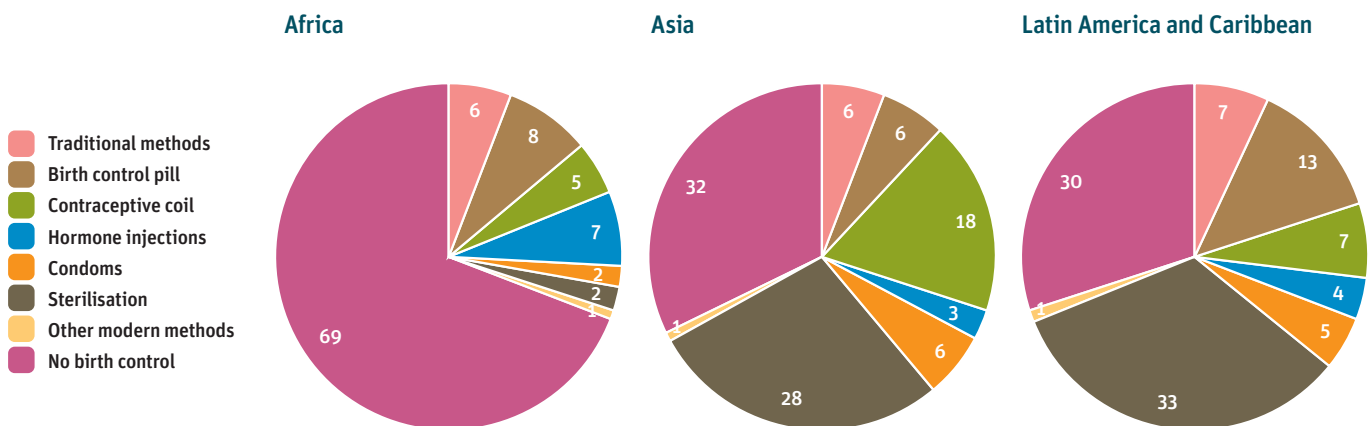
## The role of abortions

Not all of the 186 million pregnancies led to the birth of a child. Around 28 million women had a miscarriage. Another 35 million pregnancies were terminated by abortion. Ultimately, abortions contribute to lower fertility rates, but at a very high price. In 2008, about 20 million abortions were carried out under unsafe conditions, endangering the bodies and lives of these women.<sup>65</sup>

Attitudes towards abortion still vary greatly between countries and organisations. Different convictions clash with each other and are passionately defended when it comes to balancing a woman's right to self-determination and the right of the unborn child. By contrast, it is hardly controversial that preventing unwanted pregnancies is better than termination. Through unrestricted access to family planning methods, the number of abortions is lowered.<sup>66</sup> Yet due to contraceptive failure, neglect or medical indication, abortions will continue to exist. It is estimated that fertility rates are one child lower if abortion is accessible in a country.<sup>67</sup>

## Types of contraceptives used

About 35 per cent of women of childbearing age worldwide do not use any contraceptives. When using traditional methods, women are dependent on men's cooperation. This explains the relatively low prevalence of this contraceptive method because the desire and willingness to limit the number of children is clearly lower in men compared to women. The percentage of women, who do not use any contraceptives, is especially high on the African continent. Yet not all of the women want to become pregnant. Rather, the low contraception rate only confirms that many African women have limited access to modern contraceptives. In Latin America and the Caribbean, as well as in Asia, modern contraceptives are relatively widespread. Women who do not wish to have any more children also frequently decide to become sterilised. Fertility is therefore much lower than in Africa. Both Asian and Latin American women have an average of a little over two children, whereas African women have more than four.<sup>9</sup>



Contraceptive methods in percentages, referring to 15 to 49-year-old, married women in 2008 according to world regions (Data: Population Reference Bureau<sup>64</sup>)

## Meeting the unmet need

The 186 million pregnancies in developing countries in 2008 eventually led to 123 million births. Among the 123 million children, just under a quarter, 30 million, were the result of unintended pregnancies.<sup>68</sup> Therefore, the high birth rates in many countries can in no way be fully attributed to the desire to have large families. Rather, they are in part due to the fact that women and couples lack effective contraceptive methods.

In 2008, an estimated 215 million women in developing countries, who did not want to become pregnant at the time, had no access to modern contraceptives, such as the pill, condoms or the contraceptive coil. The so-called unmet need – i.e. the lack of contraceptives for women who would actually like to use birth control – is highest in poor rural areas, and it most strongly affects women who are relatively young, impoverished and poorly educated. The unmet need is about twice as high among women who only want to delay a birth than among those who want no more children because the latter may also opt for sterilisation.<sup>70</sup>

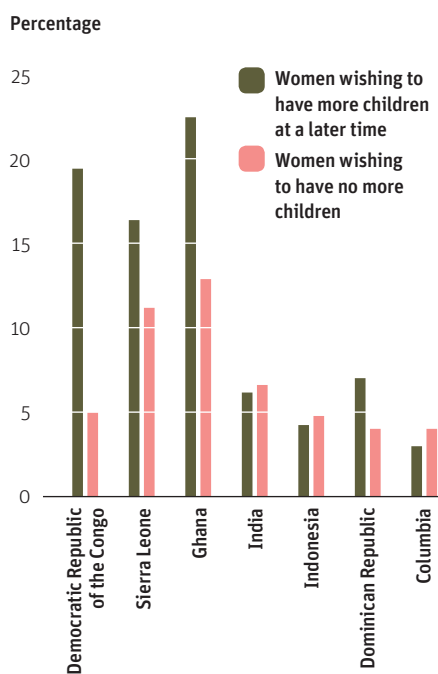
In reality the unmet need is likely to be much higher because estimates are only based on women who are married or in union.<sup>71</sup> Unmarried men and women, and in particular adolescents, fall through the cracks of the surveys.

Data collections regarding contraception and reproductive health usually consider only married women and thus largely ignore the reality of life in many developing countries. While young women there today marry less often in their teens than 20 years ago, the age of first sexual intercourse has hardly changed.<sup>72</sup> In fact, first sexual experiences

increasingly occur prior to marriage. Because of moral beliefs, however, the access to sexuality education and contraceptives is more restricted for unmarried adolescents than for married women. Often, abstinence is praised as the only option to avoid pregnancies or to protect oneself against sexually transmitted diseases, even though such an approach is criticised as being unrealistic.<sup>73</sup> The lack of sexuality education and contraceptives does not only manifest itself in a high HIV/Aids rate amongst young people, but also in a large number of adolescent pregnancies.

A comparison between Pakistan and Bangladesh demonstrates that the average number of children strongly depends on the access to family planning. When Bangladesh

became independent from Pakistan in 1971, people in both countries had the same ideas regarding the ideal family size and fertility rates were also the same, namely an average of almost seven children per woman.<sup>0</sup> While in Bangladesh family planning services were extended in the following decades and also made accessible to the poor, the efforts in Pakistan stagnated – family planning was even temporarily prohibited. This resulted in the unmet need in Pakistan being twice as high as in Bangladesh by the mid-1990s, which ultimately resulted in considerable differences in the number of children: In 1995, women in Bangladesh had a projected lifetime average of 3.6 children, while women in Pakistan had an average of 5.3 children.<sup>0</sup> By now, the fertility rates of both countries are slowly converging again because family planning programmes in Pakistan have improved since the mid-1990s – but the decreasing fertility rates there are also attributed to illegal abortions.<sup>74</sup>



The unmet need for (modern and traditional) contraceptives among women of reproductive age who wish to have children at a later time, and women of the same age group, who do not wish any (more) children, different years (2005 to 2010) (Data: Demographic and Health Surveys<sup>69</sup>)

## Who has an unmet need for contraceptives

Estimations concerning the unmet need are based on data collected in surveys in which women report on the number of children they have, on whether they wish to have more children and on the use of contraceptives. A need for contraceptives exists when a woman of childbearing age does not want to have any (more) children or would like to postpone her next pregnancy for at least two more years. An unmet need exists if she does not use contraceptives. Depending on the definition, women using traditional methods are also placed under the category of unmet need (for example by the Guttmacher Institute). In this study we refer to these women as having an “unmet need for modern contraceptives”. The unmet need in this figure refers to women using neither modern nor traditional contraceptives.

## Job opportunities through the pill

## CASE STUDY

Diana Kombo<sup>75</sup> lives in a hut in a village in Southeast Kenya with her four children and her husband. She considers herself neither poor nor rich. The family does not own a TV or a refrigerator. The next market is three hours away. Diana Kombo walks there once a week to buy groceries. Every trip takes her more than six hours since the family does not have enough money for a bus or a taxi. The next hospital is 20 kilometres away; there is no physician in the village.

Yet, there is a primary and even a secondary school. The two older children – a ten-year-old girl and a seven-year-old boy – attend primary school. The three-year-old daughter goes to preschool; the youngest is one year old and still at home. Diana Kombo hopes that her children will be able to go to university one day. She herself has attended secondary school and is now a preschool teacher. She is very proud of her job because it allows her to contribute to the family income. In her village, it is not usual for women to have a job. Diana Kombo can work because she has had the ability to decide when she wants to become pregnant again.

In the hospital where she delivered three of her four children, she learned about family planning. She started to use contraceptives after her second child, initially receiving contraceptive injections, which her body did not tolerate. She eventually switched to the pill, which she is still taking today. She obtains the pill from the pharmacy, where the pharmacist also documents her cycle.

A pack of pills costs around 27 Eurocents a month. Sometimes it is difficult to raise the money since her income is dependent on how much parents are able to pay her. The family income, which her husband contributes significantly to by being a bus driver, is approximately 72 Euros a month. Financial decisions are made by the couple together and contraception is very important for Diana Kombo.

Since the pill gave her the chance to live her life the way she wants to, she tries to convince other women in the village to also use the pill. Yet, many are sceptical.

Diana Kombo is satisfied with the number of children she has. In her eyes, four children is just right. Four children is also a number the village community can approve of. The couple does not know yet whether or not their family is really complete with their youngest daughter. They could imagine perhaps having another child in the future.

**This text is based on an interview conducted in January 2011 by Carola Ahlborn, associate at DSW (Deutsche Stiftung Weltbevoelkerung).**

## Changed lifestyles: New perspectives lead to smaller families

Changes in the living conditions often have effects on family size. Urbanisation processes and lifestyles depicted by the mass media have had an effect on how many children people wish to have, and traditional ways of life that include large numbers of children have gradually been losing importance.

## Urban-rural differences in the number of children

Currently, a large portion of the population in developing and newly industrialised countries lives in urban centres. Within the last few years, more and more people have left their rural homeland, driven by poverty and the limited possibilities that the countryside has to offer in hope of a better life in the city: for jobs, money, access to schools and health facilities. Moving to an urban centre is more than just a change of location because life in the city offers new challenges and requires different survival strategies and behaviours.

Historical development in the industrialised countries reveals that the social change from a farming life in the countryside to a more modern life in the city is a part of the demographic transition from high mortality and fertility rates to low ones.<sup>79</sup> In today's developing and newly industrialised countries, scientists have also been observing fertility differences between urban and rural areas for over half a century.<sup>80</sup> In traditional rural areas, fertility rates have always been higher than in cities. In Ethiopia, for example, mothers in rural areas have an average of six children, whereas in cities they have

## Urbanisation

Close to 3.5 billion people live in cities worldwide. This equates to roughly half of the world population. Never before was the percentage of the urban population so high.<sup>76</sup> The largest increases in people occur in cities in developing countries. One reason for their growth is the fact that the young population has children, another reason is migration. A lot of migrants end up in urban slums – worldwide slum dwellers are expected to reach two billion by the year 2030.<sup>77</sup>

Nowhere else does the urban population grow as fast as in Africa. There, the number of people living in cities has doubled during the past 20 years. Today about 413 million Africans live in cities. By around 2030, the number is likely to have reached 761 million people, and by 2050 approximately 1.2 billion, which would correspond to about 62 per cent of the African population.<sup>78</sup>

On the one hand, urbanisation represents a chance for development because people living together in high-density areas are easier to supply with health services and public education. On the other hand, many cities are overburdened with their strongly growing number of inhabitants. The infrastructural development cannot keep up with population growth, which means, for example, there is a lack of housing, schools and functioning sewage systems.

only 2.4 children. In Ghana, women give birth to slightly fewer than five children in rural areas, whereas in urban areas, the number of births is only three. And in Haiti, Sierra Leone and Senegal, women in rural areas have on average two more children than women in cities.<sup>81</sup>

The disparity between the fertility rates in urban and rural areas can partially be attributed to the other developments described in this chapter. After all, people in cities have better access to education and medical care, which is why infant and child mortality is much lower than in rural areas. Women tend to marry later and are more likely to use modern contraceptives. For example, the proportion of women using modern contraceptives is more than

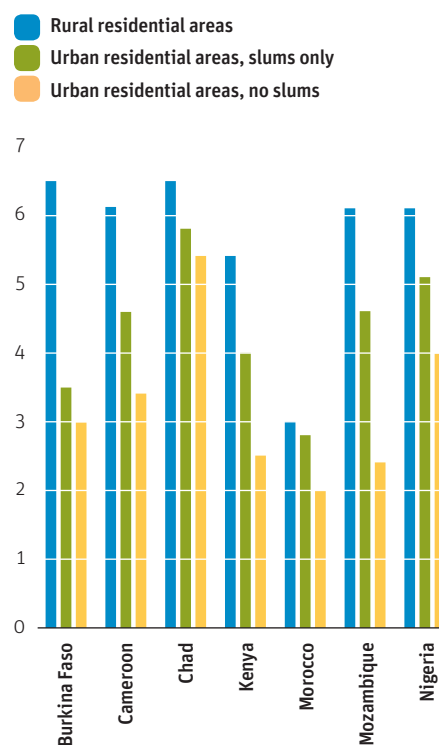
twice as high in Zambia's cities than in its rural areas.<sup>83</sup> Gender equality is also further advanced in cities than in rural areas, which is related to the fact that women have more opportunities to earn their own income in the city.

### Fewer children born in cities

**In developing countries, there is a distinct difference between life in the city and traditional life in rural areas. The quest for social rise, easier access to modern contraceptive methods and the typical middle-class family presented in commercials and on television may lead to a changing assessment of what the ideal family size should be. In addition, rather than being an economic asset to their parents, many children in the city are a financial burden. Consequently, all of this contributes to lower numbers of children in the city compared to rural areas. Poverty-related differences also exist in cities though. In slums, the average number of children is higher than in prosperous urban areas.**

## Income for women lowers fertility

In cities, women have a better chance of finding paid employment than in rural areas. This affects the number of children they have in several ways: Firstly, every pregnancy and birth causes financial loss, so-called opportunity costs; secondly, women gain more freedom of choice because hierarchical family structures known to prevail in rural areas are slowly disappearing in cities; and thirdly, women earning their own income can create easier access for themselves to contraceptives. In general, contraception is also more readily available in cities.



Average number of children per woman according to residential area, 2003-2004 (Data: UNFPA<sup>82</sup>)

It has been known for quite some time that there is a link between women's employment and the number of children they have. In the South and Southeast Asian region, fertility is lowest where women have the best education and are employed.<sup>84</sup> In Latin America, the correlation between fertility and women's employment has also been investigated in several studies. Better educated women in secure employment situations, as well as women in cities, tend to have fewer children than underpaid women who are either involved in informal labour or live in rural areas.<sup>85</sup>

In Africa, it also has an effect on the number of children, whether women generate regular incomes by working in an office or in a factory as opposed to offering informal services such as cutting hair or sewing clothes. At least this is suggested by a study based on reports from nearly 1,500 women in Dakar, the capital of Senegal, and Lomé, the capital of Togo. The statistical analyses show that women who are employed, on average, have fewer children than women who are self-employed or not employed at all. According to the authors of the study, the reason may be that women who are permanently employed may risk losing their position if they became pregnant.<sup>86</sup> However, women in permanent positions are usually better educated, so that lower numbers of children may also primarily be related to the level of education.

### How the role of children has changed

Not only are the employment opportunities for women changing, but the importance of child labour has also undergone a profound change. Traditionally, children in rural areas of developing countries have to contribute so everyday life can continue. For example, they herd cattle, gather food and firewood, or collect water. The value of child labour declines when agriculture is intensified by replacing manual labour with machines. From an economic perspective, having large numbers of children become less profitable for parents. For instance, in societies that have been using ploughs for a long time, fertility rates are lower because child labour plays a subordinate role in farming.<sup>87</sup>

In cities, the economic benefit of having children is limited. Even if children can contribute to family income by selling chewing gum on the streets or helping their mothers operate a market or food stand, they quickly become a financial burden because, unlike in rural areas, subsistence farming is not possible in the city, and food and services have to be purchased.

Parents who live in cities tend to have fewer children while investing more in each individual child. They observe which opportunities education offers, attaching great importance to their children receiving the best possible education – often hoping that their children will earn more money one day and be able to financially support them in their old age.

### Mass media conveys the ideal of the small family

Press, radio and television do not only depict society. Instead, they reinforce social changes and sometimes even initiate them. The advertising industry and popular television series in particular, convey concepts of more “modern” lifestyles, which are generally viewed as attractive. Besides entertainment programmes and commercials, there are also different formats reporting specifically on women's rights, health issues, and the value of education or even family planning, which are either prepared by editors themselves or are in the form of public service announcements. In addition to public and commercial programmes, there are also alternative formats such as community radio in which the living conditions of the local population are discussed and changes are encouraged. The Internet and above all, mobile phones, which are widely in use, offer additional interactive possibilities for addressing certain issues.

Early on, in the Latin American and South Asian regions, soap operas and telenovelas have been explicitly, and sometimes implicitly, propagating the ideal of a small family. Since the audience oriented themselves towards their idols from the programmes, the role models from television were transferred into real life. In Brazil, for example, the expansion of the broadcast area correlated with decreasing numbers of children in the corresponding areas. Soap operas presented the rural population an upscale, urban lifestyle and gave them a new point of reference.<sup>88</sup> In Tanzania, the use of condoms expanded in correspondence with the broadcast area of a radio soap opera.<sup>89</sup> And in Nepal, women were encouraged by radio programmes to talk with their husbands about contraception.<sup>90</sup>

## What politics can contribute

This chapter has shown that fertility rates are affected by a number of factors, which are interconnected and mutually dependent in many ways. Women, for example, have more opportunities to participate in working life when they have a good education. Women's education and women's employment presuppose the social consciousness that both are useful and necessary. Conversely, education and employment contribute to social changes and to women's empowerment. Unrestricted access to family planning requires individual freedom, as well as certain state-launched measures, to make contraception and health information available. True gender equality can only be achieved with family planning. It enables women to control the number of children they have and the spacing between pregnancies. This is often a precondition for women before they can take on a paid job and earn their own income, which in turn gives them a more powerful position in their families and in society. Couples are only willing to have fewer children if there is a higher chance of survival for each individual child. To achieve this, better medical care and vaccinations are needed. To combat the particularly high infant mortality rate, reproductive health services have to be more widely available. Not only newborns

and expectant mothers benefit from this, but also the older siblings: When a mother dies, for example while giving birth, this can reduce the survival chances of all her children. A mother's level of education is also an important factor for her children's well-being and her education also has an effect on the desired family size. Further interactions between the various factors, which lead to decreasing fertility rates, can easily be identified.

This complex interplay of factors reveals one fundamental tendency: Where living conditions for people improve, especially for women, the number of children decreases. High fertility rates almost always go hand-in-hand with poverty<sup>91</sup> and successful population policy measures contribute to a reduction of both. In this respect, population policy should not just aim to achieve a certain population size in a given country, but to increase the overall well-being of people – in doing so, the empowerment of women will be the main way to reduce the fertility rate.

In the past, population policy did not always – let alone sufficiently – focus on this. In an effort to slow down population growth, population policy has time and again relied on quick and/or coercive measures. Quota programmes imposed by the state led to forced sterilisations in India in the 1970s, as well as in Peru in the 1990s.<sup>92</sup> And in China, their one-child policy, which has been regulating family size for decades and which has repeatedly been making use of coercive measures, violates fundamental human rights.<sup>93</sup> Against this backdrop, it becomes clear why population policy has a negative image in development cooperation to this day.

As a result, the question as to whether or not population growth poses a problem has been a taboo subject for a long time and it was forgotten that countries may actually benefit from reducing their population growth. The finding that fertility rates can be lowered on a voluntary basis by improving the quality of life opens up new room for discussion. This study wishes to contribute to that. In chapter 2, the connections between high fertility rates and low socio-economic development were discussed. The following chapters will identify the major points from where to start, given all the various factors that influence fertility rates.



## 4

# ROADMAP TO THE DEMOGRAPHIC DIVIDEND

Most development programmes only marginally refer to high population growth even though in most cases the success of the projects are directly linked to demographic development, i.e. they are affected by how strongly the population grows and how age groups are divided. Development projects can have a moderate impact on population growth, while, conversely, population growth can undermine development efforts. For example, in drought-stricken Niger, the share of those suffering from starvation dropped by ten percentage points, from 38 to 28 per cent between 1992 and 2005 – a huge success at first sight. However, the success is put in perspective by high population growth: Since the number of people in Niger had grown by over 64 per cent within the same period,<sup>9</sup> the absolute number of those starving actually increased from three to four million.<sup>1</sup>

Strong, continuous population growth can virtually inhibit development. It makes it impossible for poor countries to maintain or increase the per capita investments in essential social services like education and health care, as well as to sustain or attract the investments needed for creating jobs. Where more than half of the population is under the age of 20 and has not even reached parenting age, as is the case in most countries in sub-Saharan Africa, the problems are in danger of becoming unmanageable.<sup>9</sup>

However, decreasing birth rates leading to a decelerated population growth may become a driving force for development. The experience of the Asian Tigers is proof of this (see chapter 1). There, the development boosts in past decades were made possible by two fundamental changes. The same kind of changes can also be created in other countries, as long as governments take the appropriate steps:

- 1** A favourable age structure has to develop, a so-called **demographic bonus**, i.e. there must be as **many people of working age** as possible in relation to as **few young and old dependents** as possible.
- 2** For the demographic bonus to turn into a **demographic dividend**, i.e. into a gain for the national economy, the **many working age people** must have the chance to **find a job**.

Due to low life expectancy, relatively few elderly, dependent people live in the least developed countries. Instead, there is a continuously growing number of children

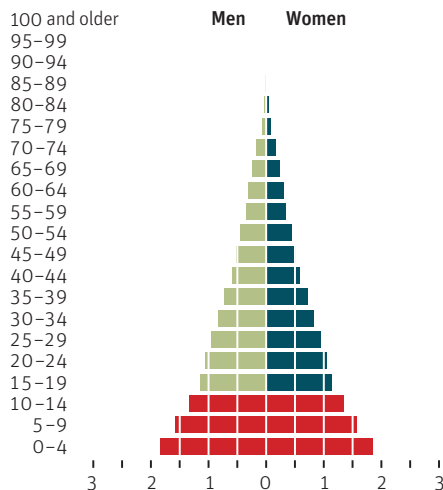
and adolescents, who are dependent on the adult population. They slow down possible economic growth because they use more family and public resources than they contribute. In order for a demographic bonus to develop, the broad base of children and adolescents must grow up and the mortality of the working age population must be reduced. Most importantly, fertility must decline so new generations (and the associated burdens) can decrease. All of this will cause a change to the typical shape of the population pyramid and an excess will form within the working ages.

The cluster analysis (chapter 2) has shown that, especially in sub-Saharan Africa, the socio-economic development failed to materialise. Most countries in this region, if they were to follow the example of the Asian Tigers, do not even fulfil the first condition for a development boost because fertility rates are still high and a surplus of working age people cannot develop. This chapter focuses on the question of how sub-Saharan countries will be able to reach the demographic bonus. It outlines a roadmap to the bonus by discussing projections that take into account different investments in education and family planning as variables of population development.

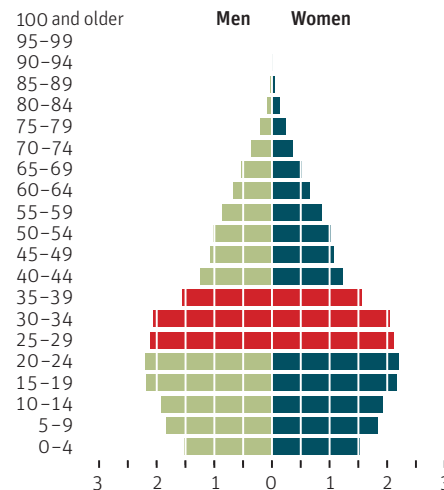
## Development implies a surplus of working age people

A demographic bonus has been reached if the majority of the population is of working age. The typical population pyramid for developing countries has to become drop-shaped, i.e. the youngest age groups must narrow through fewer births and the children and adolescents of the former pyramid have to grow up to become the bulge of the new drop shape. To gain a dividend, it is important to invest in the education of children and adolescents because employable people become employed only with the corresponding abilities.

1960



1990



Number of inhabitants in South Korea according to age groups in 1960 and 1990, numbers in millions (Data: United Nations<sup>9</sup>)

## Sub-Saharan Africa on track?

While in developing countries population growth has slowed down in the past years, population growth in the least developed countries is still very high and is expected to rise even more. In the 48 least developed countries of the world, 33 of which are located in sub-Saharan Africa, the average number of children per woman was 4.2 in 2010, while it was only 2.4 in the remaining developing countries.<sup>9</sup> By 2050, the number of people in sub-Saharan Africa is likely to have doubled and by the end of the century it could quadruple. So for the time being, sub-Saharan Africa's population pyramid will retain a wide base and the ratio between those who are dependent and those who are of working age is expected to barely improve. However, the UN projections assume that fertility rates in sub-Saharan Africa will slowly decrease and growth will decelerate,

albeit more gradually than in the rest of the world. The 2008 projections for sub-Saharan Africa assume a fertility rate of around 2.4 children per woman in the medium variant by 2050 – this would mean 0.4 more children than the world average. In the low and high variant for sub-Saharan Africa, the values amount to a little under two and a little under three children per woman, respectively.<sup>9</sup>

Most of the least developed countries lag far behind in terms of reaching the Millennium Development Goals – especially goal 5b which demands universal access to reproductive health care including family planning. A strong relationship exists between fertility rates and how widely used contraceptives are, i.e. contraceptive prevalence. The Futures Group, a services and consulting company for international development, illustrates this relationship by examining how prevalent contraception must become in the various world regions for the fertility assumption of the United Nations

to be met. Their work is based on the 2008 UN-projections. The resulting contraceptive prevalence estimations refer to all women of reproductive age, including unmarried women, and to all modern and traditional methods, including, for instance, periodical abstinence. In addition, the calculations also take into account likely changes in factors that affect fertility other than family planning over the projected period of 45 years, such as marriage behaviour, the population's level of education and the mix of various contraceptive methods.<sup>5</sup>

## Aids

In 2009, 1.8 million people died of HIV/Aids worldwide. 33.3 million people worldwide are infected with the virus. In sub-Saharan Africa alone, 22.5 million people live with the immune deficiency disease.<sup>2</sup> Africa's south has the highest HIV/Aids prevalence: Over 20 per cent of the 15- to 49-year-olds in Swaziland, Botswana and Lesotho are infected.<sup>3</sup>

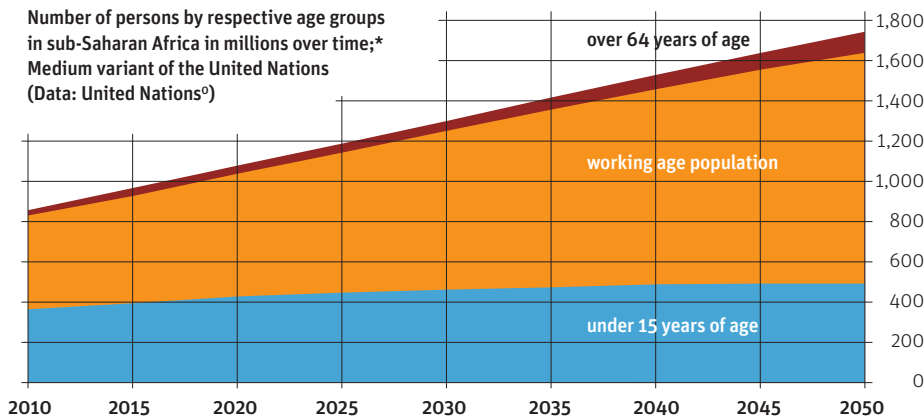
The numbers demonstrate that for some countries of sub-Saharan Africa, HIV/Aids has become a threat to existence. Rather than affecting the old and weak, Aids, unlike other infectious diseases, concerns the sexually active population, namely those in the best working age. The HIV/Aids pandemic changes the population structure, resulting in economic damages. Where people of young and mid-adulthood die, relatively many elderly and adolescents are left, which is why the demographic bonus becomes unattainable. The pool of potential workers and managers becomes smaller, economic power decreases, and health costs rise.

Yet not just the current economic situation is impaired. The education and development chances decrease for all those children whose parents become ill or die from the virus. Due to the parent's loss of income, many children are forced to work and make money instead of going to school. Others grow up without their mothers and stay with grandparents or other relatives. Some even struggle through life all alone as orphans.

Women have a higher risk of contracting HIV/Aids than men and when pregnant, they can pass on the virus to their babies. The transmission risk can be lowered though by offering women reproductive health services. Through subsidised medication, sexuality education, free condoms and special support for children in affected families, the overall impacts of the pandemic can be alleviated. In Botswana, where by now over 90 per cent of the ill are treated, HIV/Aids-related fatalities have been halved in only seven years.<sup>4</sup>

The study demonstrates that contraceptives must become much more widely used in sub-Saharan Africa than is presently the case. Otherwise the fertility assumptions which the UN projections are based on, will not hold true. Even for the high variant, i.e. for those projections assuming the lowest fertility decline, contraceptive prevalence between 2005 and 2050 would have to more than double. For the low variant to be realised, it would have to more than triple. In no other region of the world does contraceptive prevalence have to increase to such an extent in order for the UN projections to materialise.

Number of persons by respective age groups in sub-Saharan Africa in millions over time;\* Medium variant of the United Nations (Data: United Nations<sup>9</sup>)



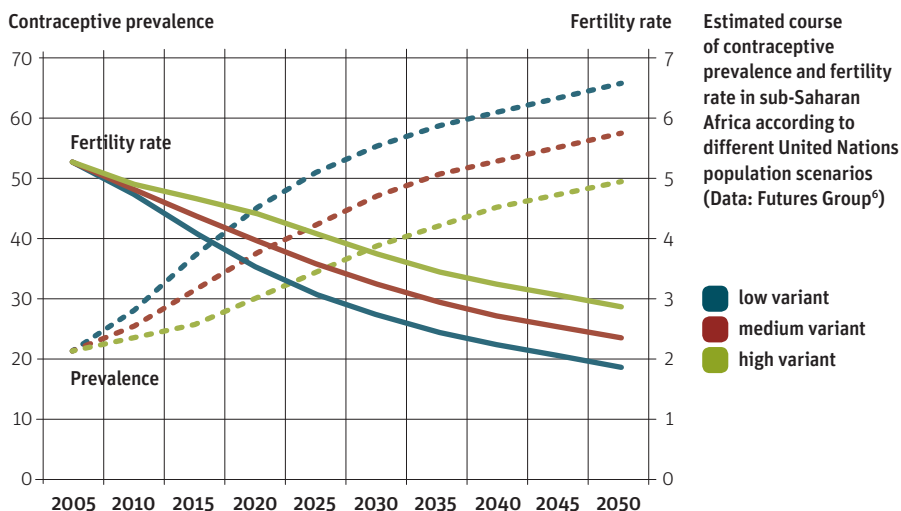
\* Only countries of the region sub-Saharan Africa with more than one million inhabitants have been included.

## Sub-Saharan Africa's prospects of reaching a demographic bonus

In the countries of sub-Saharan Africa, the demographic situation for development is currently unfavourable. There are still many young people who are dependent on the working age population. The proportion of potentially employable people is relatively low, which hampers economic development. If the medium UN-projection becomes reality, the ratio between dependent and working age people will gradually change in favour of the latter. The figure is based on the 2008 UN-projections. New projections from 2011 offer a slightly more pessimistic outlook as they assume higher fertility rates.

## For fertility rates to decrease in sub-Saharan Africa, contraceptive prevalence must increase

The figure demonstrates that all three UN-scenarios presuppose a fertility decline. For the medium variant, the average number of children would have to decrease by 50 per cent between 2005 and 2050, from 5.3 to 2.4 children. However, such a fertility decline can only occur if there is a more widespread use of contraceptives than today. Even for the variant with the highest population growth and the lowest fertility decline, the contraceptive prevalence rate would have to more than double between 2005 and 2050.



In 2005, the initial year of the calculations by the Futures Group, only 22 per cent of women in sub-Saharan Africa used some form of contraceptive. Theoretically, major increases can easily happen given the low initial value. Practically speaking though, it will take great effort because the low initial value indicates that the acceptance and use of family planning has yet to be implanted into society. For the future, according to the Futures Group, contraceptive prevalence would have to rise much faster than it did prior to 2005, when it rose by just under 0.5 per cent annually. If by 2050, the growth rate remained at this level, sub-Saharan Africa would not even reach the contraceptive prevalence necessary for the high variant of fertility and population growth. This would mean that even the most pessimistic of the three UN projections would be too optimistic, population growth in sub-Saharan Africa would turn out stronger than expected – the demographic bonus would remain unattainable and a favourable development for the poorest countries would be nearly impossible.

## West Africa further off track than East Africa

Under which conditions though would contraceptive prevalence rise? When and why do people resort to contraceptives? Given these questions, three thoughts come to mind: Firstly, people need to receive information about the existence and effectiveness of different contraceptive methods and how to access them. Secondly, they need to have the actual desire to prevent pregnancy. Thirdly, they have to be willing to try contraceptives because cultural biases, fear of side effects or information deficits exist everywhere.

According to an investigation of 24 countries, major differences exist on all three of these points between West and East Africa.<sup>7</sup> The investigation is based on the results of Demographic and Health Surveys, in which women are surveyed about their contraceptive behaviour on a regular basis. Women in West Africa first reported to have less of a need for contraceptives than their East African neighbours. Secondly, West African women are on average less well informed about which methods are available and where they can obtain them. And thirdly,

they expressed bigger biases against modern contraceptive methods and also assumed that their partners would not accept them. However, in many cases this is an assumed non-acceptance because many women reported uncertainty about their husband's attitude.

These three factors are reflected by the fact that between 1991 and 2004 the contraceptive prevalence increased much more slowly in West Africa than in East Africa. In contrast to the investigation of the Futures Group, only the use of modern contraceptives was measured and only women who were married or in union, i.e. in a marriage-like relationship, were included. In the examined West African countries, the average annual increase of 0.6 percentage points was not even half as high as the 1.4 percentage points in the East African countries. And yet, even the East African value is low considering that generally an increase of at least 15 percentage points is necessary to decrease fertility rates by one child per woman.<sup>8</sup>

The investigation identified two reasons for the discrepancy between East and West Africa: Firstly, women's education in West Africa has hardly increased in the observed 15 years, whereas in East Africa a clear improvement occurred. Secondly, today modern contraceptives are much more easily accessible in East Africa because in past years, more effort was put into expanding family planning services there. In 1999, both regions were at the same level.

### Without family planning, goals remain unattainable

In international development cooperation, there exist various programmes aimed to improve reproductive health and family planning services or to fight against sexually transmitted diseases. In Namibia, South Africa, Botswana and Swaziland, more than 30 per cent of all official development assistance was used for these programmes in 2008. However, these countries are affected by the highest prevalence of HIV/Aids and the majority of the financial aid was likely designated for the fight against the immune deficiency disease. In some other countries, such as Kenya, Rwanda, Zambia or Lesotho, of which the latter two are also strongly affected by HIV/Aids, over 15 per cent of the official development assistance was spent on reproductive health. Yet, in many other countries of sub-Saharan Africa, especially in West Africa, the proportion of development aid spent on reproductive health programmes in 2008 was less than five per cent.<sup>9</sup>

According to the Guttmacher Institute, the absolute amount provided by donor countries specifically for family planning decreased substantially – for instance, between 1997 and 2006 it shrank by 40 per cent – even though more development aid went into the health sector. This financial aid is, however, predominantly committed to initiatives to control and treat HIV/Aids, malaria, tuberculosis and other diseases.<sup>10</sup>

Decreasing commitment for family planning stands in stark contrast to the actual needs. Since the number of women of reproductive age between 15 and 49 years has continually increased, and will even continue to increase in the future due to the high number of children in the past, the need for family planning has been, and will be, increasing for mere demographic reasons. Modern contraception is not used to the same extent everywhere, but the demand can be expected to rise as soon as family planning gains acceptance. This, however, requires advocates, education and information, as well as an easy access to modern contraceptives. All of this was lacking during the first years of the new millennium, as is indicated by the fact that the contraceptive prevalence in many sub-Saharan countries increased much more slowly during this time than in the previous decade.<sup>11</sup> At the same time, the unmet need for contraception in sub-Saharan Africa has been, and still is, very high (see Chapter 3), so that the absence of a fertility decline can be linked to a reduced interest in family planning on behalf of development policy.

Kenya can be used as an example to illustrate how contraceptive prevalence has developed over the years. While the proportion of married women using contraceptives had substantially risen between 1989 and 1998 from 17.9 to 31.5 per cent, there was a standstill in the following five years, even

though the unmet need was at almost 25 per cent. The most recent Demographic and Health Survey from 2008/2009 suggests that the demand for modern contraception among married women has grown again in the past few years because both the contraceptive prevalence and the unmet need have increased since the previous survey.<sup>12</sup> However, it is estimated that the contraceptive prevalence in Kenya would have to rise by another 20 percentage points in order to cover the unmet need of married women alone. This would require major investments in the health sector. For the contraceptive prevalence to increase by one percentage point, USAID estimates the costs for health care personnel, contraceptives and medical tools to be US\$1.4 million for 2009.<sup>13</sup> Additional funds would have to be made available to expand and revive Kenya's family planning programmes because without an expansion of these programmes, many women will not be able to use contraceptives. Often it first takes sexuality education before women have the desire to actively use contraceptives.

The cost of family planning is accompanied by large gains: an immediate decrease, for example, in the resulting cost of unsafe abortions since contraceptives reduce the number of unintended pregnancies and thus the number of abortions. The fact that family planning leads to fewer children may reduce expenses in education and health care for future generations from the very beginning.<sup>14</sup> It is estimated that if the unmet need were met in Kenya by 2015, then the resulting savings in five MDG-areas – education, immunisation, malaria, sanitary facilities, maternal health – would turn out to be four times higher than the investments necessary for covering the unmet need.<sup>15</sup>

Maternal and child health also improve with fewer children, thus allowing mothers to stay more productive and raising the likelihood that children will grow up to become productive members of society. Meeting the unmet need for contraception alone would have a great effect on population growth and could open the window to the demographic bonus and eventually to the demographic dividend.

How well women can implement their desire to use contraception and how this desire could be increased over time greatly depends on another question: What kind of status and rights do women have in society and family? As long as women are unable to decide how many children they have, there is hardly any chance to reach the demographic bonus (see chapter 3). In turn, a woman's social standing is significantly determined by how well women are educated.

## Education as a driving force for development

Education constitutes the major focus of all development questions because it has the greatest influence on many different aspects of life and society. This is not just confirmed by the history of those countries that were able to dynamically develop in the past (see chapter 2), but also by the fact that a lag in education may limit a country's development potential much more than a lag in income.<sup>16</sup>

Education means much more than the acquisition of information. In an interconnected world, where information is almost always available, classifying information and being able to obtain the most out of it is essential. Moreover, in a society, people must be able to communicate with one another so that knowledge grows. Knowledge is one of the few resources that when used is never exhausted, but rather increased, and an open, knowledge-based society lays the foundation for knowledge to multiply without additional investments.

Only when as many people as possible have access to education in sub-Saharan Africa can the long way to a knowledge-based society be paved. Education enables people to look beyond their own horizons, to question norms, to participate in political life, to improve their living conditions on their own, and to leave the cycle of poverty and high fertility rates. It is education that allows people to establish a dignified, self-determined existence in the first place, which is exactly why education represents a human right. It serves to realise superior goals, such as freedom and justice, and it is the most important tool for attaining the Millennium Development Goals. Education is one of the most significant factors for achieving lower maternal and child mortality (see chapter 3), a generally healthy life and higher life expectancy. Furthermore, education facilitates the sustainable use of natural resources and a better adaptation to the consequences of environmental destruction and climate change.

Conversely, the lack of education in sub-Saharan Africa is a main hindrance to development. There are two reasons for this: On the one hand, the infrastructure there is not capable of supplying the growing number of young people with

the necessary education. There is a lack of buildings, instruction materials, modern teaching methods and teachers, especially those that have received a good education. In Mozambique, Togo or the Central African Republic, teachers have to instruct 80 children or more under very poor conditions. In countries at civil war, whole generations are sometimes denied schooling. As a consequence, seven to ten million young Africans with barely sufficient qualifications end up in the labour markets each year.<sup>17</sup>

On the other hand, education in sub-Saharan Africa oftentimes does not play the essential role that it should in families or in politics and society. Even though practically everywhere school attendance is compulsory, about 35 million children do not attend school in Africa, amongst them more girls than boys.<sup>18</sup> Only 62 per cent of students complete primary school in sub-Saharan Africa, and among these only 65 per cent move on to secondary school.<sup>19</sup> At all educational levels, girls are disadvantaged. In secondary school education, gender equality exists only in one of the 35 sub-Saharan countries for which data is available.<sup>20</sup>

However, education is a prerequisite for improving reproductive health: Women who have at least a secondary education are less at risk of becoming pregnant as a teenager, have easier access to contraceptives, and also use them more frequently.<sup>21</sup> Worldwide, fertility has decreased with rising education levels, in which the strongest effects can be observed in the expansion of secondary education (chapter 3). From a demographic viewpoint, one of the greatest concerns of the education sector should be providing girls with a secondary school education.

## What if people had a better education?

When demographers take a look into the future, they usually come up with assumptions concerning the future number of children per woman, life expectancy or migration. Depending on the assumptions, they arrive at different projections. If it is known how the number of children has changed based on an increasing level of education in the past, then it can be calculated how investing in education may affect future population growth.

Data used for the projections in this study come from the International Institute for Applied Systems Analysis (IIASA) and the Vienna Institute of Demography (VID), and are available for almost all developing and newly industrialised countries.<sup>22</sup> The following population pyramids of different countries depict the distribution of the population's age groups and the proportion of educational degrees in four categories for women and men. For those under 15

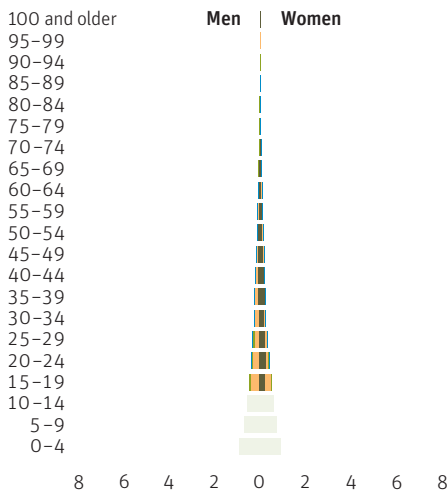
years of age, only the size of the respective age groups is shown and not the level of education because, ideally, these people are still in school.

The examples of Uganda and Bangladesh illustrate different development paths dependent on educational data. By **1970**, a few years after receiving independence, Uganda had become a relatively well developed country among the young African nations, with a rudimentary education system. The majority of young men and about half of the young women between the ages of 15 and 19 had attended primary school for at least a year, even though only a few of them had gone on to secondary school. However, all other men and women from this age group had no formal education – just like the vast majority of older age groups of women and men.

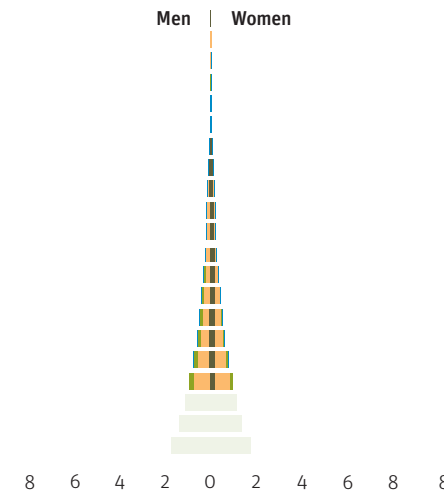
In 1970, Bangladesh was still a part of Pakistan, but it was facing a devastating war of independence, which led to the founding of the state in 1971. The population's level of education was far worse than in Uganda since 49 per cent of the employable men between 15 and 64 years of age and 79 per cent of the women completely lacked any formal education. 23 per cent of men, though, had attended secondary school. Both countries had high mortality rates in all age groups, as well as high fertility rates, which resulted in the typical pyramid shape of the population distributions.

Subsequently, both countries experienced extremely hard times. Uganda suffered from Idi Amin's terror regime and various civil wars, whereas Bangladesh experienced a series of famines, environmental disasters and political chaos. The land of the Bengals served as an archetype for failed states at the time. Nonetheless, both countries maintained a rudimentary education system. By **1990**, there were hardly any illiterate young men in

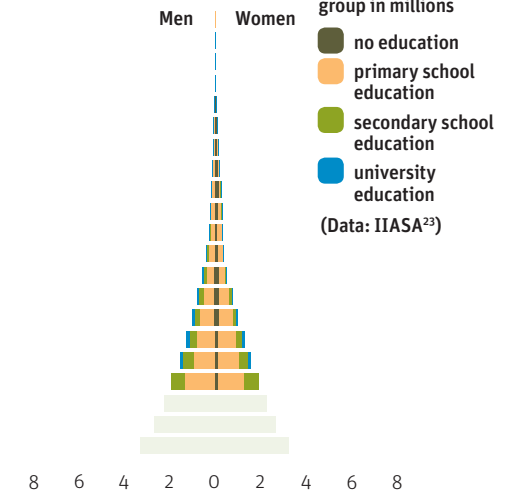
### Uganda 1970



### Uganda 1990



### Uganda 2010

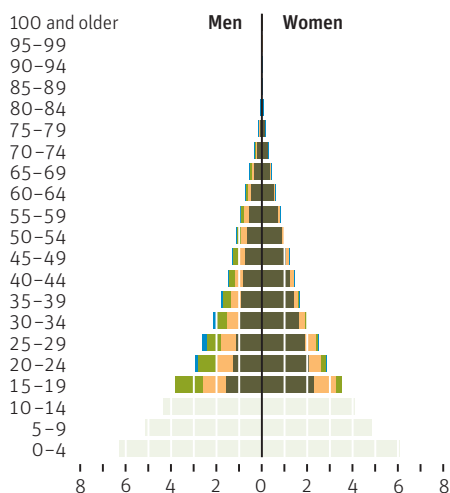


Number of inhabitants according to age group in millions

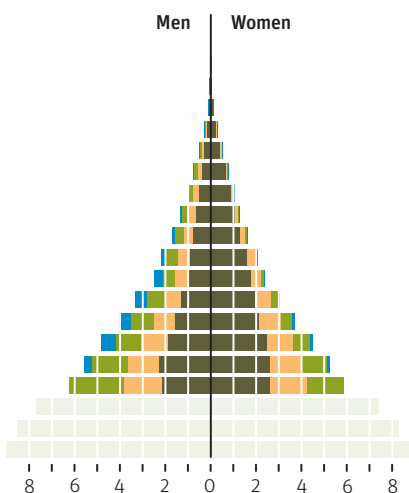
- no education
- primary school education
- secondary school education
- university education

(Data: IIASA<sup>23</sup>)

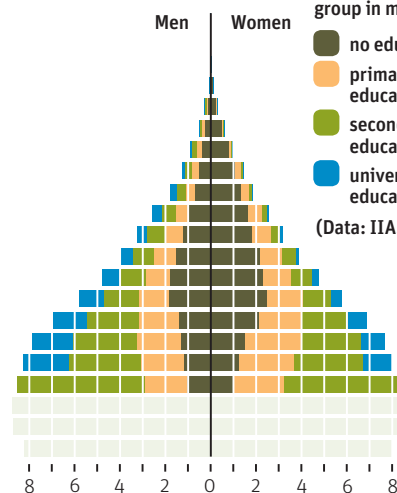
## Bangladesh 1970



## Bangladesh 1990



## Bangladesh 2010



Number of inhabitants according to age group in millions

- no education
- primary school education
- secondary school education
- university education

(Data: IIASA<sup>23</sup>)

Uganda any more. Young women, however, continued to be clearly disadvantaged – about 23 per cent had no access to any type of school. Only 18 per cent of working age men and eight per cent of women had attained a secondary education.

In 1990, Bangladesh's poor population continued to be excluded from education. More than half of all people between 15 and 64 years of age had never attended school. Yet among the under 20-year-olds, secondary education, in comparison to 1970, had progressed and considerably more boys and girls had received secondary schooling.

These different trends continued when both countries entered a relatively stable political phase. By 2010, Uganda had managed to enrol all children in school. However, only a third of the under 20-year-olds attended secondary school. Regarding secondary education, in 2010 Uganda just barely arrived at the level Bangladesh was at in 1990. Only a small portion of the Ugandan population graduates from a university.

However, Bangladesh, which in 2010 still belonged to the poorest countries in the world, displays considerable progress in education. Among young adults between 20 and 24 years of age, more than 50 per cent of women and men attended secondary school and the proportion of university graduates was also clearly higher than in Uganda. Yet, the proportion of the working age population without any school education is still 27 per cent, which indicates that the poorest of the poor in Bangladesh, unlike in Uganda, still lack the opportunity for personal development. Since the beginning of the 1970s, non-governmental organisations, as well as the government of Bangladesh, have invested heavily in family planning projects. Simultaneously, the first large microcredit systems, predominantly those launched by the Grameen Bank of Muhammad Yunus, have allowed poor women, in particular, access to an independent income. When these loans are granted, several people are liable for the borrowed money and this group commits to the acceptance of the "16 decisions" of the Grameen system. This includes, among other things, to see to a healthy diet, clean water and hygiene, to limit

family size and to send children to school. Since 97 per cent of the Grameen debtors are women, the system contributes substantially to the empowerment of women in Bengali society. Most importantly though, the system, with its specific form of adult education, reaches people who are no longer profiting from the normal school system because they are too old.<sup>24</sup> Microcredit systems in Bangladesh have played a major role in causing fertility rates to decrease and in improving the entire country's development opportunities.<sup>25</sup>

Therefore, it is not surprising that parallel to the different investments in education, fertility rates in Uganda and Bangladesh have developed differently. While in 1970, both countries were at the same level with 7.1 and 6.9 children per woman respectively, the numbers virtually did not change in Uganda



by 1990 and have only decreased to 6.2 children by 2010. In contrast, fertility rates in Bangladesh declined to 4.4 children per woman by 1990 and to 2.3 by 2010.<sup>9</sup> Early family planning programmes have certainly contributed to this.

As a consequence, the number of inhabitants in Uganda rose from about nine to just under 34 million during this period, a factor of 3.8, while in Bangladesh the number of inhabitants “only” rose from 69 to 164 million, a factor of 2.4. The clearly higher level of education of at least large parts of the population in Bangladesh is also reflected in the average life expectancy, which between 1970 and 2010 rose from 44 to 66 years, whereas in Uganda it only rose from 50 to 54 years.<sup>9</sup> Bangladesh’s population pyramid from 2010 demonstrates that the nation along the Bay of Bengal has already achieved a favourable age structure. From a demographic perspective, it has excellent chances to reach the demographic dividend.

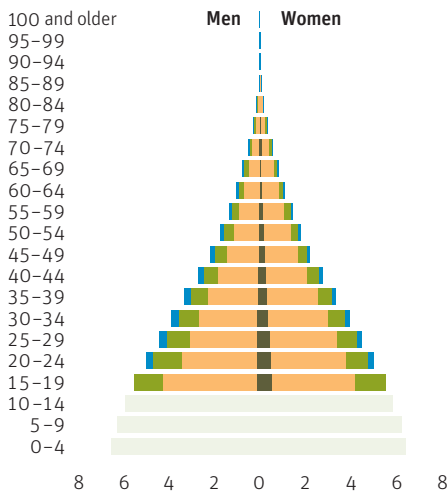
Depending on how much will be invested in education, there are different future scenarios.<sup>26</sup> **Scenario A** assumes constant enrolment rates. For countries with a strong population growth, this alone poses a great challenge because the number of schools and teachers has to keep up with population growth. **Scenario B** is based on the medium variant of the United Nations’ 2008 population projections and tells us how much the level of education would have to improve given the decreasing fertility rates underlying this variant. **Scenario C**, the so-called fast track scenario, assumes that educational goals, which were internationally agreed upon, will be attained by all countries. According to these goals, by 2015, nearly all children would be able to attend at least primary school. By 2050, 90 per cent of the students would complete secondary school and 60 per cent of all young people would graduate from university.

As expected, very different development paths open up for the two countries: In **scenario A** with steady school enrolment rates, logically, the chances of the younger generations do not change compared to

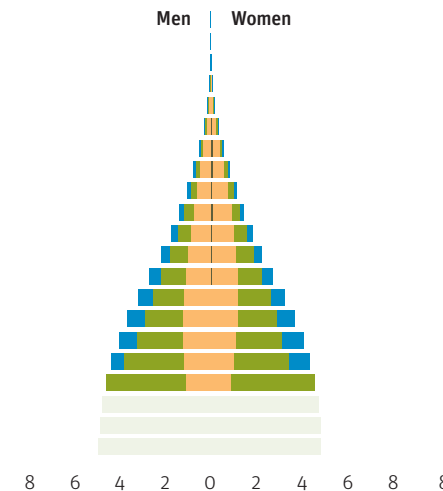
2010. Accordingly, Uganda would approach a population size of 104 million by 2050, which is about three times higher than in 2010. Bangladesh, where in the past fertility rates had already clearly decreased, would have to expect a growth from 61 million to 225 million inhabitants, an increase of less than 30 per cent.

**Scenario B**, which is based on the UN population projections, implies that the proportion of young adults with a secondary education would grow strongly in Uganda. Furthermore, in 2050, about eight per cent of 20- to 24-year-olds would have a university degree. Practically speaking, there would no longer be any people in Uganda who have not attended school. This development, which requires considerable efforts by the education system, would make the number of inhabitants grow to 91 million, i.e. 2.7 times the population of 2010. In Bangladesh, the majority of the under 20-year-olds would have a secondary education in 2050, and every third person between the

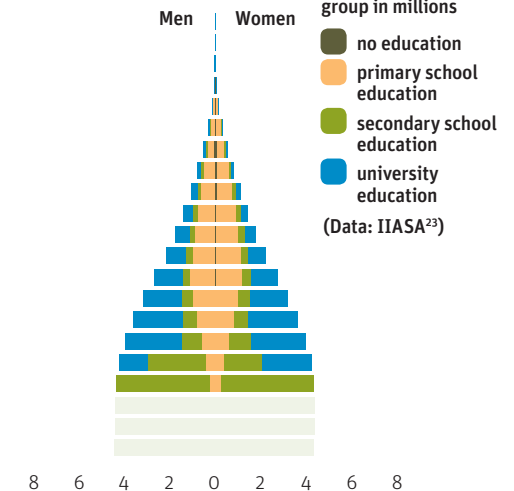
Uganda 2050 – Scenario A



Uganda 2050 – Scenario B



Uganda 2050 – Scenario C

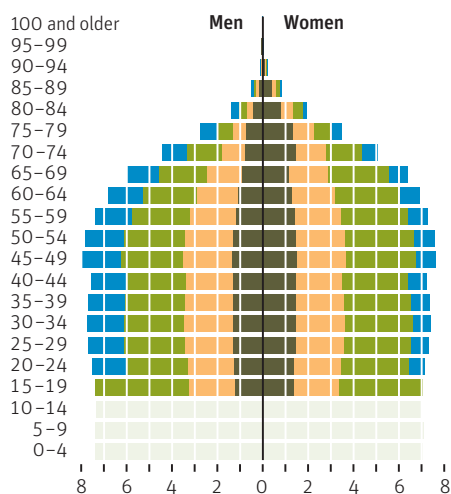


Number of inhabitants according to age group in millions

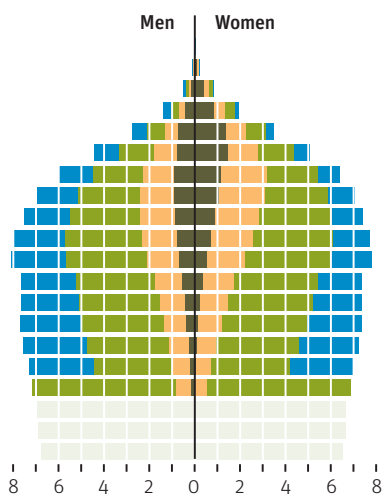
- no education
- primary school education
- secondary school education
- university education

(Data: IIASA<sup>23</sup>)

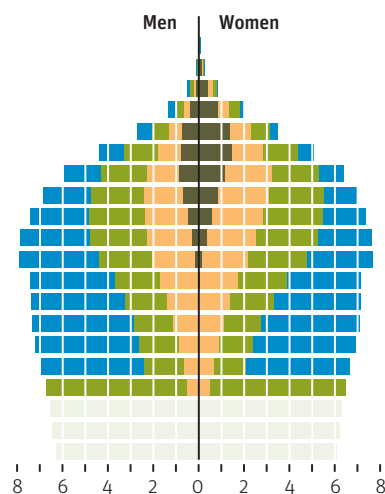
## Bangladesh 2050 – Scenario A



## Bangladesh 2050 – Scenario B



## Bangladesh 2050 – Scenario C



Number of inhabitants according to age group in millions

- no education
- primary school education
- secondary school education
- university education

(Data: IIASA<sup>23</sup>)

ages of 20 and 24 would have received a university degree. Still 18 per cent of the total population would have no school education at all, a consequence of past educational discriminations against the poor. Better education, however, would hardly have any further influence on population growth because the number of children per woman is already low.

In the best case, the fast track **scenario C**, Bangladesh would have finally evolved into a highly developed Asian Tiger from an educational standpoint with 34 per cent of 20- to 24-year-olds being university graduates. Uganda, however, would only just have created its demographic bonus, even though the younger age groups would be as well qualified in 2050 as in Bangladesh. This demonstrates that neglecting the educational sector has long-term consequences for a country's development potential. In Uganda, massive investments in the educational system would have a rapid effect on fertility because secondary education in particular lowers the average number of children per woman. The demographic dividend would not be gained to the full extent until the second half of the 21st century because

today's low qualified age groups have to first grow out of the population pyramid before better educated young age groups can take their places. All in all, there is no way of avoiding a population growth by a factor of 2.6 between 2010 and 2050, even in an optimistic scenario.

Given the difficult conditions in sub-Saharan Africa, the fast track scenario seems utopian at first sight. Nevertheless, it corresponds with the development of Singapore, which throughout the 1960s was a politically unstable state with mass unemployment, dim economic prospects and very high population growth. Within one generation, Singapore succeeded in taking the step from being a developing country to one of the

	Average number of children per woman			Life expectancy			Number of inhabitants in millions			Population growth in percent
	1970	1990	2010	1970	1990	2010	1970	1990	2010	1970 bis 2010
<b>Uganda</b>	7.1	7.1	6.2	50	48	54	9	18	34	3.8
<b>Bangladesh</b>	6.9	4.4	2.3	44	54	66	69	116	164	2.4

(Data: United Nations<sup>9</sup>)

Estimated population in millions in 2050 according to different educational investments			
	2050 A	2050 B	2050 C
Uganda	104	91	87
Bangladesh	225	222	216

(Data: IIASA<sup>23</sup>)

leading industrial nations by investing in family planning, education and jobs. Today it ranks 27th in the United Nations Human Development Index, right behind countries like Austria and Great Britain. Singapore's population pyramids demonstrate that as early as **1970**, education was the way out of poverty: initial successes were already visible in the younger age groups. Firstly, in terms of the declining fertility rates that manifested themselves in the shrinking age groups among the under 15-year-olds, and secondly, in terms of massive investments in secondary education from which women profited almost as much as men. In **1970**, only the insufficiently qualified older age groups were a reminder of the poor education system of the past. In **1990**, the majority of young

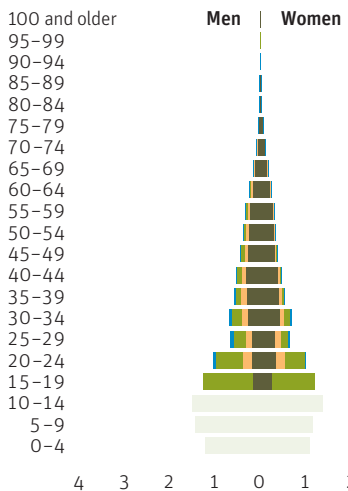
women and men had a secondary education; many of them even had a university degree. The age structure was favourable. In **2010**, Singapore had, as far as education was concerned, already surpassed many old industrial nations, such as Germany. Over half of the population had a university degree, among them more women than men. The big age cohort of the 15- to 19-year-olds only reflects the large parent generation. At this point in time, Singapore has fully reaped the benefits of the demographic dividend.

The example of Singapore proves that within a few decades extreme development successes are possible and the vicious circle of poor education, growing population and raging poverty can be broken. A city state with ocean access has certainly different

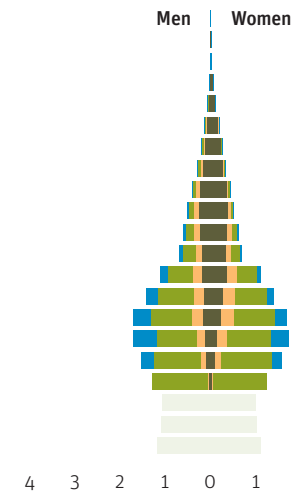
framework conditions compared to a landlocked territorial state like Uganda, yet the geographical location should not be overrated. After all, Singapore does not solely owe its economic upswing to trade. It was mostly the development into a knowledge-based society, which helped Singapore reach its present status. All in all, the common argument that Africa is different from Asia, which is why a similar development cannot be expected, does not hold. The political, cultural and economic differences which exist between Africa and Asia do not necessarily rule out a development like the one that took place in the Asian Tigers. During the 1960s, the Asian Tigers were not expected to have such a positive development, either.

Uganda has good chances to pave the way towards the demographic bonus. At least its development goes in the right direction, even though much bigger efforts are still required for the future. The educational level and the contraceptive prevalence rate are positively developing and the numbers are clearly above those known for West African states.

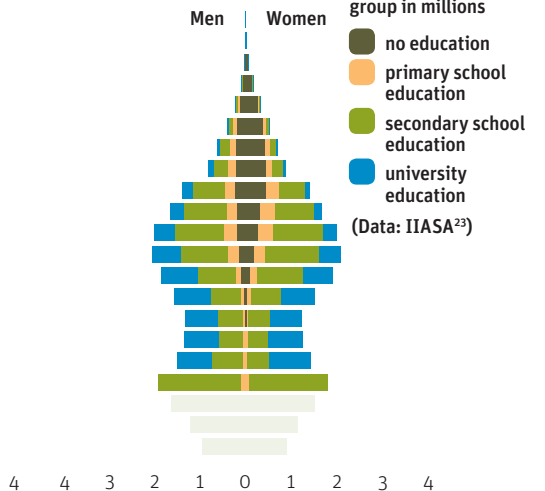
Singapore 1970



Singapore 1990



Singapore 2010



Number of inhabitants according to age group in millions

- no education
- primary school education
- secondary school education
- university education

(Data: IIASA<sup>23</sup>)

While in Uganda 18 per cent of married women between 15 and 49 years of age use contraceptives, the rate is only six per cent in Mali.<sup>27</sup> Like many other countries in West Africa, Mali also has a long way to go in order to catch up in the field of education. In 2010, half of the under 20-year-old men and almost 70 per cent of women in Mali still had no school education. Only 17 per cent of the population from that age group graduated from secondary school.

The situations in the different countries demonstrate that neither education nor family planning alone can lead a country out of the growth trap. Only a combination of both factors will yield the desired success; education leads to a stronger desire to limit family size, but the supply of methods and information then has to meet the demand. Simultaneously expanding women's education and family planning services forms the cornerstone for reaching the demographic bonus. For the youngest generation, both factors can even be combined by incorporating sexuality education into school curricula. Extra-curricular educational programmes focusing on sexuality and contraception may also be provided.

### What is required to reach the demographic dividend

More is needed than just education and family planning. Human resources, clearly improved as a result of education and a lower number of children, also have to be put to good economic use, i.e. jobs have to be created. While this was successfully done throughout Southeast Asia, where the demographic bonus in fact developed into

### “Young Adolescents Project” in Uganda

#### PROJECT EXAMPLE

Through its work, **DSW** (Deutsche Stiftung Weltbevölkerung) provides a good example of how education and family planning can be meaningfully combined in development co-operation. The organisation implements projects and initiatives related to sexual and reproductive health education, family planning and youth empowerment in developing countries.

In Uganda, for example, DSW implements an innovative project to empower young adolescents in primary schools with knowledge, information, and social support to improve their sexual and reproductive health. Activities not only target 10- to 14-year-old pupils, but also integrate and actively involve parents, teachers, school administrators, and community members. Cooperation between schools and surrounding health facilities allow young adolescents to access youth-friendly medical services, such as HIV- and pregnancy tests. In doing this, DSW helps to create an enabling social environment that supports young adolescents in adopting responsible and risk-avoiding sexual and reproductive health behaviour. DSW uses its so-called “Youth Truck” to reach young people, parents, teachers and other community members in remote areas with its educational messages and information. Successful methods, activities and good practices related to this approach have been documented and published in a comprehensive toolkit.<sup>28</sup>

a demographic dividend, Latin American countries were somewhat less successful in this respect because the demographic bonus was not used to its full extent. North Africa even appears to be failing: The region has many educated young adults, but because there are not enough jobs – in particular not at the appropriate qualification level – they have no prospects, which among other things, led to the civil unrest at the beginning of 2011. In sub-Saharan Africa, creating a sufficient amount of productive jobs will in all probability pose an even bigger challenge. Due to insecure political situations, investors and successful economic concepts have been absent in many of the countries. This shows that even in situations in which the population structure develops favourably, there are no guarantees that the particular development path discussed in this study will be successful. Yet for the

countries in sub-Saharan Africa, there is no other feasible alternative in sight. The cluster analysis in chapter 2 has shown that no country with high mortality and fertility has reached a higher socio-economic level of development. This chapter focused on sketching a rough roadmap, which can lead the way for countries in sub-Saharan Africa to a demographic bonus. The next, concluding chapter of the study will present some tangible recommendations for action.

# 5

# RECOMMENDATIONS FOR ACTION

According to the theory of the demographic dividend, decreasing birth rates and the resulting changes of the age structure offer good opportunities for development. Some African countries could already profit from this today. However, almost all sub-Saharan nations must first achieve a demographic bonus through decreasing birth rates. The following recommendations for these countries aim mostly at improving health and education because these are the major tools for increasing human capital and thus for development.

Since women play a key role in reaching the demographic bonus and since they are often disadvantaged in their family and society, some recommendations specifically target the empowerment of girls and women.

Not all recommendations are new – some of them have been circulating in development politics for decades. Yet, because they have not been seriously pursued or have been pushed aside in favour of other development projects, they remain on the agenda and are regaining importance in light of demographic considerations.

## Fundamentals for implementation

### Setting priorities

In order to utilise limited means in the best possible way, priorities must be set. Basic and relatively cost-effective investments reaching the most people should take precedence over (expensive) improvements in selected areas. Far-reaching basic health care is, for example, more important for the population's well-being as a whole than purely vertical approaches which concentrate on specific diseases.

### Country-specific approaches

It is necessary to adapt all suggested measures to the specific conditions of a country. In Mali, for example, where 60 per cent of adults between the ages of 15 and 24 years have never attended school, large investments have yet to be made in primary schools. A country like Uganda, however, where only four per cent of young adults remain without an education, should concentrate much more on the secondary education of its population.<sup>1</sup>

### Searching for solutions for fragile states

Creating solutions for an entire group of countries can never completely do justice to individual requirements. Such far-reaching attempts are doomed to fail from the start in the case of fragile states like Somalia. Instead, individual concepts have to be worked out for weak and endangered states. These concepts have to take into consideration the existing conflict scenarios and take advantage of the still existing structures in the best possible way. In doing so, it becomes unavoidable, but to accept a higher risk of failure for such countries.

### Supporting civil society

Non-governmental organisations often work where a public provider no longer exists. However, even in countries with functioning government structures, non-governmental organisations prove to be crucial pillars of society when they take over responsibilities which the government does not, or cannot, provide. They can achieve the best results by allowing citizens to share in decisions and involving them in the implementation of programmes. Civil society may also be supported by the government.

## Counting on participation

Only when people become involved themselves, for example by attempting to influence political decisions, will projects be pursued with force. This is one of the reasons why local and cultural distinctions have to be given sufficient consideration. In particular, this holds true for sensitive subjects concerning family, sexuality and contraception. Reservations and resistance, and fears and prejudices can only be reduced by offering the local population the chance to participate, for instance by involving elected village councils, gaining support from religious leaders, cooperating with non-governmental organisations or engaging women who are trusted within the community.

## National politics must support goals

For the successful implementation of individual development programmes, the political will of the respective government is decisive regarding good governance in general, on the one hand, and concrete measures on the other. Ownership, i.e. self-responsibility and commitment by the government, is called for. Governments must recognise that they block the future of their own countries if they do not heavily invest in education, health services, family planning, as well as employment. Declarations of intent must be reflected in corresponding budget assignments. There must be sufficient qualified personnel and citizens must have access to the relevant facilities.

## Involving new cooperation partners

The established institutions of development cooperation must progressively allow for new players. These often belong to the non-governmental sector, where increasingly large, internationally active foundations are involved. Private businesses also play a role that continues to grow in significance. In addition, states like Brazil, India or China are gaining importance implementing the often demanded South-South cooperation. Their efforts are openly based on geographic, resource and political-economic interests, but also on approaches which were successful in their own countries and are, in many cases, more pragmatic and efficient than those in the traditional North-South development cooperation. Criticism concerning their self-interest must not be in the way of cooperating with the new partners from the beginning.

## Creating coherence

Agricultural subsidies and trade barriers have repeatedly been identified as obstacles for developing countries. The call for a coherent policy of the donor countries is made at every conference for development cooperation. By now, it has become an integral part of many international agreements. However, not much more than declarations of intent have been achieved in this manner. Developing countries should, therefore, predominantly count on their national sales markets and establish regional associations with neighbouring countries in order to simplify trade.

## Overcoming sectoral thinking

The success story of those countries which have profited from the demographic dividend, especially the Asian Tigers, can be attributed to the fact that development was planned comprehensively. Investments in gender equality, education, family planning and jobs must be harmonised with respect to timing and content, and implementation in the individual areas must be coordinated. The predominant classification into sectors in development policies, which was solidified to some extent by the way the Millennium Development Goals were determined, is not helpful in this respect. More promising are integrated projects, for example projects in which the correlation between the number of children and the use of resources is revealed to the local population.

## Giving highest political priority to demographic matters

Questions concerning population policy have often had low priority in development cooperation in the recent past, although they influence virtually all areas as a cross-cutting theme. Donor and partner countries, as well as international organisations, should thus pay closer attention to demographic questions and forge alliances in this respect. At the upcoming World Conferences, such as Rio + 20 in 2012, the UN Assembly commemorating the 20<sup>th</sup> anniversary of the Cairo Programme of Action in 2014, or the post-MDG negotiations, population growth and dynamics must become part of the global development discussions and measures which can guide demographic processes must be included in the resolutions.

## Improving data sources

Reliable data is needed to assess demographic opportunities and risks, and to give recommendations. However, in many countries, it is not as comprehensive as desired. In most cases, statistics are rarely updated fast enough in order to evaluate the effects of individual programmes. Especially regional data and data which differentiates by social origin, gender, level of education, or income are lacking. Average national data merely gives a rough estimate with regards to positive or negative developments. Administrations and institutions have to be supported financially and with personnel in order to carry out regular surveys.

# What needs to be done

## Improving health

### Establish and expand basic health care

Past experience has shown that a decrease in fertility cannot be expected in regions with high infant and child mortality. Thus, in less developed countries, investments should be made in comprehensive basic care in order to grant the entire population access to essential health services and medications. Because in many places no medical clinics with doctors can be established, basic mobile health services should be organised. These could, among other things, ensure that there is a supply of drugs for common diseases in remote regions. Additionally, in these areas, some inhabitants should be trained and should work as community health workers, midwives and nurses.

### Make disease prevention possible through simple means

Many diseases can already be contained through simple means: Impregnated mosquito nets, for example, protect against malaria. Access to clean drinking water, the building of toilets and further hygiene measures also have a large effect on disease prevention and in particular, reduce child mortality. The most important measure, however, ought to be information and education regarding hygienic and medical issues: Only when people know what causes a disease, can they protect themselves against it.

## Vaccinate children

Huge successes in reducing child mortality are achieved by large, one-time vaccination campaigns, followed by the introduction of standardised immunisations for newborns. Recently, Kenya, as the first African country to do so, introduced a standardised vaccination against pneumococci, the main pathogen of bacterial pneumonia. More than 800,000 children die of this easily preventable infection worldwide each year.<sup>2</sup> Immunisation campaigns such as these should be expanded to other countries and to include other diseases. In addition to disease prevention itself, the vaccination campaigns can be used to inform mothers about further health subjects, thereby creating synergetic effects.

### Improve sexual and reproductive health

Special attention should be given to sexual and reproductive health because an improvement in this area has a direct effect on maternal and child health, as well as on birth rates. In many sub-Saharan African countries, the effort made in reproductive health in recent years has largely concentrated on the fight against HIV/Aids. To decrease the high maternal and infant mortality, it is, however, necessary to make more wide-ranging investments in sexual and reproductive health. One objective must be to offer medical assistance to all women during pregnancy, birth and thereafter, including ante- and postnatal care for mothers and infants. One good approach among many is the distribution of vouchers for these services. In several countries, such voucher systems have contributed to an increased use of reproductive health services.<sup>3</sup>

## Offer sexuality education

Information with regards to family planning should not only be directed towards women and girls, but also to the male population in order to pave the way for broad acceptance, especially in dominantly patriarchal societies. Couples should be encouraged to discuss family planning and contraception. At present, women often report in surveys that they are not sure about their partners' views concerning contraception.<sup>4</sup> In order to reach adolescents, it is recommended to incorporate sexuality education into national curricula and to promote educational work in youth clubs and other extra-curricular institutions.

## Facilitate access to contraceptives

Different modern methods of contraception should be available everywhere and women should be able to choose freely amongst them. They should also be available to young and unmarried women because teenage pregnancies, in particular, are accompanied by a high health risk for the mother and child. Contraceptives not only assist in family planning, but they ultimately also contribute to decreasing mortality. Survival chances of newborns and mothers rise if births can reliably be spaced by at least two years or more.<sup>5</sup> In addition, family planning methods decrease the number of abortions.

## Find advocates

People who have the confidence of the local community should be recruited and trained as counsellors and advocates for health issues and for reproductive questions in particular. National persons of respect or idols can act as role models or support education and information campaigns. When the media reports on hygiene, nutrition or family planning, then more people can be reached. For example, soap operas focussing on themes such as HIV/Aids or unwanted pregnancies may contribute to a new awareness regarding contraception and increase the knowledge thereof.

## Use interactive media

Radio broadcasting has been interactive for a long time by letting the listeners voice their opinions and ask their questions. Mobile phones and the Internet offer additional new opportunities. Electronic health services, so-called "mHealth services", can be used for medical advice, for data collection or to remind patients of medical appointments or to take the pill. Internet or mobile phones also help to stay in long-term contact with participants of sexuality education programmes.

## Investments in education

### Recognise education as the key factor for development

Education paves the way for a favourable age structure, the so-called demographic bonus, because mortality and fertility decrease with an improved level of education. In addition, human capital increases. Thus education becomes the most important tool in achieving the demographic dividend. The importance of education must be reflected by investments in the education system. Teachers must be better qualified and paid, new schools must be built and existing ones improved. Learning can only be successful when sufficient teaching material is available. Above all, parents have to be encouraged to send their children to school for as long as possible. This can be accomplished in various ways: In Mexico, for example, so-called cash-on-delivery programmes have proven to be successful in the education sector. Parents in these programmes receive money if their children regularly attend school.

### Focus on secondary education

Among the Millennium Development Goals, education also has a high priority. There, however, the focus is on primary education. For the development path of the demographic dividend, this goal is not far reaching enough. In order to lower fertility rates, the secondary education of women is of utmost importance. For an economic boom, an education structure, in which



one half of the population has attended primary and the other half secondary school, is considered to be most favourable.<sup>6</sup> Only on this basis is it helpful to make large investments in universities in order to create the human capital necessary for an innovative and productive economy.

### **Establish vocational training**

Education in itself is already a development goal; however, for the economic progress of a country it is important that education leads to a life of employment. Transitions between school and the working world can be created with a vocational training system. On the one hand, young people are introduced hands-on to a real working environment, and on the other hand, they can acquire generally applicable know-how, for example, in accounting.

### **Expand women's education**

Whether children grow up healthy depends to a great degree on their mother's level of education. Mothers are also the deciding influence when it comes to the education of their children. Surveys have shown that the level of education is "inherited" from the mother and not the father.<sup>7</sup> Thus, investments in women's education are always investments already in the human capital of the following generations. Without more freedom of decision for women, the decrease in fertility, which is very important for reaching the demographic bonus, can hardly be attained. The existing discrimination of women and

girls regarding education is not only a sign of lacking gender equality, but it also reinforces the situation. In order for girls to have the same chance for education, cultural obstacles must be overcome. However, improvements of a very pragmatic kind are also called for; for example, something has to be done so that a lack of menstrual hygiene products does not prevent girls from attending school.

### **Use microcredits to improve women's education and women's empowerment**

Microcredits have proven to be an effective strategy in the fight against poverty. They contribute greatly to empower women in society. Where microcredits follow the goals of cooperatives and those set out by society as a whole, they also offer adult education for women. In this way, population groups which are too old to attend school are offered the opportunity to learn about subjects like hygiene, nutrition and family planning.

### **No demographic dividend without jobs**

#### **Create productive employment**

An economy stands and falls depending on how well it manages to let its population be productive. Employment opportunities must be opened up as early as possible to offer young people, especially women, a prospect in life. By doing this, the number of children declines and a demographic bonus can be achieved. A sufficiently large number of jobs must be available when the big group of children and adolescents has reached working age. At this point, it is decided whether the age structure turns into a demographic dividend or a demographic

burden. It is important that the jobs contribute to the productivity of a country and are not merely created, for example, in inflated administrative institutions. To create a sustainable economic development, it is therefore important to provide favourable conditions for local and foreign investors. To this effect, bureaucratic obstacles and other investment impediments like corruption must be removed and supportive services, for example in the infrastructure or finance sector, must be offered.

### **Establish social security systems**

When the formal employment sector grows, old age security systems need to be established. The sub-Saharan states can orient themselves with the systems of the newly industrialised countries. Due to the fast demographic changes, a pay-as-you-go scheme alone is not adequate. Instead, a three pillar approach based on state pensions, occupational pensions and private savings is recommended. In order for fertility to drop, not only do more people need to be integrated into a social security system through their employment, but minimal social protection must also be searched out for those who are employed informally or have no work at all. If this is not done, having children will continue to serve as a means for old age security. Depending on the country, protection can be provided in the form of a small, state financed sum and/or on the basis of private investment (savings cooperatives, micro-insurances).

## First – Invest in sectors with a high need for low-skilled workers

During the first phase of economic development, it is important to generate work for the large population of working age. Progress in the education sector does not benefit, as a rule, the already adult and not yet qualified population. For these people, as many employment opportunities as possible have to be created in labour-intensive work sectors. Wherever possible, countries should refine and process their goods, at least to some extent, instead of exporting raw materials and primary agricultural products. In agriculture too, a large number of workers may be employed in order to achieve a large impact in a small area, for example by terracing, so as to become more independent from agricultural imports. Provided fundamental reforms take place, some African countries, with their abundant populations, could take over labour-intensive manufacturing when it is outsourced from demographically and economically advanced states.<sup>8</sup> To avoid dependency on one economic sector, investments should be made in various sectors from the start. Jobs should therefore not only be created in manufacturing, but also in infrastructure development or in the service sector, for example in tourism.

## Later – Jobs with greater added value

When birth rates decrease in the course of demographic development, the focus has to gradually shift from manufacturing industries to more knowledge-intensive activities. With this shift, the requirements for the population's education increase as

well. Primary school education alone will no longer be sufficient and in addition to secondary schools, universities and adult education will gain in importance. With a rising level of education, investments should be made in economic sectors with greater added value, i.e. in the service sector, in advanced production, as well as in research and development. The Asian Tigers are a good example of this. First, they created work in textile factories, later in high-end production and then in high-tech enterprises. By filling the gaps which currently exist, for example in the service industry and in infrastructure, economically viable businesses can also be created. An essential precondition for that is the understanding that many services cannot be state-provided free of charge. Examples for services organised by private enterprise are sanitary installations, which are user-financed ("pay per use sanitation"), micro-insurances or mobile banking, i.e. banking transactions via mobile telephone for people who do not yet have access to financial institutions.<sup>9</sup> How dynamically such services can develop is shown by the rapid growth of mobile telephone communication in Africa.

## Create job opportunities for women

In order to be able to take full advantage of the demographic bonus, women must have equal access to jobs. In order to achieve this, existing barriers must be removed and it must be ensured that women are not disadvantaged by pregnancy or childbirth. Gender equality is a question of justice, on the one hand, and an essential economic factor on the other. Key positions should be staffed with women in order to provide girls with role models and to show children examples of gender equality. In many countries today, only a few women, for instance, are trained to become teachers and are employed by schools.<sup>10</sup>

## What happens after the demographic dividend?

### Making long-term provisions for the ageing of society

The demographic bonus will not last forever because the large population cohorts are becoming older and the following generations do not equal them in size. Thus, the share of working age people decreases slowly but surely, whereas the share of older, economically dependent people increases. The social security systems need to be further expanded during this phase of the demographic transition. Through education and investments in knowledge-intensive sectors, the productivity of an ageing population can be increased. Concepts, which are currently being developed in industrial and newly industrialised countries, can one day lead the way through demographic ageing for today's developing countries.

# METHODOLOGICAL NOTES

## Population projections

Unless indicated otherwise, the medium variant of the 2008 UN projections was used in this study. While more recent projections from 2010 exist by now, the projections developed by the International Institute for Applied Systems Analysis (IIASA)/Vienna Institute of Demography (VID) quoted in chapter 4 of this study, and the ones used by the Futures Group, are based on original data of the UN projections from 2008. The essential observations and conclusions in this study apply, without restrictions, for the newer projections from 2010 as well.

## Cluster analysis

The clusters described in chapter 2 are the result of a cluster centre analysis carried out with the help of the statistics programme SPSS. Fertility rates from 103 selected countries compiled every five years between 1950 and 2010 served as the input data. Countries were selected that, based on the United Nations' definition, do not belong to developed states and have over one million inhabitants. Taiwan was not considered because there is no data published on this country by the United Nations.

A cluster consists of the countries closest to the cluster centre. Values of individual countries may deviate considerably from the cluster centre, yet all countries belonging to a cluster have similarities in terms of the speed and duration of the fertility decline.

Clusters were examined with respect to different development indicators and indices. For this, data was analysed according to clusters. Combined, this allowed us to draw links between the speed of fertility decline and general development. Nonetheless, individual countries deviate from the general trend with regards to some of the indicators. The text mentions these outliers. As a general rule, no average figures were provided in the descriptions of the clusters, since the outliers would distort the clusters' average values.

## Data

29 indicators for 103 current and former developing countries were selected from international databases. They are described on pages 19 through 21. To allow for best possible comparability, the study is based on figures from both the World Bank's and the United Nations' international databases. Indicators, which are based on methods that have changed over the years, as is particularly the case with complexly calculated indices, are not always available as a time series and were, therefore, only considered at one point in time during analysis.

## Notes on educational statistics

All data concerning the population's level of education in this study are based on calculations by the IIASA/VID.<sup>1</sup>

**Reconstruction through 1970:** The population's level of education was reconstructed retrospectively back to 1970 according to different age groups and gender. As a basis for this, the IIASA/VID used educational statistics from 2000 and the population figures provided by the United Nations between 1970 and 2000.

**Projections through 2050:** For the projections discussed in chapter 4, the age groups from the year 2000 were extrapolated for the future according to their level of education in the future. There are different scenarios based on various assumptions about how education will develop.

## Notes on chapter 3

Chapter 3 provides a survey of the scientific literature and reflects the latest research on factors influencing fertility decline. To offer realistic illustrations of the connections explained in the text, case examples were added. They are based on interviews conducted locally in the months between November 2010 and January 2011. Each interview consisted of the same questions. The interviewees' names were changed, if requested.

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## Methodological notes

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# GLOSSARY

## Asian Tigers

The term refers to the economically rising East and Southeast Asian states Taiwan, South Korea, Singapore, and the special administrative region of Hong Kong. Because of their dynamic economic development, they are considered models for developing countries. The term also applies to Thailand, Malaysia, Indonesia and the Philippines, which followed the same development model, albeit with some delay.

## Birth rate

This refers to the number of live births per year for every 1,000 inhabitants in a region.

## Contraceptive prevalence

This refers to the percentages of women of reproductive age (15 to 49 years) who use contraceptives (depending on the definition, inclusive or exclusive of traditional methods). In most cases, data is only collected for married women.

## Demographic bonus

The term describes a period during which a society has a favourable age structure for economic development. This is the case when a country has a proportionally high number of working age people, while the proportion of dependent people – children and the elderly – is relatively low.

## Demographic dividend

The term denotes the increased economic performance resulting from a demographic bonus. A country capable of taking full advantage of this economic development potential, for example, by investing in education and jobs, can effectively improve its population's standard of living.

## Dependant population

This includes children and adolescents up to 14 years of age, as well as elderly people ages 65 or over, who are viewed as non-employable and therefore, in need of support from the remaining population.

## Developed countries

This group of countries includes the West European states, Japan, Canada, the United States, Australia and New Zealand, and, by some definitions, other OECD countries as well. Due to the fact that in many of these countries the level of industrialisation is dropping, the term is becoming out-dated. Nonetheless, it is still frequently used in development policy discourses in order to distinguish highly and relatively early developed states from those less developed (developing countries).

## Developing countries

These countries differ from industrial nations because of their low standard of living and lack of infrastructure. However, there is no generally accepted definition of developing countries. Most of the European countries, as well as Canada, the United States, Australia, New Zealand and Japan, are commonly classified as “developed” by the United Nations. Currently, the United Nations Index

for Human Development is comprised of four categories: “very high human development level”, “high human development level”, “medium human development level”, and “low human development level”. With the exception of newly industrialised countries and the Asian Tigers, all countries examined in this study are defined as developing.

## Fertility, fertility rate

This determines, with the help of the age-specific number of births in a particular year, the average number of children a woman would have by the end of her reproductive life if birth rates remained at that year's level.

## Least developed countries

The so-called LDCs are a group of countries viewed as less developed than all other developing countries because of economic and socio-economic criteria. The list of the least developed countries is determined by the United Nations and currently includes 48 countries.

## Millennium Development Goals (MDGs)

These goals constitute an internationally acknowledged framework for development policy actions since 2001. The eight goals to be attained by 2015 are: eradicate extreme poverty and hunger (MDG 1), achieve universal primary education (MDG 2), promote gender equality (MDG 3), reduce child mortality (MDG 4), improve maternal health (MDG 5), combat diseases, such as HIV/Aids and malaria (MDG 6), ensure environmental sustainability (MDG 7) and develop a global partnership for development (MDG 8). The goals include clearly measurable criteria to monitor progress.

## Mortality, mortality rate

This is defined as the number of deaths in proportion to the population within a certain time period.

## Newly industrialised countries

These countries differ from developing countries mostly due to their relatively high economic performance, but are not yet considered developed states. Since there is no uniform definition criteria, the number of states belonging to the group of newly industrialised countries varies. In this study, the Asian Tigers, as well as China, Brazil, India, Mexico and South Africa, are viewed as newly industrialised countries.

## Population growth

This refers to a change in the number of inhabitants within a particular year caused by births and deaths, as well as immigration and emigration. The natural population growth rate is calculated by subtracting the mortality rate from the birth rate (ignoring migration movements).

## Reproductive age

The term refers to the age group of 15- to 49-year-old women. It defines the time when women are of child-bearing age and describes the period between puberty and menopause, during which women have children.

## Reproductive health

In addition to healthy reproductive organs and the absence of sexually transmitted diseases, the term also includes mental, physical and social well-being concerning sexuality and procreation.

## Reproductive level

This is the average number of children per woman required to replace the parent generation one to one, thereby keeping the population size stable without migration. As a rough reference point, the number is 2.1 children per woman in developed countries. The figure is higher than two because not all people reach parental age, in which they can become parents themselves. Thus, in countries with a high mortality rate, the reproduction level is higher.

## Reproductive rights

These rights include individuals' and couples' freedoms and rights related to reproduction. This means being able to determine how many children they wish to have, choose appropriate contraceptive methods, have access to education and information on reproduction and contraception, be protected from gender-related sexual violence and discrimination, and receive the medical services necessary for reproductive health.

## Sub-Saharan Africa

The term is used for countries located south of the Sahara. In this study, only countries with a population of over one million were considered. The following countries belong to the region of sub-Saharan Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, the Central African Republic, Chad, the Democratic Republic of the Congo, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea, the Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Nigeria, Niger, Rwanda, Senegal, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Zambia and Zimbabwe.

## Unmet need for contraceptives

This occurs when women wishing to prevent a pregnancy, either permanently or at least for the next two years, have unprotected intercourse due to a lack of contraception. Depending on the definition, women using traditional methods are included or excluded. In most cases, the unmet need for contraceptives refers to married women of child-bearing age (15 to 49 years).

## Women's empowerment

This involves providing women with more autonomy and the freedom to make decisions, and eradicates unequal power between the sexes. Its goal is to create gender equality.

## Working age population

The term refers to the group of 15- to 64-year-olds. It defines the period in life in which people are usually employable and thus able to earn their own income.

The **Berlin Institute for Population and Development** is an independent think tank that researches questions about global demographic changes and development policies. The institute was founded in 2000 as a non-profit foundation and has the task to raise awareness about demographic change, promote sustainable development, contribute new ideas to the policy field, and form concepts for solutions to demographic and development policy problems. The Berlin Institute creates studies, discussion and background papers, prepares scientific information for the political decision-making process, and organises the “Online-Handbook Demography.”

For further information please visit our website:

**[www.berlin-institut.org](http://www.berlin-institut.org)**.

**DSW** (Deutsche Stiftung Weltbevoelkerung) is an international development organisation. It helps young people in Africa and Asia to escape poverty by equipping them with knowledge on how to protect their health. Unwanted pregnancies and HIV/AIDS compound poverty and lead to the death of many young people. Therefore, DSW supports sexual and reproductive health education initiatives and family planning projects in developing countries.

**[www.dsw-online.org](http://www.dsw-online.org)**

The **Austrian Foundation for World Population and International Cooperation** (SWI) was founded in 1998 and is based in Vienna. The Foundation aims to raise public awareness in Austria on issues of global population trends, reproductive health, resource consumption and sustainable development. SWI particularly supports health projects for young people and women in the South.

**[www.swi-austria.org](http://www.swi-austria.org)**

The **BOCS Foundation** was created in 1975 and was formally registered in 1994. It has been working in India, Africa, and Hungarian speaking areas in Europe. Its work aims at global education, international development cooperation, the rights of future generations, sexual and reproductive health and rights, and freedom of religion. BOCS provides advocacy and training for multipliers, as well as educational materials.

**[www.bocs.hu](http://www.bocs.hu)**

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**International Institute for Applied Systems Analysis**  
**Partners in Population and Development, Uganda**  
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+++ educated women have fewer children +++ chances for development for Africa +++ the demographic bonus +++ sub-Saharan Africa has the youngest p  
+++ fewer unwanted pregnancies +++ reproductive health and reproductive rights +++ high child mortality +++ societal changes in developing countri