Megatrends in Africa

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Cover photo: A new railroad built by China takes passengers quickly and safely from Nairobi to Mombasa.
Photo: Petri Pellikka, 2019.

Content

AFRICA

☆ National capital
○ Major City
— International boundary

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North Africa, West Africa, East Africa, Central Africa and Southern Africa.

Preface

In 2019, the Department for Africa and the Middle East of the Ministry for Foreign Affairs of Finland commissioned two reports related to Finnish development policy. The first dealt with African political and economic integration. This is the second publication and discusses megatrends in Africa.

The reports are not academic research as such. The authors are academically qualified researchers, however, and they base their findings on academic studies. The Ministry for Foreign Affairs chooses authors through a call for proposals organized by UniPID, the Finnish University Partnership for International Development, of the University of Jyväskylä.

A group of researchers was chosen to author the Megatrends in Africa report. It consisted of Professors Petri Pellikka and Mikael Mattlin from the University of Helsinki, Dr. Leena Vastapuu, from the Tampere Peace Research Institute and Dr. Emma Hakala, from the Finnish Institute of International Affairs.

The trends ultimately considered as "megatrends" depends on the definition of a megatrend. In this instance, the Department for Africa and the Middle East defined six major trends in Africa as megatrends: population growth, climate change, urbanisation, migration, technological development and democracy trends.

Megatrends in Africa are deep and long-term transformation processes that are irreversible. They can and should be mitigated, but will inevitably require adaptation as well. The trends also have an element of foresight, in regards to how they are set to develop in the future.

All the megatrends are interlinked and affect each other. Population growth and climate change can be seen as mega-megatrends that have an especially strong effect on the other trends.

The Department for Africa and the Middle East organized a public presentation and discussion for the report on 14 August 2019 at the Ministry's media lounge. The interesting nature of the topic resulted in a full house and attracted a diverse crowd of people from the Ministry, other governmental departments, non-governmental organizations, businesses and academia.

During the discussion, the question on whether economic development ought to be considered a megatrend was raised. A simple GDP-growth curve would not suffice in this case. Instead, studying the transformation of African economies from planned economies into free market economies could be an interesting trend that future reports could focus on.

These types of reports support the daily work of civil servants when they compile background memos, for example. They have an important role in strengthening evidence-based decision-making. As the reports on Africa sparked a lot of interest in the wider public as well, the Ministry for Foreign Affairs decided to publish them online.

This publication contains reports on all six megatrends, as well as a summary, and is available in Finnish and English.

On behalf of the Ministry for Foreign Affairs, I would like to thank the research team for an excellent set of reports and commendable cooperation. I hope that this publication on megatrends in African finds its way into the hands of an interested readership that can put it to good use.

At the Ministry for Foreign Affairs on 17 October 2019

Martti Eirola

Senior Adviser on Africa Policy

Bushland is cleared for large-scale commercial agriculture in Taita Hills, Kenya.
Photo: Petri Pellikka, 2019.

Climate change

Petri Pellikka, Emma Hakala

Summary

Africa's climate has been changing, and the impacts are being felt. The mean temperature rise for Africa is around 2° C from pre-industrial time, depending on the scenario applied. A further increase in temperature is expected, especially in Northern and Southern Africa, while more intense rains are expected in the East African highlands. The primary cause for the release of carbon dioxide and other greenhouse gases in Africa is land cover change, mainly the conversion of forests and native vegetation to croplands. Further climate change is inevitable, and it poses threats to economic growth, health, food security, development and security. Adaptation will bring immediate benefits and reduce the impacts of climate change. Low-carbon development options may be less costly in the long run and could offer new economic opportunities. Africa can benefit from integrated climate adaptation, mitigation and development approaches. International cooperation is vital in climate monitoring and research, and African governments can promote global and national actions by introducing national climate change programmes. In the recommendations, two themes are highlighted: 1) The development of climate-smart agriculture, agropastoralism and landscape framework approaches by enhancing agroforestry and tree cover takes a Central role in mitigating climate change. 2) On the technology side, the adoption of low-emission energy and technologies and smart city practices is essential.

Current situation of climate change in Africa

Land cover change is recognised as a key driver of anthropogenic climate change in Africa. According to the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), it was pointed out as the second most important driver for increased carbon dioxide (CO_2) emissions after the burning of fossil fuels. It has been estimated that land use and land cover change have caused 12.5% of all anthropogenic CO_2 emissions from 1990 to 2010. It affects the climate through the modification of surface biophysical properties that have a direct influence on the exchange of water vapour, energy and gases between the Earth's surface and the atmosphere. Land cover change in sub-Saharan Africa (SSA) is mainly caused by agricultural land expansion at the cost of forests and bushlands. Pastoralism is a significant livelihood and source of income in Africa, which uses large areas of less arable land resources. It is also one of the causes of land degradation and the decrease of above-ground biomass. Grazing animals feed and trample on tree seedlings and leaves in addition to grass, which compacts the land surface. Land cover change reduces above-ground biomass and carbon stocks, but also releases the greenhouse gases (GHG), CO_2 and methane (C_4), from the soil as the land is prepared for agriculture. Livestock management is also a significant source of methane.

Between 1975 and 2000, the size of agricultural areas in SSA increased by 57%, with a yearly increase of 2.3%. In the Horn of Africa, agricultural land increased by 28% between 1990 and 2010. The increase was very fast in the West African Sahel. In Burkina Faso, for example, croplands increased by 89% between 1984 and 2013 at the cost of wooded landscapes. Almost every African country is vulnerable to desertification, and land degradation is observed in 40% of the Nile, Niger, Senegal, Volta and Limpopo river basins.

A further consequence of land degradation is the release of dust from open land surfaces to the atmosphere. Together with black carbon caused by wildfires, these atmospheric particles intercept, reflect and absorb solar radiation, reducing the energy available on land and increasing air temperature. Particles act as water condensation nuclei. Being more numerous, they alter characteristics of clouds and rain, and as a consequence higher amount of particles do not necessarily cause more precipitation.

In addition to land use change, **the reliance on bioenergy in the form of fuelwood, charcoal, crop straw and manure reduces carbon stocks and releases GHGs**. The production of charcoal is five times greater in Africa than elsewhere, and rapid population growth and urbanisation increase its use, generating

pressure on woody landscapes. The use of bioenergy is also identified as a cause of health effects due to indoor air pollution, which especially affects females.

As a result of land cover change, more land is without woody or grassy vegetation cover outside the vegetative growing period, which changes land surface radiation balance increasing land surface temperature and compensating the cooling effect of increased albedo (reflectivity). Decrease of vegetation cover decreases evapotranspiration, water resources and the amount of firewood. It also degrades biodiversity and habitats for pollinators and disrupts other ecosystem services critical for farmers, pastoralists, and livelihoods in general. Meanwhile, tropical upland forests are often described as water towers. Deforestation affects the availability of surface and ground water close by, and for people and livestock in surrounding semi-arid lowlands.

It is noteworthy that croplands are established not only by individuals and organisations for food security, but also by investors, host governments and foreign countries. The rate of deforestation in Africa is not expected to decrease soon. **The increase in agricultural production in Africa is still based on the clearance of new cropland**, while elsewhere it is due to improved techniques and fertilisers.

Africa's climate is impacted more by the burning of fossil fuels on other continents rather than fossil fuel and wood consumption in Africa, which is estimated to be only 3% of global emissions. **Road vehicles count for 80% of fossil fuel emissions in Africa.** Emissions from transport grew eight-fold between 1970 and 2010 in the Africa-Middle East region. Africa has the world's second highest growth rate in emissions from transport. Energy consumption is growing in Africa due to the population increase, a growing middle-class, the improvement of infrastructure and land grabbing. Increased air pollution in African megacities such as Nairobi and Lagos, due to increased traffic and energy consumption, may have unexpected impacts on atmospheric chemistry and boundary layer physics, causing changes in aerosol generation. Already, air pollution from Nairobi is spreading hundreds of kilometres from the city, in a similar way to ash clouds from wildfires. **Wildfires indeed are another cause of increased CO_2 levels in Africa.** Fires are typically caused in Sahelian zone, for example, by a practice of burning dry grass at the end of the dry season to fertilise the soil faster and speed up new grass growth, or by old beliefs that fire will bring rains such as in the Taita Hills, Kenya. Geographically, it was found that wildfires have decreased by 1.4% in North Africa since 2000, while there was an increase of 1.8% in SSA.

Climate change strengthens more frequent storms and cyclones, which consequently cause floods. They have multiple impacts as the drainage systems in cities are not efficient enough, and damage to buildings and transport infrastructure are causing further damage, as happened in Mozambique in 2019. Culverts should be larger, and road surfaces tarmacked and elevated. Further flooding caused by sea-level rise due to melting of ice sheets is anticipated, which is a risk to low-lying cities on deltas, such as Alexandria on the Nile delta.

Impacts of climate change in Africa

The IPCC's Africa regional report from 2014 states that **there has been an increasing warming trend across Africa over the last 50 to 100 years, and the mean temperature rise is likely to exceed 2° C by the end of the century**. Land temperatures will increase more than the global land average, particularly in arid areas. Under a high-emissions scenario, average temperatures will rise by 2–4° C over most of Africa by the 2050s. Changes in average temperatures are projected to be greater over Northern and Southern Africa and relatively smaller over Central Africa. Under a low-emissions scenario, average temperature increases across Africa are projected to be less than 2° C.

Precipitation is likely to decrease over Northern and Southern Africa, while projections indicate increased precipitation and extreme rainfall in the highlands of East Africa, e.g. in Ethiopia. However, **together with decreased vegetation cover and intensified rains, water cannot be stored in vegetation and soil**. This causes intensified surface flow, decreased groundwater generation, soil erosion and flooding during heavy rains and droughts during dry seasons, and as a result fresh water resources are subject to hydro-climatic variability. Climate change impacts will be superimposed

Bushland has been burned and cleared for a pineapple plantation in Dakacha, Kenya.
Photo: Petri Pellikka, 2009.

Overgrazing causes land degradation.
Photo: Petri Pellikka, Kenya, 2018.

onto already stressed catchment areas with complex land uses and decreased land cover.

Climate change will impact agriculture as it will have an overall negative effect on major cereal crops across Africa, although with strong regional variability. Estimations of yield losses by mid-century range from 15 to 22% across sub-Saharan Africa and about 11% in North Africa for major crops, such as millet, field pea, sugar beet, sweet potato, wheat, rice, maize, soybean, groundnut, sunflower and rapeseed, compared to previous decades. If the global average temperature increases by 4°C, **current cultivation areas of maize, millet and sorghum across Africa may become unviable**. This would have severe consequences for food security. Losses and decreases in production have already been reported in Cameroon and Nigeria, for example.

Climate change causes shifts in the range of ecosystems and species due to elevated CO_2 levels and temperatures, which may bring pests, weeds and diseases to previously cooler highland areas, therefore affecting crop production.

For example, maize stem borers and coffee stem borers have invaded previously cooler areas in East Africa. Increasing temperatures and changes in precipitation cause heat and water stress for livestock, which also suffer from vector-borne diseases. **Weather variability and changing rainfall patterns will negatively impact agriculture and pastoralism, both of which are strongly dependent on climate stability.** Another critical sector is fishing, as warming sea water temperatures and declining coral reefs pose risks to marine biodiversity as well as tourism.

Health is at a particular risk in Africa's changing climate. Already, people have insufficient access to safe water, good sanitation and adequate healthcare. More floods in areas with poor sanitation and inadequate waste management will spread disease. Warmer days and nights will allow disease-carrying insects to spread to new latitudes or altitudes, increasing the vulnerability to vector and water-borne diseases. Evidence is growing that the East African highlands could experience an increase in malaria epidemics in areas that used to be cooler. Together with problems in

agricultural production, there is a risk of malnutrition, especially among children.

Additional challenges are caused by rapid population growth, urbanisation and food chains that demand food and livelihood security both in urban and rural areas. With underdeveloped transport systems, more food has to be produced in urban and peri-urban areas, which may not be the best for agriculture, are affected by air pollution, and are not reached by agricultural extension work. On the other hand, urban agriculture can contribute to adaptation and mitigation to climate change as it reduces the carbon footprint of food by decreasing transport distances and by recycling organic waste and wastewater. It also reduces the harshness of urban heat islands, increases water infiltration, thus slowing down surface run-off, and increases urban biodiversity and of course food security.

Increasing vulnerability due to climate impacts will have further societal consequences and especially affect groups that are already the worst off. **Climate change has been pointed out as a driver for migration, especially within countries.** On

the other hand, those living on the lowest incomes may not have the resources to migrate, even if their living conditions become intolerable. Meanwhile, in fragile regions climate change may be a risk multiplier contributing to or maintaining conflict in combination with other factors, such as poor governance. In Chad, for instance, changing climate conditions have been found to increase human insecurity and encourage recruitment for terrorist organisations. Overall, climate change may have wide-ranging and unexpected impacts on society. These are also difficult for research to predict, as the combined impacts of ecological and societal factors can lead to various alternative outcomes.

Mitigation, adaptation and recommendations

In the 2016 Paris Agreement, it was decided to maintain warming below 2° C above pre-industrial levels, but preferably limit it to around 1.5° C, which would also be more appropriate for Africa. The agreement also calls for reinforced adaptation and climate resilience and financing for low-carbon development. Under

a scenario where there is 2° C warming, emissions would peak in Africa by 2030 and decline afterwards. Even if greenhouse gas emissions ceased today, further warming is inevitable in the next few decades as the process cannot be halted immediately. Therefore, adaptation is the only effective option to manage the inevitable impacts of climate change that mitigation cannot reduce.

Resilience will need to be built, especially in critical sectors such as water, energy and agriculture. Effective adaptation strategies are needed, such as increasing access to information and resources, improving health services, diversifying agricultural systems, strengthening access to land, credit and other resources for poor and marginalised groups, and making water and land management and governance more effective. They involve changing agricultural practices, integrating climate change into education, providing useful climate services, diversifying livelihoods, and introducing social and technical innovations. Improvements and rights need to take gender equality into account.

A shortcoming in understanding climate change in Africa is that climate data is scarce and its quality is variable, which creates difficulties in assessing the overall risks and vulnerabilities triggered by climatic and non-climatic factors. **Data and information are of utmost importance for developing national climate-resilient strategies and policies, as well as national and sectoral development plans.** The lack of weather forecasting and dissemination infrastructure about climate hazards, such as storms and rush floods, is a problem. For example, countries lack weather radars and trained staff or funds to keep the infrastructure running. In the case of hazards, dissemination is poor and evacuation is unsuccessful due to poor preparation, and as a consequence hazards cause higher mortality compared to those in more developed countries. Investments in strengthening climate services is needed to plan mitigation and adaptation strategies for climate change, but also for increasing preparedness for disasters. Climate data should be available to all users, from scientists and extension officers to farmers and early warning system specialists. Further research on the societal impacts of climate change is also needed.

Adaptation requires additional resources in terms of funding, skills and capacity. In addition, development planning tends to take place at a national scale and may neglect impacts of climate change and variability in particular localities. National policies should take gender, cultural, traditional and context-specific practices that support local adaptation to climate change into account.

Agricultural sector

In Africa, a significant amount of carbon is sequestered in woody vegetation outside forests. **A further increase of above-ground carbon sequestered in trees in croplands and pastoral areas plays an important role in the mitigation of climate change.** A multi-beneficial way to combat climate change is to transform degraded agricultural landscapes in smallholder agricultural systems into more productive and sustainable systems by integrating trees into annual cropping systems. This practice, called **agroforestry**, conservation agriculture, sustainable land management (SLM) or climate smart agriculture (CSA), is not new but it is a generally suggested solution. Trees not only sequester carbon, but also have other positive functions, namely water delivery, protection against zoonotic diseases, and delivery of fibre, energy and building materials. Multifunctional land use approaches in croplands combine food production, cash crops, ecosystem services, biodiversity conservation, ecosystem services delivery, and indigenous and local knowledge.

Agroforestry practices allow farmers to generate income from wood-based energy and raw material for building as well as from carbon compensation. CSA practices, including natural tree generation, tillage, terracing and mulching, are strengthening resilience towards extreme events and are improving livelihoods. Community-based carbon offset and agroforestry schemes provide development benefits and help communities to adapt to and mitigate climate change. Integrated agroforestry schemes across Africa can have direct benefits for local adaptation, as they enhance agro-ecosystem (bio)diversity and resilience, as well as contribute to the global goal of limiting greenhouse gas concentrations in the atmosphere. IPCC's special report on Climate Change and Land, published in August 2019, provides **five overarching issues** for resilience in productivity:

Piles of firewood on the outskirts of Ouagadougou in Burkina Faso.
Photo: Petri Pellikka, 2015.

Climate smart agricultural landscape in the Taita Hills, Kenya.
Photo: Petri Pellikka, 2018.

1) Adapted cultivars, SLM combined with sustainable intensification, production and preservation of ecosystems based on conservation agriculture and community-based adaptation.
2) SLM addressing different ecosystem services (food production, biodiversity, reduction of GHG emissions, soil carbon sequestration) for improved land-based climate change adaptation and mitigation.
3) Attention to the food-energy-water nexus, rainwater and dew harvesting and management and water use and reutilisation efficiency.
4) Institutional designs focused on youth and women through new economic models that help access credit and loans to support policies that balance cash and food crops.
5) Building and using local knowledge, culture and traditions, while seeking innovations for food waste reduction and transformation of agricultural products.

Mechanisms that contribute to transformational adaptation in pastoralism systems in response to climate change need to be explored, analysed and implemented. A significant option for sustainable pastoralism in Africa can be found in the diversification of livelihoods and the adoption of mixed strategies combining livestock management with alternative income earning sources that retain or improve tree cover, such as beekeeping or aloe vera production. Rangelands are relatively low in carbon, but as they are vast areas, even a small increase in tree cover can have a significant impact on climate. Another possibility is to consider whether pastoralism, which uses a lot of land area, but produces fairly little food security, could be intensified, thus leaving land area available for croplands or as natural vegetation for food security, and to mitigate against climate change.

Based on global scenarios, and also in West Africa, **tree planting and the generation of forests would result in land surface cooling, which would compensate GHG-induced future warming**. The cooling effect of tree cover on land surface temperatures is also measured with satellite data in Taita Taveta County, Kenya, and further field measurements are taking place.

Current adaptation methods in farming are insufficient for managing the risks of long-term climate change. Participatory research involving scientists and farmers has enhanced communication, and the diversification of livelihood options would strengthen coping strategies and capacity to adapt. National governments have initiated governance for adopting and responding to climate change, but this is still ineffective and depends on donor funds. The improvement of land tenure systems such as in the RAILA project in Ethiopia, access to information, gender-aware extension work, and upgraded policy-making would enable a transformation towards resilient agricultural landscapes.

A number of initiatives aim to reduce anthropogenic carbon emissions from changes in land cover. In the United Nations **REDD+ (Reducing Emissions from Deforestation and Forest Degradation) programme, African farmers are encouraged to maintain their forests as carbon stocks by providing incentives**. However, processes should be ecologically and socially sustainable. Another activity increasing carbon sequestration is afforestation, but there is a need to carefully consider where to plant the trees, given the altering of albedo and turbulent energy fluxes and increasing night-time land surface temperatures, as well as social circumstances. In addition to biophysical factors, one also has to take into account previous, competing and discriminating land use options, questions related to land tenure and ownership, and the status and needs of local communities.

Low-carbon energy and technologies

Africa's contribution to the build-up of greenhouse gas emissions has been relatively small but the impact of climate change on human well-being and ecosystems is huge. To be cost effective on a global scale, mitigation needs to take place in countries projected to have the highest emissions in the future.

African countries can play a role in the global prevention of climate change **by taking advantage of low-carbon options** where it is possible and advantageous, thus avoiding future

emissions. Africa has this unique possibility compared to other continents, since it has not yet developed onto a high-carbon emission path. Furthermore, since Africa will have the highest population and economic growth in the world in the 21st century, **it is essential that growth is planned with low-carbon solutions**. For example, there are opportunities to reduce deforestation by adopting sustainable practices, plan innovative low-carbon towns and cities, and develop land-use schemes that intensify climate smart agricultural practices and sustainably manage livestock. **Africa also needs substantial financial support for mitigation. When successful, the benefits will be felt on a global scale.**

Africa produces still only 3% of global emissions, but the figure will increase moderately to meet pressing development needs. However, African countries have opportunities to adopt **clean, efficient low-carbon technologies** and practices that can overtake the inefficient, fossil fuel-dependent infrastructure more developed countries are still using. For example, the development of **low-carbon traffic infrastructure and systems** can boost economic productivity by reducing traffic congestion, improving air quality, and benefiting public health. Such developments are the new railway built with Chinese financing from Mombasa to Nairobi in Kenya and further to Naivasha, and the city light rail in

Addis Ababa. Mitigation strategies based on spatial planning and efficient infrastructure in cities can avoid a lock-in of high emission technologies, taking advantage of the fact that a considerable part of urban space in Africa is yet to be developed. This can enable transformational adjustments towards resilient and sustainable smart-city systems, especially in hubs like Accra and Nairobi. Improvements in the performance and cost of renewable energy technologies are significant, given **the huge renewable energy resource potential (including solar, wave, biogas and wind energy)** and the need to scale up energy services to meet rising demand. It is true that some low-carbon development options cost more

than conventional energy production options. However, in the long run the cost of adopting low-carbon options is lower than the cost of waiting for the development of improvements in renewable technologies, or locking infrastructure into high-emissions pathways and attempting to cut emissions later. For instance, decentralised solar power systems provide energy to people not connected to electricity grids in a way that avoids the GHG emissions of fossil fuel-based alternatives. Such individual systems are also more resilient to climate extremes, which affect the functionality of conventional energy sources.

Sources

Abera, T.A., Heiskanen, J., Pellikka, P., Rautiainen, M. & Maeda, E.E. 2019, "Clarifying the role of radiative mechanisms in the spatio-temporal changes of land surface temperature across the Horn of Africa", *Remote Sensing of Environment*, vol. 221, pp. 210–224.

Achard, F., Beuchle, R., Mayaux, P., Stibig, H., Bodart, C., Brink, A., Carboni, S., Desclée, B., Donnay, F., Eva, H.D., Lupi, A., Raši, R., Seliger, R. & Simonetti, D. 2014, "Determination of tropical deforestation rates and related carbon losses from 1990 to 2010", *Global Change Biology*, vol. 20, no. 8, pp. 2540–2554.

Adhikari, H., Heiskanen, J., Siljander, M., Maeda, E., Heikinheimo, V. & K. E. Pellikka, P. 2017, "Determinants of Aboveground Biomass across an Afromontane Landscape Mosaic in Kenya", *Remote Sensing*, vol. 9, no. 8, pp. 827.

Alkama, R. & Cescatti, A. 2016, "Biophysical climate impacts of recent changes in global forest cover", *Science*, vol. 351, no. 6273, pp. 600–604.

Archer, E. et al. (eds.) 2018, *Summary for Policymakers of the Regional Assessment Report on Biodiversity and Ecosystem Services for Africa of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, Policy Brief, IPBES secretariat, https://www.stockholmresilience. org/publications/artiklar/2018-12-10-summary-for-policymakers-of-the-regional-assessment-report-on-biodiversity-and-ecosystem-services-for-africa-of-the-intergovernmental-science-policy-platform-on-biodiversity-and-ecosystem-services.html. [27.6.2019].

Baccini, A., Walker, W., Carvalho, L., Farina, M., Sulla-Menashe, D. & Houghton, R.A. 2017, "Tropical forests are a net carbon source based on aboveground measurements of gain and loss", *Science*, vol. 358, no. 6360, pp. 230-234.

Bonan, G.B. 2008, "Forests and Climate Change: Forcings, Feedbacks, and the Climate Benefits of Forests", *Science*, vol. 320, no. 5882, pp. 1444–1449.

Brink, A.B. & Eva, H.D. 2009, "Monitoring 25 years of land cover change dynamics in Africa: A sample based remote sensing approach", *Applied Geography*, vol. 29, no. 4, pp. 501–512.

Brink, A.B., Bodart, C., Brodsky, L., Defourney, P., Ernst, C., Donney, F., Lupi, A. & Tuckova, K. 2014, "Anthropogenic pressure in East Africa – Monitoring 20 years of land cover changes by means of medium resolution satellite data", *International Journal of Applied Earth Observation and Geoinformation*, vol. 28, pp. 60–69.

CDKN, 2014: *The IPCC's Fifth Assessment Report – What's in it for Africa, Executive Summary*, Climate and Development Knowledge Network (CDKN), United Kingdom, https://cdkn.org/wp-content/uploads/2014/04/AR5_IPCC_Whats_in_it_for_Africa.pdf [27.6.2019].

Ciais, P. et al 2013, "Carbon and Other Biogeochemical Cycles", in Stocker, T. et al., *Climate change 2013: The Physical Science Basis*, Contribution of Working Group I to the Fifth assessment Report of the intergovernmental Panel on climate change, IPCC / Cambridge University Press, pp. 465–570, https://www.ipcc.ch/site/assets/uploads/2017/09/WG1AR5_Frontmatter_FINAL.pdf [27.6.2019].

Davin, E.L. & Noblet-Ducoudré, N.d. 2010, "Climatic Impact of Global-Scale Deforestation: Radiative versus Nonradiative Processes", *Journal of Climate*, vol. 23, no. 1, pp. 97–112.

Debela, N., McNeil, D., Bridle, K. & Mohammed, C. 2019, "Adaptation to Climate Change in the Pastoral and Agropastoral Systems of Borana, South Ethiopia: Options and Barriers", *American Journal of Climate Change*, vol. 8, no. 1, pp. 40–60.

Duveiller, G., Hooker, J. & Cescatti, A. 2018, "The mark of vegetation change on Earth's surface energy balance", *Nature communications*, vol. 9, no. 1, pp. 679.

Edenhofer, O. et al. 2014, *Climate Change 2014: Mitigation of Climate Change*, Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC / Cambridge University Press, https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_frontmatter.pdf [27.6.2019].

Field, B. et al. 2014, *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC / Cambridge University Press, https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_frontmatter.pdf. [27.6.2019].

The IPCC's Fifth Assessment Report – What's in it for Africa, Executive Summary, 2014. Climate and Development Knowledge Network, 79 p. United Kingdom.

IPCC, 2019. Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. https://www.ipcc.ch/report/srccl/. [10.8.2019].

Rice fields make up the agricultural landscape in Madagascar.
Photo: Petri Pellikka, 2013.

Kollikho, P. and B. Rivard 2013, *Harnessing geothermal energy*: The case of Kenya, CDKN, London.

Lambin, E.F. et al. 2001, "The causes of land-use and land-cover change: moving beyond the myths", *Global Environmental Change*, vol. 11, no. 4, pp. 261–269.

Maeda, E.E., Clark, B.J.F., Pellikka, P. & Siljander, M. 2010, "Modelling agricultural expansion in Kenya's Eastern Arc Mountains biodiversity hotspot", *Agricultural Systems*, vol. 103, no. 9, pp. 609–620.

Merbold, L., Ziegler, W., Mukelabai, M.M. and W. L. Kutsch, 2011. Spatial and temporal variation of CO_2 efflux along a disturbance gradient in a miombo woodland in Western Zambia. *Biogeosciences* 8, 147–164.

Montagnini, F. & Nair, P.K.R. 2004, "Carbon sequestration: An underexploited environmental benefit of agroforestry systems", *Agroforestry Systems*, vol. 61, no. 1, pp. 281–295.

Muchura, H. M., Min, S., Mworia, J. K., & Gichuki, N. N. 2014, "Role of bryophytes and tree canopy in mist trapping in Mt . Marsabit forest", *Journal of Environment and Earth Science*, vol. 4, no. 21, pp. 128–139.

Niang, I., O.C. Ruppel, M.A. Abdrabo, A. Essel, C. Lennard, J. Padgham & P. Urquhart, 2014. Africa. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Ed.: Barros, V.R., et al.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1199–1265.

Omoro, M. L., Starr, M., & Pellikka, P. K. (2013). Tree biomass and soil carbon stocks in indigenous forests in comparison to plantations of exotic species in the Taita Hills of Kenya. *Silva Fennica*, 47(2 article id 935). http://doi.org/https://dx.doi.org/10.14214/sf.935

Pan, Y. et al. 2011, "A Large and Persistent Carbon Sink in the World's Forests", *Science*, vol. 333, no. 6045, pp. 988–993.

Pellikka, P. K. E., Clark, B., Gonsamo Gosa, A., Himberg, N., Hurskainen, P., Maeda, E. E., … others. (2013). Agricultural Expansion and Its Consequences in the Taita Hills, Kenya. *Developments in Earth Surface Processes*, vol. 16: 165–179.

Pellikka, P.K.E., Heikinheimo, V., Hietanen, J., Schäfer, E., Siljander, M. & Heiskanen, J. 2018, "Impact of land cover change on aboveground carbon stocks in Afromontane landscape in Kenya", *Applied Geography*, vol. 94, pp. 178–189.

Pfeifer, M., Platts, P. J., Burgess, N. D., Swetnam, R. D., Willcock, S., Lewis, S. L., & Marchant, R. 2013, "Land use change and carbon fluxes in East Africa quantified using earth observation data and field measurements", *Environmental Conservation*, vol. 40, no. 3, pp. 241–252.

Reed, J., van Vianen, J., Foli, S., Clendenning, J., Yang, K., MacDonald, M., Petrokofsky, G., Padoch, C. & Sunderland, T. 2017, "Trees for life: The ecosystem service contribution of trees to food production and livelihoods in the tropics", *Forest Policy and Economics*, vol. 84, pp. 62–71.

Rikkinen, J., Laine, T., & Pellikka, P. (2015). Water's Journey (A documentary film). Wildheart Productions Oy. Taita Research Station of the University of Helsinki.

Rufino, M.C., Thornton, P.K., Ng'ang'a, S.K., Mutie, I., Jones, P.G., van Wijk, M.T. & Herrero, M. 2013, "Transitions in agro-pastoralist systems of East Africa: Impacts on food security and poverty", *Agriculture, Ecosystems & Environment*, vol. 179, pp. 215–230.

Saatchi, S.S., Harris, N.L., Brown, S., Lefsky, M., Edward T. A. Mitchard, Salas, W., Zutta, B.R., Buermann, W., Lewis, S.L., Hagen, S., Petrova, S., White, L., Silman, M. & Morel, A. 2011, "Benchmark map of forest carbon stocks in tropical regions across three continents", *Proceedings of the National Academy of Sciences of the United States of America*, vol. 108, no. 24, pp. 9899–9904.

Swetnam, R.D. et al. 2011, "Mapping socio-economic scenarios of land cover change: A GIS method to enable ecosystem service modelling", *Journal of environmental management*, vol. 92, no. 3, pp. 563–574.

Vanderhaegen, K., Verbist, B., Hundera, K. & Muys, B. 2015, "REALU vs. REDD+: Carbon and biodiversity in the Afromontane landscapes of SW Ethiopia", *Forest Ecology and Management*, vol. 343, pp. 22–33.

Zomer, R.J., Neufeldt, H., Xu, J., Ahrends, A., Bossio, D., Trabucco, A., van Noordwijk, M. & Wang, M. 2016, "Global Tree Cover and Biomass Carbon on Agricultural Land: The contribution of agroforestry to global and national carbon budgets", *Scientific reports*, vol. 6, no. 1, pp. 29987–29987.

Ward, M. (2011). "The case for Evergreen Agriculture in Africa – Enhancing food security with climate change adaptation and mitigation in Zambia." CDKN, London.

Pupils of Maktau primary school in Kenya ready for class to start.
Photo: Petri Pellikka, 2014.

Population growth

Leena Vastapuu

Summary

Africa's demographic variety is huge, and it is therefore more reasonable to discuss its population growth regionally rather than as a singular phenomenon. By 2050, the population of sub-Saharan Africa (SSA) is expected to double, with Francophone West Africa experiencing the fastest population growth on a global level. In Niger, which has the highest fertility rate of all countries in the world, a woman has on average 7.2 children during her lifetime. In contrast, fertility rates in many East African countries has begun to fall, and South Africa, as well as numerous North African countries, already have fertility rates below 3. Nevertheless, since the average length of life has improved significantly across the continent and especially in SSA, and as large parts of the population are comprised of children and young people, population growth will continue despite falling fertility levels. Many African countries have placed high hopes on the socalled demographic dividend. This is an economic growth potential stemming from an age structure where the working-age population exceeds that of the non-working-age population. However, in order to reap the benefits of the demographic dividend, many supportive policies are needed, from job creation to educational opportunities. According to the latest research, secondary education of females seems to have the greatest potential to decrease fertility rates in SSA. On a global level, this is a peculiar feature that begs further research. A key challenge and opportunity for Africa in the 21st century lies in its youth, as by 2050 Africa will host the largest number of young people of all the regions in the world. This is a scenario that African governments need to prepare themselves for already today.

Current understanding of population growth in Africa

Owing to its overwhelming diversity, only three general remarks can be made about Africa's demographic development on a continental level. Firstly, Africa's population will significantly increase in the 21st century, even if fertility rates were to abruptly fall. Secondly, Africa will be home to by far the youngest population of all the regions in the world, and, thirdly, it will also provide most of the global labour force growth. The causes and likely consequences of these developments are analysed in this report, and rough numerical estimates are given about the demographic future of the continent. In addition, regional variations are detailed and mitigation options provided.

In recent years, a significant body of research has drawn attention to the prospects of benefiting from the **demographic dividend** in Africa. This refers to the accelerated economic growth potential resulting from a shift in a population's age structure where the amount of the working-age population exceeds that of the non-working-age population. Under certain conditions, this type of age structure creates a window of growth opportunity that has previously assisted several countries and regions. As it is currently such a hot topic both among researchers and policy-makers alike, the conditions required to achieve the demographic dividend on the continent are closely examined, particularly in the section detailing the impacts of population growth in Africa.

'World Population Prospects' is currently the most cited data source on global population growth. Produced by the UN Population Division, the latest report was published on 17 June 2019, and the figures presented below are drawn from there. Most importantly, **by 2050, the population of SSA is expected to double**. SSA will also be the main provider of the world's population growth in this time-period: between 2019 and 2050, of the expected 2.0 billion added people, 52% are projected to originate from the region. Due to its age structure comprising so many children and young people, **the number of births in SSA will continue to increase, despite falling fertility levels**. Today, of the 36 countries with a fertility level above four births per woman, 33 can be found in SSA, where the number of adolescent births (women aged 15–19) is also the highest. In addition to fertility rates, life expectancy at birth is a key indicator for analysing demographic trends. On a global level, all regions experienced a rise in life expectancy between 1990 and

2019, but the most noteworthy progress has been made in SSA. The average length of life has improved by nearly 12 years in the region, reaching 61.1 years in 2019. Nevertheless, in 2019 all the world's countries with the lowest life expectancies are still found in Africa: The Central African Republic, Chad, Lesotho, Nigeria and Sierra Leone, each having a life expectancy at birth of below 55 years.

Fertility rates remain the highest in the world in **Francophone West Africa**. Niger, for instance, is expected to triple its population by 2050, with the highest fertility rate in the world (7.2 children per woman). There are nonetheless some regional exceptions, such as Senegal. By investing heavily in education, as well as making it much easier to obtain contraceptives, the country has recently become a regional model with its population policies. In 2019, the fertility rate of Senegal was 4.6 children per woman, a number which is expected to decrease in the forthcoming decade. Telling examples of Africa's huge diversity are countries such as South Africa (2.4 children per woman), Tunisia (2.2) and Mauritius (1.4), with the latter having a fertility level well below the replacement level of 2.1.

According to the latest research, the most efficient way to decrease fertility rates in SSA is to invest in female education and especially their secondary education. Whereas outside of Africa women's *employment* tends to have the greatest impact on birth intervals, in sub-Saharan Africa it seems to have no influence at all. Even though this recent finding still requires further research, it is still noteworthy, and has been explained by a cultural expectation where the extended family will somewhat automatically take over childcare responsibilities in case of a working mother in need. Furthermore, when observed through fertility lenses, education investments in Africa might need to be redirected. When most resources intended especially for girls are now targeted at primary education, a large proportion of secondary education opportunities have benefitted mainly boys. This plays against the finding that the secondary education of females seems to be the critical step for reducing fertility in SSA. Age-wise, secondary education begins at around 12 years of age, and teenage girls who drop out at this point are readily available for early marriage. In addition, the completion of secondary education will increase the likelihood of them making well-informed decisions regarding childbearing and the use of contraceptives, rather than giving in to various kinds of social pressures. Finally, secondary education has also been shown to improve the survival rates of children, thereby making it less tempting to have many 'just in case'. All in all, it has been estimated that women who have completed secondary education in developing countries have at least one fewer child per lifetime than those having dropped out after primary school. These numbers might sound insignificant, but when taken to the global level, a difference of a single child per woman could alter the 2050 world population prospects by 3 billion, according to one calculation.

One significant challenge – and opportunity – for Africa lies in its youth. **By 2050, Africa will be home to the largest number of young people (0 to 24 years of age) of all the regions in the world.** The recent example of the North African 'Arab Spring' is an apt reminder that educational opportunities alone cannot create political stability, unless combined with social policies and employment opportunities. History shows that the likelihood of conflict increases significantly with a 'very young' age structure, i.e. a population with at least two-thirds being younger than 30. In the time period between 2000 and 2007, for instance, two-thirds of all new civil conflicts occurred in countries with this type of age structure: in the Central African Republic, Côte d'Ivoire, Guinea, Haiti, Mali and Nigeria. At the opposite end, however, when provided with relevant education and work opportunities, young people are the workers and innovators of the future.

It is noteworthy that some 95% of African youth between 15 and 24 years of age work in the informal economy. In West Africa, the rate is close to 98%. On the one hand, this type of work typically generates a small and unstable income, allowing no access to basic job-related services. On the other hand, the sector also provides easy access to modest revenue for many urban poor people, with women playing an important role in many fields. From a governmental perspective, the informal economy is also a two-sided phenomenon. Whereas losing a noteworthy proportion of tax revenues is certainly a challenge, the informal economy also produces vital services and goods for society as a whole. According to some estimates, Africa's slow economic development rather than the absence of family planning services is the main reason for high fertility rates. This suggestion remains contested, however.

All in all, high population growth has already pushed African governments to their limits

Education among females in one of the key solutions to reduce birthrate and population growth.
Photo: Petri Pellikka, Kenya, 2013.

in terms of the production of necessary services and infrastructure. From the 47 countries in the group of least developed countries (LDC), 32 are located in SSA, with a gross national income of below USD 1,000. At the same time, the population of LDCs is projected to grow 2.5 times faster than the population in other parts of the world, with the result that **over 85% of the world's extreme poor will be living in SSA by 2050**. African states have already recognised this challenge and formed policies with the aim of reducing population growth. However, these policies are rarely implemented or prioritised.

Impacts of population growth in Africa

As was briefly mentioned above, many African countries have placed high hopes on the demographic dividend, with the African Union raising it as its main focus in 2017. For these reasons, the main emphasis of this section is placed on the demographic dividend and its realisation prerequisites. These hopes are mainly based on the experience of East Asia in the late twentieth century, when many countries in the region were able to make full use of their modified age structure and grow economically at an unprecedented speed. **To attain the demographic dividend, however, several policies need to be linked with the optimal age structure.** The demographic window opens when for every dependent person there are at least 1.7 people of working age. For this to happen, a sharp and rapid decline of fertility is first required. After this initial step, several policies supporting job creation, employable education and at least modest social security systems are needed. Indeed, it cannot be over-emphasised that a suitable demographic structure alone is not a sufficient condition for the demographic dividend to materialise. The window of opportunity to reap the demographic dividend may be open for up to 40 to 50 years, when the previously working-age population begins to age at a rapid speed, thereby creating a pool of new dependents.

Most **North African** countries are at different stages of reaping the fruits of the demographic dividend. For Algeria, Djibouti, Egypt and Libya, the window is wide open, whereas for Morocco and Tunisia the window is slowly closing. Interestingly, Tunisia was the first African country on the mainland to achieve an age structure favourable for the demographic dividend. Thus far, it has failed to use this opportunity, as have several other countries in the region. In North Africa, three main barriers can be identified that obstruct the process of achieving the demographic dividend. These include: overall political instability, discriminatory economic and social policies against women and minority groups, and the pervasive amount of youth unemployment. As a result, many highly-educated young people have ended up in the informal sector with low salaries, no job security and no future prospects in sight. This is a worrying scenario and may lead to further protests in the region.

With their high fertility rates and dependency ratios, most countries in SSA are still decades away from their potential to achieve the demographic dividend. There are regional differences, however, with some **East African** countries experiencing a sharp decline in their fertility rates at the moment. An often-cited example of such a country is Rwanda. On average, across **West Africa**, fertility rates remain around 5 to 5.5 children per woman, thus providing no current possibilities for the demographic dividend. Indeed, according to some calculations, many francophone countries in the region will have to wait until 2060 before the window of opportunity is to open.

The chances of benefiting from the demographic dividend are directly linked to the (in)actions of African state agencies. **It is clear that without sufficient supportive policies, the demographic dividend will not materialise.** On the other hand, there are all the possibilities to draft and execute systematic plans if African governments choose to do so.

Fertility and family planning are sensitive issues, and women should always have the right to make their own decisions about getting pregnant. Yet these decisions ought to be well-informed, and this is where governments, different organisations and the international community can play a role. Indeed, when **there**

is a clear consensus that high population growth has aggravated many societal challenges in Africa, the topic cannot be swept under the rug anymore due to its sensitive nature. If this is done, however, it will be ever more difficult to restrain the unwanted consequences of population growth, including its adverse effects on several other global challenges, such as climate change and urbanisation. Excluding a few cases, the average economic growth rates in Africa — when combined with continuous population growth — are not enough to reduce poverty in a speedy manner. There is no easy way out, but with carefully planned population policies, there are fair chances to turn the tide.

Mitigation options and recommendations

Continuous efforts to further reduce fertility levels need to be taken. This can be achieved with contextually- and culturally-tailored programmes, including, but not limited to, family planning services, educational opportunities and awareness-raising campaigns. With the help of this type of multimodal approach, females of all ages can make informed decisions about pregnancy. However, it is not enough to concentrate only on girls and women; boys and men need to be targeted as well. This is essential, since across Africa women have been reported to want fewer children than their partners, yet the decision about ideal family size is often in the hands of men. Depending on the context and target groups, all kinds of males from village elders and religious leaders to rap stars and sports heroes should be approached as possible change-makers and opinion leaders. Furthermore, **a variety of contraceptive methods should be made readily available** in urban and rural areas, free of charge where possible. The current level of contraceptive use in SSA is estimated to be around 26%, whereas the demand is much higher. Several encouraging examples of increased use can be found across Africa from Senegal to Rwanda, which can be modified to fit the context. In addition, launching public media campaigns and encouraging general discussion on family planning at all levels of society should be strongly supported.

The challenge and opportunities posed by the informal economy should be carefully investigated. In this effort, close co-operation between African states, the private sector and academia might prove useful. Recent innovations, including low-scale mobile banking services, could be utilised to advance the formalisation of small businesses, and governments could also provide other supporting incentives, such as tax reduction measures and subsidies towards marketplace rents. The formalisation of the informal sector would not only strengthen state economies but also provide the possibility for entrepreneurs themselves to plan their future and reduce the incentive to have more children 'just in case'.

Large investments should be targeted at female education and especially their secondary education. Ideally, universal secondary education for everyone regardless of their sex or social background should be the norm, but while moving towards that goal, the aim to achieve an equal representation of girls and boys would be a good starting point.

When trying to reap the benefits from (forthcoming) demographic dividends, African governments need to accept their responsibility to take charge. Rapidly decreasing fertility levels and consequently having a large working-age population is not enough to realise the demographic dividend. Only if young people are able to educate themselves and find employment, and only if they manage to see a future for themselves in their country of origin as trusted citizens, can the demographic dividend truly materialise. As Professor Jack Goldstone (2019) writes in his eye-opening article:

There are typically between three and four children in a family in Kenya, but in Mwadime Mjomba's agricultural family there are seven.
Photo: Petri Pellikka, 2019.

> *In the coming decades, Africa will have by far the fastest growing population anywhere in the world and will soon be the only fast-growing source of one of the most precious resources on the planet — young people. This will create risks and anxieties, tempting the developed world to try to wall itself off from Africa. Yet that would be a tragic mistake. Helping Africa to develop those youth as productive contributors to their own and the global economy, and managing Africa's future energy transition to minimize its impact on climate, will be the vital tasks for global security and prosperity in the coming century.*

Finally, it must be stated that if African governments, regional organisations and the international community do not begin to prioritise the challenge posed by population growth in their policies through direct funding, the population of sub-Saharan Africa will continue to grow at a fast pace. When high fertility rates are combined with a rapid decline in mortality rates, doing the maths is straightforward. **The fate of Africa is directly linked with its demographic developments.**

Sources

Bongaarts, J. 2017, "Africa's Unique Fertility Transition", *Population and Development Review*, vol. 43, pp. 39–58.

Bongaarts, J. 2016, "Slow Down Population Growth", *Nature*, vol. 530, pp. 409–412.

Bankóová, V. 2018, "The Demographic Determinants of Africa's Changing Global Position", *Human Affairs*, vol. 28, no. 4, pp. 367–378.

Beatriz, E.D., Molnar, B.E., Griffith, J.L. & Salhi, C. 2018, "Urban-Rural Disparity and Urban Population Growth: A Multilevel Analysis of Under-5 Mortality in 30 Sub-Saharan African Countries", *Health & Place*, vol. 52, pp.196–204.

Cilliers, J. 2018, *Getting to Africa's Demographic Dividend*, Institute for Security Studies, Africa Report 13, August 2018, https://issafrica.org/research/africa-report/getting-to-africas-demographic-dividend [15.6.2019].

Cohen, J.E. 2008, "Make secondary education universal", *Nature*, vol. 456, no. 7222, pp. 572–3.

Goldstone, J.A. 2019, "Africa 2050: Demographic Truth and Consequences", *Governance In An Emerging New World, Winter Series*, Issue 119, https://www.hoover.org/publications/governance-emerging-new-world/winter-series-issue-119 [8.6.2019].

Groth, H. & May, J. 2017, Africa's Population: In Search of a Demographic Dividend, Springer, Cham.

Groth, H., May, J.F. & Turbat, V. 2019, "Policies Needed to Capture a Demographic Dividend in Sub-Saharan Africa", *Canadian Studies in Population*, vol. 46, no. 1, pp. 61–72.

Horton, R. 2017, "Offline: Africa Does Not Need a Prince Charming", *The Lancet*, vol. 390, no. 10102, pp. 1574–1574.

Kaps, A., Schewe, A. & Klingholz, R. 2019, *Africa's Demographic Trailblazers: How Falling Fertility Rates are Accelerating Development*, Berlin Institute for Population and Development, June 2019.

Sankoh, O. 2016, "Africa's Demographic Future: Why Africa Should Take the Lead", *The Lancet Global Health*, vol. 4, no. 8, pp. e522–e522.

Schure, J., Ingram, V., Sakho-Jimbira, M.S., Levang, P. & Wiersum, K.F. 2013, "Formalisation of Charcoal Value Chains and Livelihood Outcomes in Central- and West Africa", *Energy for Sustainable Development*, vol. 17, no. 2, pp. 95–105.

Sow, M. 2018, "Figures of the Week: Africa's Growing Youth Population and Human Capital Investments", *Brookings: Africa in Focus*, September 20.

UN DESA 2019, *World Population Prospects 2019: Highlights*, United Nations Department of Economic and Social Affairs, June 2019, https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf [18.6.2019].

UNFPA 2018, *UNFPA Annual Report 2018: One Vision, Three Zeros*, United Nations Population Fund, https://www.unfpa.org/annual-report [15.6.2019].

UNICEF 2017, *Generation 2030 Africa 2.0: Prioritizing Investments in Children to Reap the Demographic Dividend*, United Nations Children's Fund, October 2017, https://www.unicef.org/publications/index_101219.html [15.6.2019].

UNICEF 2019, *MENA Generation 2030*, United Nations Children's Fund, April 2019, https://www.unicef.org/mena/reports/mena-generation-2030 [15.6.2019].

Walker, R.J. 2016, "Population Growth and its Implications for Global Security", *American Journal of Economics and Sociology*, vol. 75, no. 4, pp. 980–1004.

van Diesen, A. & Abu-Ismail, K. 2019, "MENA Generation 2030: Prospects for a Demographic Dividend", *The Forum: ERF Policy Portal*, April 2019, https://theforum.erf.org.eg/2019/04/17/mena-generation-2030-prospects-for-a-demographic-dividend [15.6.2019].

Downtown Nairobi is built denser and higher every year.
Photo: Petri Pellikka, 2019.

Urbanisation

Emma Hakala, Leena Vastapuu

Summary

In Africa, urbanisation takes place faster than anywhere else in the world, and the trend is expected to continue in the future. The share of the urban population in Africa is forecast to rise to 50% by 2050. Yet the precise trajectories of urbanisation are highly varied in different countries across the continent. In Africa, urbanisation has not followed a straightforward path associated with structural transformation. There are some countries that are relatively industrialised and have a large share of urban population, but many remain agrarian despite urbanisation. In addition, the distinction between rural and urban areas is becoming increasingly blurred, and even cities tend to be highly dependent on agricultural production. Meanwhile, many urban areas in Africa have quickly developed a growing service sector. This may provide opportunities for innovation, especially if they are integrated with mobile technologies. However, the urban service sector alone is not able to provide a great deal of formal employment. As a result, a large share of urban employment is informal, poorly paid and inse-
cure, and poverty and inequality remain high. In particular, young people – whose share of the population is constantly increasing – often find themselves between a rock and a hard place. Whilst many do not find small-scale farming and the intensive manual labour it requires appealing, and thus want to try their luck in urban areas, city life often proves hard in other ways. Of African young people between 15 and 24 years of age, about 95% end up working in the informal sector with no job security or social protection schemes available. In these circumstances, the risk of prostitution, as well as turning to petty crime to secure daily needs, significantly increases. Rapid urbanisation also challenges urban planning and governance. Infrastructure and public services are rarely able to keep up with the needs of expanding cities, and financing for necessary investments is usually lacking. Informal employment also means less tax income and reduced potential for infrastructure investments. Due to urban sprawl, cities expand over a wider area and service provision becomes harder. Climate change will further increase urban

vulnerability. Flooding, storms, extreme heat and the rise of sea level, among other things, will impact cities and threaten human security, with several health impacts also involved. Climate resilience in urban areas is further reduced by poor infrastructure and lack of risk management. There is a dire need for more sustainable planning and governance in African cities.

The current understanding of urbanisation in Africa

Urbanisation is taking place at an unprecedented pace in Africa. The percentage of urban dwellers rose from 14% in 1950 to 40% in the early 2010s. **It is expected that by 2035, about 50% of Africans will live in cities.** By 2050, the urban population in Africa is expected to be around 1.34 billion in total. This transformation will shape patterns of life in both cities and rural areas in various ways.

However, whereas urbanisation has globally been closely associated with structural transformation and economic growth, these linkages have been far less

prominent in Africa. In most cases, structural transformation is set in motion by the growth of the manufacturing industry, which provides better economic productivity and often higher salaries than agriculture. **In Africa, a strong shift towards the manufacturing sector has not taken place**, as the continent has not yet industrialised. Instead, there is strong growth in the service sector, which has particularly increased informal private sector jobs in urban areas. The service sector is usually considered unlikely to boost strong economic growth, mainly due to its insecurity and low productivity. Indeed, **urban poverty in Africa remains higher than elsewhere in the world**. On the other hand, the urban service sector may also produce new economic and employment opportunities, especially when supported by new mobile technologies. For instance, competitive ICT services have already emerged in Kenya, Rwanda, Senegal and South Africa.

Other aspects of structural transformation that are lagging behind in Africa also influence urbanisation. In contrast to Asia, for instance, **urban fertility rates**

remain high. In Burundi, the Democratic Republic of the Congo (DRC), Mali, Niger and Nigeria, urban fertility rates are above 5 children per woman. In fact, population growth is more important as a driver of urbanisation than migration.

In addition, **urban centres remain reliant on agriculture and rural areas**. Urbanisation has created a rising demand for agricultural products and workforce, as urban-rural interactions are markedly reciprocal. The divide between rural and urban areas is becoming increasingly blurred, as cities merge into large peri-urban zones surrounding them. This creates new dependencies, and also means that urban centres have an impact on a wide area around them. Yet in terms of population, urbanisation particularly takes place in the form of small or medium-sized cities. Despite the emergence of a few megacities, such as Cairo and Lagos, over 55% of African urban centres in fact have less than 500,000 inhabitants. With regard to area, however, African cities are expanding. The growing urban population usually spreads out over a vast space, creating a continuously extending urban sprawl. **In sub-Saharan Africa, the urban area is projected to grow twelvefold between 2000 and 2050.** Some of the spatial growth will feed into the emergence and expansion of slums, in effect creating peripheries with vulnerable and underprivileged populations. Shanty towns are often located on 'illegal land', being built in a gradual process without permission from the land owner. This further exacerbates already existing vulnerabilities, as evictions may arrive at a day's notice. Sometimes there is no home to return to at the day's end.

While the observations above suggest that it is possible to make some generalisations about urbanisation in Africa, **the development in fact varies a great deal between different countries**. Egypt, Mauritius, Morocco, South Africa and Tunisia stand out as the most advanced countries in terms of both urbanisation and structural transformation, as well as their relatively high levels of income and human development. Meanwhile, in a group of middle- to low-income countries, especially in Western Africa, the relatively high share of urban population, at 35–50%, has led to the growth of an informal service sector, but not manufacturing. These countries are faced with the challenge of generating sustainable economic growth. In different ways, this is also the case in Eastern Africa, where urbanisation began later but has often taken place relatively quickly, such as in Kenya and Rwanda. In addition, there is a group of primarily agrarian, often landlocked countries, like Chad and Niger, where urbanisation has so far mostly been driven by population growth. Finally, in a number of natural resource-based countries like Nigeria and Libya, the share of the urban population is high, between 40 and 78%, but it almost entirely relies on profits from a single high-value resource, such as oil. Although some of these countries have relatively high GNI per capita, it is particularly difficult for these countries to diversify their economies and improve human development.

Urbanisation creates new vulnerabilities and challenges to sustainable development. In particular, **urban areas have significant ecological impacts, while also being highly exposed to risks caused by environmental change**. Due in particular to urban sprawl, as well as insufficient urban planning and governance, cities tend to have poor sanitation, waste, energy and traffic systems. Along with the spatial expansion of cities, these lead to habitat loss, disruptions in hydrological systems, and increased pressure on forests and other green spaces, which also have implications for air quality in cities. Urban sprawl typically takes place at the cost of surrounding agricultural lands, as in Nairobi, pushing food production even further away.

The poor institutional setting also holds back sustainable development and may instead contribute to stagnation. **It is clear that any problems that urban areas are facing now will be multiplied by 2030**, especially in mega-cities like Lagos or Kinshasa, where the population is expected to double in size. A lack of access to important services like sanitation and health care will potentially accentuate these risks further. In addition, deficiencies in infrastructure, like the lack of good public transportation or energy provision, negatively affect economic development. Meanwhile, inadequate access to education reduces opportunities for professional development and new livelihoods.

Insufficient infrastructure and institutional capacity also contribute to urban inequality and segregation. In addition

Giza pyramids are encircled by the growing urban area of Cairo.
Photo: Petri Pellikka, 2015.

Inadequate sanitation infrastructure and poor water quality are a major challenge in Liberia particularly during the rainy season.
Photo: Leena Vastapuu, 2012.

to poverty, insecure employment leads to marginalisation and lack of access to decision-making. In some cases, such as in Northern African countries during the so-called Arab Spring of 2011, this may lead to public protests, but more often dissatisfaction is left to deepen. The urban poor have a lower rate of access to education as well as health and other basic services, and are therefore disenfranchised from adopting new livelihoods or other opportunities. Women and girls are particularly disadvantaged by a lack of access to education as well as insecure or exploitative work circumstances. Inadequate infrastructure and services also present challenges to other special needs groups, particularly those with disabilities. The poor and otherwise marginalised groups are also disproportionately affected by criminality, violence and other forms of insecurity, such as environmental risks, as will become clear in the following section.

Impacts of urbanisation in Africa

If African governments take the challenges caused by rapid urbanisation seriously, and if continuous efforts are made to mitigate the above-mentioned risks, the positive sides of urbanisation can be benefited from more successfully. Effective policies on innovation and technological development can yield economic benefits and higher-paid urban employment. If combined with investments in education, these may also help to create urban centres for academic quality and knowledge production. The emergence of business clusters in Morocco, Kenya and Ethiopia has already helped stimulate productivity and new commercial opportunities. Similarly, through inclusive policies, cities can function as places of cultural exchange and innovation. Such approaches can contribute to structural transformation, especially in countries where economic diversification is already underway. However, they can also help initiate structural change in early

urbanising countries like Senegal and Ghana, where the economy currently relies heavily on the urban service sector.

Urban centres have the potential to improve formal access to justice mechanisms and governance processes. As main avenues for national politics, cities can also provide platforms for political mobilisation and empowerment. In some countries, this may have contributed to democratic change at the national level. However, as precedents from countries such as Libya, Tunisia and Egypt show, the road to democratic and just governance is long and requires far more than an abrupt change to the system.

If, however, urbanisation is allowed to continue uncontrolled, it is likely to have multiple harmful impacts. Many of these are interrelated and tend to exacerbate one another. In particular, different types of manmade and natural disasters will, without a doubt, affect many African cities in the 21st century. First, poor **infrastructure and planning increases the vulnerability of cities to ecological risks**.

Many of these risks, like flooding and storms, are aggravated by climate change. Poor housing, for instance, exposes urban dwellers to the immediate impacts of storms, while the lack of sanitation services may cause a rise in the incidence of various diseases over a longer period of time. For example, in Lagos, Dakar and Alexandria, poor coastal planning in delta regions exposes the cities to the rise in sea level. In many urban areas excessive water use has been exacerbated by climate change, leading to severe water shortages, such as in Cape Town in 2018. Yet regardless of climate change, urban areas tend to have high environmental risks. In particular, poor air quality, caused by traffic congestion, industry and household incineration, is a major cause of premature deaths in African countries.

West Point, a famous slum in Liberia's capital Monrovia, is an apt example of the **intersecting and reinforcing problems that unplanned urbanisation may lead to**. The township is mainly composed of hastily built ramshackle buildings, made from

corrugated iron sheets lying on a sand floor. Geographically, West Point is located on a peninsula reaching into the Atlantic Ocean, between two significant rivers. Parts of the peninsula have already eroded into the sea, and even a modest sea level rise will inevitably have dire consequences for the township's 75,000 inhabitants. There is a severe lack of proper sanitation, and all toilets and bathing facilities can only be used for a fee. As the majority of the inhabitants live from hand to mouth, and many have to turn to prostitution or petty criminality to sustain their daily needs, the surrounding beach is used as a substitute for a public toilet. All kinds of substance abuse is prevalent, with hard drugs typically being consumed by former child soldiers with the aim of trying to 'forget about everything'. Many are too ashamed to return to their rural communities empty-handed, even though their families would gladly welcome them back. Due to poor sanitation and related challenges, diseases such as typhoid fever, malaria and tuberculosis are pervasive. Furthermore, during the 2014 Ebola outbreak, President Ellen Johnson Sirleaf ordered the only road leading to the peninsula to be sealed off at night-time, and

the entire population quarantined under the threat of a gun barrel. Altogether, the quarantine lasted for 17 days.

Mitigation options and recommendations

As urbanisation continues, there is an urgent and growing need to improve sustainability in cities. **The investment gap in urban infrastructure will need to be addressed.** According to some calculations, African countries would need to invest around 5–7% of their GDP in public infrastructure in order to meet their current development needs. The puzzle will not be easy to solve, as only a very limited amount of public financing is available from African sources. However, well-planned investment now may bring considerable savings in the future. Therefore, **long-term planning and a strongly forward-thinking strategy regarding urban investment needs to be encouraged**. International financing bodies and other lenders will also need to take urban sustainability into account.

Any urban investment should emphasise sustainable development as a major goal

and point of reference. In particular, it should take the ongoing structural transformation that is at different stages in the various countries into account. Self-sustaining economic solutions need to be prioritised. Private investment should be encouraged by providing partial access to state-owned utilities and facilities, such as in the state-owned energy, waste management and water utilities in Kenya, Ethiopia and Tunisia. If carried out transparently, such ventures can also help improve accountability and good practices.

Investment will need to improve **urban planning, governance structures and institutional settings in urban contexts**. The role of local administrations should be emphasised as decision-makers with the responsibility to ensure the provision of public goods and functioning institutions. Community-based initiatives as well as the participation of NGOs and other civil society groups also need to be encouraged. Overall, urban policies will have to be gender-aware. Gender should be mainstreamed into urban planning, and adequate financing will have to be allocated to implement policies.

Despite the need to improve

infrastructure and governance, it will also be necessary to recognise that informal practices with regard to land, housing, employment and other economic activities will continue to be characteristic of African cities. Rather than criminalise all those engaging in the informal sector, efforts should be taken **to incentivise the adoption of more formal practices, safety standards and accountability**.

Improvements in urban infrastructure **need to be planned in accordance with sustainable development goals**. One priority is the provision of affordable housing, which can be promoted through private partnerships and improved land rights governance to improve the productivity of construction. In Mauritius, for instance, comprehensive land and housing management has turned the real estate sector into a driver of economic growth. Overall, **co-production systems should be explored to help mobilise financing for infrastructure investment and promote the provision of services and employment**. Public transportation systems and overall connectivity should leapfrog to low-carbon options. This will help to reduce environmental impacts and advance mobility, especially among

New houses for the middle-class in Addis Abeba. There will be a new street in the middle.
Photo: Petri Pellikka, 2013.

the urban poor. Waste management can attract private finance for systems that extract valuable material from state landfills, such as at the massive, urban Olusosun landfill in Lagos.

Crucially, however, all of these investments **should take socio-economic impacts into account and integrate participatory processes in order to achieve socially sustainable and acceptable models**. Infrastructure planning also needs to be gender-aware and bear other special needs groups in mind, such as people with disabilities. Equality and security need to be emphasised in the provision of housing, transportation, sanitation and other services.

Moreover, **urban planning and governance in Africa will need to take environmental change into account, both as a consequence and a factor of urbanisation**. Many improvements to urban infrastructure, like waste management or public transportation, can be beneficial for the environment, but the linkage cannot be taken for granted. Thorough environmental impact assessments of infrastructure projects are particularly important in African cities, as the impacts of harmful investments are augmented by the large numbers of their users. At the same time, **urban infrastructure needs to be climate-resilient and especially consider the groups that are most vulnerable to the impacts of climate change**. For climate mitigation and adaptation, African countries should also explore financing options provided by the Green Climate Fund under the UN Framework Convention on Climate Change.

Sources

Adelekan, I., Johnson, C., Manda, M., Matyas, D., Mberu, B., Parnell, S., Pelling, M., Satterthwaite, D. and Vivekananda, J., 2015. Disaster risk and its reduction: An agenda for urban Africa. *International Development Planning Review*, 37(1), pp. 33–43.

AfDB. 2015. African Development Report 2015. Growth, Poverty and Inequality Nexus: Overcoming Barriers to Sustainable Development. African Development Bank

AfDB, OECD, UNDP. 2016. African Economic Outlook 2016. Sustainable Cities and Structural Transformation. AfDB, OECD, UNDP.

Bello-Schünemann, J., Aucoin, C. 2016. African Urban Futures. African Futures Paper 20. Institute for Security Studies, Pretoria.

Borel-Saladin, J. 2017. Where to draw the line: Data problems and other difficulties estimating urbanisation in Africa. *Development Southern Africa*, 300(2), pp. 137–150.

Cobbinah, P.B., Erdiaw-Kwasie, M.O. and Amoateng, P., 2015. Africa's urbanisation: Implications for sustainable development. *Cities*, 47, pp. 62–72.

Cobbinah, P.B., Erdiaw-Kwasie, M.O. and Amoateng, P., 2015. Rethinking sustainable development within the framework of poverty and urbanisation in developing countries. *Environmental Development*, 13, pp. 18–32.

Dodman, D., Leck, H., Rusca, M. and Colenbrander, S., 2017. African Urbanisation and Urbanism: Implications for risk accumulation and reduction. *International journal of disaster risk reduction*, 26, pp. 7–15.

FAO. 2017. Evidence on internal and international migration patterns in selected African countries. FAO Statistics.

Hommann, K., Lall, S.V. 2019. Which Way to Livable and Productive Cities? A Road Map for Sub-Saharan Africa. International Bank for Reconstruction and Development / The World Bank, Washington D.C.

Jayne, T.S., Chamberlin, J. and Benfica, R., 2018. Africa's Unfolding Economic Transformation. *The Journal of Development Studies*. 54(5), 777–787.

McGranahan, G., Satterthwaite, D. 2014. *Urbanisation concepts and trends*. IIED Working Paper. IIED, London.

McKinsey Company. 2016. Lions on the Move II. Realizing the Potential of Africa's Economies. McKinsey Global Institute.

New Climate Economy. 2015. Better Growth, Better Cities: Rethinking and Redirecting Urbanisation in Africa. Working Paper. New Climate Economy, London.

Parnell, S. and Walawege, R., 2011. Sub-Saharan African urbanisation and global environmental change. *Global Environmental Change*, 21, pp. S12–S20.

Pauleit, S., Coly, A., Fohlmeister, S., Gasparini, P., Jorgensen, G., Kabisch, S., Kombe, W.J., Lindley, S., Simonis, I. and Yeshitela, K., 2015. Urban vulnerability and climate change in Africa. Future City, 4.

Saghir, J., Santoro, J. 2018. Urbanization in Sub-Saharan Africa Meeting Challenges by Bridging Stakeholders. Center for Strategic and International Studies, New Washington.

UN-Habitat. 2014. The State of African Cities 2014. Re-imagining sustainable urban transitions. UN-Habitat, Nairobi.

van Noorloos, F. and Kloosterboer, M., 2018. Africa's new cities: The contested future of urbanisation. Urban Studies, 55(6), pp. 1223–1241.

Vastapuu, L. 2018, *Liberia's Women Veterans: War, Roles and Reintegration*. With Illustrations by Emmi Nieminen, Zed Books, London.

Emigration from Eritrea is one of the highest compared to other African countries.
Photo: Petri Pellikka, 2015.

Migration

Leena Vastapuu[1]

Summary

African migration[2] patterns are typically misrepresented. Although emigration from the continent regularly takes place, about 80% of Africa's migration movements still occur within Africa. As with people anywhere, most Africans also migrate for employment, family reasons or studies. However, according to a United Nations (UN) estimate, more than 30% of all forcibly displaced people also reside in Africa, including 6.3 million refugees and asylum seekers, as well as 14.5 million internally displaced people (IDP). IDPs are particularly vulnerable to abuse and neglect, as they continue to be in a legal limbo. Being such a hot topic, all stakeholders – in source, destination and transit countries – will continue to use migration as a diplomatic and negotiation tool. The approach taken towards migration will likely correlate significantly with the impacts of migration in Africa and beyond. If people on the move are primarily treated as a security threat, evidence-based policies will be increasingly difficult to plan and implement. If, on the other hand, migration is understood as an inherently natural human phenomenon, the positive sides of it can be better capitalised on and the downsides systematically contained. Coordination is indeed required, as massive displacement crises are forecast to affect Africa in the future, due to population growth and climate change, with the expectation that most people forced to flee will be internally displaced. As the African Union (AU) has recently emphasised, the ongoing securitisation of migration should not hamper efforts towards further freeing up the movement of persons on the continent. The European Economic Area can be treated as an example of how the gradual opening of borders, standardisation of working conditions, and mutual recognition of education qualifications have been achieved in the past through a step-by-step approach.

Current understanding of migration in Africa

African migration patterns are inherently mixed and complex. Due to the limited availability of reliable data, and the tendency towards sensationalism in the mass media, **stereotypes rather than facts tend to dominate ongoing debates**. African emigration is particularly misrepresented, both in terms of its core dynamics as well as its effects on European societies. Most scholars agree on certain rough numbers and developments, however, even though the exact figures are impossible to verify. These include: (1) some 80% of African migration occurs within the continent itself; (2) most Africans migrate for family reasons, work or studies; (3) about 86% of cross-border migration within Africa is not primarily related to conflict; (4) Africa hosts at least a quarter of the world's refugees and some of the largest displacement crises currently occurring; and (5) sub-Saharan Africa (SSA) experienced more internal displacement than any other region in 2018.

In 2019, which was named the 'Year of Refugees, Returnees and IDPs' by the African Union, **more than 30% of all forcibly displaced people reside in Africa**, according to a UN estimate. This number includes 6.3 million refugees and asylum seekers, as well as 14.5 million internally displaced people. Although there is no legal definition, an IDP is understood as someone being forced to flee home in response to different pressures, such as natural disasters and armed conflicts. Unlike refugees, however, who are at least in principle protected by international refugee law, IDPs have not crossed international borders and fall under the laws of their national governments. This creates a highly fragile scenario since governmental action may have contributed to the displacement crisis to begin with. This report refers to all forms of migration – forced and voluntary, domestic and cross-border – but emphasises the situation of IDPs in Africa. **The majority of IDPs are women and children**, they often come from already marginalised groups, and, due to their legal position and sheer number, are particularly vulnerable to abuse and neglect, including human trafficking.

As the African Union underlines, there is a long tradition of hospitality towards people on the move in Africa. One example of such a tradition is the *African Union Convention for the Protection and Assistance of Internally Displaced Persons* adopted in 2009. Known also as **the Kampala Convention**, the treaty is ground-breaking: it is the first legally binding instrument in the world with the aim of transforming the operational IDP category into a legal status. In practice, the Convention outlines state responsibilities with IDPs, whose displacement is caused by natural and human-made disasters, including climate change. According to a legal scholar, the Kampala Convention, currently signed by 40 states and ratified by 27 (as of June 2017), 'does not in any way undermine the protection and assistance that might be due to refugees [...] and is a remarkable step forward that could help manage forced displacement' (Kidane 2011). In December 2018, Niger became the first country to domesticate the Kampala Convention into its national legislation.

In addition to the Kampala Convention, there are several other migration policy frameworks in operation in Africa. These consist of hard laws, conventions, treaties and protocols, as well as soft laws in the form of declarations made by the AU, regional economic communities (RECs), and those developed through negotiation processes between the AU and the European Union (EU). The challenge is that many African countries hold memberships in multiple RECs, resulting in coordination difficulties between overlapping migration frameworks. On a continent level, and after a quarter-century-long negotiation process, **the AU Free Movement of Persons Protocol** was adopted by AU member states in Addis Ababa in January 2018. Described by some as a watershed moment for Africa, it has the potential to increase intra-African trade and tourism throughout the continent. The plan is to proceed in three phases, where (1) states gradually abolish visa requirements for Africans, (2) implement the right of residence, and (3) implement the right of establishment. Phases 2 and 3 will not be commenced until the first phase has been reviewed. Thus, instead of creating a 'borderless Africa', the goal is to gradually create a system somewhat analogous to the EEA. In practice, it still remains significantly easier for Europeans to enter and reside in African countries than to do the same as an African. This is the case despite the launching of **the African passport** by the AU in 2016, aimed at eventually replacing national passports, but being currently available only to top AU diplomats, a few heads of state and some senior diplomats.

The greatest challenge for continent-wide legal and other arrangements on matters of migration is the sheer diversity of Africa. In addition to socio-political differences, resource allocation and national capacities vary significantly between countries and regions. According to an IMF estimation, Côte d'Ivoire, South Africa and Nigeria are the leading destination countries for African migrants. As of 2016, these countries hosted 2.3, 2 and 0.9 million African migrants, respectively. Countries in the **North African Maghreb** region have adopted contrasting means to address migration. Whereas some tend to treat migrants primarily as a security threat (e.g. Algeria), others see opportunities in immigration movements arriving from SSA (e.g. Morocco). Unlike other Maghreb countries, Libya has a long history of attracting labour migration. Some estimates hold that prior to Gaddafi's fall in 2011, almost half of the country's population was comprised of migrants. In the ensuing chaos, however, well over one million migrants fled the violence and instability, and Libya became a regional hub for trafficking networks. Today, there are almost 800,000 migrants residing in Libya, many of whom have been forced to stay. According to a recent UN report (United Nations 2018) based on more than 1,300 interviews, migrants and refugees are subjected to 'unimaginable horrors during their transit through and stay in Libya'. These actions include but are not limited to unlawful killings, torture, arbitrary detention, rape and other forms of sexual and gender-based violence, slavery and forced labour, and are being committed by state and non-state actors alike.

In **West Africa**, ECOWAS's *Protocol Relating to Free Movement of Persons* is in theory allowing free movement in the signatory countries. In practice, migration in the area remains restricted and many migrants rely on smugglers or undertake irregular crossings. However, it is worth noting that most migration in the area remains voluntary and occurs for economic and educational reasons. On the other hand, both

The journey from Senegal to Gambia takes a whole day with local transportation. Pictures of religious leaders are thought to protect travelers. Photo: Leena Vastapuu, 2008.

West and **Central Africa** are among the main regions of origin for human trafficking. Some 90% of the victims are trafficked either within their country of origin or within the region. Many of those trafficked over long distances are taken to Europe for sexual exploitation. The ongoing conflicts in DR Congo, the Central African Republic, Cameroon, Mali and Nigeria, for example, have resulted in increasing numbers of refugees, who have, by and large, ended up in neighbouring countries. Nonetheless, there are also returnees, for instance, some 1.5 million refugees returned to Nigeria from Niger and Cameroon in 2018 alone. Displacement is a major challenge in the area as well, especially when half of those displaced are children.

By the end of 2017, nearly 12 million of the 71.44 million 'persons of concern', as defined by the UNHCR, were residing in **East Africa and the Horn of Africa**. Migration in the region is mainly irregular, since there are only few options for regular movement. An extreme case is Eritrea, where nationals need visas to exit the country. As these are not easy to obtain, often the only alternative is to exit irregularly. Smuggling and trafficking also occur, with Sudan being the key transit country for smuggling and trafficking activities. The responses to the situation of refugees vary from one country to another. Whereas Uganda has allowed the *Bidi Bidi* camp (270,000+ inhabitants) to become a town-like area, Kenya has apparently announced it will soon close down the *Dadaab* camp (some 230,000 inhabitants). Ethiopia, at the other end of the spectrum, passed a law this January giving almost 1 million refugees the right to work and live outside of the camp areas.

The impacts of migration movements in Africa

The impacts of migration on the continent will, in all likelihood, have a significant correlation with the approach chosen by African state actors and regional organisations. If migration is seen primarily as a security threat, coordinated and evidence-based policies will be increasingly difficult to plan and implement between competing – not collaborating – stakeholders. This holds true with regular and irregular migration alike. If, conversely, migration is treated as an inherently natural human phenomenon, being directly linked to the origins of humanity, the positive sides of migration can be better capitalised on and the downsides contained.

Regions outside of Africa will also **have an impact on African migration movements** in the future. The tension between national security concerns and migrants' rights is well manifested in the recent EU policy interventions in countries such as Niger, Mali, Sudan and Libya. Undoubtedly, EU-backed programmes have decreased the number of irregular entries into Europe and the number of arriving migrants via Mediterranean routes is now back to pre-2015 levels. However, many scholars also remark that these policies have simultaneously pushed migrants to take increasingly riskier underground journeys and have thus strengthened the foothold of numerous organised crime groups. Some researchers even claim that Niger has in fact become the new external border of the European Union, with the EU undertaking a number of initiatives in the country to halt smuggling activities towards Europe. It has been argued that these kinds of policy interventions might in fact be counter-productive for the development of Niger and the neighbouring countries in the long term. Historically, trans-Saharan migration has played a huge role in the economic and cultural life of the region. With programmes aiming to tame irregular migration, regular migration movements are also simultaneously becoming increasingly difficult. The long-term consequences of these types of interventions remain unclear.

Climate change and the expected population growth rate will inevitably impact African migration movements in the future. Climate change induces droughts, heatwaves, desertification, sea level rise, flooding, a higher intensity of extreme weather events, as well as conflicts over ever more scarce natural resources. As a consequence, massive displacements are forecast, with the expectation that a large majority of climate migrants will be internally displaced. The poorest of the poor will be most heavily impacted. According to a World Bank estimate, which suffers from the same data-related drawbacks as all figures on migration, by 2050, there will be some 86 million internal climate migrants in SSA alone. Even though the concept of a climate or environmental refugee is not legally recognised, the issue is continuously debated. Some have even suggested that a separate category should be created for climate change refugees. But again, IDPs would escape such refugee-related categories, and therefore the inclusion of climate change as a cause for displacement in the Kampala Convention can be considered remarkable, although its implementation is yet to be seen.

Continuous population growth in SSA, and especially in Francophone West Africa, will have inevitable impacts on African migration movements. By 2050, the population of SSA is projected to double: of the expected 2.0 billion additional people at a global level, 52% are thought to originate from SSA. By 2050, Africa will also be home to the largest number of young people of all the regions in the world. As always, youth are expected to be mobile, and especially so if they see no future for themselves in their regions of origin. This is both a challenge and an opportunity for Africa, which local governments and regional organisations should already be preparing themselves for today.

If SSA will experience further mass displacement, and EU migration policies continue on their current trajectories, **the Maghreb region is likely to receive an increasing flow of people knocking on its doors**. This is a scenario that the countries in the region should in any case prepare themselves for. Rather than negotiating with the EU and other organisations as individual entities, governments in the region should develop a shared migration strategy to strengthen their negotiating position. To some extent, the same holds true for Africa as a whole. Since migration is such a hot topic, all stakeholders – in source, destination and transit countries – will continue to use migration as a diplomatic and negotiation tool. The case of Libya should act as a warning sign to all parties: If migration policies are planned and implemented without due consideration, impact assessments, and exit strategies, international organisations and other entities may inadvertently end up supporting illegal activities.

Mitigation options and recommendations

Human migration revolves around two basic questions: why do humans migrate and how far do they migrate? The fact that we cannot yet compellingly answer these questions with regard to African migration is an ongoing challenge. Indeed, limited data availability hampers all efforts to plan well-functioning migration policies on the continent. Therefore, **the goal to strengthen, systematise and harmonise different data collection efforts needs to be prioritised by African state actors and regional organisations alike**. Furthermore, the public dissemination of already-existing information should be encouraged. Both quantitative and qualitative data is required: the former for capturing general patterns, and the latter for tracing nuances and silent trends. More information is needed on IDPs in particular, who continue to be in legal limbo in Africa despite the Kampala Convention, as well as illegal activities around migration. According to some estimations, roughly 75% of IDPs are women and children. Of urgent need are quantitative studies on gender-based violence caused by displacement. There is also a significant data gap with regard to trafficked men. Resulting from limited information, the few anti-trafficking initiatives that currently exist focus almost exclusively on women and children, and consequently ignore men as victims. Overall, a sounder understanding of the driving factors behind migration and its intended and unintended consequences would make it possible to allocate limited resources more efficiently.

Even though the status of climate refugees remains an unsolved dilemma, **African states need to prepare themselves for the forthcoming climate**

crises and the subsequent displacement flows. There is no question that climate-induced crises will occur in Africa in increasing numbers in the 21st century, and governments and regional organisations should be well prepared to respond to them. An exemplary step has already been taken by including climate change as one reason for displacement in the Kampala Convention – a decision that may have significant repercussions also on regions outside of Africa.

As the African Union emphasises, **the ongoing securitisation of migration should not hamper efforts towards further freeing the movement of persons on the continent**. The EEA can be treated as an example of how the gradual opening of borders, standardisation of working conditions, and mutual recognition of education qualifications has been achieved in the past through a step-by-step approach. As a start, overlapping memberships in different RECs should be

addressed. These lead to a waste of resources and make the coordination of migration instruments a challenging task. Furthermore, finding ways to reduce remittance transfer costs within Africa and to Africa would be a practical step to improve people's resilience to various types of shocks, including rapid displacement. The African diaspora is the main source of remittances and should therefore be consulted when trying to address the fact that Africa has the highest costs for sending and receiving remittances in the world today. On the other hand, and as is also well presented in this report, the discussion on migration tends to revolve around the negative sides of the phenomenon. According to a recent report by the United Nations Conference on Trade and Development (UNCTAD, 2018), for instance, intra-African migration could lead to a significant increase in GDP per capita for Africa by 2030. It is also highlighted in the report that in order to realise the full potential of intra-

African migration, gender-blind migration policies and regulatory frameworks need to become a thing of the past.

Without a doubt, the main responsibility for the management of African migration flows lies with the African governments themselves. Neither encouraging positive migration movements nor controlling irregularities can be achieved if local governments are not on board in the planning and implementation of appropriate policies. There is a near-unanimous consensus among academics that **creating legal pathways to migration is the most efficient way to tackle smuggling, human trafficking and other adverse effects of irregular migration**. Several regional and even continent-wide frameworks have the ambitious goal of increasing the free movement of people in Africa, but, once again, substantial data gaps are hampering efforts to domesticate such plans. Some promising avenues to address the

challenge include a range of traditional survey instruments, as well as more innovative technologies, such as drones and satellite imagery, yet the latter two come with unanswered security concerns attached. Finally, better data would also encourage evidence-based discussion on African migration patterns in regions outside of Africa, and thus reduce xenophobia as well as hasty political decisions that may carry severe unintended consequences in the long term.

African quarters few kilometers from the headquarters of the European Commission in Brussels.
Photo: Petri Pellikka, 2019.

Sources

Alberola, C., Strain, Z. & Horne, R. 2018, *Migration Routes in West and Central Africa & East and Horn of Africa: 2018 Update*, A report commissioned by the Deutsche Gesellschaft für Internationale Zusammenarbeit, https://www.merit.unu.edu/publications/uploads/1554895497.pdf [3.6.2019].

Alpes, M.J. 2017, "Papers That Work: Migration Brokers, State/Market Boundaries, and the Place of Law", *PoLAR: Political and Legal Anthropology Review*, vol. 40, no. 2, s. 262–277.

Berchin, I.I., Valduga, I.B., Garcia, J. & de Andrade Guerra, J.B.S.O. 2017, "Climate change and forced migrations: An effort towards recognizing climate refugees", *Geoforum*, vol. 84, s. 147–150.

Flahauxand, M. & De Haas, H. 2016, "African migration: trends, patterns, drivers", *Comparative Migration Studies*, vol. 4, no. 1, s.1–25.

Freedman, J. 2016, "Sexual and gender-based violence against refugee women: a hidden aspect of the refugee "crisis"", *Reproductive Health Matters*, vol. 24, no. 47, s. 18–26.

Garcia, A.J., Pindolia, D.K., Lopiano, K.K. & Tatem, A.J. 2015, "Modeling internal migration flows in sub-Saharan Africa using census microdata", *Migration Studies*, vol. 3, no. 1, s. 89–110.

Global Migration Data Analysis Centre (IOM GMDAC) 2018, *Guidelines for the Harmonization of Migration Data Management in the ECOWAS Region*, https://publications.iom.int/books/guidelines-harmonization-migration-data-management-ecowas-region [3.6.2019].

Gonzalez-Garcia, J., Hitaj, E., Mlachila, M., Viseth, A. & Yenice, M. 2016, *Sub-Saharan African Migration: Patterns and Spillovers*, International Monetary Fund (IMF), www.imf.org/~/media/Files/Publications/SpilloverNotes/SpilloverNote9.ashx [24.6.2019].

Hirsch, A. 2018, "The free movement of people is an AU ambition: what's standing in its way", *The Conversation*, 30 July, https://theconversation.com/the-free-movement-of-people-is-an-au-ambition-whats-standing-in-its-way-100409 [4.6.2019].

Internal Displacement Monitoring Centre & Norwegian Refugee Council 2019, *2019 Global Report on Internal Displacement*, May 2019, http://www.internal-displacement.org/global-report/grid2019/ [3.6.2019].

International Organization for Migration (IOM) 2017, *African Migration to Europe: How can Adequate Data Help Improve Evidence-Based Policymaking and Reduce Possible Misconceptions?*, Global Migration Data Analysis Centre, November 2017, issue no. 11, https://publications.iom.int/system/files/pdf/gmdac_data_briefing_series_issue_11.pdf. [3.6.2019].

Kynsilehto, A. 2017, "Mobilities, Politics, and Solidarities", *Peace Review*, vol. 29, no. 1, s. 48–54.

Leal-Arcas, R. 2012, "Climate Migrants: Legal Options", *Procedia – Social and Behavioral Sciences*, vol. 37, s. 86–96.

Malka, H. 2018, *Maghreb Migration: Ready or Not*, CSIS Commentary, December 10, https://www.csis.org/analysis/maghreb-migration-ready-or-not [4.6.2019].

Malka, H. 2018, *Destination Maghreb: Changing Migration Patterns in North Africa*, The Center for Strategic and International Studies (CSIS) Middle East Program, April 2018, https://www.csis.org/analysis/destination-maghreb [4.6.2019].

Marchand, K., Roosen, I., Reinold, J. & Siegel, M. 2016, *Irregular Migration from and in the East and Horn of Africa*, A report commissioned by the Deutsche Gesellschaft für Internationale Zusammenarbeit, May 2016, https://www.merit.unu.edu/publications/uploads/1496241719.pdf [4.6.2019].

Mukundi Wachira, G. 2018, *Study on the Benefits and Challenges of Free Movement of Persons in Africa*, A report commissioned by the African Union Commission & the International Organization for Migration, Janurary 2018, C:\Users\Admin\AppData\Local\Temp\IOM free movement africa WEB_FINAL-1.pdf [3.6.2019].

Negev, M., Teschner, N., Rosenthal, A., Levine, H., Lew-Levy, C. & Davidovitch, N. 2019, "Adaptation of health systems to climate-related migration in Sub-Saharan Africa: Closing the gap", *International Journal of Hygiene and Environmental Health*, vol. 222, no. 2, s. 311–314.

Kidane, W. 2011, "Managing Forced Displacement by Law in Africa: The Role of the New African Union IDPs Convention", *Vanderbilt Journal of Transnational Law*, vol. 44, no. 1, s. 1–85.

Kirbyshire, A., Wilkinson, E., Le Masson, V. & Batra, P. 2017, *Mass Displacement and the Challenge for Urban Resilience*, ODI Working Paper, January 2017, https://www.odi.org/sites/odi.org.uk/files/resource-documents/11202.pdf [4.6.2019].

Owoaje, E., Uchendu, O., Ajayi, T. & Cadmus, E. 2016;23:161-71, "A Review of the Health Problems of the Internally Displaced Personsin Africa", *Nigerian Postgraduate Medical Journal*, vol. 23, no. 1, s. 161–171.

Sarzin, S. 2017, *Stocktaking of Global Forced Displacement Data*, World Bank Group, February 2017, documents.worldbank.org/curated/en/788961488290408116/pdf/WPS7985.pdf [4.6.2019].

Tadesse Abebe, T. 2017, *Migration Policy Frameworks in Africa*, Institute for Security Studies / Africa Report 2, December 2017, https://issafrica.org/research/africa-report/migration-policy-frameworks-in-africa [4.6.2019].

UNHCR 2018, *Global Trends – Forced Displacement in 2017*, UNHCR, June 2018, https://issafrica.org/research/africa-report/migration-policy-frameworks-in-africa. [4.6.2019].

United Nations 2018, *Desperate and Dangerous: Report on the Human Rights Situation of Migrants and Refugees in Libya*, UNSMIL & OHCHR, 20 December 2018, https://www.ohchr.org/Documents/Countries/LY/LibyaMigrationReport.pdf [3.6.2019].

UNCTAD 2018, *Economic Development in Africa Report 2018: Migration for Structural Transformation*, The United Nations Conference on Trade and Development, May 2018, https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2118 [2.6.2019].

UN DESA 2019, World Population Prospects 2019: Highlights, United Nations Department of Economic and Social Affairs, June 2019, https://population.un.org/wpp/Publications/Files/WPP2019_Highlights.pdf [18.6.2019].

James Chege showing the air quality measurement unit for citizen science manufactured by Code for Africa.
Photo: Petri Pellikka, Kenya, 2019.

Technological development

Leena Vastapuu, Mikael Mattlin

Summary

The spread of mobile phones and related mobile technologies are having a transformative role on African societies. These include easier access to information, job creation, enhanced service delivery, greater financial inclusion and a more accessible business environment. Technological development has been especially rapid in mobile banking and many Africans have been able to move directly from unbanked members of society to using mobile money accounts and related financial services. Other promising technologies for Africa can be found from the renewable energy sector, e-commerce, 3D printing and drones. However, regional variations are great. Whereas mobile money innovations are spread around East Africa, West Africa is a clear laggard. On the other hand, North African countries have fairly developed science policies but limited regional coordination. Chinese-financed infrastructure building and provision of technological solutions have attracted many African governments, despite over-indebtedness risks for some countries. If forced to choose between the United States

and China, many African states are likely to side with the latter, given their lack of institutionalised security ties with the United States, historical relations with China, the promise of rapid delivery, and sunk costs in Chinese solutions. A likely vision for the near future is that Africa turns into one of the primary testing grounds and areas of adoption for Chinese technological solutions outside of China itself. In the wildest visions, ICT is seen as a tool for Africa to leapfrog directly to a technology-driven continent, even though it is not clear if skipping the industrialisation phase would even serve African interests. It is also worth noting that accelerated adoption of technologies may also exacerbate already existing inequalities. Conversely, however, it also carries the potential to increase the inclusion of people with disabilities. Due to the diversity of the continent, technological innovations in one part of Africa cannot necessarily be replicated as such in other environments. Furthermore, risks related to Chinese financing should be better assessed than has hitherto been the case. Increased investment in key infrastructure, solid basic

education, in conjunction with functioning governmental institutions and clear policies, laws and enforcement systems, are essential prerequisites for realising the full development potential of new technologies.

Current understanding of technological development in Africa

A significant body of research has recently drawn attention to the potential of ICT (Information and Communication Technology) to propel development in 21st century Africa. In particular, the unprecedented spread of mobile phones around the continent, combined with the rapid decline in communication costs, is anticipated to launch a new era of innovation in Africa. The figures seem to speak for themselves: whereas in 2000 only 1% of Africans owned a mobile phone, the penetration rate today is some 44% in sub-Saharan Africa (SSA) alone. Even though the subscriber growth rate has slowed down by about 50% in recent years, and previous estimations, such as reaching the level of one

phone per person by 2019, are unobtainable, there is still a major market for mobile phones in Africa. Continued subscriber growth is anticipated, especially in rural environments, as well as among children and young people. Simultaneously, smartphone prices have begun to plummet as well, making it alluring to replace older phones with newer models. In the SSA region, it has been estimated that mobile data usage will grow seven-fold by 2024. Thus, whereas in other parts of the world ICT has already reached saturation levels, there is still great room for growth in Africa.

Several scholars argue that **the spread of mobile phones has direct development impacts** in Africa. Therefore, this report puts special emphasis on the transformative role that mobile phones and related mobile technologies are having on African societies, although technologies such as drones, sustainable energy solutions and 3D printing are briefly touched upon. Within mobile technologies, mobile banking is emphasised, and regional differences are exemplified. Possible risks and their mitigation options are also detailed.

There are numerous ways, in which mobile phones have pushed development forward in Africa. These include a) increased and easier access to information, b) job creation, c) enhanced service delivery in sectors such as agriculture, healthcare, finance and education, d) easier and up-to-date communication to reduce various types of risks, e) boosting of financial inclusion of previously neglected individuals and groups, and f) a more accessible business environment. According to some estimations, mobile money alone supports 11 of the 17 United Nations (UN) Sustainable Development Goals, whereas others have found a positive link between the human development index (HDI) and ICT. Bearing in mind that even after two decades of economic growth in Africa the amount of people living in extreme poverty is substantially higher today than it was in 1990, any possible solutions to end the adverse development should be examined. Indeed, according to the wildest visions, ICT has the potential to enable Africa to leapfrog directly to a technology-driven continent, thus skipping the manufacturing phase altogether. It is not clear, however, if this would be in the best interests of Africa.

It has been estimated that less than 30% of Africans have formal bank accounts. Having an account and access to a range of financial instruments does not only provide the possibility to store funds in a secure manner, but it also gives a concrete tool to lift oneself out of poverty. During the past decade, **Africa has been at the forefront of the development of mobile phone-based money transfer and banking services**, and 21% of African adults now have mobile money accounts. These allow subscribers to deposit, transfer and withdraw money, as well as pay for services and goods with a mobile device. Only a simple mobile phone is required to use these services. Mobile money accounts are held and administered by mobile operators, whereas the conversion between cash and electronic value takes place in designated retail stores. In practice, mobile money innovations are cheaper than traditional bank services, reduce travelling time and are convenient to use. Furthermore, they provide previously unbanked society members with the possibility to use financial and payment services. To have more affordable and convenient ways to send domestic remittances is particularly important in SSA, where 45% of the adult population reports having sent or received such payments. As of 2016, there were half a billion mobile accounts around the world, of which more than half were in SSA.

There are significant regional differences in the adoption rates of mobile technologies. East Africa has been at the technological forefront, with Kenya leading the way with more than 70% of its adult population using mobile money services (especially *M-Pesa*). In 2015, the One Network Area (ONA) was set up between Kenya, Rwanda, Uganda and South Sudan, where roaming charges were abolished. According to a World Bank estimation, as a consequence of this decision, phone call minutes between Rwanda and Kenya increased almost immediately by more than 950%. ONA also provided possibilities for illegalities such as '*Sim Boxing*', an activity where a small device is installed with low-cost SIM cards with the aim to make international calls seem like local ones, thereby bypassing all international interconnect charges. This causes lost tax revenues on the one hand, and an unclear future for ONA on the other. In comparison, **West Africa** is still lagging behind, with many countries having close to zero adoption rates. Possessing the largest capacity to increase its subscription base, over 60 million new subscribers are anticipated by 2025, of which half are from Nigeria. An important step facilitating these developments is the spreading of 4G networks: between January 2018 and January 2019, ten new 4G networks were set up in West Africa. In the area of ICT, **North Africa** is often placed in the Middle East and North Africa (MENA) subgroup instead of Africa. MENA's mobile subscription rate was 64% in 2018, placing it significantly ahead of the SSA region but still the second-least penetrated region worldwide. Unlike in SSA, science and technology policies were already developed in North African countries in the 1990s. These policies are currently being revised in several countries in the region, following a growing awareness of the huge mismatch between the outcomes of the education system and labour market requirements. The challenge is that in countries such as Tunisia and Egypt, there is a substantial number of highly educated people with no employment prospects in sight.

In addition to mobile phone innovations, there are also other promising technological innovations occurring in Africa. In the renewable energy sector, hydropower is the biggest contributor (84% of the market) but it is rapidly being caught up by solar power innovations. With costs declining at an annual rate of 10%, solar power is already cheaper than coal in more than 30 countries. Importantly, a solar plant in Africa may produce double the

Lack of public transport causes traffic jams and air pollution in Ouagadougou as well as in other African cities.
Photo: Petri Pellikka, 2015.

Telephone landline and mobile phone in use in a computer shop in Asmara, Eritrea.
Photo: Petri Pellikka, 2015.

power of a similar-sized power plant in Germany. In some parts of coastal Africa, strong wind capacity has pushed governments to plan large-scale investments in wind power, whereas basically every farmer with a cow has the potential to participate in biogas production.

E-commerce is a growing business around the continent, with African online marketplaces such as *Jumia* expanding. Furthermore, in theory, 3D printing may prove to be invaluable to manufacturers in Africa. When a specific spare part is urgently needed, rather than waiting for weeks, it could be 'printed' on the spot. *The World Advanced Saving Project* has also developed 3D printers that can print durable houses from locally available materials such as mud, with plans to operate with solar power in off-grid areas. In Rwanda, drones are used to transport blood and other urgent medical supplies to rural hospitals, whereas drone-related security risks have led some countries, such as Kenya, to restrict their use.

However, it should be remembered that despite recent technological innovations, most African economies are still based on the extraction of natural resources. Instead of producing end products in Africa, raw materials are sold abroad for a fraction of the profit

that could be earned by shipping final products instead. For instance, nearly 75% of the world's cocoa is produced in Africa, while it gets only 2% of the US$100 billion chocolate market. **Taken together, Africa accounts for just 1% of global manufacturing. The lack of manufacturing power is one Achilles heel for African development.** Globally, there are few examples of countries (apart from small tax havens and oil states) that have managed to successfully bypass the manufacturing phase of economic development.

Impacts of technological development in Africa

The level at which technological development may increase one's quality of life depends highly on social standing. **Those without core skills and capabilities to utilise new technologies, especially basic literacy skills, will be left behind.** It is somewhat paradoxical that, whereas disabled people would likely benefit the most from mobile innovations and ICT tools, they also remain the most excluded. If governments so decide, however, carefully planned technological innovations may provide a practical tool for tackling many forms of inequalities. In addition to dis-

ability-friendly technologies, and services targeted particularly at disabled people, policies that aim to increase mobile phone ownership among women would not only widen mobile money adoption, but also provide one practical way to increase female-led businesses and tackle gender inequality. Research shows that women are 36% less likely to use mobile money than men, with the gap even wider in some areas and countries. It is worth noting that the gender gap is widest prior to registration. When women have mobile money accounts they are just as likely to become regular users of mobile money as men. In addition to access to mobile phones, internet penetration and fixed broadband subscription rates have also proved to increase the formal economic participation of women in Africa.

We may nonetheless expect that although the ownership rate of mobile phones will continue to increase around Africa, and the same applies to mobile money innovations, income disparities between the rich and poor will not decrease without significant investments in solid basic education. Whereas OECD countries spend about USD 7,000 per pupil per year in the education sector, the figure for many African countries is less than one hundredth of that. Poorly educated children

become poorly educated teachers and the vicious circle continues. The capability and willingness of African governments to address this challenge is the key to making technological innovations benefit all and not just the already-privileged. Some countries, including Kenya, Liberia, Nigeria and Uganda, have tried to leapfrog in the education sector by partnering with private service providers, who claim to be able to provide quality education even in the remotest of places through education materials stored on phones and tablets. At the moment, there is limited impartial research on the success of these endeavours. According to previous studies from other parts of the world, **technology seems to amplify the effects of the education system, whether good or bad**. Thus, technological innovations to improve the education sector in Africa are certainly not a magic cure, but may prove useful when used skilfully alongside traditional teaching methods.

In addition to an effective education sector, functioning governmental institutions and clear policies, laws and enforcement systems are needed to advance technological diffusion in a sustainable manner. Although, on a short-term basis, institutional voids may benefit the spreading of innovations such as M-Pesa in Kenya, from a longer perspective,

the 'rules of the game' need to be clear to everyone. Corruption remains a huge challenge in Africa, and the readiness of governments to tackle the problem have a direct link to the pace of technological revolution in Africa. On a more practical level, investments in traditional physical infrastructure – roads, bridges, ports, railways, telecommunication – are essential for scaling up the phase of technological development. Furthermore, policies that support interoperability between mobile network operators across countries may provide instant benefits to societies and companies alike, as the East African 'one network area' illustrates.

The recent intensification of political, security, economic and technological tensions between the United States and China will also have broad repercussions in Africa. Over the past decade Africa has been a prime growth area for Chinese companies, including Huawei. Compared to the intense security scrutiny on Huawei in Western countries, African states have in the past been fairly relaxed about contracting the construction of government buildings, key infrastructure such as telecom networks, railways and port facilities to Chinese companies, many of which have strong

ties to the Chines state. With the USA officially criticising Chinese actions as examples of 'predatory economics' and building 'debt traps', while gradually beefing up its own presence on the continent, African states may also face a choice between American and Chinese technological solutions. However, differently from many South-East Asian and European countries, African states are more likely to side with China, given the lack of strong security ties to the United States, historically close relations to China, and the 'sunk costs' of already relying so heavily on Chinese technological solutions. By and large, African leaders have not been as concerned with the security implications of relying on Chinese technological solutions. Information security has been low on the list of worries. Achieving fast development relatively affordably has often trumped such concerns. We are likely to see technological bifurcation, where much of SSA sides with China.

To sum up: If African governments are willing and able to support traditional development initiatives – the education sector, infrastructure, rule of law and related institutions – side by side with policies supporting technological innovations, Africa holds the potential to leapfrog to a tech-

nology-driven continent. If one or the other is missing, however, technological innovations are unlikely to benefit those already left behind.

Mitigation options and recommendations

In order to create an environment where technology benefits all and not just the privileged, African governments and regional organisations would need to **invest simultaneously in 'boring fundamentals', such as education and infrastructure, as well as promising innovations**. In other words: the societal absorbing capability needs to be scaled up together with technology exposure. The readiness of governments and firms to enhance regional or even continent-wide interoperability, regulatory harmonisation and multilateral innovation policies would likely bring down data prices and support further investments. These, in turn, might help to address the mismatch between job market needs and workforce capabilities in areas such as North Africa.

All forms of equality in education and especially in technology education should be strongly encouraged. Mobile phones, the internet and other technological

tools enhance financial inclusion only if there is the necessary physical and institutional infrastructure in place to support it. Policies that aim to increase the ownership of mobile phones among women and disabled people should be strongly encouraged, and the intended beneficiaries should be included in the planning and testing of technologies that concern their lives.

The scandal surrounding the alleged Chinese snooping on the Chinese-built and -donated African Union complex in Addis Ababa ought to make African governments more cautious in accepting 'free' gifts from China that may come with technological strings attached. In addition, **technological 'quick fixes' to cure shortcomings in the education sector, or any other fundamental sector, should be avoided**. Academic research compellingly illustrates that technological innovations may indeed improve learning, but only in skilful hands.

African governments and regional organisations should continue to explore the possibilities of the renewable energy sector. In the best-case scenario, the continent's energy sector could jump directly to cost-effective renewables and bring down energy prices at the same time. In the wildest

Kiatoko Nkoba shows houses for stingless bees. Beekeeping is developed as alternative livelihood at International Centre of Insect Physiology and Ecology in Nairobi.
Photo: Petri Pellikka, 2019.

scenarios, Africa could perhaps in the future even lead the way in the production of sustainable energy solutions and act as an example to the rest of the world. However, due to its geographical and societal variety, technological innovations in one part of the continent cannot be replicated as such in other environments, as experiences with mobile money aptly demonstrate. Understanding the local context from top to bottom is the key for successful technological development in Africa, and in this regard the diaspora talent remains a largely untapped resource.

African governments and regional organisations need to carefully consider whether leapfrogging industrialisation would even serve their best interests. According to Professor Calestous Juma, the former director of the Science, Technology and Globalization Project at Harvard Kennedy School, it certainly would not. Juma (2017) argues that:

'**leapfrogging industrial development is not an option**; if anything, the evolution of the mobile sector demonstrates the continued importance of industrial development as the source and catalyst for innovation and economic growth. It also offers important lessons for how government, industry, and academia can collaborate to create new industries, expand manufacturing, create jobs, and stimulate the structural transformation of African economies. [...] This, in turn, will require a new industrial policy for Africa'.

Here again, China is a factor. In recent years, Chinese companies have been active in moving some of their low-end manufacturing to Africa, with developments in Ethiopia being of particular interest.

80% of the sisal fiber is exported unprocessed from Kenya, for example to China to be used in the textile industry.
Photo: Petri Pellikka, 2019.

Sources

Amankwah-Amoah, J., Osabutey, E.L.C. & Egbetokun, A. 2018, "Contemporary challenges and opportunities of doing business in Africa: The emerging roles and effects of technologies", *Technological Forecasting and Social Change*, vol. 131, pp. 171–174. [22.5.2019].

Amankwah-Amoah, J. 2019, "Technological revolution, sustainability, and development in Africa: Overview, emerging issues, and challenges", *Sustainable Development*, March 2019, pp.1–13.

Asongu, S. & Boateng, A. 2018, "Introduction to Special Issue: Mobile Technologies and Inclusive Development in Africa", *Journal of African Business*, vol. 19, no. 3, pp. 297–301.

Asongu, S.A. & Le Roux, S. 2017, "Enhancing ICT for inclusive human development in Sub-Saharan Africa", *Technological Forecasting and Social Change*, vol. 118, pp. 44–54.

Asongu, S.A., Nwachukwu, J.C. & Orim, S.I. 2018, "Mobile phones, institutional quality and entrepreneurship in Sub-Saharan Africa", *Technological Forecasting and Social Change*, vol. 131, pp. 183–203.

Bräutigam, D. 2007, "China, Africa and the International Aid Architecture", *African Development Bank Group Working Paper*, series 107, https://www.afdb.org/fileadmin/.../WORKING%20107%20%20PDF%20E33.pdf. [27.5.2019].

Corkin, L. 2013, *Uncovering African agency: Angola's management of China's credit lines*, Ashgate, Farnham.

Danquah, M. & Amankwah-Amoah, J. 2017, "Assessing the relationships between human capital, innovation and technology adoption: Evidence from sub-Saharan Africa", *Technological Forecasting and Social Change*, vol. 122, pp. 24–33.

Danquah, M. 2018, "Technology transfer, adoption of technology and the efficiency of nations: Empirical evidence from sub Saharan Africa", *Technological Forecasting and Social Change*, vol. 131, pp. 175–182.

Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S. & Hess, J. 2019, *The Global Findex Database*. The World Bank Group, https://openknowledge.worldbank.org/bitstream/handle/10986/29510/9781464812590.pdf

Efobi, U.R., Tanankem, B.V. & Asongu, S.A. 2018, "Female Economic Participation with Information and Communication Technology Advancement: Evidence from Sub-Saharan Africa", *South African Journal of Economics*, vol. 86, no. 2, pp. 231–246.

Etzo, S. & Collender, G. 2010, "The Mobile Phone 'Revolution' in Africa: Rhetoric or Reality?", *African Affairs*, vol. 109, no. 437, pp. 659–668.

Gillet, J. 2014, *Measuring mobile penetration: Untangling 'subscribers', 'mobile phone owners' and 'users'*, GSMA, https://www.gsmaintelligence.com/research/2014/05/measuring-mobile-penetration/430/ [24.5.2019].

GSMA 2019, *The Mobile Economy: West Africa 2019*, GSMA, https://www.gsmaintelligence.com/research/?file=ba0a-2f0e831cba2c06a75ff34620450e&download [22.5.2019].

Juma, C. 2017, "Leapfrogging Progress: The Misplaced Promise of Africa's Mobile Revolution", *Breakthrough Journal*, No. 7 / Summer 2017, https://thebreakthrough.org/journal/issue-7/leapfrogging-progress [8.6.2019].

Lashitew, A.A., van Tulder, R. & Liasse, Y. 2019, "Mobile phones for financial inclusion: What explains the diffusion of mobile money innovations?", *Research Policy*, vol. 48, no. 5, pp. 1201–1215.

Mattlin, M. and Nojonen, M. 2015. "Conditionality and path dependence in Chinese lending", *Journal of Contemporary China*, vol. 24, no. 94, pp. 701–720.

Minischetti, E. 2017, *Digital Access: The Future of Financial Inclusion in Africa*, GSMA, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/07/CW_Cote_Mali_gendergap_Phase2_V2_WEBOK.pdf [22.5.2019].

Murray, S. 2017, "New technologies create opportunities", *WIDER Working Papers 2017/156*, UNU WIDER, July 2017, https://www.wider.unu.edu/publication/new-technologies-create-opportunities [22.5.2019].

Njoh, A.J. 2018, "The relationship between modern Information and Communications Technologies (ICTs) and development in Africa", *Utilities Policy*, vol. 50, pp. 83–90.

Radwan, A. 2018, "Science and Innovation Policies in North African Countries: Exploring Challenges and Opportunities", *Entrepreneurship and Sustainability Issues*, vol. 6, no. 1, pp. 268–282.

Tchamyou, V.S., Erreygers, G. & Cassimon, D. 2019, "Inequality, ICT and financial access in Africa", *Technological Forecasting and Social Change*, vol. 139, pp. 169–184.

Higher education is one of the keys to democracy. Pekka Hurskainen of University of Helsinki with dean Tewolde Weldetinsae at the Adi Keih College of Arts and Social Sciences plan geoinformatics MSc education.
Photo: Petri Pellikka, Eritrea, 2015.

Democratic development

Mikael Mattlin

Summary

Many African countries saw the introduction of multi-party elections in the 1990s. Over the past decade, however, both political rights and civil liberties have somewhat deteriorated. Nevertheless, there has also been progress in several areas, e.g. in the institutionalisation of political parties and elections, the increased role of women in politics, empowered civil societies and occasional peaceful power transfers. The institutional framework for democracy is today more widespread across the continent than in the early 1990s. Also, while military coups still occur, they are less accepted by the broader African community. Yet many problematic areas still exist, such as endemic corruption, the rollback of earlier democratic progress in some countries, the emergence of 'hybrid regimes' (e.g. competitive authoritarianism), ethnic voting and political violence. On its current trend, African democracy is on a path towards quantitative stagnation and slow qualitative deterioration, although outright relapses into authoritarianism are becoming rare. A more positive vision for the future is that a combination of megatrends (slowdown in population growth, urbanisation and technological development), in conjunction with stronger commitments to democratic forms of government by some African governments and the African Union, will lead to improved quality of democracy and further democratisation in some countries. One of the central challenges lies in normalising peaceful power sharing and power alternation. African leaders wishing to see a more democratic future for the continent need *to focus on building constraints* and *showing restraint*. The former refers to developing institutional restraints and checks on the (ab)use of power, e.g. through corruption fighting and tolerance of a freer media. The latter is political-cultural: showing restraint towards political opponents and relinquishing power in due course. Another challenge for the deepening of African democracy is the current ambivalence and lukewarm commitment among Western governments towards supporting African democratisation. Simultaneously, China is active on the continent, promoting its own 'alternative models of governance' with (at least superficially) generous offers of lending and aid. The positive scenario would likely require stronger support for democracy from external actors. A crucial battleground for governance ideas is the training of future African elites.

The current understanding of democracy trends in Africa

At the tail-end of what Samuel Huntington famously called the Third Wave of democratisation, many African countries also saw the introduction of multi-party elections in the 1990s. In keeping with the global trend, the 1990s and early 2000s were a time of relative progress for democracy in Africa.[1] Since then, the advancement of political rights and civil liberties has been on the wane globally for well over a decade, while authoritarianism has again reared its head, in what Huntington probably would regard as an authoritarian counterwave (he argued that every democratisation wave has been followed by such a counterwave). Progress in African democratisation has also stalled over the last decade. In fact, based on an analysis of data from Freedom House – one of the primary global sources of longitudinal data on political rights and civil liberties – one can observe that both political rights and civil liberties have somewhat deteriorated in Southern, Eastern and Central Africa, while the situation has, on average, stayed the same in Western Africa. The only indicator that shows a substantial improvement is political rights in Northern Africa, but that is entirely due to the major political change that occurred in Tunisia following the 2011 Arab Spring (Table 1).

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1 A prominent study on the drivers of African democratisation at the time found that it correlated with military intervention in favour of democracy, the presence of a cohesive opposition to the incumbent dictator, as well as more ODA and more frequent political protests (Bratton and van de Walle 1997).

Table 1. The state of political rights and civil liberties in Africa in 2018, and trend over the last decade.

	Political rights	10 yr change	Civil liberties	10 yr change
Southern Africa	3.40	+ 0.40	3.00	+ 0.20
Eastern Africa	4.84	+ 0.37	4.74	+ 0.50
Central Africa	6.22	+ 0.67	5.56	+ 0.56
Northern Africa	5.71	- 0.71	5.57	0.00
Western Africa	3.50	0.00	3.56	0.00

Source: Adapted from data in the Freedom House 'Freedom in the World' reports 2008 and 2018.

Notes: 1 denotes most free and 7 least free, i.e. an increase in the number denotes less freedom, and a decrease signifies more freedom. The main indexes are composed of many sub-indexes. Because of this, the main indexes are robust in the sense that they rarely vary much over a short time period due to outlier values in one sub-index. Geographical classifications are based on UN sub-regions.

On a national level, relative progress on political rights and civil liberties in Tunisia and Côte d'Ivoire are overshadowed by setbacks across the continent; particularly in Burundi, the Central African Republic, Mali and Mauritania. Even in Tunisia experiences with democracy have not been altogether positive. Tunisia held its second presidential vote in September-October 2019, yet the economy has underperformed, while opinion surveys indicate growing disappointment with democracy, and even nostalgia towards a more authoritarian political system. One recent bright spot is Ethiopia, whose new leader has instigated dramatic political changes that earned him the Nobel Peace Prize. As recently as 2018, data showed Ethiopia to be among the African countries with the poorest record in political and civil rights.

Only ten African countries (18% of all) are given the overall status of 'free' by Freedom House, of which two are more significant countries: South Africa and Ghana. In comparison, in the Americas south of the USA, the equivalent figure is 63%. Overall, one cannot discern a clear continent-wide trend towards widening or deepening democratisation, but neither is it possible to say that authoritarianism is uniformly winning ground across the continent.[2] A more granular analysis of democracy trends in Africa is therefore called for.

The state of press freedom in Africa is somewhat better than in the rest of the Global South. However, only three very small African countries (Mauritius, Sao Tomé and Príncipe and Cape Verde) have an entirely free press, according to Freedom House. While many African countries have legal protections for freedom of speech and the press, **most countries lack freedom of information acts. Government secrecy and periodic attacks on the press by political leaders occur even in the more democratic countries.** Both increased internet and mobile phone usage have been associated with greater democratisation in Africa, with Tunisia being a prominent example of the power of new media for mobilisation. Yet, the flip side of the Arab Spring 'social media revolutions' is that many authoritarian governments, also in Africa, are doubling down on controlling the internet, mobile technologies and social media.

While democracy trends in Africa are not overwhelmingly positive, democratisation has not been without its effects. For one, **the institutional framework for democracy and elections is now relatively well established and more widespread across the continent**. While military coups still occur, they are less accepted by the broader African community. For example, the African Union has intervened in military coups by condemnation (Togo 2005), and suspension from the organisation (Mauritania 2005), and has helped in forming a caretaker government and increased its military presence in the country (Mali 2012).

Overall, there has been **progress in the institutionalisation of political parties and elections. Many basic requirements for a functioning democracy have also improved, e.g. the legal framework, independent ju-**

A police officer was supervising the transportation of ballot papers in Liberia in 2017.
Photo: Leena Vastapuu.

diciaries and electoral commissions. **Civil society actors have also taken a more active role in the political process in several countries, from Tunisia to Sudan. One particular bright spot is the increased role of women in politics.** Female parliamentarians are now far more numerous in African parliaments than they were in 1990, partly because some countries, e.g. Rwanda, have adopted gender quotas. The legal rights of women have also improved. However, in many countries customary rights and practices continue to limit female participation in politics, and there is discrimination against women and LGBT (Lesbian, Gay, Bisexual and Transgender) people.

One ubiquitous problem that spares few African countries is endemic corruption. In the Transparency International survey on corruption perceptions, most African countries (30) rank in the lowest third. A significant number are among the most corrupt globally, with Somalia and South Sudan the two most corrupt countries in the world. However, there are also a few bright spots in sub-Saharan Africa (SSA): the Seychelles, Botswana, Cape Verde, Rwanda and Namibia. Other problematic areas include the rollback of earlier democratic progress in some countries, the emergence of 'hybrid regimes' (e.g. competitive authoritarianism), ethnic voting and political violence. Some research suggests that these setbacks may be because Africa democratised too quickly relative to its income levels. In short, Africa also suffers from what democratisation scholars have identified as a global trend towards democracy being increasingly widespread, but also increasingly thin, i.e. **quality-of-democracy issues**.

The high tide of democratisation in Africa coincided with the triumphalist 'end of history' moment during the 1990s. Western countries were relatively confident in the superiority of their own political system, which was also reflected in general support for democracy, rule of law, human rights and civil society among the aid/donor community. Since the global financial crisis, there has been more self-doubt and ambivalence towards generalised global democracy promotion among Western governments. Instead, donors have often opted to pursue more limited goals, such as legal system reform or gender equality. This change is not without its consequences, especially as China increasingly confidently promotes its own 'alternative models of governance' with (at least superficially) generous offers of lending and aid, such as the promise of USD 60 billion in financing for Africa made by the Chinese leader Xi Jinping at the Forum on China-Africa Cooperation (FOCAC) summit in Beijing in 2018.

Authoritative opinion surveys indicate that the image of China is very positive in Africa (most positive among all the continents). China is also seen as the second-most desirable developmental model, after the United States, and even the most desirable in several countries. Regionally, China's developmental model is particularly attractive in East and West Africa. This positive image is strengthened by the increased media presence of China through the China Global Television Network (CGTN). In Southern Africa, China is already regarded as the greatest external influence by a wide margin.

Impacts of current democracy trends in Africa

Colonialism often left behind unnatural state boundaries, weak states and institutions. Following independence, many African states therefore struggled with political instability, civil wars and ethnic tensions. While democratisation, in principle, should provide channels for addressing grievances, one of the paradoxes of electoral competition is that it may initially lead to an exacerbation of societal conflicts, e.g. through the politicisation of ethnicity and citizenship, as happened in the civil war in Côte d'Ivoire. The introduction of multi-party elections is not a cure-all for political, economic and social problems. African societies face a wide range of challenges, ranging from the outright political (e.g. recovering from civil war, ethnic strife, legacies of authoritarian repression), and economic (e.g. large-scale unemployment, lack of investment), to social (e.g. lack of medical care, poor schooling, gender inequality). Existing research gives a mixed picture of the ability of more democratic and inclusive forms of governance to deal with these challenges in Africa.

One of the central challenges faced by new democracies in Africa lies in normalising peaceful power alternation and power sharing, both between individual leaders and social groups – political parties, as well as ethnic and linguistic groups. In countries with histories of conflict and weak state institutions, there is often both a *lack of trust* between groups, and a *lack of restraint* (political civility). Political scientists have identified restraint as a crucial element in well-functioning democracies.

African leaders tend to cling on to power and its associated resources past their 'due date' for a range of reasons, ranging from feelings of insecurity to avarice.[3] Even popularly elected leaders in relatively established democracies sometimes seek to perpetuate their power through questionable means, e.g. through the creation of new electoral districts in order to deliver patronage, as has happened in Uganda. **There have been occasional peaceful power transfers, e.g. in Nigeria in 2015. However, it is a sobering fact that three of the most stable democracies (South Africa, Namibia and Botswana) have been ruled by the same political party for decades.** Power-sharing agreements – commonly used in Africa as a path out of civil war – can also adversely affect democratisation and government performance when used in response to flawed elections. Nonetheless, well-constructed power sharing can help facilitate transitions towards democracy. The recently concluded constitutional agreement in Sudan is an interesting case in this respect.

Democratisation makes 'cheap' forms of electoral manipulation, such as outright intimidation, less viable. On the other hand, it tends to increase vote-buying.[4] Democratisation also tends to intensify the fight against corruption, especially in countries where leaders already take corruption-fighting seriously to begin with. When corruption control is already at a high level, political stability, government effectiveness and the rule of law become more important factors relative to issues of voice and accountability. Research shows that different corruption dynamics may be at play in countries where the record on corruption is poor. Different circumstances call for different measures.

The ambivalence among Western governments, and partly also the donor community, towards supporting democratisation in Africa has in itself become one of the challenges for deepening African democracy. Donors have often adopted an apologetic attitude towards countries with patchy records in this respect, as well as towards less-than-perfect African leaders. Following the regime change debacle in Libya, many Western governments have become somewhat reluctant to demand that African leaders step down, even after egregious abuses of power. However, research indicates that international, in conjunction with domestic, pressure for a leader to step down often succeeds. After the 2015 'immigration crisis', the EU has taken a distinct turn towards *realpolitik* in its neighbourhood, such as

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2 The propensity for democracy rises in Africa with population size and density, ethnic fractionalisation, having British legal origin (or colonial heritage), and a supportive institutional environment (maintenance of the rule of law). Factors associated with lower propensity for democracy are oil wealth, linguistic fractionalisation and rough (mountainous) terrain (Anyanwu and Erhijakpor 2014).

3 Revealingly, the Ibrahim Prize for Achievement in African Leadership given to former leaders, who recently left office, has not been awarded for many years, see http://mo.ibrahim.foundation/prize/.

4 Research on African politics indicates that when political competition is even, weak incumbents often tend to resort to repression, while stronger incumbents are more likely to use various forms of ballot fraud and bribery (Collier and Vicente 2012).

recently arranging a summit with Arab leaders. EU policy thinkers have attempted to rationalise this changed stance by talking about *principled pragmatism*. To many observers, the pragmatism is more evident than the principled part. In light of the current feebleness of Western democracy-promotion, it is often easier to be an African authoritarian leader than an ardent democrat.

Increased competition from China for African 'hearts and minds' is not only a bad thing. For one, it has provided much-needed resources to plug gaps in infrastructure investments across the continent. **Competition in the realm of governance ideas is also positive** if it prevents Western governments from becoming complacent about the governance models that they are promoting, and their presumed benefits. It has also **provided African governments with more leverage**, as they are no longer dependent only on Western sources of financing. However, there is also a distinct danger that the competition between two governance models offered by China and the United States (an authoritarian and state-led model vs one that is more democratic and liberal) takes on adverse features similar to what was observed during the Cold War in the competition between the United States and the Soviet Union.

On its current trend, **African democracy is on a path to quantitative stagnation and slow qualitative deterioration**, although outright relapses into authoritarianism are becoming increasingly rare. A more positive scenario is that **a combination of megatrends (slowdown in population growth, urbanisation and technological development), in conjunction with stronger commitments to democratic forms of government by some African governments and the African Union, could lead to improved quality of democracy in current democracies and democratisation in some countries that are lagging behind**. The latter scenario would, however, require stronger support from external actors, such as the EU and it's member states.

Mitigation options and recommendations

For African leaders wishing to see a more democratic future for the continent, constraint and restraint are crucial. Constraint here refers to institutional features: **developing institutional constraints and checks on the (ab)use of power, e.g. through corruption fighting, administrative law reforms and tolerance of a freer media**. Restraint, in turn, is political-cultural: **showing restraint towards political opponents**, especially when one's own position is strong, and **relinquishing power when elections are lost**. To be sure, these are no quick fixes; rather, they tend to build on each other in virtuous or vicious cycles. In the context of increasing competition over governance with China, it is doubly **important that democratic governments can 'deliver fruits', also in the form of economic development and rising living standards**. This is still an open question, as a number of African governments have enthusiastically embraced Chinese loans and investments in local infrastructure, and tend to regard China's developmental model as a faster road to prosperity. Having prominent examples of democratic African states that have prospered economically would be advantageous.

For Western governments, the situation is not easy. Traditional development aid is increasingly seen in many developing countries as failing to deliver rapid economic development on its own. Critical voices have also been raised from within the expert community with regard to the ability of development aid to improve macroeconomics. **EU governments are hard-pressed to directly compete with China's economic offers and infrastructure-building prowess, although the EU has vowed to boost its investments in Africa**[5]. A piecemeal approach to political values, such as focusing on minorities' or women's rights, while important as such, risks giving the impression that EU governments' development policy is driven mainly by current Western political priorities,

Villagers in Sanya, Sierra Leone have gathered to discuss the plans of a development project on biocarbon.
Photo: Petri Pellikka, 2014.

especially when coupled with 'value pragmatism' in conjunction with migration issues.

In a context where the EU, the USA and some bigger EU governments show only lukewarm commitment to promoting democracy, it is even more **important that smaller EU governments remain strongly committed to** **democracy and human rights promotion** in Africa, so as to provide a source of support for young, and often still fragile, African democracies. **One crucial area is the training of future African elites.** China is very active in systematically offering education opportunities to future African elites, both generally and in specific fields with governance relevance (e.g. legal training, and training for political parties and journalists). This kind of training and education is **also likely to have long-term effects on the spread of governance ideas and related norms**. It is therefore an area that Western governments can ill afford to neglect.

Sources

Akech, M. 2011, "Constraining government power in Africa", *Journal of Democracy* vol. 22, no. 1, pp. 96–106.

Aljazeera. 2019. "Four things to know about Tunisia's presidential election." https://www.aljazeera.com/news/2019/09/tunisia-presidential-election-190911145310951.html [13.9.2019].

Anyanwu, J. C., Erhijakpor, A.E.O. 2014, "Does oil wealth affect democracy in Africa?", *African Development Review* vol. 26, no. 1, pp. 15–37.

Asongu, S. A. 2013, "Fighting corruption in Africa: Do existing corruption-control levels matter?", *International Journal of Development Issues* vol. 12, no. 1, pp. 36–52.

Bah, B. A. 2010, "Democracy and civil war: Citizenship and peacemaking in Côte d'Ivoire", *African Affairs* vol. 109, no. 437, pp. 597–615.

Baldwin, K., Mvukiyehe, E. 2015, "Elections and collective action: Evidence from changes in traditional institutions in Liberia", *World Politics* vol. 67, no. 4, pp. 690–725.

Bates, R. H., Fayad, G., Hoeffler, A. 2012, "The state of democracy in Sub-Saharan Africa", *International Area Studies Review* vol. 15, no. 4, pp. 323–338.

Benabdallah, L., Robertson, W. 2018, "Xi Jinping pledged $60 billion for Africa. Where will the money go?", *The Washington Post*, September 17. Available at: www.washingtonpost.com/news/monkey-cage/wp/2018/09/17/xi-jinping-pledged-60-billion-for-africa-where-will-the-money-go/?noredirect=on&utm_term=.9825b76d31fd. [21.6.2019].

Chabal, P. and Daloz, J.-P. 1999, *Africa Works. Disorder as a Political Instrument*. Bloomington and Indianapolis: Indiana University Press.

China White Paper on Foreign Aid 2014, PRC State Council.

Collier, P., Vicente, P.C. 2012, "Violence, bribery, and fraud: The political economy of elections in Sub-Saharan Africa", *Public Choice* vol. 153, no. 1–2, pp. 117–147.

Devlin, K. 2018, "5 charts on global views of China", Pew Research Center, 19 October. https://www.pewresearch.org/fact-tank/2018/10/19/5-charts-on-global-views-of-china/ [13.9.2019].

Diamond, L. 2015, "Facing up to the democratic recession", *Journal of Democracy* vol. 26, no. 1, pp. 141–151.

Elias, N. 1982. *The Civilizing Process*. New York: Pantheon.

Freedom House surveys 2008 and 2018. Freedom House.

Hartzell, C. A., Hoddie, M. 2015, "The art of the possible: Power sharing and post-civil war democracy", *World Politics* vol. 67, no. 1, pp. 37–71.

Hughes, M. M., Tripp, A. M. 2015, "Civil war trajectories of change in women's political representation", *Social Forces* vol. 93, no. 4, pp. 1513–1540.

Huntington, S. P. 1991, *The Third Wave: Democratization in the Late Twentieth Century*. Oklahoma: University of Oklahoma Press.

Ibrahim Prize for Achievement in African Leadership. Available at: http://mo.ibrahim.foundation/prize. [23.6.2019].

Krook, M. L. 2013, "Gender quotas and democracy: Insights from Africa and beyond", *Women's Studies International Forum* vol. 41, pp. 160–163.

Kudamatsu, M. 2012, "Has democratization reduced infant mortality in Sub-Saharan Africa? Evidence from micro data", *Journal of European Economic Association* vol. 10, no. 6, pp. 1294–1317.

Le Cos, C. 2019, "EU-Rwanda plan: Another short-sighted answer to Libya migration crisis". https://www.thenewhumanitarian.org/opinion/2019/08/16/migration-eu-rwanda-libya-plan [13.9.2019].

Le Van, A.C. 2011, "Power sharing and Inclusive politics in Africa's uncertain democracies", *Governance* vol. 24, no. 1, pp. 31–53.

Matti, S.A. 2010, "The Democratic Republic of the Congo? Corruption, patronage, and competitive authoritarianism in the DRC", *Africa Today* vol. 56, no. 4, pp. 42–61.

Muriaas, R. L., Tønnesen, L., Wang, V. 2013, "Exploring the relationship between democratization and quota policies in Africa", *Women's Studies International Forum* vol. 41, pp. 89–93.

Schenkkan, N., Repucci, S. 2019, "The Freedom House Survey for 2018: Democracy in Retreat", *Journal of Democracy* vol. 30, no. 2, pp. 100–114.

Serlomey, E. 2019. "China's growing presence in Africa: Findings from Afrobarometer Round 6", NED Workshop on China's Influence on African Media, 21–22 February.

Tangri, R., Mwenda, A.M. 2010, "Patronage, district creation, and reform in Uganda", *Journal of Contemporary African Studies* vol. 28, no. 1, pp. 31–49.

Tocci, N. 2016, "Interview with Nathalie Tocci on the global strategy for the European Union's Foreign and Security Policy", *The International Spectator* vol. 51, no. 3, pp. 1–8.

Transparency international, 2018 survey on corruption perceptions. Available at: https://www.transparency.org/cpi2018. [23.6.2019].

Treisman, D. 2017, "Democracy by mistake", *NBER Working paper series*, No. 23944. Available at: http://www.nber.org/papers/w23944

Van Ham, C., Lindberg, S.I. 2015, "From sticks to carrots: Electoral manipulation in Africa, 1986–2012", *Government and Opposition* vol. 50, no. 3, pp. 521–548.

5 https://www.dw.com/en/eu-investment-in-africa-europe-racing-to-catch-up/a-45500068

Dry grass is burnt after the dry season in the Sahel zone to trigger new growth.
The fire reaches dry palm leaves and smoke spreads far away.
Photo: Petri Pellikka, Sierra Leone, 2014.

Summary report

Mikael Mattlin, Petri Pellikka, Leena Vastapuu, Emma Hakala

Introduction

If the early part of the 21st century belonged to Asia, and in particular China, many observers expect that Africa's time will finally come in the latter part of the 21st century. Long regarded in Europe mainly as a monumental bundle of developmental challenges (or even a 'basket case'), Africa's future now looks promising. However, African leaders and governments still face a number of major challenges. The effects of many global megatrends – urbanisation, migration, climate change, population growth, technological development and democratisation – are expected to be particularly acutely felt in Africa.

As Robert J. Walker (2016, 980) has perceptively noted: 'In recent decades, notable gains have been made in reducing the incidence of hunger and poverty in the world, but progress has been slow in countries with high fertility rates. The nations with the fastest growing populations tend to rank high on global indices of hunger, poverty, environmental degradation, and fragility; and many of these countries face enormous obstacles to economic development in the form of climate change, regional or ethnic conflict, or water scarcity.' Africa has often confounded expectations (including UN projections) with regard to population growth. Many African countries have broadly adhered to global trajectories of a rapid decline in mortality, followed by a decline in fertility. Yet, some areas, especially in the conflict-ridden Sahel region, have only recently seen declines in fertility and still exhibit the world's highest fertility rates.

The challenges faced by Africa today intersect and reinforce each other, which necessitates taking a holistic approach to the megatrends. This summary report is based on six separate short reports, each about one megatrend currently at work in Africa. During the course of our work, it became clear that two of the megatrends (population growth and climate change) are more central than the others, as they tend to affect all other megatrends in various ways. We therefore begin this summary report with these **mega-mega-trends**.

In the thematic reports, the authors briefly describe each trend and its implications, ponder options for mitigation and adaptation, and note some interaction effects between the megatrends. Mitigation and adaptation options are considered mainly from the point of view of African leaders and governments, who ultimately bear the main responsibility for policy actions regarding their own development. We urge Finnish policymakers to take the assessments and recommendations of this report series into consideration when formulating decisions related to Africa, and, whenever possible, to support African government actions taken towards achieving more sustainable development.

Megatrend: Population growth

Africa's demographic variety is huge, and it is therefore more reasonable to discuss its population growth regionally rather than as a singular phenomenon. By 2050, the population of sub-Saharan Africa (SSA) is expected to double, with Francophone West Africa experiencing the fastest population growth on a global level. In Niger, which has the highest fertility rate of all countries, a woman has on average 7.2 children during her lifetime. In contrast, fertility rates in many East African countries have begun to fall, and South Africa, as well as several North African countries, already have fertility rates below 3.

Since the average length of life has improved significantly across the continent and especially in SSA, and as large parts of the population comprise children and young people, population growth will continue, despite falling fertility levels. According to the latest research, the secondary education of females seems to have the greatest potential to decrease fertility rates in SSA. On a global level, this is a peculiar feature that begs further research.

Many African countries have placed high hopes on the so-called demographic dividend. This refers to an economic growth potential stemming from an age structure where the working-age population exceeds that of the non-working-age population. However, in order to reap the benefits of the demographic dividend, many supportive policies are needed; from job creation to educational opportunities. A key challenge and opportunity for Africa in the 21st century lies in its youth, as by 2050 Africa will host the largest number of young

people of all the regions in the world. This is a scenario that African governments need to prepare themselves for already today.

Megatrend: Climate change

Africa's contribution to global emissions from burning fossil fuels is only 3%, which is mostly caused by rapidly growing road traffic. The most significant contribution for climate change from Africa is land cover change, which has been going on more and more intensively during the last decades. Wooded landscapes are converted to agricultural areas for food production and bioenergy harvesting. Due to fast population growth and economic development, emissions are expected to increase and the land cover change trend to continue in sub-Saharan Africa. Loss of woody vegetation increases land surface reflectivity and temperature, decreases water resources and evapotranspiration, as well as biodiversity. This alters microclimates and local climates, and when it takes place widely its impacts are on regional, continental and global level.

The consequences are remarkable if the global temperature average increases by two degrees Celsius. Heatwaves, droughts, storms and floods become more numerous and severe than before. The variability of climate causes problems for agriculture. On open land surface, especially in topographically variable landscapes, the water infiltrates poorly to the soil, causing erosion and lack of water. Climate change causes a shifting range of ecosystems, which may bring pests, weeds and diseases to previously cooler areas, and will impact agriculture as well as livestock management that is also hampered by heat and water stress. The yields of many important food crops are expected to decrease by between 15 to 22%, causing problems to food security.

Due to institutional weaknesses and inadequate infrastructure, African countries are more vulnerable to the impacts of climate change than developed countries, and marginalised groups are particularly at risk. This is also likely to exacerbate societal consequences and increase insecurity. In combination with other factors, the impacts of climate change may contribute to forced migration or even conflict. The shortcoming in understanding climate change in Africa is that climate data is scarce and its quality is variable. In addition, climate services and dissemination are poorly organised. These services are needed in order to provide early warning for catastrophes, as well as to prepare adaptation or mitigation schemes for the impact of climate change on agriculture, for example.

Two sectors are essential in mitigating climate change: the development and application of low-emission energy production technology, and the development of climate-smart agriculture and landscape frameworks. In addition, various adaptation strategies are needed. Low-emission technologies, such as solar and wind power, provide a promising solution to climate change mitigation in Africa, where economic production has not yet been thoroughly locked into high-emissions pathways.

Agroforestry is a sustainable solution in agriculture, since in addition to carbon sequestration it also produces other ecosystem services, such as water, fertilisers, shade and biodiversity as well as raw material for building and energy production. Diversification of livelihoods in pastoralism towards practices maintaining tree cover would mitigate loss of wood cover in areas where even a small increase in tree cover is significant. Programmes, such as the United Nations REDD+ (Reducing Emissions from Deforestation and Forest Degradation), encourage people and communities to preserve forest resources through carbon compensation.

Both the development of low-emission energy production options and climate-smart agriculture and landscape model development require traditional ecological knowledge and scientific evidence, as well as contributions from the African community and donors. Finland could have a role in these two sectors as we have know-how and experience in these fields.

Megatrend: Urbanisation

Contrary to developments elsewhere in the world, urbanisation in Africa has not followed a straightforward path associated with structural transformation, economic growth or reduction in population growth. Therefore, levels of urban poverty, inequality and segregation remain high, and may continue to worsen as urbanisation continues. Unplanned and poorly governed urbanisation has

City light rail funded and built by the Chinese was opened in Addis Abeba in 2015.
Photo: Petri Pellikka.

The water pump is often still the most important technological achievement in Africa like here in Turkana, Kenya.
Photo: Petri Pellikka, 2018.

a high potential to increase human insecurity, vulnerability to climate change, as well as harmful environmental impacts. These impacts are also interlinked and tend to exacerbate one another. In particular, they adversely impact those who are already the worst off, such as people living in marginalised communities.

Urban poverty is concentrated in slums and shanty towns, where poor or non-existent sanitation, waste management, energy provision, health care and other services expose inhabitants to the risks of disease, crime, violence and overall poverty. The inevitable impacts of climate change, such as storms and floods, may have catastrophic consequences on such communities.

Considerable investments, especially in infrastructure, are needed to advance sustainable development in cities. The economic potential of cities should be harnessed by encouraging self-sustaining business initiatives, as well as education. Basic infrastructure and services, such as public transportation and sanitation, need to be improved and made available to the poorest sectors of the population. Improvements in infrastructure

also have a high potential for beneficial ecological and climate impacts. Investment decisions, however, will need to be gender aware, climate resilient and take into account overall socio-economic impacts.

Megatrend: Migration

African migration patterns are typically misrepresented. Although emigration from the continent regularly takes place, about 80% of Africa's migration movements still occur within Africa. Like people anywhere, most Africans also migrate for employment, family reasons or studies. However, according to a UN estimate, more than 30% of all forcibly displaced people also reside in Africa, including 6.3 million refugees and asylum seekers, as well as 14.5 million internally displaced people (IDP). IDPs are particularly vulnerable to abuse and neglect, as they continue to be in a legal limbo.

Being such a hot topic, all stakeholders – in source, destination and transit countries – will continue to use migration as a diplomatic and negotiation tool. The

approach taken towards migration will likely correlate significantly with the impacts of migration in Africa and beyond. If people on the move are primarily treated as a security threat, evidence-based policies will be increasingly difficult to plan and implement. If, on the other hand, migration is understood as an inherently natural human phenomenon, the positive sides of it can be better capitalised on, and the downsides systematically contained. Coordination is needed, as massive displacement crises are forecast to impact Africa, due to population growth and climate change, with the expectation that most people forced to flee will be internally displaced.

As the African Union has recently emphasised, the ongoing securitisation of migration should not hamper efforts towards further freeing up the movement of persons on the continent. The European Economic Area can be treated as an example of how the gradual opening of borders, standardisation of working conditions, and mutual recognition of education qualifications have been achieved in the past through a step-by-step approach.

Megatrend: Technological development

New ways to boost economic growth in Africa are urgently needed. In this regard, the spread of mobile phones and related mobile technologies are having a transformative role on African societies. These include: easier access to information, job creation, enhanced service delivery, greater financial inclusion, and a more accessible business environment.

In the wildest visions, ICT is seen as a tool for Africa to leapfrog directly to a technology-driven continent, although it is not clear whether skipping the industrialisation phase would even serve African interests. A form of leapfrogging can be found in mobile banking, where many Africans have been able to move from unbanked members of society to using mobile money accounts and related financial services.

Other promising technologies for Africa can be found in the renewable energy sector, e-commerce, 3D printing and drones. However, regional variation is great. Whereas mobile money in-

novations are spreading around East Africa, West Africa is a clear laggard. On the other hand, North African countries have fairly developed science policies, but limited regional coordination. Thus, technological innovations in one part of the continent cannot necessarily be replicated as such in other environments. Furthermore, basic infrastructure needs to be built and maintained alongside technological innovations.

In this respect, Chinese-financed infrastructure building and provision of technological solutions have attracted many African governments, albeit with over-indebtedness as a risk for some countries. If forced to choose between American and Chinese technological solutions, many African states are likely to side with the latter, given their lack of institutionalised security ties with the United States, historical relations with China, as well as the promise of rapid and affordable project completion and sunk costs in Chinese technological solutions.

Accelerated adoption of technologies may also exacerbate already-existing inequalities, e.g. between genders and between the rich and poor. As a result, increased investment in solid basic education, in conjunction with functioning governmental institutions and clear policies, laws and enforcement systems, are prerequisites for realising the full development potential of new technologies.

Megatrend: Democratic development

Many African countries saw the introduction of multi-party elections in the 1990s. Over the past decade, however, both political rights and civil liberties have somewhat deteriorated in Southern, Eastern and Central Africa, while the situation has, on average, stayed the same in Western Africa. Nevertheless, there has been progress in several areas, e.g. in the institutionalisation of political parties and elections; more active participation by civil society actors in the political process; the increased role of women in politics; and occasional peaceful power transfers. The institutional framework for democracy is today more widespread across the continent than in the 1990s.

Yet many problematic areas still exist, such as endemic corruption, the rollback of earlier democratic progress in some countries, the emergence of 'hybrid regimes' (e.g. competitive authoritarianism), ethnic voting and political violence. In short, Africa also suffers from what democracy scholars identified back in the early 2000s as a global trend towards democracy being increasingly widespread, but also increasingly thin, i.e. quality-of-democracy issues.

African democracy is currently on a path towards quantitative stagnation and gradual qualitative deterioration, although outright relapses into authoritarianism are becoming rare. A more positive vision for the future is that a combination of megatrends (slowdown in population growth, urbanisation and technological development), in conjunction with stronger commitments to democratic forms of government by some African governments and by the African Union, will lead to improved quality of democracy and further democratisation in some countries. The positive scenario would, however, likely require stronger support from external actors, e.g. by the

EU collectively and by individual EU governments. In this regard, smaller EU states' continued commitment to democracy promotion is particularly important.

African leaders wishing to see a more democratic future for the continent need to focus on building constraints and showing restraint. The former refers to erecting institutional constraints and checks on the (ab)use of power, e.g. through corruption fighting and tolerance of a freer media. The latter is political-cultural in nature: showing restraint towards political opponents and relinquishing power in due course.

The current ambivalence and lukewarm commitment among Western governments towards supporting democratisation globally is not conducive to the deepening of African democracy. Simultaneously, China is active on the continent promoting its own 'alternative models of governance' with (at least superficially) generous offers of lending and aid. A crucial 'battleground' for governance ideas is the education and training of future African elites.

Sylvain Rabetsaroana was one of the 33 presidential candidates in Madagascar in 2013.
Photo: Petri Pellikka.

Taita Research Station of the University of Helsinki has established a station in Taita Taveta County in Kenya to measure greenhouse gas and energy exchange between atmosphere and biosphere. Photo: Petri Pellikka, 2019.

Interactions between megatrends

The observed megatrends also impact on each other, often in both directions. One can envision both a vicious, as well as a virtuous cycle of interactions and effects.

In a **vicious trend cycle**, fast population growth leads to uncontrolled urbanisation and more rapid climate change. Urbanisation itself also affects climate change by forming urban heat islands and air pollution, which have minor effects on climate change compared to land cover change taking place in rural areas. Air pollution, however, already spreads widely from African megacities, although we are still far from the massive pollution clouds spreading in South-East Asia. Atmospheric particles caused by air pollution and dust act as condensation nuclei for water, but as being very numerous they do not necessarily increase the probability of precipitation.

Use of traditional old-fashioned, high emission technology speeds up climate change. Climate change and population growth will also inevitably impact African migration movements in the future. Climate change induces droughts, heatwaves, desertification, land degradation, sea level rise, flood-

ing, a higher intensity of extreme weather events, reduced food security, as well as conflicts over ever-scarcer natural resources. As a consequence, massive human population displacements are forecast, with the expectation that a large majority of climate migrants will be internally displaced. The poorest of the poor will be most heavily impacted. Livelihoods in rural areas are hampered by climate change generating migration to cities, or across borders. By 2050, according to a World Bank estimation, there will be some 86 million internal climate migrants in sub-Saharan Africa alone. This contributes back to qualitatively poor urbanisation patterns (urban sprawl), and increases the vulnerability of urban life. It may particularly increase the percentage of urban poverty, as it can be difficult for the rural population, that has been forced to migrate due to lost livelihoods, to find new opportunities in cities. Under such circumstances, it would be scarcely surprising if democracy on the continent continues to stagnate.

It is, however, also possible to envision a more benign **virtuous trend cycle**. In global terms, urbanisation has usually been associated with lower rates of population growth. However, this pattern is strongly linked to an overall struc-

tural change in society, which has also incorporated industrialisation and economic growth. In Africa, urbanisation has not followed such a straightforward path, as the other elements of structural change have taken place at a slower or inconsistent rate. In the future, reduced population growth may, however, allow urbanisation to be directed onto a more sustainable course through better urban planning, improved basic infrastructure and better schooling opportunities. This in turn may itself contribute to lower population growth rates.

Vibrant cities with better functioning basic infrastructure and more educated young people may contribute to technological development, thereby changing economic structures. The development of low emission technology for transport and energy production has mitigating impacts on climate change, whereas the development of information technology also provides great opportunities to inform and disseminate climate services, reduce climate hazards, and provide smartphone apps for improved agricultural practices, to name a few examples. Technology can provide information to citizens about air pollution levels in cities, allowing to take climate-smart actions, and be used for developing
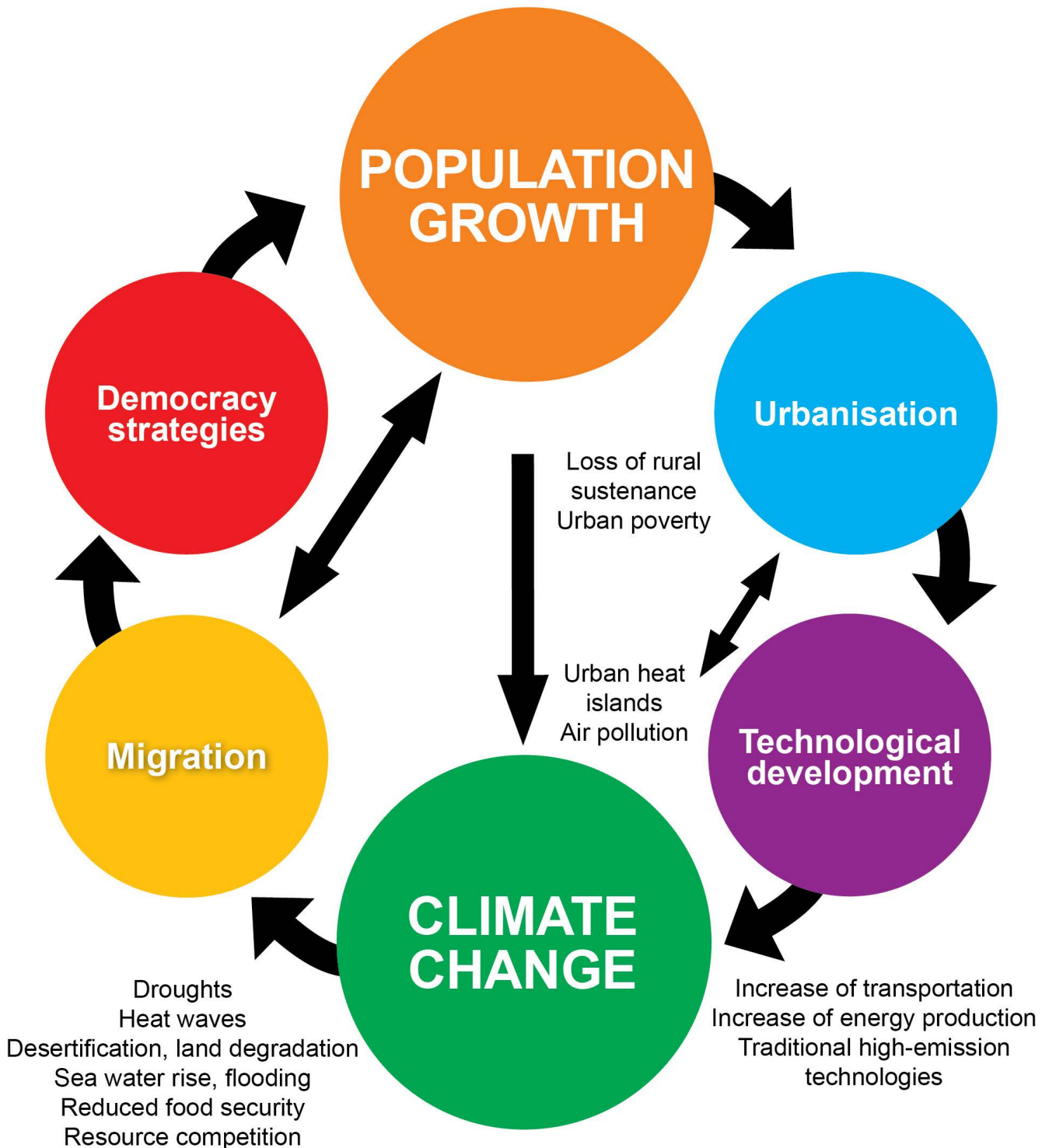
smart city planning. Improved climate services and climate-smart agriculture in rural areas may improve livelihoods and decrease people's willingness to migrate, allowing for gradual adaptation instead. When legal migration channels are improved, educated youth migrating to cities may be a force for positive social change, including demands for greater civic and political participation.

Finally, would democratisation ameliorate the adverse effects of other megatrends, such as excessive population growth? Interaction effects are complex. There are some African countries with low population growth that score poorly on democracy indices (especially in North Africa) and also democracies with relatively high population growth (Benin, Senegal, Sao Tomé and Principe). However, as a group the most stable African democracies tend to have lower-than-average fertility rates, whereas the countries with the highest fertility rates almost all score poorly in Freedom House rankings. There seems to be at least some correlation at both extremes of the spectrum, and there is some research evidence that fertility rates tend to fall in African countries after democratisation.[1]

1 One study found that fertility tended to fall in SSA countries by 1.2 percentage points following democratisation, possibly partly due to changes in public health policies (Kudamatsu 2012).

VICIOUS TREND CYCLE

POPULATION GROWTH

Democracy strategies

Urbanisation

Loss of rural sustenance
Urban poverty

Migration

Urban heat islands
Air pollution

Technological development

CLIMATE CHANGE

Droughts
Heat waves
Desertification, land degradation
Sea water rise, flooding
Reduced food security
Resource competition

Increase of transportation
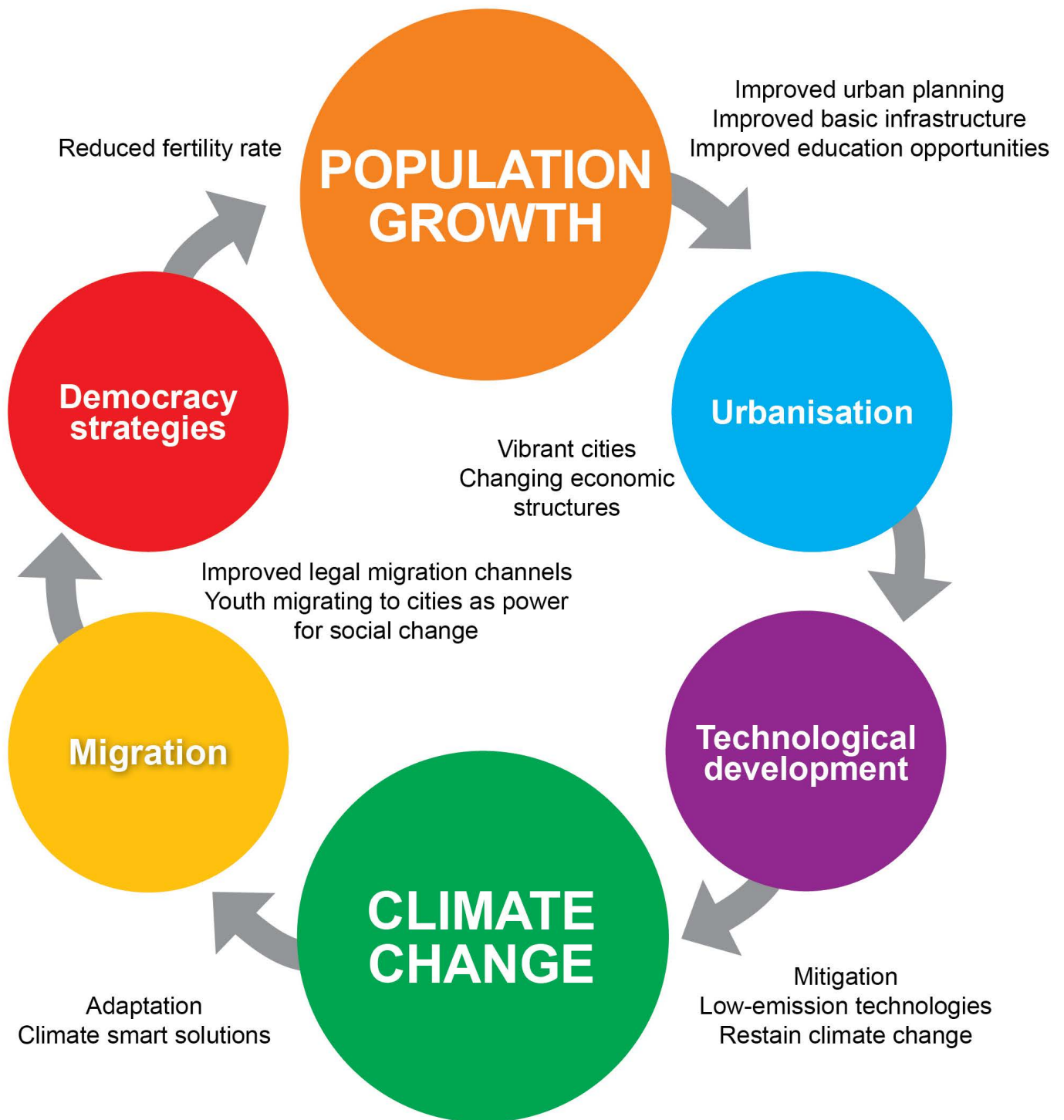Increase of energy production
Traditional high-emission technologies

In a vicious trend cycle, fast and uncontrolled population growth leads to climate change, which in turn impacts migration patterns in several adverse ways.

VIRTUOUS TREND CYCLE

Reduced fertility rate

POPULATION GROWTH

Improved urban planning
Improved basic infrastructure
Improved education opportunities

Democracy strategies

Vibrant cities
Changing economic structures

Urbanisation

Improved legal migration channels
Youth migrating to cities as power for social change

Migration

Technological development

CLIMATE CHANGE

Adaptation
Climate smart solutions

Mitigation
Low-emission technologies
Restain climate change

In a virtuous trend cycle, reduced fertility rates, managed urbanisation, and technological solutions mitigate climate change. Better climate change adaptation allows migration to be channelled into more sustainable pathways, which in turn may empower youth to be a force for positive social change.

Conclusion

"Although Africa is a continent of great diversity, African states have much in common, not only their origins as colonial territories, but the similar hazards and difficulties they have faced. Indeed, what is so striking about the fifty-year period since independence is the extent to which African states have suffered so many of the same misfortunes." (Meredith 2006, 14)

Africa is a continent of great climatic, ethnic, linguistic, economic and political diversity. Yet, as the quote above indicates, there is also an underlying intimation of common experiences, and perhaps increasingly also a sense of common destiny.

One of the challenges inherent in forecasting the effects of megatrends is that these trends interact with each other in dynamic ways, and may therefore produce unexpected (side) effects. In this respect, one of the biggest question marks concerns population dynamics. Population growth is a major underlying cause for the lack of reduction in poverty, urbanisation and migration, as well as being a contributing factor to climate change, for example. At the same time, population growth is also affected by many other trends.

African population dynamics seem to be following global trends with a lag, and show some idiosyncratic features. One of the most interesting and consequential ones is that, differently from experiences in other areas around the world, the strongest driver of lower fertility in SSA seems to be rising female education (especially secondary education), rather than female employment. Other factors, such as rising incomes and urbanisation, also seem to work indirectly through education (Goldstone 2019). This suggests that targeting education and, in particular, post-primary female education, would have a significant effect on population growth, in addition to its other positive effects. Nevertheless, given the glacial pace of demographic changes, Africa is all but certain to see rapid population growth over the coming decades.

Africa is facing a set of challenges deriving from the megatrends discussed in this report. While all of the megatrends contain within them the possibility for a plethora of adverse effects – even apocalyptic visions for the future – this need not be so. For every potential adverse effect, there is a counterpoint:

- overpopulation... or *demographic dividend*
- ungovernable slums... or *young and vibrant cities*
- uncontrolled migration... or *the free movement of people for work and living*
- barren lands... or *more ecologically sustainable modes of life*
- technological repression...or *technology as a driver of economic transformation*
- political strife... or *dynamic new democracies.*

Ultimately, it falls upon African governments, acting individually and in unison, to ensure that the more favourable visions are realised. However, the outside world has important roles to play in supporting and facilitating these choices. As the IPCC (2019, 23) remarks in its latest report, collective international efforts at all levels are required to 'facilitate strengthening the global response to climate change, achieving sustainable development and eradicating poverty.' More specifically with regard to Africa and development policy, EU governments should focus more on well-targeted investments in education, training and basic infrastructure, as well as advising on good practices. Africa's future is bright, if we work in the right direction together.

Goats heading towards an unknown future.
Photo: Petri Pellikka, Eritrea, 2015.

A farmer dug a pit using shovel and hoe in order to collect rainwater in the Tsavo plains, Kenya.
Photo: Petri Pellikka, 2019.

Sources

Cilliers, J. 2018, *Getting to Africa's Demographic Dividend*, Institute for Security Studies, Africa Report 13, August 2018, https://issafrica.org/research/africa-report/getting-to-africas-demographic-dividend [15.6.2019].

Goldstone, J.A. 2019, "Africa 2050: Demographic Truth and Consequences", Governance In An Emerging New World, Winter Series, Issue 119, https://www.hoover.org/research/africa-2050-demographic-truth-and-consequences [26.6.2019].

IPCC 2019, "Summary for Policymakers", https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf [13.8.2019].

Kudamatsu, M. 2012, "Has democratization reduced infant mortality in Sub-Saharan Africa? Evidence from micro data", *Journal of European Economic Association*, vol. 10, no. 6, pp. 1294–1317.

Meredith, M. 2006, *The State of Africa: A History of the Continent since Independence*, Simon & Schuster, London.

Walker, R.J. 2016, "Population Growth and its Implications for Global Security", *American Journal of Economics and Sociology*, vol. 75, no. 4, pp. 980–1004.

World Bank 2019, "Fertility rates, total (births per woman)", https://data.worldbank.org/indicator/SP.DYN.TFRT.IN?most_recent_value_desc=true [26.6.2019].

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Infrastructure is one of the challenges for development in Africa.
A ferry is needed to cross the Little Scarcies River in Sierra Leone.
Photo: Petri Pellikka, 2014.

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