The eLearning AFRICA REPORT 2014

Nelson Mandela's education legacy
2015 – what next? The view from the ITU
Megaprojects under the microscope
The battle for our books Finding funds Survey results
In focus: agriculture, health, tourism

The key to everything

ICT in education and the "transformed continent"

Binyavanga Wainaina • Brahima Sanou • Paul Boateng • Aida Opoku-Mensah

55 country profiles

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Editorial

The Key to the Future

The mood of optimism among Africans is unmistakable. It has been noticeable for at least the last two years and it is easy to understand the reason for it.

The World Bank estimates that economic growth across Africa will rise to 5.2% in 2014. African economies have been growing at a much faster rate than their European, North American and even Asian counterparts for several years now, their GDP boosted by rising investment in natural resources and infrastructure. Even resource-poor countries, such as Ethiopia and Rwanda, have started to experience solid economic growth. Across the continent, growth has begun to look as though it can sustain itself, as strong household spending is fed back into the economy.

Africa's economic optimism is something we have started to notice in the world of eLearning too. Our survey*, the results of which we publish in this edition, confirms that African eLearning professionals are feeling confident about the future. This is more good news for the continent because the combination of education and technology is clearly a powerful driver for growth. Nelson Mandela believed not only that education was a powerful weapon to change the world but that it is the key to everything.

This is increasingly clear in a number of sectors. In agriculture, for example, ICTs are spreading education and information in ways which are making a reality of the African Union's dream of a "transformed continent". Farmers are more efficient and aware. Their yields are increasing because they know more about land management techniques and their incomes are growing because of better access to information about prices and markets. Excited investors now talk about African agriculture as a booming business, capable of feeding not just regional populations but a much larger slice of humanity.

Continuing investment in the continent's telecommunications infrastructure is crucial to sustaining growth. As Brahima Sanou, the Director of the Development Department of the International Telecommunications Union (ITU) points out in his interview with us, "high-speed international connectivity is a major constraint on the delivery of broadband services in Africa". Broadband ICT is, as he says, "an essential part of the long-term economic development strategy" for Africa.

African education will depend increasingly on good communications and connectivity. The opportunities are enormous. As Mr Sanou says, "the advent of low cost mobile tablets massive market rollout stand to revolutionise education because of the pedagogical implications of being able to deliver more content on a larger screen". The implications of such developments for Africa are incalculable.

It's time to focus on education and infrastructure. If education is the key to everything, the key to the education of the future is infrastructure.

**Throughout this edition of the eLearning Africa Report, illustrating many of our contributors' pieces, you will find infographics depicting the results of our survey.*

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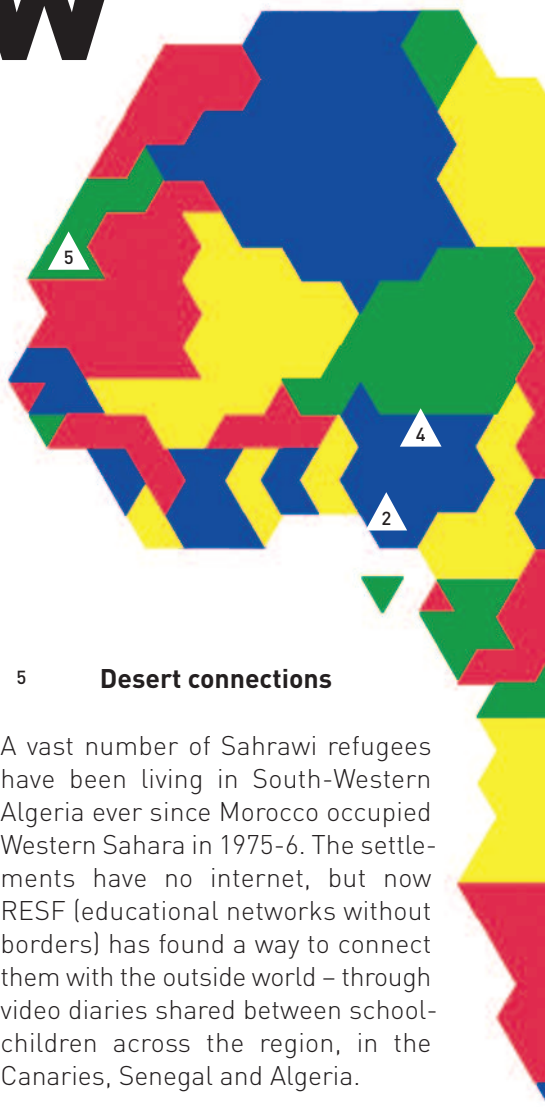
News review

eLearning Africa news editor Ali MacKinnon provides a selection of eLearning news stories from across the continent.



1 Grassroots network

Extending Internet connectivity to rural areas is often seen as a large-scale task. Even using the wireless spectrum requires a licence, something only the Government or the big companies can afford – the same companies who are unwilling, because of low returns on investment, to extend rural connectivity. In South Africa, an impatient group of techies has found a way to grow the Internet from the bottom up, using the unlicensed Wi-Fi spectrum. Commonly only used to connect over short distances (say, within a building), Wi-Fi can, through portable routers, be extended over a few kilometres. In this way "daisy chains" of routers can be created, creating local networks at the grassroots level.

2

Photo: © Iwan Baan

This floating school, built this year in the Makoko fishing district, has been nominated for a Design of the Year Award.

3 Give me a drone where the buffalo roam

Military drones are the centre of global controversy. They terrorise the people of Gaza, strike fear into the hearts of Afghans. It's the common story of a new technology being used to destructive and, perhaps, evil ends. Because drones have a host of uses beyond the context of war – as was proved in Uganda in January, when the Wildlife Authority announced it would be buying two drones to aid in the fight against poachers. And that's not all – East Africa is set to be the scene of trials using drones to extend the Internet into unconnected rural areas.

4 Boko Haram

The atrocities committed by Boko Haram have dominated the headlines in Nigeria this year. In April, the kidnapping of over 200 schoolgirls in the town of Chibok, Borno state caused national and international outrage. The group have directed much of their violence against learning institutions, placing education at the centre of the ideological struggle.

May sees the American University of Nigeria, also situated in the conflict-riven North-East, opening a multimedia library containing the largest e-book collection in all Africa.

5 Desert connections

A vast number of Sahrawi refugees have been living in South-Western Algeria ever since Morocco occupied Western Sahara in 1975-6. The settlements have no internet, but now RESF (educational networks without borders) has found a way to connect them with the outside world – through video diaries shared between schoolchildren across the region, in the Canaries, Senegal and Algeria.

6 Congo Robocop

Kinshasa's traffic is notoriously chaotic, while its underpaid gendarmes have often been accused of extorting money from drivers. But now there's a new, uncorruptible force on the streets: giant traffic robots. Standing tall at dangerous intersections, their deep voices tell cars and pedestrians when to stop or go, while cameras record instances of possible road law infringement. "A robot handling road safety and traffic control," says maker Therese Kirongozi, "that's truly 'Made in Congo'."

7 Chart success

Mapping Rwanda is a difficult task – the terrain is rugged, and while there is plenty of large-scale data the local, on-the-ground coverage needed to produce a useful map is lacking. A group of 225 students have now been equipped with smartphones and tablets and sent out to map their country digitally. It's as much a social as a scientific project: this new generation of investigative cartographers is hoping to record and analyse data on wildfires, water quality and deforestation.

8 Peril on the sea

Europe "is staying silent in the face of a massacre that has the numbers of a true war," said Giusi Nicolini, the mayor of Lampedusa, the Italian island which is the scene of a continuing tragedy as African refugees and migrants drown off its shores. "Their death at sea," he continues, "must be a reason for Europe to feel shamed and dishonoured." But what can be done? Education and "soft power" are part of the answer, with our survey showing almost unanimous support for the establishment of better Africa-Europe links through ICT. The Government of Libya set a powerful example in December by extending free higher education to all refugees.

9 Taking to the airwaves

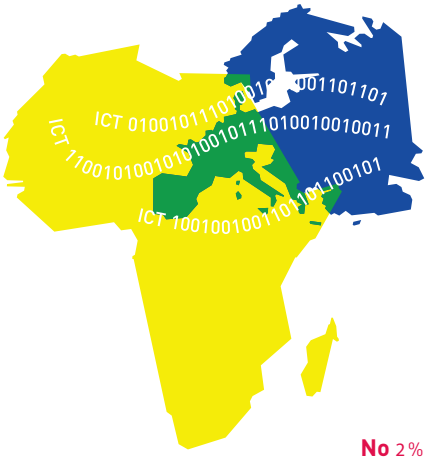
After decades of war, women in Somalia are one of the most disadvantaged groups in the world. Journalists working in the country also face grave danger. And then, there are the power outages – all of which make it seem like Mogadishu isn't the best place for an all-female radio station. Nevertheless, Aman Radio is just that: and through debates, call-in shows, cookery programmes and music request hours it is courageously giving a voice to Somalia's marginalised women.

10 Bus network on the net

Kenya consistently proves a hard act to follow when it comes to ICT innovation. Wikipedia began trialling an SMS shortcode service here in October – allowing users to send requests for pages, which are then delivered by text message to even the most basic handset. Meanwhile, infrastructure is advancing in leaps and bounds – the Government is setting up free Wi-Fi hotspots across the country, and the matatus (public minibuses) of Nairobi have onboard Internet and TV entertainment.

ICT FOR EUROPE-AFRICA EXCHANGE

Survey: **"In your opinion, should ICTs be used to help improve educational exchange and dialogue between Africa and Europe?"**



11 Pork takes on a gamey flavour

Pig farming is on the rise in Africa. But with the growing production and availability of pork comes a serious health risk: the tapeworm Taenia Solium, which affects 50 million worldwide, and can cause epilepsy and severe headaches. A learning game, *The Vicious Worm*, has been developed to stem the advance of the disease, and is currently on trial in Tanzania. Edutainment is on the rise here – the Femina HIP initiative, for example, teaches young people about HIV through magazines, TV, radio and road shows. And social enterprise Ubongo is creating localised educational broadcasting to overcome the disadvantages inherent in the Western educational model.

More weekly selections of world news can be found at http://www.online-educa.com/OEB_Newsportal/tag/around-the-world/

Is Modernity destroying African education?

by Bitange Ndemo

Since independence, education in most African countries has remained static. The content is largely foreign. The methods of teaching are in most cases chants that have little meaning to the future development of the learners. The systems are exam-oriented and have converted pupils into robots of a kind. Historical events that shape our future and how we think and act in the days to come are not part of the syllabus. This is why it is of significant urgency to rethink the archetype of our education today.

Africa's learning methods through imitation and the oral tradition of knowledge transmission are dying. Modernity is destroying the little that was transmitted. Education that was a lifelong experience is now largely an event in life. Children used to learn the entire flora and fauna that was within their environment. There was no pressure to master the language, the environment or the patterns of rainfall. It simply was an experience that, at an early age, a child would be able to tell which snakes were poisonous and which were not.

Most children knew how to deal with a snake-bite largely through imitation of what their parents did. In some instances, they acted as first responders in an emergency situation, administering first aid if there was no adult nearby. Depending on where the bite was (mostly around the legs), they would quickly look for a tree with flexible bark, tie the anterior side of the lesion, slice the lesion wide open then suck the blood and spit it. This was done repeatedly while making arrangements to get the patient to hospital.

Similarly, children learnt which plants were harmful and which were not. As they watched their parents forage for fruits in forests, they knew which not to touch or eat. Some plants were medicinal. It was possible for a fairly young adult to prescribe which plant you needed to use in the event you had constipation. Crude as it as it may sound, it was invaluable knowledge. Unfortunately, it was not recorded anywhere due to the nature of oral traditions. This is where we need some intervention. The knowledge is still out there and there is still time to leverage technology and capture it for posterity.

Although formal education and its focus on literacy and numeracy is critical to enhancing our knowledge base, it was introduced as a superior intervention over "primitive" African oral tradition. Many of those who became literate began to despise and discard African knowledge. This, in my view,

is what has led to the glaring cognitive dissonance among Africans. Ngũgĩ wa Thion'go, in his *Decolonizing the Mind*, noted "The attitude to English was the exact opposite... English became the measure of intelligence and ability in the arts, the sciences, and all the other branches of learning. English became the main determinant of a child's progress up the ladder of formal education."

The language of education

Throughout Africa in the early 1960s, the language of education was not the language of the people's culture. The imitation of Western values has changed African behaviour and attitudes. As a result, African languages have become static compared to dynamic European languages. It is much easier to express ourselves as Africans in foreign languages because new words, for example, have not been reflected in local languages. Political rallies across Africa are mostly held in European languages. Reverting to local languages will be as difficult as it was in adopting European languages. On this crossroads, Africa must make a conscious decision to move on and deepen its understanding of these foreign languages within the African context, incorporating African methods of learning.

Learning is a complex process. In an article by Rahima Baldwin Dancy on Rudolf Steiner, who founded Waldorf education, it is argued that understanding the nature and development of the young child can help parents nourish their child's whole body, mind, emotions and spirit. It was through Steiner that Dancy first became aware of learning through example and imitation, principles that she had observed in her own children without paying them much conscious attention. A child younger than seven, up to the change of teeth, is essentially imitative. It learns by seeing and copying what is done around it.

It is with such knowledge that we can bring about reforms to the current systems of education, where children at an early age are forced into rote learning. There is no scientific justification for such learning. Indeed, in some of the most innovative countries, like Norway, education is a pleasurable experience. In the early years of primary school, the students spend most of their time playing educational games, learning social structures, the alphabet, basic addition and subtraction, and basic English skills.

"there is no scientific justification for rote learning"

Using technology to change educational paradigms

From grades two through seven, they are introduced to maths, English, Norwegian, science, religion, aesthetics and gymnastics, complemented by geography, history and social studies in the fifth grade. No official grades are given at this level, however; the teacher often writes a comment – analysis and sometimes an unofficial grade on tests. Most educational systems in Africa stress children with exams from the start. Even at nursery children go through a rigorous test to secure standard one space. The system seeks to identify intelligent and non-intelligent pupils early on even before the children develop their talents.

With a growing number of smartphones and content platforms, Africa must aggressively develop local content and widely distribute it both to young and old learners. Technology was created for Africa and can remedy its many shortfalls, helping it to "leapfrog" to join developed nations within the shortest period possible. However, we know that in the past there has been resistance in adopting new learning methods, which teachers think may replace them.

Technology can transform our schools. Research shows that students learning through visuals retain much more content than those who do not. Furthermore, technology may be the only tool that brings inclusivity in learning, giving time for slower learners to catch up. Even with languages, technology can assist children to learn multiple languages, including local languages. With such knowledge, we must therefore persuade African Governments and teachers to embrace technology in classrooms.

There is a need to reform our learning institutions to make education a pleasurable experience without necessarily focusing on exams. We now have enough justification to leverage the advances in information technology and revolutionise how children learn. Change in our educational systems is imperative to meet the demands of the future. We must develop Africa-centric content in order to learn from our own past mistakes.

Dr Bitange Ndemo is a leading columnist, senior lecturer at the university of Nairobi, Honorary Chair of the Alliance for Affordable Internet and the former Permanent Secretary at the Ministry of Information and Communication in Kenya.

Knight of the networks

Brahima Sanou is the Director of the ITU's Telecommunication Development Bureau and the man leading the charge to give Africa a world-class ICT infrastructure. Here he tells us what the future holds in store for the continent.

eLAR: Is the African mobile market nearing saturation? Which markets remain untapped, and what can be done to open them up?

Brahima Sanou: Thank you for this question. I would like to note:

- Africa's mobile market is not yet approaching saturation.
- Mobile-cellular subscription penetration rates will reach 69% by end 2014, compared with a global average of 95.5% and a developing country average of 90%.
- Mobile-broadband subscription penetration will reach 19% by end 2014, compared with a global average of 32% and a developing country average of 21%.

Overall, the African market provides good opportunities for the investor.

Rural areas remain generally unconnected as they face challenges of attracting private sector investment. However, governments are embarking on initiatives to ensure that these areas are serviced. As services are becoming more and more affordable, the uptake is likely to be good.

eLAR: How is the ITU trying to encourage competition? What can be done to ensure this competition does not leave out ordinary Africans?

BS: Actually, it is in the absence of competition that African consumers could be left out. Efficiently functioning, competitive markets lead to increased consumer welfare.

Some of the main challenges African regulators have been facing over the past decade are related to liberalising the ICT sector and fostering competition in order to allow as many people as possible to benefit from the opportunities brought about by new technologies and services. Many countries in Africa have completed the initial stages of reforming their telecommunication sector, meaning establishing a separate telecom/ICT regulator, privatising the incumbent and liberalising selected markets. Others have initiated the process in recent years. Due to the characteristics of ICT markets (e.g. first-mover advantages, high entry barriers – sunk costs, scarce resources – and economies of scale and scope) countries in the process of

Photo: ITU Pictures

Interview

Brahima Sanou

Brahima Sanou is the Director of the Telecommunication Development Bureau of the International Telecommunication Union. His job gives him a wide range of responsibilities, including advising on regulatory and market environments, helping to develop technologies and networks, the transition to digital broadcasting, new ICT applications, capacity building, cybersecurity, emergency networks, climate change and the promotion of digital inclusion for people with special needs.

Mr Sanou is a trained telecommunication engineer and also holds a postgraduate diploma from the Centre of Financial, Economic and Banking Studies in Paris, a background which enables him to master both the technical and financial aspects of his job.

The wealth of experience he has gained in the telecommunication and ICT sector, including twelve years working as an ITU official, has been widely recognised and he is one of the most influential figures in international telecommunications. A Knight of the National Order of Burkina Faso, he was named "Best Public / Private Manager" by Africa Telecom People in 2007.

liberalising markets should set up the appropriate regulatory frameworks to ensure competition will develop.

Today, regulators across Africa share the belief that enhanced competition will allow for more abundant investment and boost the ICT development in the region. It is emblematic that some 90% of African countries have established regulatory authorities to oversee the ICT sector, over three quarters of which have strong enforcement power. Their leadership has allowed the opening of new opportunities for both investors and consumers in many, but not all, ICT markets. Although some form of competition is authorised for most ICT services, competition in basic services, which includes local, long distance and international services, lags; for local services monopolies still exist in more than half of African countries.

Also, what is legally permissible doesn't always reflect the actual market situation or whether consumers have a meaningful choice in their service provider. Attracting investment is further linked to the control incumbents maintain on essential markets such as the international gateway, as discussed in more detail below, and the development of effective interconnection regulatory frameworks. One key challenge for many regulators in Africa is to develop their interconnection frameworks to ensure they enhance competition and investment.

In addition, merely some 50% of African countries have either partially or fully privatised their incumbent operator. Privatisation sends the signal that policy decisions and regulations will be fair to all players and fosters a level playing field. However, less than 40% of the countries in Africa have no restrictions on foreign ownership, maintaining barriers to Foreign Direct Investment (FDI) and expansion of competition in some market segments. Removing those barriers will help boost both investment and competition in the region and thus speed up the development of vital broadband networks and services.

"limiting broadband growth can negatively affect employment opportunities"

While efforts have been made over the past 5 years to liberalise international gateways in a majority of African countries, around one quarter remain largely under a de facto monopoly controlled by the fixed line incumbent. The result is that the incumbent maintains exclusive control over all legal international traffic, both incoming and outgoing, sets monopoly prices and keeps all international traffic revenue. Where incumbents follow a low-volume/high price model, the diffusion of ICTs and the intensity of their use is likely to remain limited because services are too expensive for consumers. The result is stifled ICT growth, lack of choice of service provider and innovative services, especially broadband services. Limiting broadband growth in turn can also negatively impact the ability of developing countries to develop new employment opportunities. Moreover, foreign investors' interest in the country may remain limited because of the challenges faced by new entrants.

Internet services, like in other regions, have traditionally been more competitive than virtually all other ICT market segments. The level of competition in DSL, cable modem and fixed wireless broadband are, however, relatively low (around 70%), and very little progress has been achieved over the past years. In contrast, 15% of the countries in the region have opened competition in mobile broadband between 2006 and 2013, which has significantly contributed to the fast growth of mobile broadband subscriptions over that period.

Ensuring consumers can benefit from greater competitiveness may be achieved by requiring number portability from fixed and mobile operators. In comparison with the global average and the other regions, Africa lags significantly in this regard. Currently, number portability is required and available from fixed line operators in only 9% of the countries in the region; while 18% of countries require portability of mobile numbers, but it is only available to 10% of mobile users in the region, as opposed to over 90% in Europe and over 60% in Asia-Pacific.

Last but not least, for African citizens to benefit from accessing the digital society, more needs to be done to develop and extend national broadband backbones and extend broadband access at the local level (likely through wireless) to connect the unconnected and reduce connectivity costs. Further sector reforms are indeed needed to increase penetration levels, in particular in terms of broadband and Internet uptake.

For many years, ITU has been very active in promoting the benefits of competition. More recently, multiple initiatives targeted at unleashing the global potential of broadband have gained momentum and making the ICT marketplace vibrant and competitive has been a major priority. Concretely, the Development Bureau of ITU has done important work in assisting

Member States in designing and implementing their institutional and legal frameworks for competition as well as in resolving specific issues they have been facing.

Furthermore, the work of the Development Bureau in developing regulatory best practices, such as competition and market liberalisation, is today a recognised and authoritative reference for Governments and industry alike. The global community of ICT regulators gathers every year at the landmark ITU Global Symposium for Regulators to discuss topical regulatory issues and, importantly, adopt a set of best-practice guidelines which constitute a recognised blueprint for modern regulation in the sector. These forge a new generation of regulation that comes of age bringing about a more flexible and contextual approach to regulating issues at different levels of the sector (networks, services, applications, etc.). It is certainly about softer and, ultimately, smarter regulation, free of bias and led by outside-of-the-box thinking.

eLAR: Is there a danger that privatisation will expose Africans to a new form of colonialism as Western companies move into the continent's markets?

BS: No, there is no such danger. Market analysis and market structure show that entrepreneurship in Africa has come of age particularly in the ICT sector. There are many examples of locally owned companies and local incubator initiatives that are doing very well. Of course, there are many cases of joint ventures, strategic alliances, and other partnerships that have brought foreign investors to jointly own entities delivering services to local markets. That said, owing to a more globalised market, business now knows no boundaries. Africans are also entering foreign markets with, of course, no intention of colonising those markets. The flow of capital today is based on opportunities provided by markets driven by the promise to get a return on investment.

eLAR: How can African Governments be persuaded to make the necessary changes to ensure telecoms development?

BS: African governments are already doing a lot to facilitate business in the ICT sector through enabling policies, legal framework and regulatory initiatives. The regulatory indicators (below) bear testimony.

eLAR: What do you consider will be the big developments in the future in telecoms technology, and what will be their significance for Africa?

BS: Broadband ICT is an essential part of the long-term economic development strategy for the AFR Region. Backbone networks are the high-capacity networks that lie at the heart of communications systems and allow the delivery of the high volumes of data needed for broadband. What high-capacity backbone networks that do exist in several parts of the AFR region are typically limited to major urban areas and some inter-city routes. Competition between backbone networks is underdeveloped so the price of services remains high and quality is often poor.

This pattern of network development is the result of high costs and regulatory restrictions on network development. Where countries have fully liberalised their telecommunications markets and promoted infrastructure competition, prices have fallen and quality improved.

Backbone network policy should focus on promoting competition, reducing the cost of network construction and encouraging network development into currently underserved areas. Competition can be promoted by removing regulatory restrictions such

REGULATORY STATISTICS

Africa, 2013	No. countries	% of countries
Separate Regulators	39	88.6%
State-owned fixed line incumbents	22	50.0%
Competitive markets Local fixed line services	23	52.3%
Competitive markets Domestic fixed long distance	27	61.4%
Competitive markets International fixed long distance	26	59.1%
Competitive markets IMT (3G, 4G, etc.)	34	77.3%
Competitive markets DSL	23	52.3%
Competitive markets Cable modem	13	29.5%
Competitive markets Fixed Wireless Broadband	28	63.6%
Competitive markets Leased lines	29	65.9%
Competitive markets International Gateways	33	75.0%

Photo: Seun Badru Lagos infrastructure

as limits on the number of licenses and constraints on the type of infrastructure and services that licensees can offer.

The cost of backbone network development can be reduced by utilising energy and transport infrastructure and reducing legal costs such as obtaining planning permission. Stimulating backbone network development beyond major urban areas can be achieved through establishing public-private partnerships to encourage operators to build networks into currently underserved areas.

International fibre connectivity

High-speed international connectivity is a major constraint on the delivery of broadband services in Africa. A number of submarine cable backbone projects have been proposed in the recent years with coverage of 70,000 km of coast and an estimated cost of US$6.4 billion. Major fibre projects include: East African Submarine Cable System, SEACOM, The East African Marine System (TEAMS).

The absence of regional connectivity between states with access to the submarine cable and landlocked countries and more generally, the scarcity of cross-border backhaul links is one of the key broadband access gaps in Africa. Several regional initiatives are on-going: Central African Backbone (CAB), East Africa Broadband Network (EABN), Maritime Communications for Safety on Lake Victoria (MCSLV), South Africa Region Backbone – SATA Backhaul, West Africa Network – ECOWAN; ECOWAS Power Pool-based Fibre Network.

The absence of national backbone networks is another obstacle to the widespread use of advanced communication services in regional member countries. The lack of national backbone infrastructure makes it costly and not commercially viable to provide communication services beyond the main urban centres. National Backbone Initiatives are on-going in Burundi, Burkina Faso, DRC, Niger, Rwanda, Tanzania, and Uganda.

eLAR: In your view, how can better telecoms help to improve education?

BS: The advent of low-cost mobile tablets' massive market rollout stands to revolutionise education because of the pedagogical implications of being able to deliver more content on a larger screen.

Until recently, e- and mLearning has been mostly concentrated in a few industrialised countries and projects in developing countries have largely consisted of isolated donor-driven small-scale models which often do not integrate financial sustainability. This nascent field must now grow and scale.

The e- and mLearning market represents a lucrative opportunity for the telecom and ICT sector. Building innovative business models around informal learning and vocational training will represent the first level of successful market segments for the industry. However, the true transformative mass-scale adoption of e- and mLearning will occur when the formal education sector (primary, secondary and higher education) is integrated.

This will require cross-sector work with the education field and forming public-private multi-stakeholder partnerships. The telecom sector must approach this from a "shared value" perspective joining the notion of profit and social good, and not strictly from a corporate social responsibility or philanthropic angle which often lies at the periphery of firms. Working in collaboration with the ecosystem in building long-term financially sustainable business models using the companies' core competencies and technologies is the only way e- and mLearning will truly be able to scale and have a transformative impact on education in the developing world.

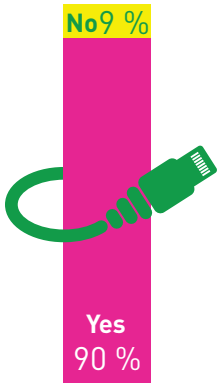
Government policy is largely needed and must be strengthened for e- and mLearning. Collaborative work amongst all the players to include governments and industry is necessary to help increase adoption and awareness.

TOO EXPENSIVE, NOT ACCOUNTABLE

Telecoms professionals give a frank view of the state of communications.

Survey: **"Do you consider that telecommunications companies in your country are sufficiently accountable for their service?"**

Survey: **"Do you feel you are being overcharged for your Internet access?"**



eLA REPORT 2014

Photo essay

by Ray Piwi

eGovernment in action

South Africa's President, the Vice President and the Chief Justice took questions from the public at an open question forum in Pretoria, South Africa. The photograph shows a crowd with mobiles and smartphones photographing and recording the politicians, ensuring not only that they were subjected to scrutiny but that their replies were made available online. They were asked about the delivery of services and a range of issues affecting the daily lives of ordinary citizens. Ray Piwi's photo is a portrait of transparency and eGovernment in action!

Into the heart of the global economy

by Maggy Beukes-Amiss

Photo: Terry Morris

The extraordinary rates of growth achieved by many African economies in recent years have been possible, above all, because of developments in information and communications technologies (ICTs).

ICTs have brought Africa into the heart of the global economy, giving our businesses a unique opportunity to expand. The growth of the middle class – whose population is estimated to increase by 100 million up to 2020 – has put Africa's consumer spending on a par with India and ahead of Russia. Africa has the highest growth rates in telecoms in the world, with rocketing mobile subscription rates further accelerating the social and economic change taking place in much of the continent.

ICTs have also facilitated the development and spread of new opportunities for education. This, in its turn, has had a profound effect on growth. It is the key to Africa's future prosperity and to making the most of the signal advantage we have – the fact that we are a young continent, with a higher proportion of young people than anywhere else on the planet.

Africa's telecommunications revolution has only just begun, though. Mobile penetration rates may be rising in every African country, but some markets – especially with regard to rural areas – remain underdeveloped. In some countries, there are more mobiles than people, yet many remain cut off from the network. In Nigeria, for example, mobile penetration is at 60%, but human penetration only at 26%, as mobile users own on average 2.4 SIM cards each.

What is coming next is better broadband access – bandwidth growth in Africa is second only to the Middle East – more smartphones, more tablets, more indigenous telecommunications solutions and more African innovation.

Our continent is only just beginning to seize the opportunity but we are on the threshold of a great new golden age. In Namibia, we have already begun to build the kind of telecommunications infrastructure that will equip us to make the most of the opportunities ahead of us. What we have done, in many ways, is to create a template that can be adopted by other African countries.

In comparison to its neighbours Botswana and South Africa, Namibia's telecommunications industry was slow to develop through the 1990s and early 2000s, partly because of a lack of competition in the fixed-line and mobile markets. This was partly because of the caution exercised during the gradual privatisation of telecommunications, which it saw as a "natural monopoly".

African countries have a delicate tightrope to tread when it comes to privatisation – though competition in the market does indeed spur on the rapid development of infrastructure and bring down prices, it can also reinforce internal digital divides, particularly between urban/rural areas and allow the sector to be dominated by foreign firms with little or no benefit to national industry.

This has changed rapidly in recent years, with competition entering the market, and the clear transition from a nationalised industry. The sale of 34% of MTC, the national mobile telecommunications company, to Portugal Telecom in 2006, boosted the company's good fortunes and facilitated the roll-out of 3G.

More recently, in November last year, Telecom Namibia introduced LTE technologies through its TN Mobile initiative, making more 3G and 4G services available to Namibians. The WACS undersea fibre-optic cable, from London to Yzerfontein, landed in Namibia and went live in December 2012. It brings the potential for a substantial improvement in broadband across the country.

These developments have occurred, in part, thanks to the leadership of current Telecommunications Minister Joel Kaapanda, who has pushed through numerous reforms to bring down prices, improve regulation and stimulate efficiency – most importantly by bring in the 2009 Telecommuncations Act.

The importance to eLearning of developments in telecommunications – though they frequently occur outside the education sphere, in the worlds of politics and economics – is clear.

Africa is still the continent where broadband is least affordable – that is where the cost of a subscription is highest compared to wages. Here Tunisia and Mauritius lead the way, as the only countries with rates comparable to those found in Central Europe. But in much of sub-Saharan Africa, the cost of a year's broadband subscription is over 50% of the average yearly wage – though the costs are, as is to be expected, dropping at the fastest rate in the world.

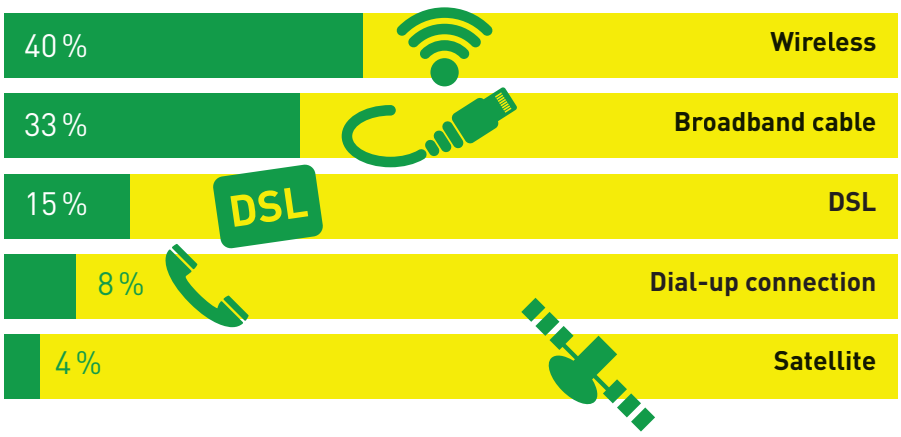
While the cost of using basic infrastructure remains high, many of our eLearning dreams will fail in the face of cold, hard reality. Because while an eLearning project may be easy to set up with funds from donor organisations, governments and private sources, keeping it running sustainably is about being able to afford the continuing use of the infrastructure.

"African countries have a delicate tightrope to tread"

The fact that 90% of telecoms workers who took part in the eLearning Africa Survey 2014 felt they are being overcharged for their Internet access shows that we still have a long way to go. Many countries are falling behind, as my country was in the 1990s. But Namibia's example shows that insightful leadership, accompanied by the sort of healthy competition that does not marginalise or exclude people, can help a country grow the modern telecommunications networks that Africa so badly needs.

WIRELESS AND BROADBAND ON THE ADVANCE IN AFRICA

Survey: "Which kind of Internet connection do you use most often?"



Dr Maggy Beukes-Amiss is Head of the Department of ICT Studies at the University of Namibia, Deputy Chairperson of the ICT Steering Committee of the Namibian Ministry of Education and Chairperson of the Telecom Namibia Board.

Opinion

Kenya's "false start" with big bang school laptops

by Leonard Mware

Photo: Terry Morris

If the old adage, "we learn from experience" is true, then one country can boast of unparalleled experience when it comes to the number of pilots and micro-projects on Information and Communication Technology for Education (ICT4E): Kenya. But has Kenya learnt? The shameless spectacle of sheer greed that Kenyans and the world have been treated to in the name of one particular "big bang" ICT4E project – to borrow the words of Michael Trucano – brings into question whether Kenya has learnt anything.

The long road to this project started with a campaign promise contained in one of the political parties' manifesto. The promise was that every child joining primary school (that's, roughly, 6-year-olds) will get a laptop when they join class one – right, class one! Is there any rational explanation for this choice of target group? Well, I have searched, but the only clue is the political campaign manifesto: this was from the beginning nothing more than a political statement. Then the manifesto owner wins and immediately there is clamour to meet the political promise; after all, our politicians are a new breed in town, and are supposedly "promise keepers", not like the others.

What happens next is a fairytale. Never mind that there are about 1.3 million children targeted by these laptops and never mind that Kenya is a very diverse country, socially, economically and geographically. Never mind that no feasibility study has ever been done to understand a project of this scope. Never mind last time I drove through the countryside I saw children learning under trees – and God forbid when it rains! Hopefully, I am told, those laptops are rain- or waterproof.

Don't get me wrong: I am 100% an ICT4E fan, come rain or sunshine; but, at the same time, in life, humans have priorities. In fact at times education is not even a priority to some humans in certain situations. So I am of the opinion that somewhere the government also has priorities for its people; and I wonder where a $300 million laptops-for-6-year-olds project fits. And if the government had bothered to conduct a feasibility study it would have informed them how to roll out a national ICT4E initiative gradually, without creating commotion. That feasibility study would have detailed the best and most appropriate technology and much more.

The laptops are coming

And talking of priorities, the Ministry of Education's aim for this project is curiously stated as "to facilitate ICT integration in primary education and support youth engagement in ICT sup-

port services and digital content development". It is easy to understand ICT integration but how "youth engagement in ICT support services and content development" will be achieved in the context of this project is a mystery. Hopefully all these high-sounding words are well documented and planned, just waiting to be picked off.

"nothing more than a political statement"

According to Mr John Temba, the Ministry of Education's Head of ICT4E, 10,184 schools will get connected to the electricity grid and another 8,147 institutions will be provided with solar power. This is all good and basically means more than 90% of the targeted schools would need electricity. Meanwhile the laptops are coming, and when they arrive, hopefully all schools will be wired and ready.

Then the tender process starts and the businessmen come to play. Before we know it, the first tender is cancelled because the government had budgeted for $100 per laptop but the returns were more than double that! This clearly tells you why a feasibility study is useful: it provides very good estimates and cost/benefit analysis.

The second round of the tendering ends in cancellation amidst claims of inflated costs and favoritism (read corruption). As Mr John Walubengo, a Daily Nation columnist puts it: "Laptop Project – who ate what when". He pointedly hints at this being seen as payback time for politicians who spent millions crisscrossing the country on hired choppers, expensive advertising, and motorcades while campaigning for the last elections, as usual without Kenyans questioning the source of all the cash.

Which leads to the question: could this $300 million laptop project have just been a ruse for some businessmen or politicians to get paid back? Is this the reason why no one bothered to get a thorough feasibility study done before commencement? Could it be why we didn't bother to learn from the wealth of experience Kenya has? Was it really laptops for children or for greed?

Michael Trucano's prophetic saying "the devil is in the details of this project" seems to have come to pass. Time will tell, as we wait for the conclusion of the matter currently in court.

Nairobi-based Leonard Mware is an ICT4E specialist and businessman working in the ICT sector.

SURVEY STORIES

The Kenyan laptop project

"Children in schools are excited though the teachers' union is opposed to this project. They feel that teachers have not been adequately prepared to teach using the new technology. The union argues that the colossal amount to be spent on this project is not worth it; they say that teachers are poorly paid and de-motivated and that the Government should use the money to increase teachers' salaries.

The Government is determined to see the project through because that was one of the election campaign pledges they made. It is politically motivated: meanwhile, at the moment, the economy is not doing well."

John L., Kenya

SURVEY STORIES

The Kenyan laptop project

"I come from Kenya and am currently involved in the Government laptop project. I have been involved in the design and development of the content to be used by the standard one pupils. We pilot-tested the content and it was amazing to see children who had not seen a laptop before getting comfortable with it within minutes. It is the most fulfilling experience I have had while working in the area of eLearning. I initiated the development of training materials for the teachers who will implement the laptop project. I can't wait to see its implementation. It is all so very exciting."

Esther G., Kenya

"The Kenyan laptop project will require massive political and social support, as it involves several phases, including electrical infrastructure growth, hardware procurement and public domain content development. There are demands for large-scale human resources including the training of teachers and administrators. The support required includes available off- and online technicians for systems maintenance. This is aside from the issues of security, e-waste management and scalability through the entire primary level."

Stephen O., Kenya

"The Kenyan education ministry is currently in the process of rolling out digital content for class one by availing them of laptops. This will be a great milestone towards achievement of equality, quality and access for the African child."

Kanyi G., Kenya

The key to everything

Nelson Mandela's education legacy

by Paul Boateng


PD

On 5th December 2013, I joined the world in mourning the passing of an extraordinary man, whose life and example have the power to teach us all. Nelson Mandela believed that education is the key to everything – dignity, prosperity, health, empowerment and democracy. He understood that education was crucial to the development of South Africa and the wider continent, and fought for investment in education, science and technology with great tenacity and clarity of vision.

That vision and legacy live on in the educational institutions that Mandela created and supported. His spirit continues to drive the Schools for Africa Initiative, founded in 2004 by the Nelson Mandela Foundation and UNICEF. This critical campaign promotes education for all and has so far raised more than $164 million, benefiting more than 21 million children in 11 African countries.

In 2007, he founded the Nelson Mandela Institute for Education and Rural Development. The Institute works with teachers, learners, parents and community leaders across the Eastern Cape and beyond to build sustainable solutions for public education serving children in rural areas. The Eastern Cape was Mandela's spiritual and ancestral home and the challenges of educating children in its rural heartland remain to this day.

Whilst serving as British High Commissioner to South Africa, I lectured on a number of occasions at Mandela's university at Fort Hare. He, Oliver Tambo, the former president of the ANC, and Robert Mugabe were all students there. The great African educator, Kwegyir Aggrey from what was then the Gold Coast (now Ghana), also lectured there as early as the 1920s championing the cause of women's education and science as a means of emancipating Africa. This tradition at Fort Hare profoundly influenced all three leaders of the liberation struggle in the region and subsequently put education at the heart of the political philosophy and activism.

A new generation

Recognising the value of developing scientific and technological capacity in nation building, Mandela lent his name to the creation of a new generation of African Institutes of Science and Technology. These envision the training and development of the next wave of African scientists and engineers with a view to profoundly impacting the continent's development through the application of science, engineering and technology. Two have already been established in Tanzania and Nigeria, with a third Institute planned to open in Burkina Faso.

However, despite some real progress, Africa still faces many educational challenges. I myself benefited from

Photo: © WTO Nelson Mandela

" Education is the most powerful weapon you can use to the change the world "

so said Nelson Mandela: freedom fighter, revered political leader, humanitarian and champion of education

an education whose foundations were laid in Ghana in the 1950s and '60s. Kwame Nkrumah, the founder of this first sub-Saharan African nation to gain independence from colonial rule, put a premium on universal access to free education; in founding the Kwame Nkrumah University of Science and Technology in Kumasi and the University of Cape Coast, with its focus on teacher education, he was well ahead of his time.

But the fact remains, of the more than 57 million children around the world out of school, over half live in sub-Saharan Africa. The challenges are similarly monumental in terms of higher education; whilst several countries on the continent have dramatically expanded the capacity of their tertiary education sectors, Africa's gross enrolment rate of less than 7% is the lowest in the world.

Alongside the ability and resources to train the required number of students, there are also significant question marks over quality standards. Other concerns include the relevance of the fields of study; the curricula and the effectiveness of pedagogy for the development needs of African countries; as well as the general quality of programmes and graduates.

While about 50% or more of students enrolled in tertiary educational institutions in fast growing countries like South Korea, China, and Taiwan are enrolled in science, engineering and technology or business, only about 20% of students in Africa are enrolled in these subjects. The result is that while the continent's graduates go unemployed, African business continues to face shortages of skilled labour.

No simple panacea

In Mandela's native South Africa, the country is facing an education crisis, failing to uphold the dream of its former leader. Teaching posts go unfilled and a high number of students are unable to access library facilities and enjoy basic physical infrastructure such as school buildings, furniture and all the other equipment and apparatus considered important to facilitate learning.

Issues around sparsity, inadequate teacher numbers and the absence of some specialist inputs require us carefully to examine the role that technology can play in addressing some of these key deficits. In this context, e- and mLearning platforms potentially have an important role to play. This is, however, dependent on our being able to address issues around cost of infrastructure and access. Regulatory reform and private sector competition can drive down these costs, but e- and mLearning is no simple panacea. It is dependent also on the availability of appropriate educational content.

Sub-Saharan Africa now has some 650 million mobile phone users, more than either the EU or the US. There has also been real progress in establishing access to high-speed broadband, smartphones and tablets on the continent. But a significant digital gap remains. This requires concerted policy action if it is to be overcome.

National Archives UK Kwame Nkrumah

What chance, then, is there for mobile technologies to drive educational standards across the continent? The equation looks straightforward: an energetic telecommunication industry expanding while many educational institutions continue to battle with entrenched problems of infrastructure and capacity. Yet, while I believe there is tremendous potential, the hype around these technologies across the educational spectrum has often detracted from delivery on the ground, and projects have been criticised for being too isolated and narrowly focused. As Mandela argued, we must work together if we are to achieve our ambitions.

As part of its work investigating and developing technologies in Africa, the Planet Earth Institute (PEI), an African-funded global charity of which I am a trustee, has coordinated several multi-stakeholder consultations on the issue, surveying and interviewing hundreds of academics and policy-makers from Africa and around the world. A clear direction of travel has become apparent in all of them. The indication is that ICT-based education in learning will continue to grow in influence, with both public and private sector organisations responding to the challenges in ways that extend beyond the classroom.

Following a consultation conducted by the PEI in partnership with De Beers, which investigated the potential role of ICT education platforms in addressing the skills gap in the African mining sector, the charity has since begun work on a grassroots pilot project in Ghana. This project will involve the creation of a mobile learning programme targeting informal and artisanal gold miners. As well as providing basic health, safety and environmental training to this difficult-to-reach group, the mLearning programme will focus heavily on addressing the common and dangerous use of mercury in small-scale gold processing operations in Ghana and throughout Africa.

Photo: Nicci Giles

SA students reading mobile literature

This is just one example of the powerful role ICT can play. We are witnessing many others across the continent, including the production of apps and other innovative developments, building on technological platforms that can potentially enable Africa to leapfrog and gain early benefits from e- and m-based education.

Long road to freedom

The work of pioneers like Kwame Nkrumah and Nelson Mandela, as well as Augusto Neto of Angola and Samora Machel of Mozambique has been hugely significant in the development of education on the continent as central to the struggle for its political liberation and on-going economic emancipation. The "long road to freedom" of which Mandela wrote so eloquently, brings with it, as he pointed out, a continuing responsibility.

This responsibility is to come up with appropriate and innovative solutions to Africa's challenges that resonate with its cultures and people and are shaped by them. This does not mean searching for technological quick fixes or shoe-horning expensive, unsuitable and unsustainable ICT systems. But rather taking advantage of the best technology that is available, adapting it where necessary and ensuring always that the agenda is set by Africa itself.

ICTs will play an increasingly significant role in ensuring better access to, and improved quality of education in Africa. Its transformative effects are clear. Our responsibility is to create the policy space and regulatory context in which the entrepreneurism and dynamism of Africa's youthful population can flourish. The "long walk" is not yet ended.

Paul Boateng, the Right Honourable the Lord Boateng, is a former British Cabinet Minister, jurist and diplomat, who was brought up in Ghana, where his father was a minister under Kwame Nkrumah. He served as the United Kingdom's High Commissioner to South Africa from 2005-9.

Technology and the treasure of Timbuktu

by Ali MacKinnon

"Manuscripts don't burn"

– Mikhail Bulgakov, Master and Margarita

To European travellers, the desert city of Timbuktu was once the stuff of proverb and fable. "To go from here to Timbuktu" is the phrase it has left the English language, meaning to travel to the ends of the earth. A 2006 survey of 150 young British people found not one that believed the city more than "a mythical place".

In reality, Timbuktu's situation could not be more different: though it has declined in influence since its heyday as a bustling urban centre and university town in the 16th century, at a time when European city life was still largely in its infancy, it maintains a crucial position in West African culture.

As Malian singer Ali Farka Touré once put it: "For some people, when you say 'Timbuktu' it is like the end of the world, but that is not true. I am from Timbuktu, and I can tell you that we are right at the heart of the world."

The hundreds of thousands of manuscripts preserved in Timbuktu's libraries are an essential source for African history, providing invaluable accounts of both the dealings of Islamic kingdoms and of the civil affairs of urban society in sub-Saharan Africa.

However, their value does not lie solely in the past. According to Abdel Kader Haidara, scholar and founder of the Mamma Haidara Memorial Library in Timbuktu, this is a literary heritage whose "themes... are of great interest to the scientific community, and which, if we are given the means to explore them, could contribute to the resolution of many of the problems of our era".

Photo: Emilio Labrador Timbuktu

In this region, recently the scene of an upsurge in religious and ethnic violence, answers are badly needed – and it should not be so surprising that some of them may be contained in volumes of law, science, poetry and history laid down since the 13th century.

The manuscripts recently became a part of the contemporary history of the region – being the object of one of the most remarkable large-scale feats of conservation in modern times.

Between two worlds

Situated at the northernmost bend of the Niger river, where it effects its turn southwards away from the desert, Timbuktu is, as Elias N. Saad puts it in his *Social History of Timbuktu*, a vital "port city" of the Sahel – a region whose name literally means "shore". This is the place, he points out, where sub-Saharan and Saharan Africa are joined; where the nomad's herds encounter the fertile farmland of the Niger floodplain; where religion and culture from north and south combine.

This littoral position, on the border between two worlds, adds greatly to

the importance of the literature of Timbuktu. It has also been a cause of much recent conflict; conflict which could well have caused the manuscripts' total devastation.

From 2012 to 2013, Timbuktu found itself very much the centre of attention. An Islamist-backed Tuareg rebellion in the cause of independence for northern Mali began in January 2012 and led to the coup that brought down President Amadou Toumani Touré. The ensuing instability allowed the rebels to make substantial gains, driving Government forces from all of the northern cities. However, the rebel forces were far from homogenous. Religious extremists soon turned on secularists and wrested control of much of the territory, imposing vicious law in the areas under their control – including Timbuktu.

Under cover of night

In early summer 2012, the guardians of Timbuktu's libraries, led by Abdel Kader Haidara, began a rescue campaign for the manuscripts that was as dangerous as it was far-sighted. It was already clear to them then that no treasures were safe from the Islamist faction; although the destruction of the Sufi shrines, which was to draw so much international condemnation, had not yet begun.

"At the beginning of the events, we worked secretly in the libraries, putting the manuscripts into iron chests; then, under cover of night, we took them from the public libraries to family houses. Then the boxes were taken out on the road by 4x4."

The risks involved in this operation were considerable. Roadblocks had been set up on all the routes out of Timbuktu; anyone found transporting books was liable to be charged with theft, an offence which, under sharia law, warranted a sentence of mutilation. It was a fate which almost befell Haidara's nephew – who narrowly escaped losing a hand or a foot, partly by his swift ability to call up Koranic verses supporting his innocence.

Even greater peril was yet to come, however, as French and Malian troops approached the city. Haidara: "the most dangerous part of the operation was when the strike forces began to liberate the occupied territory. We had to change the method of transport and make use of the river, borrowing small boats to travel as far as Djenné, where the vehicles once more came into play to take the boxes to Bamako."

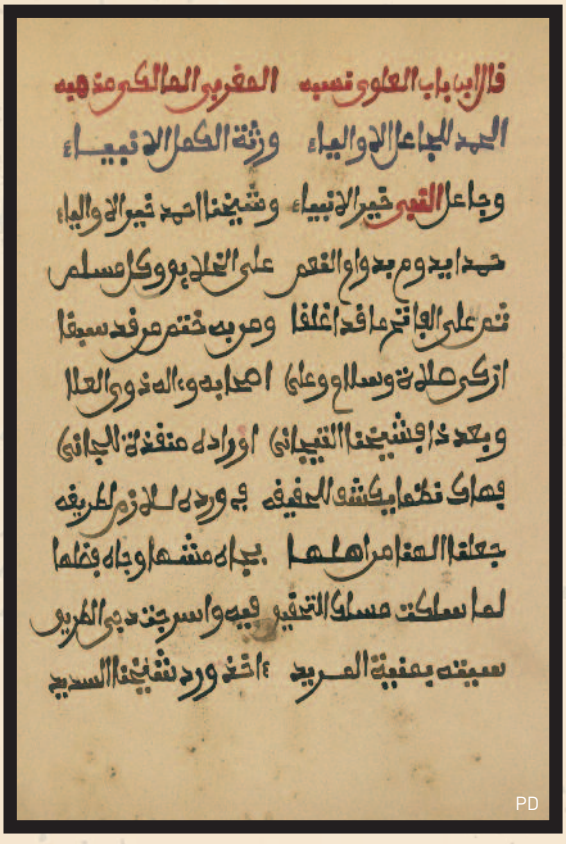
"the manuscripts are by no means safe yet"

These drastic precautions proved to be well-founded. As the rebels were forced out of the city, they set fire to the Ahmed Baba Institute, the most important library in Timbuktu, with a collection of 20,000 volumes including the Tarikh as-Sudan, the prime source for the history of the Songhay empire, under which the city had flourished.

An ever-present danger

The horror felt among the academic community at the potential loss of this library was heightened by the fact that, while it was known that the collections contained numerous treasures, they had never been systematically catalogued, and only a few hundred of the books had been digitised. What could have been lost were irretrievable treasures few ever even knew existed. Only through the extraordinary efforts of Abdel Kader and his many fellow librarians, conservators and colleagues was this imminent destruction averted.

However, the manuscripts are by no means safe yet. The North may have produced its own threats but, in one respect at least, it was highly advantageous to their survival over the centuries. The desert climate, stable, clean and dry, offers ideal conditions for the conservationist. Less can be said of the environment of the capital, Bamako – warm, humid and polluted, with theft an ever-present threat. A lack of storage space equipped with the technology to protect against these



The desire of the aspirant

dangers has left much of the collections at the mercy of these conditions.

"The Government of Mali and the international community must mobilise the financial and human resources necessary for the preservation of the manuscripts of Timbuktu," says Abdel Kader.

The next five years will be dedicated to the long-term preservation of the works: the urgent restoration of 40,000 damaged books and the reconstruction or renovation of the 45 libraries they belong to, the digitisation of 100,000 works and the cataloguing of 50,000.

Ancient advice

Digital techniques are the essential basis of modern conservation, for which the latest technology provides valuable tools. It is also through these tools that the contents of the manuscripts can reach a wider audience, both in the international community and in Mali itself.

"Malians do not know these manuscripts well enough," says Abdel Kader. "We must urgently organise an awareness campaign, encourage the involvement of local media, organise exhibitions, conferences and symposiums on the manuscripts of Mali."

Many of the Timbuktu manuscripts were, until their evacuation, kept in private hands, preserved thanks to successive generations' care for their part of the collective repository of knowledge. The Mamma Haidara Memorial Library is the result of one such collection, and one with which Abdel Kader, son of a long line of scholars, has been involved since childhood, when he learnt to work on the manuscripts at his father Mamma Haidara's side.

He has made it his life's work to garner the world's interest in the literary heritage he has so successfully championed – finding within them centuries-old methods of addressing problems which persist in Mali and elsewhere to this day: "corruption and the means to combat it, good governance and its impacts on community progress, health questions and their suitable remedies, the resolution of conflicts".

If Mali is to move away from instability, its leaders and people would be wise to acquaint themselves with the contents of its ancient libraries.

Astronomy and mathematics

THE NILE FILE

Conservation news from Egypt

Pharaoh's curse: preserved in pristine condition, undisturbed for millennia, Tutenkhamun's tomb is rapidly deteriorating because of the constant stream of visitors. As part of a long-term plan to restrict the viewing

of the crypt and save it from further damage, conservators have just finished making a meticulously-detailed replica of the entire royal tomb using 3D printers and laser scanners. Eventually, the original will be closed off to all but a few. Egyptian tourism has suffered in these revolutionary times - but will Luxor visitors really be happy seeing a copy, however perfect?

Course of history: An MA in African world heritage management is to start in October 2014 at the Institute of African Research and Studies in Cairo. The course, open to young people working in heritage sites, parks and protected areas, is the first and only one of its kind in Africa, and will be carried out entirely though eLearning.

Rewriting history

How digital technology could return Ethiopia's stolen treasures

There is a romantic view of libraries as places of secrecy; dark, silent labyrinths that only yield up their sequestered knowledge to the intrepid visitor.

This view has more in common with the mediaeval library than with its modern descendants; the narrow rooms hidden away up spiral staircases where centuries of learning were jealously guarded, the books so valuable they were often chained to the shelves.

The modern library, by contrast, is a place of light and enlightenment. It should open its doors to all, allowing as many as possible to benefit from the collective endeavours of global scholarship. Increasingly, modern libraries are going digital, opening up to the world online to give even greater access to their collections, not just to those people who are able to wander in.

But there is one similarity between the modern British Library and its mediaeval antecedents: the books are, in a way, still chained to the shelves.

The mountain citadel

If you do wander into the British Library and take a look at the permanent exhibition, you will find there, beside the Magna Carta, the Gutenberg Bible and Newton's Principia, a richly illustrated manuscript in Ge'ez script. This is just one of 800 or so Ethiopian manuscripts held in the British library – a large collection much of which was taken from Ethiopia in the 19th century.

It is no secret that the libraries and museum of Europe still contain many artefacts of dubious provenance, taken from former colonies. And Ethiopia, though never colonised, was not spared many of the degradations of this era.

In 1868, a British force under Robert Napier marched deep into Ethiopia and attacked Emperor Tewodros II at his mountain fortress of Mekdela. The British army, vastly superior in arms and numbers, defeated the monarch with ease, destroyed his capital and looted its treasures. Rather than endure captivity, Tewodros II committed suicide, reportedly using a revolver on which were engraved the words "presented by Victoria, Queen of Great Britain and Ireland as a slight token of her gratitude, 1854".

Photo: British Library — Moses receives the commandments

The army had been sent, at least ostensibly, to free hostages taken by the Emperor after letters he had sent to the European powers had gone unanswered. It was, that is, a manifestation of the phenomenon of the "punitive expedition", whereby colonial powers would invade a foreign country to avenge some injury, however slight, taking the opportunity at the same time to flex some imperial muscle, annexe territories or depose unfavourable heads of state.

Like the later punitive expedition against the Oba of Benin, which saw the theft of the Benin bronzes, the vastly expensive 1868 endeavour was partly funded by the sale of loot taken from the royal citadel, including crowns, icons – and hundreds of manuscripts from the royal library. These were dispersed, auctioned, some torn apart; the majority ended up in the British Museum, later in the British Library.

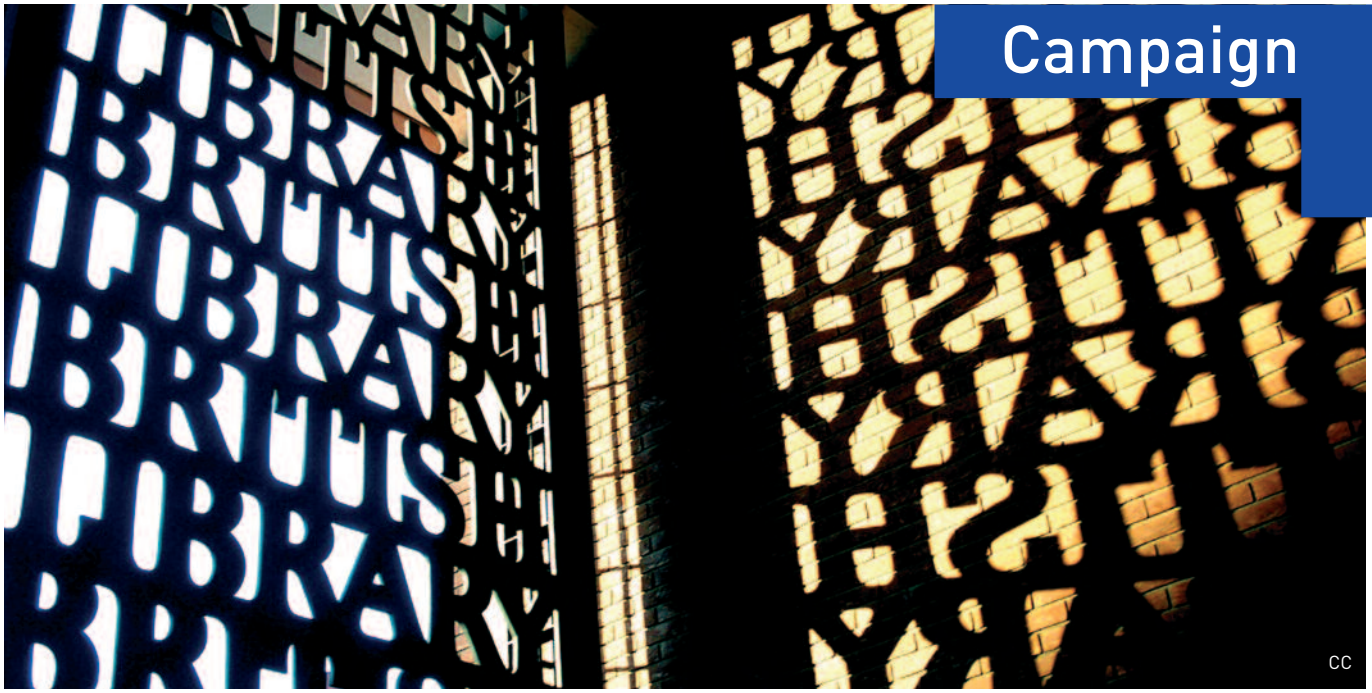


Photo: C. G. P. Grey

The British Library

An inconceivable measure

Warring powers of the time usually had nothing against looting, and there were no international laws in place to keep it in check: it was not until the Hague Convention of 1899 that the international community began to provide protections for the possessions of conquered or defeated states. Nevertheless, condemnation of the plunder of Mekdela began almost at once, and from both sides of the conflict.

Prime Minister Gladstone, for example, is reported in Hansard, the parliamentary record, as having "deeply regretted that those articles were ever brought from Abyssinia; [he] could not conceive why they were so brought".

Nothing much, however, was done to repatriate the treasures, though over the intervening years some objects were returned. The silver-gilt crown of Tewodros II (the more valuable gold one still resides in the Victoria and Albert Museum) was given as a gift to Empress Zawditu I, the predecessor of Haile Selassie I. And one of two copies of the important Kebra Nagast, containing the laws and history of Ethiopia, was returned on the petition of Yohannes IV.

"I pray you find out who has got this book," he wrote, "and send it me, for in my country my people will not obey my orders without it."

This act of repatriation was, according to a memorandum by the Association for the Return of the Mekdela Treasures (AFROMET), the only time the British Museum ever returned an item to its former owners.

A further precedent was set in 2008 when, after 50 years of dithering, the Axum Obelisk, taken to Rome during the Fascist Italian occupation of Ethiopia, was finally re-erected in its home country, thanks in part to the campaigning efforts of Professor Andreas Eshete and Dr Richard Pankhurst.

This campaign was informed by a belief that, in the words of Pankhurst, "in the same way that African countries won their territorial independence, they should also win their looted articles taken abroad."

A final home

Since the Second World War it has become commonplace for artefacts unjustly appropriated to be returned to their rightful owners. Such was the case for the vast quantities of Nazi loot, much of it forcefully taken from Jewish owners or transferred from the museums of occupied territories. An Act currently in force in Britain allows even the National Libraries and Museums to return items looted in the period 1933-45.

This Act overturns the laws by which, as I mentioned before, the British Library's books are "chained to the shelves": laws which forbid the de-acquisitioning of any artefact from the collection which form the "brick wall" many repatriation movements run up against.

What this means in practice is that the task of returning treasures to their former owners is not a matter for scholars but for politicians – indeed, the two repatriations mentioned before clearly arose more from political motives than anything else.

To return the Mekdela treasures held in national collections would require the passing of a new Act of Parliament, and the consent of the British Government to policies redressing not merely those historical iniquities which stood in clear contravention to the international laws of the time, but also the entire history of colonial wrongdoing.

The past few years have seen some progress made towards repairing the damage done during its imperial past – most recently, for example, with the payment of compensation to victims of torture during the suppression of Kenya's Mau Mau uprising.

It is yet to be seen whether such acts of reparation will pave the way for the concerted legal changes required in the case of the Mekdela manuscripts.

Digitally rewriting an "indelible history"

The Director of the British Museum, Neil MacGregor, presides over some of the most controversial collections in Britain, including the Benin Bronzes and the Parthenon frieze.

In a BBC radio programme on a brass plaque showing the Oba of Benin surrounded by kneeling Europeans, part of his *History of the World in 100 Objects*, he suggests that the value of the artwork is not just that it expresses the technological achievements and peaceful international trading relations of 16th-century Benin, but also a violent later history which should not be ignored.

A more forceful point is made by John Scally, Director of the Edinburgh University Library, in a 2004 response declining AFROMET's request for the return of the manuscripts it holds. He writes that "it is an indelible part of [the manuscripts'] history that they were brought here, where they should remain in perpetuity."

It is certainly important that the global scholarship advanced, over years, by the British Library not be fragmented by the dispersal of its collections. The ability to compare works provided by a great library allows for the telling of stories that transcend the political borders down which the world is tempted to divide itself.

Yet if we speak out against the erasure of history, should we not at least start with Africa – a continent where centuries of colonialism effected a very real erasure, to which the presence of these manuscripts in foreign collections testifies?

It is perhaps more dangerous yet to consider history as static, unchanging, its outcomes fixed.

Libraries in the modern world – and for that matter, history – are not so unchanging, or unchangeable, as it seems. The fact is that digital technology is changing the way we interact with them in fundamental ways.

It must certainly be said that the British Museum, and the British Library, have provided an excellent home for the manuscripts of Mekdela over the last century-and-a-half, providing the facilities to ensure the survival of these precious artefacts into the future.

The Library is also at the forefront of digital projects which, in the words of Catherine Eagleton, the Library's head of Asian and African Studies, offer "enormous potential for helping scholars around the world gain access to cultural treasures in other places". Under the guidance of Dr Richard Pankhurst, the Library has microfilmed many of its Ethiopian manuscripts to make them available in the University of Addis Ababa. It is also, Eagleton says, working on securing funding to digitise the manuscripts; selections from one particularly beautiful exemplar can already be viewed.

The new museum

Thanks to the efforts of scholars in Ethiopia and at the British Library, it is now easier than ever for Ethiopians to gain access to the history of their country. It is also thanks to these efforts, and similar ones, that scholarship has become less and less rooted to the physical institutions than ever before.

The breadth of digital initiatives and possibilities of virtual scholarship can only continue to increase in the future. And as this happens, it must become the case that attitudes towards the physical location of the object must change.

"the digital age is opening up our libraries"

The role of the museum or library is not just to preserve and display a national collection, but to add to the store of global knowledge kept in digital repositories. The connectedness of the modern world allows for a greater openness than ever before – why not then also be open to the possibility of opening up the legal statutes that confine the British Library?

Digital technology has led the way to virtual restitution. Why should it not now lead to physical repatriation?

Many thanks to Sebastyanos Beyene for his help in the writing of this article. If you would like to join the eLearning Africa Report in campaigning for the return of African treasures, contact mackinnon.alasdair@gmail.com

Sector focus

Growing confidence

How ICT is helping African farmers

There is a confident mood among politicians, development professionals and investors about the prospects for African agriculture and its significance in achieving the African Union's 2063 Vision for a "transformed continent".

"Investing in agriculture is one of the most effective ways to achieve food security and drive inclusive growth," the AU's Agriculture Commissioner, HE Rhoda Peace Tumusiime, told a gathering of investors and analysts in Brussels recently. "The agriculture sector employs 65 - 70% of the African workforce. It accounts for about a third of the continent's GDP. There is a fast-growing regional food market which is being fuelled by population growth and rapid urbanisation. Agriculture holds great promise for broad-based economic growth and job creation."

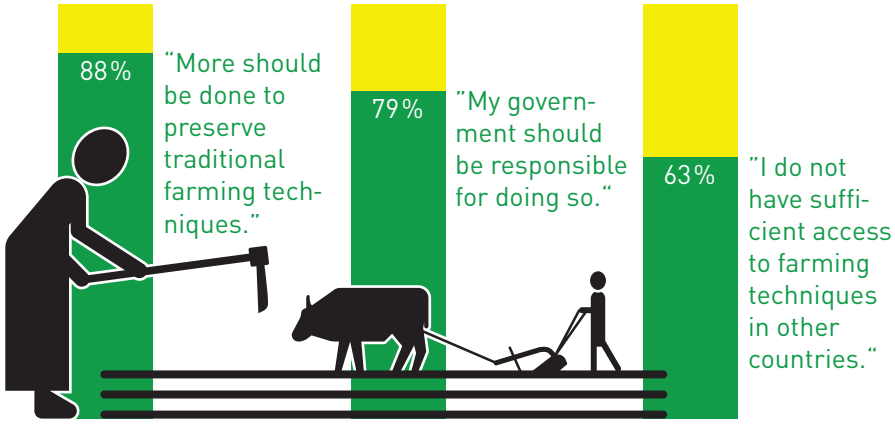
It is not simply major investment by big international food companies, which is helping to transform African agriculture. Much more significant is the revolution beginning to affect smallholder farming, which is becoming more efficient, driving up yields, increasing choice and improving living standards. Small wonder that our survey shows optimism among those employed in agriculture is as high as in almost any other sector.

Two of the key factors behind the development of smallholder farming are the increasing availability of ICTs and a wealth of new opportunities for technology-assisted learning. A recent report for the World Bank, "ICTs for Agriculture in Africa", concluded that ICTs have a critical to play in developing all agriculture but particularly the small holder sector:

"The strategic application of ICT to the agricultural industry, the largest economic sector in most African countries, offers the best opportunity for economic growth and poverty alleviation on the continent... African

AFRICAN GOVERNMENTS MUST DO MORE TO PRESERVE TRADITIONAL FARMING TECHNIQUES

Survey: **"Respondents involved in agriculture said ..."**



SURVEY STORIES

Digital literacy

"Nakaseke Telecentre has recently introduced an SMS service to update farmers with price and weather information. We use Frontline SMS open-source software to reach out to communities. The Centre has also introduced a school radio quiz program to help rural school to compete and learn from each other. The Centre has established a children's reading project in the Library using support from Book Aid International. We have trained a good number of youths, women, civil servants and farmers in basic computer skills. We are currently working on a project to promote digital literacy for children aged 9-14."

Peter B., Uganda

agriculture is largely traditional and practiced by smallholders and pastoralists. This type of agriculture is predominantly rain-fed, has low-yielding production and lacks access to critical information, market facilitation and financial intermediation services. The role that ICT can play in addressing these challenges is increasing as personal ICT devices – such as mobile phones or tablet PCs – are becoming more widely available.

Across Africa, a multitude of new, ICT-based initiatives are helping to transform farming outputs and incomes. Our survey shows farmers recognise that ICTs can help to make them more efficient and improve both yields and sales (right) ICTs are bringing new solutions to a range of farming problems, promoting more efficient irrigation, better livestock management and even encouraging the development of self-sustaining funding solutions.

A typical example of a successful project is the mFarmer initiative Fund, which started as a partnership with the Bill and Melinda Gates Foundation and now provides farmers in 11 sub-Saharan countries with information and advisory services via their mobile phones.

Despite these successes, however, significant challenges still remain. A lack of electricity and poor Internet connectivity in many areas are still widespread problems, as our survey shows. Depressingly, terrorism and conflict are also identified as particular concerns in rural areas too, with over twice as many respondents in the countryside worrying about these issues as in towns. (see page 64)

An important part of many future solutions is likely to continue be the radio. People working in rural areas are three times more likely to turn on the radio for their eLearning than any other device (below).

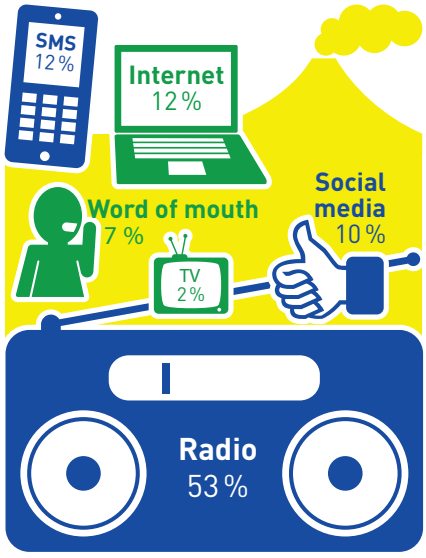
BETTER FARMING, BETTER SALES

Survey: "In which way do you consider ICTs can most benefit farmers?"

The most common uses of ICT in Agriculture

IT'S NOT ALL ABOUT RADIO, THOUGH

Survey: "In a crisis or emergency, what would most likely be your major source of information?"



SURVEY STORIES

Challenge of illiteracy

"As a marketer and farmer, I have experienced a lot in terms of challenges, especially where education is concerned, among the women and indeed the youths. The major challenge is illiteracy. A number of women cannot read or write: as a result, even the mixing of chemicals is a problem. The new technology should be taken to rural areas to sensitise and educate marketers and smallholders on their basic needs."

Agnes L., Zambia

Onion shortages

"In Senegal, producers and distributors are resolving cases of agricultural surfeits and shortages by telephone. At the Thiaroye market there was once a shortage of onions, causing a substantial rise in the prices and forcing sellers to consider ordering from Europe. At the very same time, surplus produce was rotting up in La Vallée. Thanks to the mobile phone, the market was quickly stabilised – a story that calls for the introduction of ICTs in more areas of commerce."

Ibrahima D., Senegal

Mechanical failure

"The rural population of Nord-Kivu are in general pastoralists and farmers and use traditional methods for their work in the fields. It's only recently that the Government of Congo (DRC) has started to mechanise the agricultural sector, a process which has not lived up to people's expectations. The machinery is not up to the sloped fields, the poor quality of the roads. Added to this there is the problem of communication – though rural radio exists, it gives more importance to music than to information."

Zobenat K., DRC

Photo: Wallace Mawire

A young Zimbabwean farmer-in-training asks when it will rain

The fruits of sustainable development

by Gaston Bappa

In September 2000, perhaps the most important meeting of heads of state ever held adopted the Millennium Declaration, signed by 189 countries, which established the development objectives the world had to accomplish by 2015, one year from now. The Millennium Development Goals (MDGs), for which rural populations are a prime concern, have become the foundation of all nations' development strategies.

In 2003 and 2005, the nations of the world convened again, in Geneva and Tunis respectively, to study and propose global directions for information and knowledge management, under the aegis of the World Summit on the Information Society. This summit established ICTs as one of the principal means of realising the MDGs, which have been the target since then.

On the eve of the final evaluation of the level of attainment of the MDGs, due in September 2015, Africa is the continent with greatest development shortfall.

It is a fact that 50% of the world's population lives in rural areas. In Africa, the rural population is at 70%. These are the poorest, least educated and most disadvantaged, compared to those in the cities. This population survives nearly exclusively on agricultural activity, its principal source of employment and income. Moreover, all studies have concluded that rural populations are also those with the least access to ICTs and the advantages they offer.

The essential contribution of ICTs to the realisation of the MDGs is real and cannot be called into question. But the integration of these tools into the activities implemented to attain these objectives has not always been correct or effective. It has even, at times, been a cause of delay or failure – something that must be controlled and eradicated in the post-2015 agenda, under the new context of the Sustainable Development Goals (SDGs). In this article, I will make a sketch of the particular situation in Africa,

Photo: Terry Morris

Gaston Bappa

which will be at the forefront of new plans being drawn up right now at the United Nations.

Where are we now?

In his 2013 report on the MDGs, the Secretary-General of the United Nations made the point that the MDGs are, at the moment, the most successful anti-poverty campaign the world has ever seen. Significant and substantial progress has been made on a great number of fronts, including those that aim to reduce the number of people living with extreme poverty and hunger and the proportion of people with no access to an improved water source. The proportion of city-dwellers living in slums has dropped dramatically. Remarkable advances have been made against malaria and TB. Visible improvements have been made in all areas of health, as in primary education.

Nevertheless, there remain certain priority areas urgently in need of redress. One person in eight is still going hungry in the world. Too many women die in childbirth, when the means to save them are at hand. More than 2.5 billion lack improved sanitation, amongst whom one billion still have to defecate in the open, representing a grave danger to health and the environment. Natural resources are considerably diminished, with continuing deforestation, the loss of species and collapsing fish stocks, in a world already confronted by the effects of climate change.

Moreover, the extent of progress towards the MDGs is unequal between and within countries. Children of poor rural households are much more likely not to be formally educated than those in rich urban ones. Substantial gaps exist in young men and women's basic knowledge of HIV and its prevention, notably in sub-Saharan Africa, the region most gravely affected by the pandemic.

In the over ten years of experience gained through working towards the MDGs, we have learnt that targeted regional efforts are what make the difference. Now we must act again and ever more swiftly to make sure Africa and the world can attain the Goals and create an ambitious and inspired dynamic for post-2015 development. The more rational, adapted and appropriate integration and usage of ICTs at the local level is one of the fundamental factors for constructing a more just, secure and sustainable future for all.

The cutting edge

ICTs are the cutting edge of world technology. But their use in the rural areas of Africa, where illiteracy and isolation run high, can only result in a mixed outcome, if not a total failure.

I shall not dwell on the definition of ICTs, consisting of the hard- and software of the global telecommunications infrastructure, of computing and media. Neither shall I dwell too long on the institution of ICTs in rural zones for the capture, analysis and storage of agricultural information and its provision to the end user: the farmer in the village. I shall focus on the manner in which rural projects integrate and implement ICTs, in general, across Africa. Because it is from this factor that the results obtained essentially depend.

Rural areas of Africa are for the most part isolated, with few if any navigable roads and the lack of a stable source of energy.

Without suitable roads, movement is impossible – movement necessary to carry out maintenance on ICT equipment of all types and other actions necessary to the ICT infrastructure. At the same time, all this equipment needs energy to work. Any defect with the energy supply causes an untimely interruption in service with negative consequences on the expected results of any project.

Beyond basic infrastructural requirements, one must frequently deal with aspects of the method with which development projects implement ICTs. Intrinsic elements linked to the environment and community that is the beneficiary of these projects are often little noticed or ignored, even though they constitute fundamental factors to their success. These include the following:

1. The local community is not often involved in the project until after its launch but often only in the final phases which precede the start of activity. They should be involved in preparatory stages, in order to participate actively in all proceedings relating to the implementation with comprehension and ownership.

2. The community which benefits from the project is nearly always totally new to ICT and not directly related to it in its daily life.

3. The ICT project will unite groups of residents who have not worked together before and who do not initially share common or communal interests. This generally brings out the egoism of individual members, who then enter into endless conflicts of interest which are far from the goals of the project which has brought them together.

4. The directors chosen to lead the project during its launch often lack a strategic vision that is attractive for the community and its environment. They also often lack the ability to make the link between the new activity and the needs of the local community, in order to interest them in it.

5. The training given from the beginning to those in charge of developing new ICT tools and activities is often insufficient for them to work effectively. They should, in effect, have good knowledge of the culture and customs of the concerned community at the same time as having equal expertise with the ICTs in question. From this dual knowledge of local tradition and ICT spring inspiration, creativity and ingenuity, all of them necessary to make the appropriate links between what seem to be diametrically opposed worlds. It is from here that a beneficial exploitation of ICT tools is possible, the interests of the community having been well translated and integrated into the new environment.

The rural world in general, and that in Africa in particular, is the privileged recipient of the fruits of sustainable development in our times. New projects must benefit, when integrating ICTs, from the understanding of failures in the activities aimed at the MDGs, because today more than yesterday, and tomorrow more than today, rural development will have need of established competencies, in the tradition and culture of the local community, in the specific domain of the projects to be implemented, and in ICTs for development.

More than in the past, we will have need of new directions for ICTs, under the auspices of the Sustainable Development Goals of 2015 and beyond, so that Africa's experience and use of ICTs for development continues towards a profitable partnership with the UN, the Goals' originator.

"from knowledge of tradition and ICT spring inspiration, creativity and ingenuity"

Gaston Bappa is an ICT specialist and Chief of the village of Ndjock-Nkong in Cameroon.

eLearning and the Post-2015 Development Agenda

by Aida Opoku-Mensah

Photo: Terry Morris

The integration of ICTs in education and the advent of eLearning has transformed the education sector globally and is growing in leaps and bounds. This integration has undoubtedly strengthened the eLearning environment and culture, fuelled by growth in the Internet, with decreasing costs, increasing bandwidth and a growing content sector. One can safely say we now have an eLearning revolution under way, competing with traditional forms of learning.

In Africa, despite challenges in ICT infrastructure, a great deal is being done by governments. The African mobile revolution offers a promising eLearning sector based on mobile applications. The continent can today boast of a number of eLearning initiatives that were not available 5 years ago. This is due to the fact that between 2001 and 2011, six of the world's ten fastest-growing economies were African and while yearly global growth has been estimated at 2.7%, Africa has been growing at 5% every year. Furthermore, all five sub-regions of the continent grew faster than the global average, with the highest rate being 6.3% and the lowest 3.5%.

A prosperous Africa means spending on all sectors of the economy. According to the 2011-2016 Regional Forecast and Analysis by Ambient Insight, a market research firm, eLearning in 16 African countries is just over 15%, "revenues reached $250.9 million in 2011 and will more than double to $512.7 million by 2016".

Emerging Africa and the rise of eLearning

Senegal leads all surveyed nations in terms of eLearning growth, at 30% annually over the next few years. The rapid growth is due to a combination of factors including support from governments, businesses, and universities. This is making Africa one of the most dynamic eLearning markets in the world.

Ambient Insight suggests three major catalysts for the boom in the African eLearning market: the wide-scale digitisation of academic content in almost all countries on the continent; the explosion of online enrolment in higher education; and the hike in the adoption of eLearning in corporations working in booming economies. As a result we have well-known African eLearning institutions, such as the African Virtual University (AVU) and the University of South Africa (UNISA), with new ones emerging. In 2012, the Kenyan government funded the development of a new online education institution called the Open University of Kenya. Through funding from the African Development Bank (AfDB), the AVU Capacity Enhancement Program (ACEP) launched a training programme on November 18, 2013 to equip AVU's partner institutions with eLearning skills in areas such as ICT

instructional processes, technology support and management of eLearning – much needed human development for the African Continent.

The fact of the matter is that such initiatives are a result of a dramatically increased demand for higher education that cannot be accommodated by traditional campuses, making e-learning a necessity in Africa and not a luxury as many thought in the early days of the ICT revolution. Ambient Insight predicts that packaged content is the self-paced eLearning product that will generate the highest revenues in Africa throughout their forecast period 2011-2016 as there is a strong demand for digital language learning content, particularly from academia. Also, "by 2016, Angola will displace Tunisia as the fourth-largest buying country (of eLearning products) in the region. Nigeria will be the second-largest buying country after South Africa by 2016", says Ambient Insight.

The rise of a stronger and more assertive Africa, coupled with good progress made on some of the economic and social indicators of the Millennium Development Goals (MDGs), such as decreased rates of poverty and almost 90% primary school enrolment in most countries, provides fertile ground for an eLearning revolution in Africa.

However, there are some shortcomings in terms of progress toward the MDGs, namely inequality characterised by spatial and demographic disparities in access to basic social services, including education. Gender disparities in school completion rates and unequal access to health, water and sanitation facilities are worrying, and call for targeted interventions.

This is not just in Africa; globally there is "an education, learning and skills crisis. Some 60 million primary school-age children and 71 million adolescents do not attend school", according to the report of the High-Level Panel (HLP) of Eminent Persons constituted by the UN Secretary-General on the Post 2015 Development Agenda. The report also claims that "among the world's 650 million children of primary school age, 130 million are not learning the basics of reading, writing and arithmetic and a recent study of 28 countries found that more than one out of every three students (23 million primary school children) could not read or do basic maths after multiple years of schooling".

Dynamic content

In some places in Africa eLearning initiatives are helping to solve some of the learning and skills crises described in the HLP report. The Kindle e-reader for instance is helping address the chronic shortage of textbooks in Ghana. The Kindle provides children with access to 140 titles, including textbooks. According to one of the beneficiaries in a primary school in the town of Suhum in Ghana's eastern region, "the reader makes things better. It helps me to read and spell. Now it's easier for my parents to help me with my homework, because I always have the books I need", the child says.

The Kindles have been distributed to this school as part of the iRead 2 progamme of Worldreader, a charity organisation that is trying to eradicate illiteracy by delivering the largest culturally relevant library to people. There are similar Worldreader initiatives throughout Africa. In Ghana, the primary school children also have access to local content, namely Ghanaian stories.

According to a 2012 survey in Senegal by GSMA Sub-Saharan Africa Mobile Observatory, 27.8% of school pupils reported they had acquired better knowledge, and 6.5% understood lessons better, with content from ICTs.

Accenture estimates that the cost of books for a 4-year secondary education in Africa is $200-$400; books which provide an inflexible curriculum that cannot easily be updated. Whereas with e-readers, students spend less than $100 and can access hundreds of books from one device: dynamic content.

SURVEY STORIES

Kindle for schools – helping teachers in Kenya and beyond

"We launched the first pilot project in February 2013 after I visited several schools in the Oyugis area of western Kenya. Although the schools were well organised with friendly and helpful teachers and pupils, there were no teaching materials in use apart from a wall painted as a chalkboard and some sticks of chalk. However, 3G coverage was available and my Kindle device worked flawlessly. During various discussions with school teachers locally, and some who were also visiting from the UK, the germ of an idea was formed: to see if e-readers with suitable teaching materials might help transform and improve the resources available to teachers. From the outset, the aim was to encourage teachers, technologists and publishers in Kenya to participate in the project, to encourage collaboration and the sharing of ideas, experiences.

The project has now covered eight schools, both primary and secondary. Both the teachers and the students enjoy using the devices, which are solar-charged. A book once purchased on one Kindle can be shared on several."

Jeremiah O., Kenya

Photo: Odongo Jamesbond

Information empowers

Structural transformation

Africa's recent growth has not been job-rich. More progress can be achieved if concerted efforts are made to add value to raw materials through an aggressive industrialisation drive that generates employment opportunities for a large majority of the workforce. A more diversified economic structure will also be critical in strengthening Africa's resilience to economic and climate related shocks. In order to achieve inclusive social and human development, and therefore either the MDGs or whatever set of goals comes after 2015, Africa must undergo structural transformation that brings about inclusive growth.

What would structural transformation entail? The key elements of an effective transformation agenda for Africa comprise: a declining share of agriculture in GDP and employment; the transformation of rural areas into vibrant hubs of agri-business and industrial activity; the rise of a modern industrial and service economy; the translation of Africa's youth bulge into a demographic dividend; access to social services that meet minimum standards of quality regardless of location; reduced inequality – both spatial and gender-based – and progress towards an inclusive green growth trajectory, underpinned by quality education for all Africans.

The High-Level Panel (HLP) of Eminent Persons constituted by the UN Secretary-General on the Post-2015 Development Agenda identified five big transformational shifts required for a new global development agenda, namely a) leave no one behind; b) put sustainable development at the core; c) transform economies for jobs and inclusive growth; d) build peace and effective, open and accountable institutions for all, e) forge a new global partnership. On transforming economies for jobs and inclusive growth, the "Eminent Persons" in their report called for "a quantum leap forward in economic opportunities and a profound economic transformation to end extreme poverty and promote sustainable development, improving livelihoods. The potential of eLearning to facilitate the transformation of African economies is enormous and cannot be overstated, as the report further posits:

"The first priority must be to create opportunities for good and decent jobs and secure livelihoods, so as to make growth inclusive and ensure that it reduces poverty and inequality. When people escape from poverty, it is most often by joining the middle class, but to do so they will need the education, training and skills to be successful in the job market and respond to demands by business for more workers".

Technology, particularly online education, can really assist the African Continent to overcome both new and old challenges. It can achieve this through providing a cheap and flexible medium for the education of a large number of both adult and school-aged Africans. The upshot is that it can re-skill Africa's citizenry for the challenges ahead and become a catalyst for the transformation that is required for real inclusive growth in

"there is fertile ground for an eLearning revolution in Africa"

Africa. The Continent "needs to approach job creation from a development angle, not just as a sectoral issue. National development visions, plans and strategies should focus on jobs". In so doing, there will be a need to foster "an environment for businesses to thrive; paying particular attention to human capital accumulation, especially by aligning the education system with labour market realities" according to the Africa MDG Report 2013.

eLearning has the potential to advance education towards the unfinished targets of the MDGs and is a trustworthy mechanism for implementing the post-2015 development agenda, scheduled to replace the MDGs from 2015. Education is a key cornerstone of development in Africa, linked to earnings, productivity and economic growth.

The higher the rate of dropouts the less education a workforce in Africa has. The HLP Report states: "every country that has experienced sustained high growth has done so through absorbing knowledge, technology and ideas from the rest of the world, and adapting them to local conditions. This requires universities, technical colleges, public administration schools and well-trained, skilled workers in all countries".

A common position

Yet African education faces significant challenges, with persistent problems of uneven or low education participation, where 1 out of every three enrolled primary school pupils drop-out. There are also perennial problems of low incomes, poor quality learning institutions and also a bulging youth population with approximately 72% of African youth living on less than $2 a day.

Accordingly, the Common African Position (CAP) of the post-2015 Development Agenda adopted by African Heads of State and Government of the African Union in Addis Ababa, Ethiopia on 31 January 2014 has in place 6 pillars for Africa's transformational agenda. These are: 1) structural economic transformation and inclusive growth; 2) science, technology and innovation; 3) people-centred development; 4) environmental sustainability, natural resources management and disaster risk management; 5) peace & security; 6) building partnerships.

The CAP states categorically: "we must achieve excellence in human resources capacity development through an improvement in the quality of education and training by: investing in learning infrastructures; increasing the use of ICT; ensuring higher completion rates; promoting pre-schooling, integrated adult education; and improving the quality and conditions of service of educators and trainers" (Common African Position, 2014, pp 10). This assertion is based on the premise that any economic structural transformation agenda needs a sound education policy to accompany it.

"the first priority must be to create decent jobs and secure livelihoods"

The advantages of eLearning are that it can deliver timely and cost-effective learning for this agenda. For instance, in much of Africa, 46% of workers have less than $1.25/day. Properly targeted training in skills development for improved livelihoods for this particular group through eLearning could not only reduce poverty but also contribute to the economic transformation agenda.

Similarly, Africa's young workers are mainly underemployed or self-employed in the informal and/or agricultural sectors, whilst youth employment remains a question of quality of jobs. The introduction of skills development programmes for youth would go a long way in building theirs and Africa's future, which will also contribute to building the sustainable and inclusive growth still eluding the continent.

Mobile revolution, local content

Prospects for home-grown e/mLearning opportunities also abound in

Photo: Adewumi Oluwatobi

Going mobile

Africa. This is one area that could be examined with respect to economic opportunities for Africa's youth. eLearning is both a tool and a means of employment, stimulating the emergence of the creative and local content industries in Africa. As mobile broadband penetration increases the demand for local and relevant content and applications will also increase. Though at their nascent stages, these industries are already making an impact in their countries.

For instance, the creative industries in Kenya are now the 5th-largest contributor to the national economy, providing over 62,000 jobs, including more than 50 tech hubs, labs, incubators and accelerators. This scenario will soon be repeated across nearly all of Africa. This is because eLearning has a local content component that provides business avenues for locally-based companies.

More location-specific mobile applications are still needed in Africa. This is where jobs can be found. According to a survey of teachers in villages in four African countries, a quarter said that the use of mobile phones helped increase student attendance. This was because teachers could contact parents to enquire about their child's whereabouts. Mobile phones have also been used in Uganda to track school attendance so that school administrators can see patterns in attendance, for instance by village, by day of the week, and by season. Tracking attendance for pupils indirectly also tracks absenteeism among teachers. Examples of the use of mobile phones for supporting education in Africa are being told up and down the continent.

Another spin-off area in eLearning is the local content industry. Strong government leadership is required in providing the necessary enabling environment to stimulate growth in this sub-sector. For instance, South Africa's broadband policy of 20th November 2013 calls for an applications development fund with incentives for the localisation of content, platforms and applications.

Photo: Seun Sanni

Connectivity

The potential for the development of creative and local content industries in Africa is significant. With increased penetration of smartphones and mobile broadband, there will be a big demand for locally relevant content and applications, and hence the need for countries to promote entrepreneurship in local content and applications.

Booming economies

Globally, eLearning plays a vital role in the provision of education services and is fast becoming an important aspect of all educational systems and the most cost-effective way of providing education. However, adoption, utilisation and optimisation have still got a long way to go in Africa even though there have been tremendous strides with strong potential. Not having technology-savvy education professionals does not help and many universities on the continent are still not at the forefront of technology use.

The growth of eLearning is spurred by the fast rate of growth in Africa and the Continent's booming economies. However, much of the growth has not created employment for Africans. In developing strategies for sustained growth, countries will have to implement national strategies to promote the use of technology for education, along with the prioritisation of investments in the ICT sector, whilst paying serious attention to infrastructure development and re-skilling educators on the importance of technology in the education process. Mobile technology has the potential to improve access to education for young people and eLearning provides an important avenue for African countries, in providing better skills to their citizens, to transform societies and economies.

Dr Aida Opoku-Mensah is the Special Advisor, Post-2015 Development Agenda, at the United Nations Economic Commission for Africa (UNECA), Addis Ababa, Ethiopia

Photo essay

by Uche Uwadinachi

The price of fish

The morning's catch has been heaped up to roast on a griddle over an open fire. Smoke rises, filling the hut. Daniel, a member of the Ago-Egun fishing community in Ajeromi Ifelodun, Lagos, gets out his phone and starts making calls: he needs to tell his many customers that the fish are nearly done.

In a business like fishing communication is vital. The relatively short shelf-life of the raw product necessitates just-in-time delivery, while prices and stocks fluctuate according to season and demand. So it's no wonder that Daniel is reliant on mobile connectivity.

Look out over the waters from a Lagosian fishing district and you will probably see, towering above the fishermen's boats and houses, one of the giant road bridges that link the many islands of this metropolis – part of one of the most extensive motorway networks in Africa. In the modern Lagos, however, it is intangible communicative links that are of the greatest importance.

Denial on the Nile

How the revolution failed Egypt's students

by Leslie Croxford

Modern higher education in Egypt begins with the foundation of Cairo University (formerly the Egyptian University) in 1908. It was a small liberal arts college and its creation led in time to that of other universities, first in Cairo, then throughout Egypt.

In 1952 King Farouk was deposed and the new revolutionary regime came to be headed by Nasser. This was the first Egyptian Revolution. Its members embraced an ideology of Arab socialism and sought to increase opportunities for higher education well beyond the small elite who had hitherto benefitted from them. They were motivated by ideals of social justice and economic development.

Accordingly the Constitution of 1971 claimed education as the right of every Egyptian. This was to be advanced by four means: guaranteed access to higher education for all qualified high school graduates; a national examination system providing equal entry requirements for all university applicants; the abolition of fees for higher education; guaranteed employment of all graduates in the civil service.

Noble as it was, this programme did not increase inclusiveness in higher education in Egypt. The most that can be observed is some increase in the proportion of female students. Moreover, while higher education has certainly expanded, in fact by about 60% just between 1988 and 2005, the greatest growth has been among the wealthiest socio-economic group.

Given the massive inflation of student numbers, two preventative strategies were launched: limiting the number of students enrolled by creating technical institutes and private universities and increasing examination entry scores for faculties such as Engineering and Medicine.

"the Egyptian Ministry of Higher Education was highly suspicious"

Efforts have also been made to enhance the quality of higher education programmes by reforming the curriculum, introducing interdisciplinary studies, using educational technology and introducing international exchange programmes.

Unfortunately, neither of these attempts at internal reform have significantly improved either the quality of education or the institutions offering it. But nor have the private universities introduced creative change to Egyptian higher education either directly or by example.

The private universities for those who could pay, founded in the twenty first century, were often foreign, such as the British, French and German. But none except the American University (which is nearly 100 years old) is allowed to run on the lines of its own country's educational regulations. All others are forced to run according to the laws of the Egyptian Ministry of Higher Education (promulgated in the 1970s under Sadat). But these regulations are highly prescriptive, hierarchical and combine awkwardly with the norms of Western higher education.

Other Egyptian private universities have been entrepreneurial and are often criticised for this reason.

Finally, in this review of attempts to reform Egyptian education, we should mention one laudable effort to improve

Opinion

Photo: Ebrahim El Moly

One world in Tahrir Square, Cairo, Egypt

the situation in the late Mubarak years. It was developed in Mubarak's own National Democratic Party and included an initiative to ensure quality in ways modeled on initiatives by Britain's Quality Assurance Agency. This was a proposal for a body to have oversight and reform of higher education but by a nationally funded independent agency that was nonetheless not controlled by the state. Yet the Egyptian Ministry of Higher Education was highly suspicious of this approach. It feared losing control and thus its own predominant role. The attempted reform agenda was blocked.

Hence higher education in Egypt up to the end of 2010 was an inefficient entity unable to reform itself. Its universities were overpopulated, collapsing structures. We find them, as the first decade of the new century closes, suffering from an acute case of institutional sclerosis. They and their inert student body and demoralised academic staff stare, like the rest of the country, into a future without vision or hope.

This brings us to the 25th January 2011, a day that begins like any other but ends by ushering in the second Egyptian Revolution.

The effects of the "Arab Spring"

The second Egyptian Revolution introduced a completely new element into Egyptian higher education but it did so accidentally. This is a prime example of The Law of Unintended Consequences.

Yet it is no clearer that the second Egyptian Revolution of 2011 really was one than that of 1952. The Revolution of 2011 was just an increasingly purposeful gathering agitating for issues of lifestyle, personal freedoms, but not even the resignation of Mubarak at the outset. It was not a call for fundamental social and economic change as in the French Revolution. And the Muslim Brotherhood was not at all involved at the start.

Only with the ousting of Mubarak, the failure of liberals to consolidate, and the Muslim Brotherhood's better organisation and scent of victory, did the Muslim Brothers emerge. They were the beneficiaries of disarray in the remnants of the Mubarak regime and the lack of a strong alternative.

So far there was no impact on higher education other than a new law requiring Presidents and Deans in the national universities to be elected rather than being the appointees of the Minister of Higher Education.

Then, with the passage of between a year and eighteen months since the original Revolution, and the obvious fact that President Mohamed Morsi's Muslim Brotherhood government clearly had no intention of delivering

on the Revolution's true aims, debatable as these might be, something new began. There was a rash of student protests in universities both public and private.

These protests led to the closure of campuses; the expulsion of one university President and of many senior staff; even the student take-over of some campuses.

Students protested about the same issues that they are always likely to protest about: fees, lack of food courts, copy centres and student activities. They attacked over-rigorous marking, poor access to professors and the remoteness of senior administrators whom they considered badly out of touch. They also demanded a significant role in governing the institutions.

All this could have been expected. But the protests were violent, exceeding anything previously known. Why? What had made the students rise up?

Had they had breathed the air of the Revolution and its hopes but, finding there had been no delivery of its demands, and that the exhilarating atmosphere of freedom had grown stale, themselves wanted to revive the Revolution in the one context immediately available to them – universities?

In feeling the Revolution had been betrayed, or at least that its promise had been dimmed, the students were not attacking the Muslim Brotherhood specifically. The Brotherhood was not seen as a particular threat to the universities. For actually the core members and much of the rank and file of the Brotherhood were from the medical, engineering and legal professions. Some such as Morsi had doctorates and had studied in America. Nor did the students probably have much idea of the deterioration in higher education that any Muslim Brotherhood Government must inevitably bring.

In time they would have put their own members in key university and ministry positions, pressing for teaching only in Arabic and ending foreign universities. Again, they would have taken even further the marked preference for purely technological subjects already shown by other Ministers of Higher Education. Such disciplines do not, after all, seriously impinge on national and Islamic values.

"they resented the curb on the Revolution"

Muslim Brotherhood

But the students neither predicted this nor blamed the Brotherhood specifically. They just resented the curb on the Revolution. Not that they necessarily reasoned out even that. But they sensed it instinctively which was why they felt an inherent similarity between their discrete sets of motivations. It led them to form what was effectively a federation and to participate in each other's protests.

What was the consequence of this? It was that students, never active or previously considered as a force (other than in demonstrations about Israel and Palestine or in riots about withdrawing bread subsidies), emerged as a new contributing element in higher education.

For, as our review of Egyptian universities prior to the January 2011 Revolution shows, the students had been a constituency that was simply never taken into account as a factor, let alone a key participant, in higher education reform. They were quite simply inert.

And yet did the students who were now suddenly fired up know exactly what they were asking for or indeed how to ask for it? I don't think so.

The reason was simple. There was no one specific thing that they wanted. It was, rather, a voice that they sought on any and every thing. They wanted respect and to be taken into account. And vague though this sounds, it is fundamental. Nor could the disruptions cease until they were addressed.

In this, the students represented in their context the aspiration of all Egyptian citizens. For the vast majority of the citizenry were at an equal loss as to how to ask for what they wanted except through mass demonstrations of the kind that finally removed President Morsi and the Muslim Brotherhood.

But just as the country has been divided over the ousting of the Muslim Brotherhood, so are the students. A section of them are sympathisers of the Muslim Brotherhood, which is quite possibly manipulating them, as the Minister of the Interior pointed out early in December 2013.

In fact, now that the Muslim Brotherhood is pronounced illegal, they have said they will seek to disrupt the country through the universities.

This has begun with the destructive student uprising in El Azhar, the University at the centre of Sunni Islam. Yet disruptions caused by students increasingly politicised, though not only by the Muslim Brotherhood, have so escalated that by mid-2014 universities have been ordered to close for weeks at a time. The new Minister of Higher Education stated that his priority is to calm the universities. And the Prime Minister urged university Presidents to use new powers to achieve this goal.

So the students are a new force in higher education. But they are also revealingly emblematic of Egyptian politics at large. Insofar as students have hardly known how to ask for what they want, their professors have known no better how to understand or provide it. This ignorance exists to the same extent as the government has had difficulty in accommodating its citizens.

The way forward

Higher education in Egypt is now faced with taking into account the one element which has always been its raison d'être but that it has failed to recognise – at least since 1952 – and effectively neutered: the student body.

There are three inescapable reasons why it must come to terms with them. First, there is the destructive capacity of the students not only for the institu-

FACTORS TO CONSIDER

THEORY AND PEDAGOGY:

1. The curriculum should not only proceed according to the intellectual stages of student development but also the emotional stages which need similar identification assuming that this can avoid facile simplification.

2. There needs to be more research into, and understanding of, the relationship between emotional maturation and the intellectual aptitude to study and learn.

3. At the very least this involves a curriculum and teaching that proceeds at the student's individual learning pace, allowing for the discovery and development of his or her personal style of study. This would permit freedom to choose and change areas of study, pursue enthusiasms, and overcome slow starts and mistakes.

SOCIAL AND POLITICAL EDUCATION:

1. A variety of opportunities, whether courses or more informal discussion groups, should be provided for students to consider the basic concepts with which they may provide for their aspirations: namely freedom, liberty and rights. While the whole of the history of political philosophy has a direct bearing on these ideas, texts should be subordi nated to the students' prior, if naive, personal discoveries through reflection on, and discussion of, their own places in their world.

2. Discussion between students and both academic staff and administrators is necessary for the development of appropriate forms of communication between them. This will suggest what is appropriate and where boundaries must exist. Hence dispute over standards and marks is likely to be out of bounds whereas considering how successfully a given class has been delivered is fair game. Acquisition of a sense of what is appropriate communication may act as a model for later socialisation.

3. There is an important caveat here. While a senior administrator at one university in Egypt has suggested that every course should emphasise the renewed sense of citizenship resulting from the January 2011 Revolution, implicitly proposing that the students share it, this far exceeds what is necessary in supporting the students' social and political education. The purpose of a university should be open-ended, allowing the graduate to make what he or she wills of the knowledge and skills acquired. It is not to produce a particular kind of person: not even a good citizen.

EGYPTIAN CULTURAL ISSUES:

1. Given the great role of Egyptian parents in choosing their children's areas of degree studies, usually with a future profession rather than personal aptitude or development in mind, the students show a distinct lack of commitment at the start.

2. How can the university compensate for this? Its introductory year of study should not only be about studying for a degree and acquiring learning skills, but also about developing intrapersonal skills. The deepening self-reflectivity they bring has a crucial relationship with the capacity to learn and, more especially, independent learning.

3. Again, students, regardless of their final degree areas, must be given opportunities in the course of their studies to address material and issues that are of specific relevance and thus interest to them. But how? By relating them directly or implicitly, whether through teaching or the student's learning, to the issues of their own turbulent society and personal development.

4. Moreover, we must cease looking at personal development, including greater communicativeness and poise, simply as a way of honing the so-called "soft skills" for greater employability. We need to see it as a valid objective of higher education per se: namely human development.

tions of higher education, some of which they have already immobilised, destroying property, ousting administrators and closing campuses, but also lest they ally with other constituencies against the state and/or the governing regime. We have mentioned their connection with the Muslim Brotherhood and possibly others. We also remember the students' crippling alliance with the unions in De Gaulle's France in the '60s.

Secondly, students have the potential to undermine the most promising strategy for modernisation and development in the country and region: higher education.

Thirdly, again, the alienation of students puts at risk that greatest source of stability in a society and state: the creation of a well-educated populace which, thereby fully employed and prosperous, has a vested interest in its continuance.

These are, of course, all very practical reasons for acknowledging the key role of students in making arrangements for higher education. They are motivated by considerations of political and social prudence. But naturally one could invoke human rights as a basis for students' entitlements to education, together with the knowledge and skills it imparts.

Yet regardless of the reason, or possibly justification, for according the students a central focus, the issue remains of how, on a practical level, the students are now to be taken into account.

Clearly responsibility for running higher education cannot now simply be turned over to them. It is not only that this could be parodied as a case of the lunatics running the asylum. It is also self-evident that those with the experience and knowledge students have yet to acquire should not abdicate the responsibility of teaching and guidance for which the students have come to them in the first place.

This is not to say that students should be made to feel disempowered. In a highly charged atmosphere such as that in Egypt this would be like a red flag to a bull. But remember Rousseau's remark that Britain is a democracy once every four years. In other words democracy is strategic flattery to a powerless electorate. By the same token flattering invitations to actually quite limited involvement in decision making can be skillfully extended to the students.

Photo: Ramy Raoof Student demonstrators in Tahrir Square

The issue is not, however, simply to exercise political finesse in pacifying students. It is for them to feel genuinely fulfilled by their education in such a way that they consider its institutions are of value and must be preserved. This returns us to that simple three letter word: how?

There is much to consider about how to create the osmotic channels whereby these student-centred approaches to teaching and learning might penetrate the traditional national institutions of Egyptian higher education. There are signs that permeation might already have begun on a small scale even before the Revolution.

Monumental change

The whole enterprise of engaging the students in Egypt is as much about the teachers as those who learn.

The teachers are, after all, the students of the past. As such they have absorbed all the treatment that the present students despise. They have incorporated it into their behaviour and way of teaching their current undergraduates. For it is ultimately they themselves that they are replicating in their graduating classes, generation upon generation.

What is needed is a monumental change of mentality. It requires an admission that, because quelling student disturbances can never be enough since uprisings would only continue hydra-headed, there must be a serious effort to do the one thing that will ultimately satisfy the students: engage them. Yet for this the old ways are woefully inadequate. Unchanged, they risk the students destroying the entire structure through which the staff have lived and worked for all their many years. Of course this requires clarity of vision to identify the challenge. It needs courage to scrap old ways in favour of new approaches whose success, even with the best of intentions, cannot be guaranteed. It demands great creative energy for this massive effort of self-re-education.

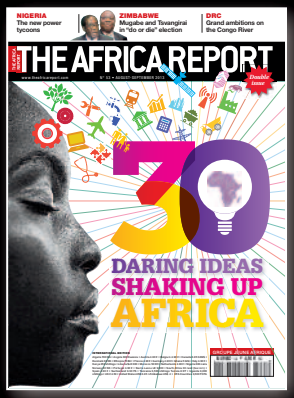
But can we really expect Egyptians in the higher education sector to do this? Do they have the clarity, the courage, the creativity to do all this?

Well, you saw like me the numbers in which Egyptians came out onto the streets in defiance of Mohamed Morsi. You witnessed their rejection of his empty vision for their country. So in response to that question whether they can rise to the challenge, I would say, to coin a phrase: Yes they can.

Historian, novelist and dramatist Dr Leslie Croxford is senior Vice-President for teaching and learning at the British University in Cairo

THE AFRICA REPORT

Essential reading for growing your business



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Sector focus

Tourism energises economies

Photo: Rod Whaddington

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Zanzibar

Tourism is a rapidly growing industry, which has huge potential for African economies. However, it is highly labour-intensive, requiring the rapid training of a skilled workforce. Online training offers an attractive solution to the problem.

In 2012, the entire African continent attracted 33.8m visitors. Receipts from tourism the same year amounted to over $36 billion, or 2.8% of the continent's GDP.

A 2013 World Bank Report, "Tourism in Africa", reads: "managed sustainably, tourism is an effective development tool. When tourism's environmental, social, economic and other constraints are addressed, tourism energises economies."

Tourism has certainly had an energising effect on the tiny islands lying off Africa's eastern seaboard – whose economies depend to a large extent on foreign visitors. Over the last two years the Seychelles and Mauritius have launched their first eLearning tourism courses, providing an important blueprint for developments elsewhere.

In Egypt, for example, though the uptake of eLearning has been slow, there is strong demand for the blended approach. Students in the Nile state's many venerable training institutions can learn the interpersonal and collaborative skills required by the industry online, while gaining the necessary practical skills at the same time.

With the growth of Africa's middle class, intra-African tourism is also on the rise – with many more Africans now travelling to destinations outside their own country. The tourist industry is not just a stimulator of growth – it is also a product of it.

SURVEY STORIES

Studying tourism online

"As I am studying for a PhD, I usually read and work from home. I am constantly on the net seeking information and communicate a lot by email or text message. I also do some part-time teaching and communicate with my students the same way. I am trying to get them to be fond of their mini computers for academic purposes and not only chatting on the social forums. Since they have really advanced mobile sets I keep sending them to search for their own academic information for assignments and term papers. We also have very few textbooks in our library on tourism, hospitality, recreation and entertainment, so I am encouraging them to use e-journals, e-books and so on. I also co-ordinate a Travel and Tourism department for the same university; again, most of the coordination I do from my computer whether at home or in the car since there is limited office space."

Leah M., Kenya

SURVEY STORIES

Building links with the tourist industry

"Aged just 17, Shafii started providing free tuition to children with disabilities at a neighbour's home. Word of his work spread and he made himself available to any disadvantaged children in his community, leading to the establishment of the Prospective Learning and Charitable Institution (PLCI) in 2006.

The Institution aims to provide free educational opportunities to orphans, disabled persons, youths living in poverty, and local community members so that they may develop the skills critical for employment and educational advancement in a harsh economic environment.

In 2010 registration as a NGO was granted; now, in 2014, there are 260 registered students taking courses at PLCI around their regular school timetables. The PLCI building is stretched to bursting and, though an extension has been built, it cannot be completed and utilised without further support. This means that no more students can be enrolled. Wherever a student is able, they are encouraged to make a donation to operating costs but an inability to contribute does not prevent students from being accepted. PLCI strives to maintain itself by sustainable means to ensure long term stability.

The new extension, once complete, will be used outside class times to hold film screenings and other functions where attendees will pay a contribution towards the upkeep of the institution and, in due course, providing school meals to those who need them.

Each year the number of students receiving Graduation Certificates from PLCI increases. PLCI has begun recently to build links with representatives of the tourist industry in Zanzibar and with Rotary International who between them have helped to secure employment for a number of PLCI graduates. Others still have been helped with their entrance exams and are now attending the island's international schools."

Shafii H., Tanzania

Education and Survival in the Sahel

Photo: CIFOR

by Harold Elletson

The Sahel is a welcome relief from the endless aridity of the Sahara desert to the north. Its occasional acacia and baobab trees at last provide shade and there are opportunities for camel, pack ox and other livestock to forage among the low-growing grasses, poking out from the thorny scrubland. This is a borderland, no longer the "lone and level sands" of the Sahara but not yet the humid, fertile savannahs to the south either. There is something transitory about life here, as though when the north wind blows sand down from the Sahara, it covers and then, just as suddenly, uncovers the traces of history.

Even the region's inhabitants seem somehow mutable, many of them still living a semi-nomadic existence, not quite belonging to the Arab populations of the north, despite the use of Arabic as a lingua franca in much of the region, but not yet fully connected to the African populations to the south either.

The Sahel is a place of transition, an extraordinary, multi-faceted, fascinating region, rich in history, culture and diversity. It stretches across Africa from the Atlantic shores of northern Senegal and Mauritania in the west to Sudan and Eritrea in the east. The Niger river and the Nile pass through it. Timbuktu is here and the Dogon country, with its caves in the huge Bandiagara escarpment in Mopti. This is where the Sahelian kingdoms held sway: the Ghana and Songhai empires, the kingdoms of Mali and Kush, and the great Almoravid dynasty, whose influence extended even into Spain. The kingdoms, which grew powerful because of their position astride Africa's most important trade routes, were autonomous but they often cooperated with each other, so that, at the height of their power, the writ of their rulers ran across the breadth of Africa.

Uprooting communities

Despite the region's exotic allure for outsiders, however, life is hard here. It continues to suffer from a variety of crises and catastrophes, both natural and man-made. The effects of climate change have been painfully obvious recently in food insecurity, soil erosion, drought and famine. There have been brutal conflicts too, which have taken their toll on the peoples of the region, uprooting ancient communities, devastating cities and villages, forcing families to leave the land and join a growing wave of refugees. The terrorism of Boko Haram (see left) and Al-Qaida of the

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NIGERIA: SECURITY AN URGENT CONCERN FOR GOVERNMENT

Nigerians believe their Government must do more for school security.

Survey: **"Do you feel your government is doing all it can to protect students in conflict areas?"**

Islamic Maghreb (AQIM), the Azawad rebellion in northern Mali, war in Sudan and Somalia, to name but a few recent problems, have all undermined the peace and stability of the region.

Ancient seats of learning

The Sahel is home to some of Africa's most ancient seats of learning but recent natural disasters and conflict in the region have had a devastating effect on education. Food and nutrition crises mean that many children drop out of school, in order to take part in income-generating schemes for their families or to migrate in search of food or water; sometimes they are simply prevented from attending classes because they have been coerced into a violent or exploitative relationship.

In some countries, such factors contribute to huge school drop-out rates. The Ministry of Education in Niger estimated that in 2012 as many as 1 in 5 pupils had dropped out of primary school. Aid organisations are concerned that school drop-out rates, along with a failure by the international community to attach sufficient importance to education in its crisis relief programmes, help to deepen crises and ensure that children and communities are not equipped to deal effectively with the challenges of survival.

"There is a lack of understanding," says Elin Martinez, the author of *A Creeping Crisis: The Neglect of Education in Slow-Onset Emergencies*, a report published in 2012 by Save the Children. "Decision-makers don't necessarily believe that education should be included in emergency response – education can be a platform to help end crises.

In 2012, after a severe drought the previous year in the Horn of Africa, only 18% of the $30 million of funding required was received for education in Somalia, the country worst affected. And several months after the conflict and upheavals in Mali, donors had provided just 4% of the $9.7 million required. The UN Children's Fund (UNICEF) estimates that more than 53% of refugees from the conflict in Mali were children and two thirds of them were of school age.

"The humanitarian answers need to include more than what we need for a daily life," says Martinez. "We need to look forward. We need to look beyond life saving and to build the resilience of children and their communities to cope with future droughts and secure learning that is relevant to children's needs to get the entire picture."

Encouraging signs

However, there are some encouraging signs that the importance of education in community resilience and recovery is being recognised. The UN's Sahel Regional Strategy identified education as a key factor in enabling communities in the region to deal with crises:

"Education has a key role to play in helping children survive during emergencies. It provides a platform for an integrated emergency response and, in the longer term, through disaster preparedness, risk reduction and adaptation, it builds the resilience of children and their communities to cope with future crises."

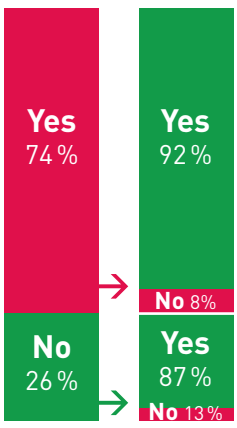
The report pointed out that families in areas affected by crises were becoming aware of the importance of education:

"In the nine crisis-hit Sahel countries, communities are finding ways to start their own education activities – demonstrating how, in times of crisis, families see education as a priority."

The UN recommended a number of specific measures to give a boost to education in crisis-hit communities in the region. These included a focus on the provision of teaching materials in refugee settings, 'back-to-school' campaigns, advocacy for term-time flexibility to allow drought-affected areas to set context-specific term times; accelerated learning programmes; school networking and mobile school cards, portable student learning kits and education courses delivered by radio.

EXTREMISM AND EDUCATION

Survey: **"Has political or religious extremism had a negative effect on education in your country?"**



INTERFAITH DIALOGUE AND ICT

Survey: **"In your opinion, can ICTs improve interfaith dialogue and understanding?"**

Opinion

Innovation is only innovation if it is sustainable

by Donald Clark

This title may seem obvious but there are plenty who see innovation as a thing-in-itself divorced from consequences. Innovation always has a context, yet those who focus wholly on innovation have an Achilles heel, in that they are often technologists who have little feel for context. So many projects are foisted on developing nations by external bodies who fail to understand that the criteria for successful innovation lie not just in the innovation but its sustainability.

Some notable examples of failed initiatives, once touted as innovations in education, are Sugata Mitra's "Holes-in-the-Wall" and Negroponte's Ethiopian tablets project. Many are surprised to learn that these are not what they seem – and that they have largely failed.

Mitra's "Holes-in-the-Wall"

Mitra's "Holes-in-the-Wall" are literally just that, empty holes. Even when they were up and running the evidence shows that they were dominated by boys who played games and that deep learning was rare.

Pictured right, upper, is a Sugata Mitra "Hole-in-the-Wall" site in India. Literally, just three holes in a wall. That's because it failed. The community can barely remember why they were installed or what happened. They do remember that they were vandalised.

Below it is another, set in a school playground, the computers long gone. "What we see is the idea of free learning going into free fall," said researcher Payal Arora. When Arora came accidentally across these two "Hole-in-the-Wall" sites in India, she discovered not the positive tales of self-directed learning, but failure. One was vandalised and closed down within two months, the other abandoned and, apparently, had been mostly used by boys to play games, with girls being excluded. A real problem was sustainability, as no one seemed responsible for the electricity and maintenance bills.

"I wouldn't take it if you offered it to me for free," said the head of the school I visited in the huge Katut

Holes in walls

Township on the outskirts of Windhoek in Namibia. In 2008 some guys turned up, started to drill four holes in the wall, installed dial-up computers, and left explaining almost nothing. Within three months the project was dead. Internet access was intermittent and larger boys dominated the computers, playing games. At best a distraction, at worst, yet another failed and misguided idea imposed upon a community that was neither asked nor consulted. Today the four ugly, padlocked shutters are all that remain, just as we saw in India.

Photo: Thierry Karsenti

Better times

Negroponte – keep taking the tablets

The case is similar with Negroponte's project in Ethiopia, where the PR hype was found to be grossly exaggerated, and at times, untruthful.

With this tablet project at Wenchi in Ethiopia, serious doubts have been expressed about Negroponte's claim that these people have never seen print, even road signs or words on packaging. Many expressed astonishment at this statement. It's only 50 miles from the capital Addis Ababa. Beni, an Ethiopian, says, "I know part of Wenchi and it is not as remote as you displayed it." Another says "I bet there is a good number of people in that village who write and read. I bet these children have their own 'school' that teaches them something in 'Amharic' or probably even some English... I seriously doubt the very 'strange' picture painted here."

Indeed, it's on the lip of a well-known tourist spot, the Wonchi Crater, which has a lodge hotel (previous residence of Haile Selassie) and is a centre for eco-tourism. There's even Tripadvisor reviews for the place and lots of pictures taken by tourists as the crater rim is an established trek route, which you can do in a day from the capital.

But perhaps the most famous, and hyperbolic story that emerges from the "experiment", is Negroponte's claim that these kids "hacked Android" to switch the tablet's camera on. Backtracking later on Negroponte's hacking comment, Ed McNierney, OLPC's chief technology officer, said that the kids had "gotten around" OLPC's effort to freeze desktop settings. Did he mean resetting the tablet with the simple button press on the side? Because that's what happened. There's a lots of people here with agendas, and clearly few with the objectivity needed in such a project.

Focus

Although there is plenty of funding for specific "projects" there is little appetite for objective follow-up research on these projects. This is partly because the drivers are often not success, but simply getting project grants, buying hardware and PR opportunities around launches involving tablets, laptops and other innovative technology that promises dramatic educational change.

Long after these innovative projects have failed, those on the ground come back with the same messages around "lessons learnt". Yet it is not difficult to evaluate the sustainability of technical innovations in education.

A little learning is indeed a dangerous thing

There's no silver bullet here and we shouldn't be lulled into thinking there is. The real danger is that we get carried away by under-researched "feelgood" initiatives. What happens when the academics have had their fill, and Mitra and Negroponte have done the rounds of the international conference circuit and need a new topic: they're off abandoning these children and projects. Is this anything more than TED fodder for the egos of US academics? These parachute interventions are easy but not at all informative. Indeed, they may well be counterproductive, leading to the wrong type of spending by governments. They may even damage the effort needed to implement sustainable learning that is relevant and changes lives. Innovation is not innovation if it is not sustainable.

Donald Clark is a successful entrepreneur in the field of education technology. He is also a well-known commentator on education issues.

Sector focus

The rise of the DIY diagnosis

Technology-enabled learning aids health work in developing countries in two major and distinct ways. First, telecommunications offer the opportunity for the rapid, large-scale training of health workers through eLearning and the dissemination of important information to wide swathes of the population through the media. Secondly, new and increasingly accessible ICTs such as the smartphone and tablet put sophisticated technology in the hands of people working in the field, allowing inventors to develop affordable diagnostic equipment or counterfeit checking services that can be used in the field far from the laboratories of major hospitals.

Photo: Davis Musinguzi

Ask the doctor

These two trends are apparent in the eLearning Africa survey data. The doctors we spoke to clearly identified television and radio – the traditional media of mass communication – as the most important ICTs for delivering health messages (right), with SMS messaging coming in at third. Yet when asked what technology they considered most likely to revolutionise education and training, these doctors showed a marked preference for the cutting-edge tablets and smartphones, compared to the average respondent (bottom right).

SURVEY STORIES:

Tablets – an essential supplement

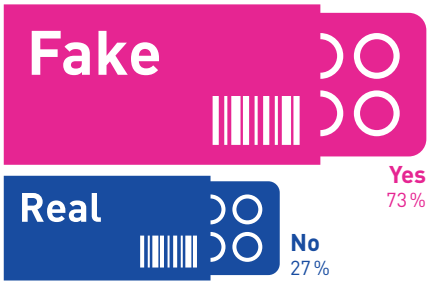
"I am researching the use of iPads to deliver basic health information to women in four isolated rural bush villages in Guinea. The women are illiterate. There is no electricity or Internet, so I am giving them health videos made by indigenous doctors of Guinea, in SouSou – the language of the women – and powering the iPads with solar panels.

So far the research is going well. Over three hundred women have watched the videos on basic health and sanitation, malaria, typhoid, cholera, dysentery, respiratory diseases, gastric diseases, and child birth. The next step of the research will be to determine if behaviours have changed to reduce disease, and improve maternal and child health."

Robert G.

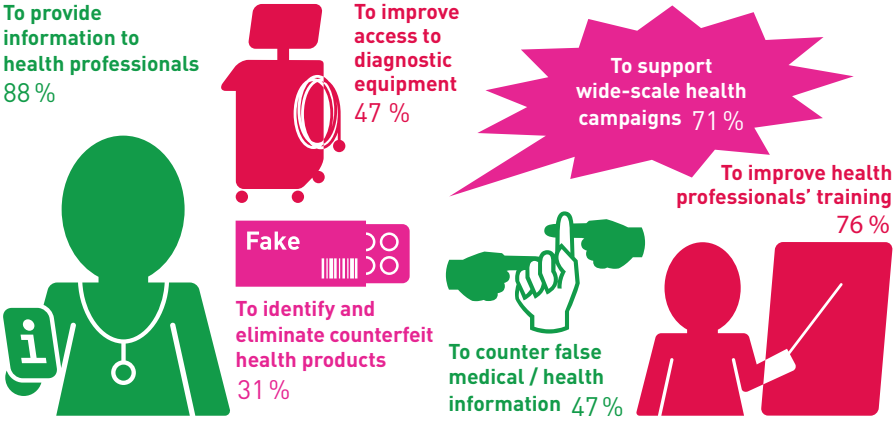
MEDICAL COUNTERFEITING

Survey: **"In your opinion, is the sale of counterfeit medical products a significant problem in your country?"**



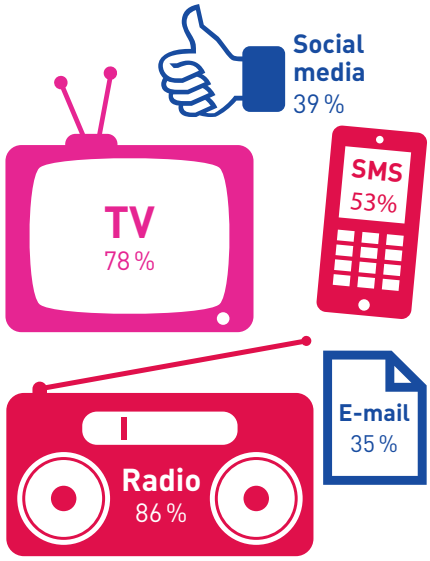
HOW ICT AIDS HEALTH

Survey: "What are the most important uses of ICT in health?"



MESSAGES AND THE MEDIA

Survey: "In your opinion, what are the most effective media for delivering health-related messages?"



This underlines the rise, in the last year, of health technology innovation alongside traditional eLearning courses and mass awareness campaigns. While eLearning remains a hugely popular way of training doctors and nurses, increasingly the smartphone, with its Internet connection, high-resolution camera, high computational performance and suitability for adaptation, is becoming an important diagnostic tool in areas where no doctors are available.

In Kenya, an application called the "pocket optician" went on trial this year, which allows teachers to carry out optical exams on children in their classes, using nothing more than a modified smartphone to scan the retina for disease and identify cataracts.

In Uganda, a team of female students called AfriGal Tech, attached to Makerere University, have managed to turn a smartphone into a microscope capable of screening for sickle cell anaemia. The beauty of this solution is that the smartphone's powerful computer takes over parts of a routine procedure that used to require the help of a qualified professional: namely, the analysis of the blood sample.

This is just one of the ways technology is putting the fruits of advanced knowledge into the hands of ordinary people. Product-checking services are another. The survey discovered that medical counterfeiting was a significant problem for around three quarters of the health professionals we spoke to – a worryingly high statistic (left). The difficulty it presents is that the users of medical products may lack the knowledge to identify counterfeit goods – which may be weak, ineffective or even harmful.

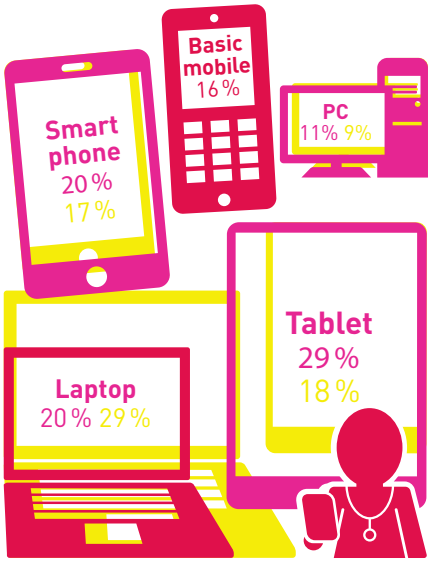
A variety of SMS-messaging services have sprung up across Africa in recent years to combat this illegal industry. Under such systems, products are typically allocated a unique pack number, which the buyer texts to a local shortcode service – the response of which either confirms or denies the product's authenticity.

Elegant in their simplicity, schemes like these are actively helping people in rural areas to gain autonomy in their lives.

DOCTORS TURN TO SMART TECH

Survey: "What ICT device, in your opinion as a doctor, has the greatest potential to revolutionise education and training?"

(Figures comapred to average answers by all interviewed persons, given in yellow)



"I don't have sight. However, I have a vision!"

by Tamru Belay

I believe that it doesn't matter if we have sight or not, as the vision we have is what's driving us to our final destination.

This vision was what drove me to work with fellow blind people in my home country of Ethiopia.

For individuals who are visually impaired, there are five basic methods of accessing computers: screen reader, Braille printing/reading device, electronic Braille display, speech synthesizer and text magnification. The accessibility of such technologies in a developing country like mine is difficult. So to be blind and independent was pure fantasy to my countrymen. But this was one fantasy I have learned to share.

When I moved to Canada in 1988, I discovered that life could be less strenuous for a young blind student. No longer was I a shackled civilian, completely reliant on the help of others to perform my duties. Small changes like writing my own personal letters empowered me.

Back in Ethiopia, everybody thought I had regained sight when I told them I was able to read ink print. It certainly felt like it, thanks to my talking computer and Braille embosser.

During those years, I often visited my homeland. Over time I saw no adjustment to the hardships my old classmates and friends were encountering. Some still depended on volunteers or paid assistants to read their books, which was inconvenient and extremely frustrating as they had to manage their time around their helpers. I still remember the days when I had to wait on the school aid. We went through high school and university trying to memorise whole textbooks in order to facilitate our learning. As a consequence, most of my fellows dropped out.

Alas no education meant low or non-existent prospects of employment; what could only await them was a long state of limbo. With this in mind, I decided in 2002 to open a non-profit organisation called the Adaptive Technology Centre for the Blind (ATCB). ATCB is a dedicated computer training and Braille transcribing centre focusing on the needs of students and professionals with full or partial visual impairment in Ethiopia.

I believe that the role of adaptive technology in the educational sector has now been recognised as the driving force and the primary device for almost all progressive initiatives. This revolution has brought fundamental structural changes in the lives of blind beneficiaries around the world. Indeed, each one of us has the power to bring these kinds of technological improvements collectively by endorsing and pushing for recommended changes that benefit those with visual impairment in Africa.

Of course, we will not be able to change the situation overnight: but let us give the blind of Africa the tools to fit themselves into the world.

Dr. Tamru Ewnetu Belay is the executive director of Adaptive Technology Centre for the Blind (ATCB)

CC

Photo: Podzemnik **A braille laptop**

eLA REPORT 2014

Hooray for Nollywood

opening up Africa's creative frontiers

by Adam Salkeld

Photo: Terry Morris

Creative thinking is the lifeblood of our time. Our futures will be defined by how well we unleash and exploit our creativity. Nowhere is this more apt than on the continent of Africa. In recent years Africa's economic growth has been driven by extracting energy or minerals. Looking ahead, the challenge will be to mine minds, to release the greatest natural resource of all, Africa's creativity.

The "creative economy" often seems a nebulous concept compared to more traditional industries. After all we can easily define a product like a motor car and it is not too difficult to count them as they come off a production line. Measuring a sector that covers everything from fashion to film, software to soft furnishings or advertising to app design is more complex. But even if definitions vary, the global creative economy is still measured in hundreds of billions or even trillions of dollars annually and all the sources agree, it is growing year on year.

Big numbers aside, there are other reasons to promote creative industries, particularly within the context of developing economies. Jobs in the creative sector tend to be of higher value, more rewarding and more sustainable. Entry barriers to the creative industries are lower, so the sector encourages a high rate of startups and smaller enterprise. Digital technology has made local creative industries global. Growth in the creative sector is only bounded by the imagination and quality of ideas, not by finite reserves or international commodity prices. Champions of the creative sector also point out that it bypasses many of the negative side-effects of traditional industry, such as heavy pollution, big carbon footprints or industrial diseases.

eLA REPORT 2014

The United Nations goes further and points to a range of non-monetary social and development benefits from the creative economy. A series of studies commissioned by UNESCO and UNDP have shown that creative industries can drive the very best types of development that are inclusive for women, indigenous peoples and youth. The UN argues that creative expression empowers individuals and groups and creates well being in all societies. In other words, we all benefit from a strong creative economy, even if we are not directly involved ourselves. To this end, the promotion of culture and creativity has earned its place in the new post-2015 global development agenda.

Nollywood, Bongo Films and Ugawood

So how does this all relate to Africa? Firstly, all over the continent there are signs of a vibrant creative sector. Booming film industries, for example, like Nollywood in Nigeria, Dar es Salaam's Bongo Films and Uganda's Ugawood have created a market worth millions and employment for tens of thousands. Using streaming technology they have also built an export market, distributing their films to diaspora communities around the globe. Besides making money, these films have entertained many and created an entirely indigenous showbiz industry.

Elsewhere, only this month, a Kenyan company, Well Told Story, won its second International Emmy, one of the most prestigious awards in the global creative industries. The Digital Emmy recognised the company's groundbreaking multi-platform work with Shujaaz, a story-based informal learning project for young people in Kenya. It combines cartoons, FM radio, video and social media and has already reached millions.

I could just as easily mention the waves being made by West African fashion designers, the thriving North African festival circuit, or the technology incubators and hubs up and down the continent that are using African creativity to solve African problems. But for me the most positive indicators of Africa's creative future are on a micro scale and they are everywhere. Yes, everywhere – on an urban street corner, or in a remote village – people solve problems in creative ways, entrepreneurs spot new opportunities, communities collaborate to make things better. These exhibit the practical everyday creativity that is the bedrock of a successful creative economy.

Creation spaces

So has Africa something it can share with the rest of the world? Building "creation spaces" is one of the hot topics of the moment. All over the globe governments, corporations and academics are looking at how we can better encourage ideas and creativity. To foster the best ideas, we need to create environments where emotional responses, rich experiences and social learning are at the forefront.

That sounds a lot like a traditional African community. Jay Cross, the man who originally coined the term "eLearning" and a leading thinker on how we learn, agrees and says Africa has something precious, "Africa should probably worry more about not destroying the creation spaces it already has than about creating new ones."

Educators need to consider whether they are allowing their learners to develop creative thinking skills. The question of whether you can "teach" creativity is a vexed one, Jay Cross says, "Maybe so, maybe not, but creativity can certainly be nurtured. Giving people the freedom to think broadly, providing examples of the creativity of others, encouraging innovation and experimentation, all these stoke our creative fires." And he argues that the conventional school is not achieving it. "John Medina, author of Brain Rules, has written that if you set out to design an environment that stifles learning and creativity, you'd end up with something like the modern Western classroom: a closed box, cut off from the outdoors and lined with rows of chairs."

Nollywood star Ufuoma Ejenobor

Virtual thinkspace

The virtual world offers unlimited space for sharing, comparing, inspiration and support, indeed all the tools for creativity. Wonderful ideas and products are coming out of Africa's creative industries – software, apps and innovative ways of learning. We need to think how we can build new creation spaces, blending the African spark with the freedom and opportunities of the digital universe.

Adam Salkeld is a Zanzibar-based columnist and television producer.

Nigeria's new wave

Nollywood goes digital

by Pauline Bugler

Nigerian director Kunle Afolayan's prize-winning comedy "Phone Swap," starring luminous Nollywood actor Wale Ojo, was shown at a special screening in Berlin recently. The screening was organised by the non-governmental organisations AfricAvenir and the Zentrum Moderner Orient to shine a cultural light on Africa.

This tale of mistaken, identical phones, which won the Public Choice Award at the Nollywood Week Film Festival in Paris 2013, tells what happens when business man Akin, played by Ojo, and Nse Ikpe-Etim in the role of Mary, the tailor, meet by chance at an airport. The two somehow manage to swap their phones unknown to each other, landing them in all kinds of hot water with hilarious results.

Ojo is currently starring in "Half of a Yellow Sun," based on the best-selling novel by Chimamanda Ngozi Adichie and directed by Biyi Badele. During a stint in London, he founded the New Nigerian Cinema in 2009 with the explicit aim of improving the quality of Nigerian cinema. His ambitious project led to documentaries about Nollywood on CNN and an annual New Nigeria Cinema Day event in London.

The pirating of movies can mean prove fatal for Nollywood films, as the world's second-largest movie industry, according to a 2009 UNESCO report, has no formal distribution network. After the United States, Britain hosts the second biggest Nigerian diaspora and most Nollywood videos were disseminated there through pirated networks. The more successful a movie proved, the more vulnerable it became to piracy.

Photo: P. Bugler Wale Ojo at a premiere

Eventually a number of Nigerians decided to strike back and shift the films from video parlours to cinemas. To do so, they introduced scheduled red-carpet premieres of "new Nollywood" movies at Odeon cinemas in Britain. The idea was to create demand among cinemagoers and then move the films to mainstream cinemas. While the screening strategy has met with a degree of success, it has also been criticised for showing mostly "new wave" movies.

But the efforts to stop internet pirates gained more clout when the Filmmakers Association of Nigeria was founded in the United States to copyright movies. During an anti-piracy raid in 2010, nine illegal video shops in the US were investigated and 10,000 pirated Nollywood videos seized.

"Nollywood became pregnant and gave birth to a new Nigerian cinema," Ojo said. At the forefront of this movement are Afolayan and directors Jeta Amata (The Amazing Grace), Stephanie Okereke (Through the Glass) and Newton I. Aduaka (Ezra) to name a few.

Nowadays, this young, thriving industry is becoming more professional and may perhaps be able to target moviegoers more concertedly as a chain of cinemas called Old Film House is opening up all over Nigeria, Oje said. He envisages a future where the distinction between the various "woods" effectively disappears.

Nollywood believes it has a role to play in education and not just entertainment. Efforts are currently underway to realise an open-air cinema project and screen movies in poor rural areas for free where people have no access to cinemas.

"I believe Nollywood has a real role to play in education using film as a medium," Oje pointed out. At present, he is researching potential African adaptations of the Shakespearean dramas Hamlet and Julius Caesar.

Learning from people, Twitter style

Beate Wedekind is a journalist and founder of online journal TheNewAfrica.info. At 63, a senior startup entrepreneur in Germany, she has two passions: communicating and networking. We got in touch to ask her what she has actually learnt from it.

by Beate Wedekind

Text length 600 words? "Only?" I asked, when I got the chance to write for the eLearning Africa Report. The topic? Learning, of course. I was scratching my head. Finally I decided, for an exercise: let it flow! Let them know about the people I learnt most from during the last year. Sounded too easy, so I added a task. Name, place, profession, story = 140 characters. Twitter style. Word count to now: 118 words.

Enough said: here is what I have learnt from the next generation of movers and shakers, these people who want to drive their communities, their countries, their continent forward. 20 personalities that really impressed me:

#Taiye Selasi, Nigeria, Ghana, USA, Italy, Bestseller Author, Ghana must Go: It's never too late to have a happy childhood. (123)

#Hermella Wondimu, Founder of NGO Help for a Drop of Water: What I love about being young is that we go crazy for something we admire. (133)

#Munit Mesfin, Singer, Activist, Mother of 3: My mother is teacher, support, cheerleader, consistent North Star in an otherwise cuckoo world. (140)

#Tefo Mohapi, Blogger, iAfrikan, Johannesburg, South Africa: Once counting is done can we all play nicely with each other and congratulate. (138)

#Tigist&Haimanot Damtew, Jewellery Designers: Twins are rare in Ethiopia. People remember us easily. Visibility is an advantage in business. (140)

#Aida Muluneh, Photographer, Curator, from DakArt: Refreshing to shoot without being harassed by cops or people. Photo-friendly city. (136)

#Max Anikulapo Jarrett, Liberia, Switzerland, Africa Progress Panel: Genius Pharell. Frontin and Happy will be played for centuries. (132)

#Addis Alemayou, Communications, Marketing, Entrepreneur: Stop thinking of the continent as just a dusty faraway place where famines happened. (139)

#Chimamanda Ngozi Adichie, Author, Nigeria: When men write about love, it's a political comment. When women do it, it's just a love story. (137)

#Marcus Samuellson, 44, Chef, Red Rooster, Harlem: I would love to learn cooking from Mahatma Gandhi. Maybe he could teach me his message. (137)

#Angelo Andre King, Academy Manager at Rlab, Capetown, Johannesburg: So much excitement. Over 70 students talking at the same time. (131)

#Harinjaka Andriankoto Ratozamanana, Tech-Entrepreneur, Madagascar: Aucun succès ne vaut plus que le temps passé avec la famille. (128)

#Dorothy Sebbowa, Lecturer, Makerere University, Uganda: The country risks losing knowledge of its own past. Wikis might be the solution. (137)

#Markos Lemma, Founder iceaddis Tech Hub: I always look deeper into people's eyes hoping to know the beauty of their character. (126)

Photo: Ana Palsio

Tigist and Haimanot Damtew

#Raindolf Owusu, Entrepreneur, Oasis Software, Ghana: Made many mistakes but if I had to do it all over again will repeat all the mistakes. (138)

#Angela Nicole Oduor, Founder akirachix, Kenya: I've been promising myself to rest over the weekends. Yet here I am, up and about by 6.30. (137)

Photo: APP

Max Anikulapo Jarrett

#Mac-Jordan Degadjor, Tech Expert, Ghana: The best way to make somebody remember you is to borrow money from them and don't pay on time! (135)

#Abel Asrat, Manager, Activist, Blogger: I came to realize that most of the persons who allowed me to explore my potential are women. (133)

#Mitslal Kifleyesus-Matschie, Entrepreneur, Ecopia: I feel great to have been part of the team that made prohibition of chemical weapons happen. (140)

#Bethlehem Tilahun Alemu, Shoe Designer, Entrepreneur: Talent is everywhere. It only needs exposure and the ability to grow and flourish. (136)

Final wordcount: 600!

http://www.thenewafrica.info

The eLearning Africa Survey 2014

The Survey this year was the largest ever conducted by the eLearning Africa Report – not only in the number of respondents (1444) but also in the range and breadth of the answers. For the first time this year we targeted our questions at key groups within the cohort. The data collected gives a fascinating snapshot of the opinions and activities of African eLearning professionals – whether they're working in teaching, health, government, agriculture or in any of the many spheres of life which are influenced by educational technology.

The next few pages present a selection of the key findings of this survey – from a new look at issues arising from the urban-rural divide to strong opinions on the role respondents' leaders have to play in the development of eLearning and the growth of the Internet. Other infographics have been used to illustrate articles, and can be found throughout the Report.

The role of government

Governments have a pivotal role to play in eLearning: it is they who provide many sources of funding, who decide the policies plans that catalyse its development, who have the resources to organise awareness campaigns and get teachers involved in technological advancement.

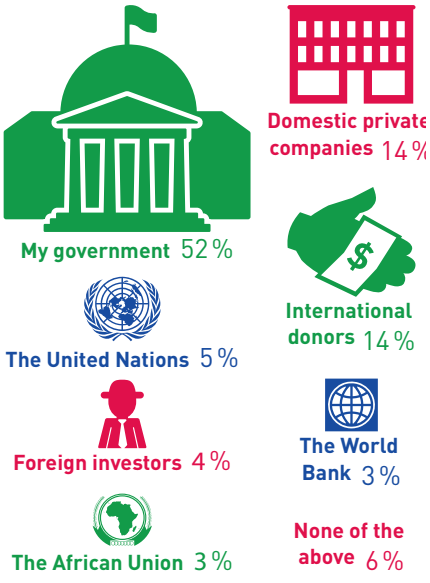
More generally, Governments have a hand in growing, regulating and controlling telecommunications and the Internet, and in increasing their own transparency and accountability to the populace through access programmes and eGovernment.

The data (below) show our respondents' firm belief in the power of technology to create more democratic, fairer and more liberal societies. Over half of those polled showed a strong Internet libertarianism – saying that their Governments should not have a hand in censoring the World Wide Web.

And indeed, though many African countries have not yet instituted bodies to control the Internet, the wave of popular protest in the Arab world has led

AFRICAN GOVERNMENTS ARE MOST INFLUENTIAL IN THE DEVELOPMENT OF E-LEARNING

Survey: "What do you rate as most influential in ensuring the continuing development of technology-enabled learning?"



to their establishment, or to the tightening of controls, in many African states.

Africa's growth over the last few years has meant greater autonomy for many Governments, as rising revenues reduce the reliance on foreign aid. The data (opposite left) shows that survey respondents are looking more to their own Governments than to international organisations for the support needed in development – though international donors are considered as influential as domestic private companies in this field.

Nevertheless, more can be done. Just over half of all respondents thought their Government was aware enough of the benefits of eLearning (top), while the even lower figure representing teacher awareness suggests that efforts at promoting eLearning so far have, at least in part, fallen on stony ground.

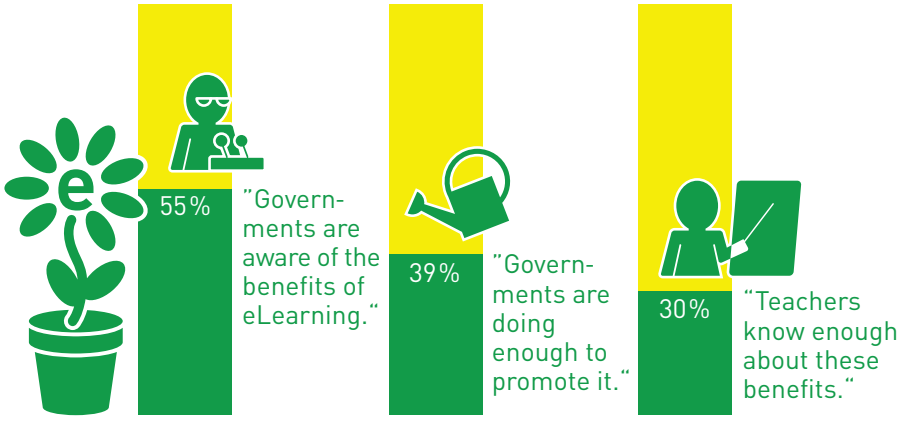
Languages prove a stumbling-block

Efforts to give African languages more representation in education continue: and while mother tongues are often used in pre-primary and the first years of primary, many education systems use English, French or Arabic predominantly from the end of primary to university level.

While English, French and Portuguese are for many ugly remnants of colonialism, they do provide valuable channels of communication across internal language barriers, and with the outside world. Teachers we surveyed showed a strong global outlook – with 99% believing in the ideals of cross-border learning and the global classroom (middle) and half of them forming links with other institutions around the world.

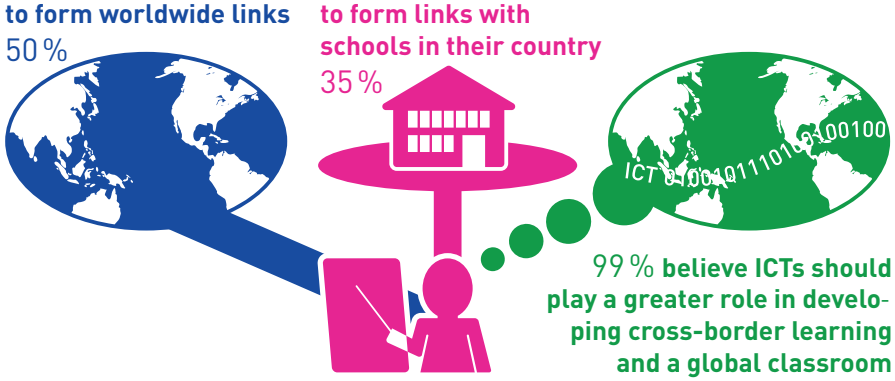
There's a flipside to this of course: we found that while general respondents used ICTs primarily for communication with people outside Africa, or within their country, intra-African communication was low (bottom). It is a case of "thick borders" which is becoming a more noticeable theme in telecommunications today – often we find, for example, that the charges for calls between African countries are

A PRESSING NEED FOR BETTER COMMUNICATION BETWEEN GOVERNMENTS AND TEACHERS



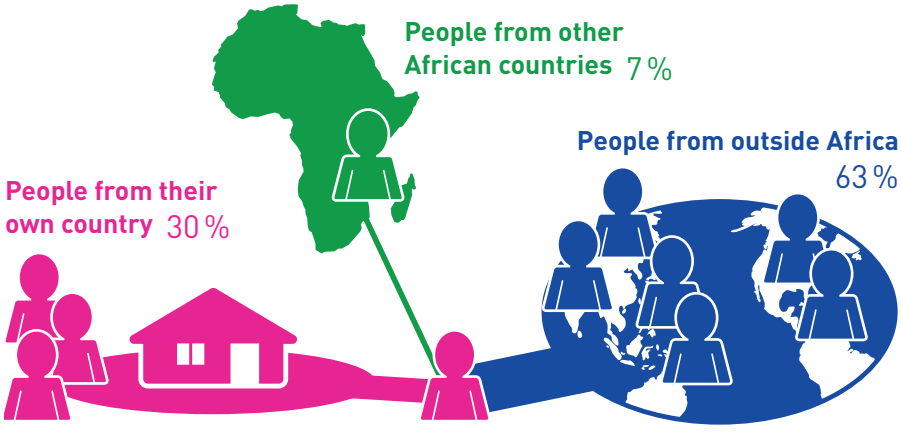
GLOBAL CLASSROOM – AFRICAN SCHOOLS OPEN TO THE WORLD

Survey: "Teachers use ICT in education ..."



REAL BORDERS IN THE VIRTUAL WORLD

Survey: "Respondents who use ICTs primarily to communicate with ..."

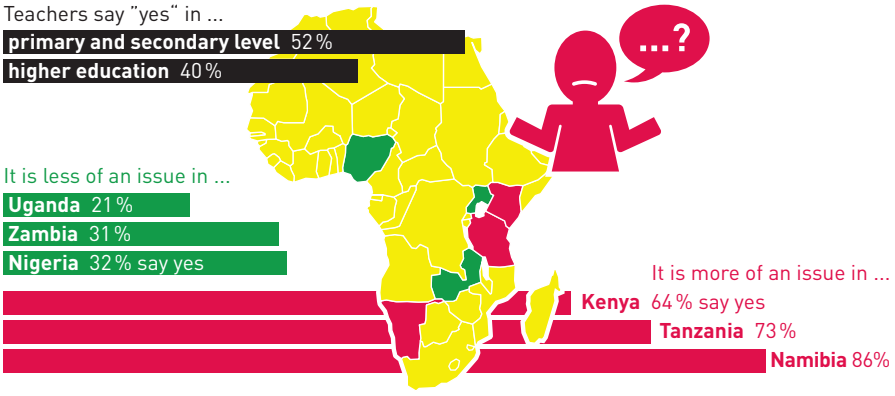


much higher than those for calls made outside of the continent.

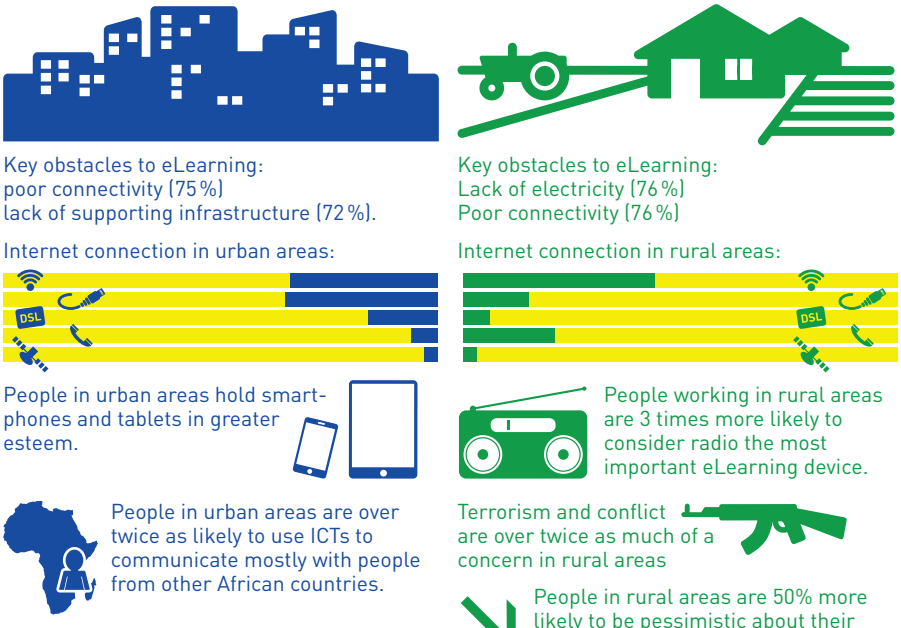
And there's a major downside to the dominance of colonial languages. Rather than aiding communication, they frequently act as barriers, excluding minorities from education or acting as barriers to progress. In many countries, access to university is dependent on proficiency in a second-language. Data provided by our respondents (top) show that language difficulties – while most prevalent in primary and secondary, are a significant problem at university level as well.

LANGUAGE DIFFICULTIES PERSIST INTO HIGHER EDUCATION

Survey: "Do language difficulties impede your students' progress?"



MARKED URBAN/RURAL DIGITAL DIVIDE HAS DRAMATIC SOCIAL EFFECTS



The urban/rural divide

As Gaston Bappa writes in this Report (p.32), "the extent of progress towards the MDGs is unequal between and within countries. Children of poor rural households are much more likely not to be formally educated than those in rich urban ones". This phenomenon, the urban/rural divide, is of great importance to eLearning in Africa. eLearning projects necessarily take on different forms depending on the level of infrastructural development of the region in which they take place.

The survey data gives interesting insights into several different aspects of how life in cities and the countryside differs (bottom). Infrastructural disparities are the major fact of this "internal digital divide" – with people in rural areas less likely to have access to reliable electricity and more likely to use the slower dial-up Internet connections. Also notable is the fragility of rural life: economic prospects are gloomier, while the threat of conflict is more of a concern – in the countryside, there is much less protection when violence threatens.

SURVEY STORIES

Rural outlook

"Africa is developing at a pace. With eLearning introduced at the primary, secondary levels, rural areas will have new generations of youth that have opened up to the world. This opportunity will not create the world in front of us, but will spur on our ambitions. Exposure to eLearning will be a tool to bridge the urban-rural divide and make people look for a better life."

Samira D., Tanzania

Soaring optimism

Economic growth continues unabated in most of Africa, and its people are now looking to the future with increased confidence. This is reflected in the high levels of optimism our survey respondents registered. We broke down the basic figures to find out in which countries and professions the most optimistic people were working: the results, (below left), give a small glimpse into attitudes across the continent.

Social media

It's new, it's hugely popular – but is it of any use to education? Our survey respondents certainly seem to think so – two thirds of them use social media for educational purposes. Behind the hype, there seems to be something genuinely going on – however, it has to be said that the purposes for which social media were designed, networking, sharing and communicating, are still more popular (right).

Fitting with this picture, micro-blogging site Twitter didn't even get a look-in on the top four social media – coming below newcomer WhatsApp.

The many different tools that social media provides have been used for a great variety of ends. It was very successfully used in Kenya during the 2013 elections to disseminate information and help the marginalised to vote. 72% of Kenyans we asked found social media a useful source of information during these elections.

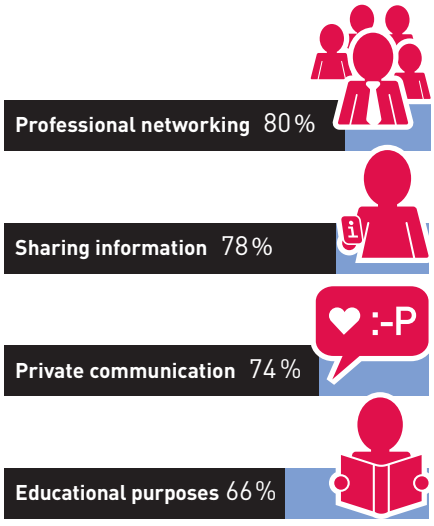
Online security

The online community worldwide has been rocked this year by revelations concerning US spying. And that's not all – recent bugs in Internet security have exposed millions to hacking and data theft. Asking all of our participants, we discovered many had suffered from online crime (corner).

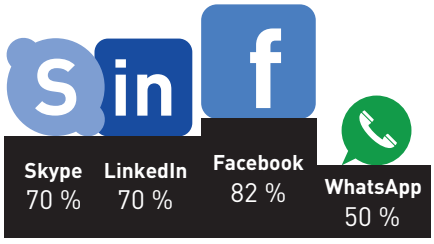
Trust in telecoms is based on many factors – partially the way they handle users' data, partly in customers' confidence that they are not being overcharged. Many telecoms companies have come under fire in Africa recently for perceived overcharging – an additional factor, perhaps, in the low level of trust we discovered.

SOCIAL MEDIA - FOR PERSONAL USE ONLY?

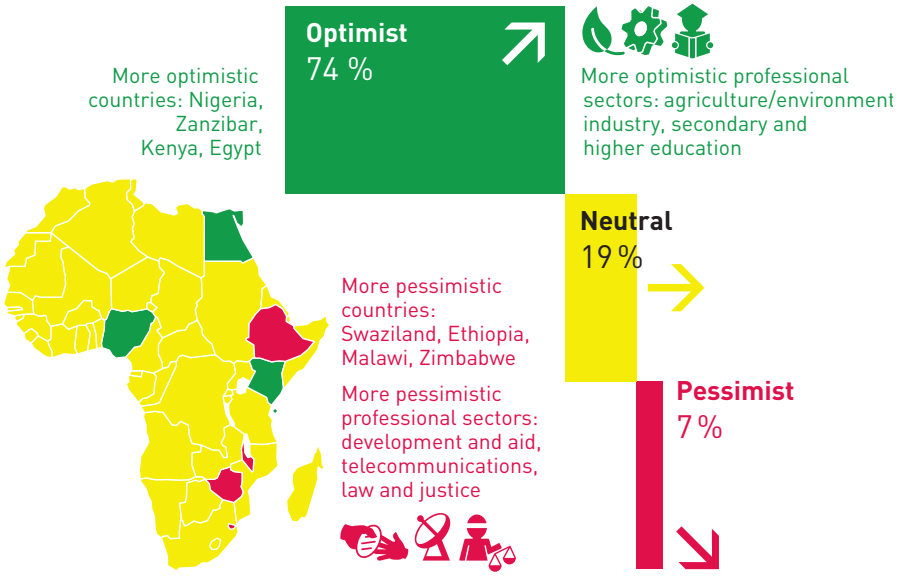
Survey: "The most popular uses of social media"



The most popular social media



OPTIMISM AND PESSIMISM



HACKING WIDESPREAD – TELECOMS TRUST LOW

Survey:

"Have you been victim of cyber crime?"

"Do you trust your telecom company to keep your data and communications secure?"

eLearning present and future

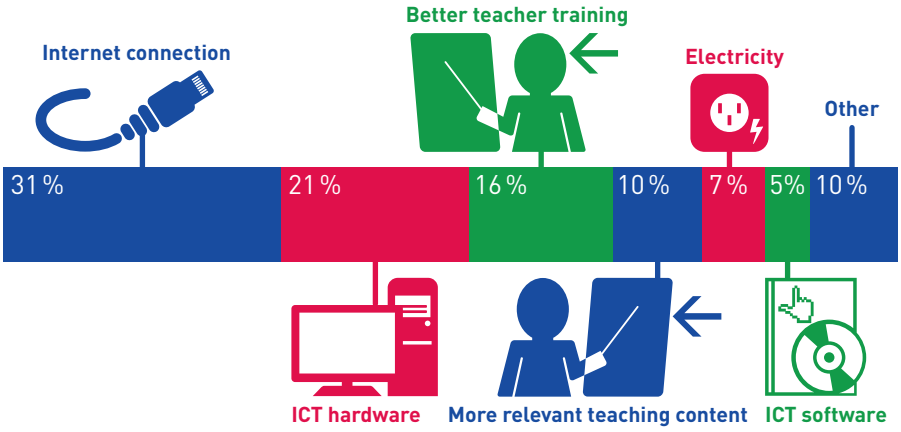
Respondents had access to a wide range of technologies – most of which were used in teaching, at least by some (corner). While much is made of the importance of finding uses of mobile phones in teaching, they remain a minority option among our participants: laptops and PCs are still the big teaching technologies. Radio and TV, while readily available, are also not so popular in the educational context.

We asked teachers to tell us what their schools needed most at the moment in the way of improvement. From this it is clear that though better Internet connections, more hardware and better teacher training are a prime concern, there are many other factors that hamper eLearning in African schools – content, electricity and software are important factors (left).

And what about the future? Where will eLearning go and what devices will shape the future? The opinion seems to be that mobile learning will become the norm, with mobile devices – tablets, laptops, smartphones and basic mobiles – rated highest for their educational potential (below). It seems we are moving to a future where education happens on the go, and is available in both formal and informal situations.

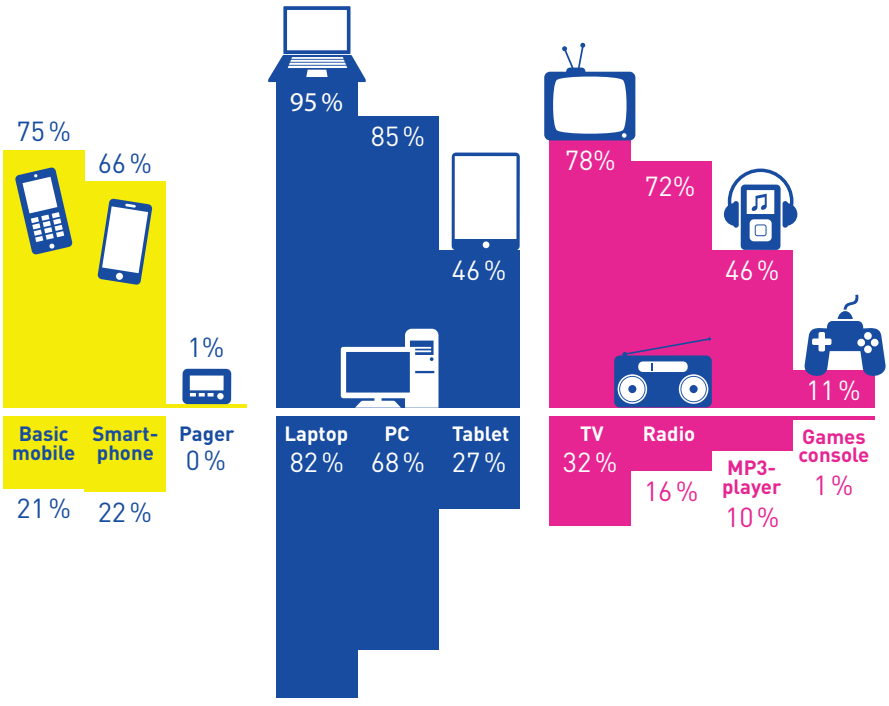
SCHOOLS NEED INTERNET, COMPUTERS AND BETTER TEACHING, SAY TEACHERS

Survey: "If your school is in need of improvement, what is its greatest need?"



LAPTOPS IN THE LEAD ...

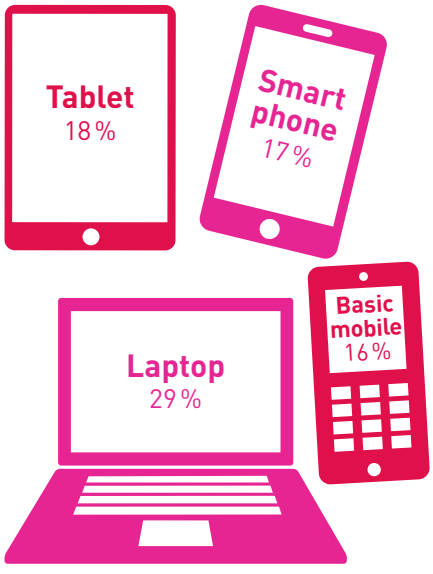
Survey: "What technology do you have access to?"



Survey: "What technology do you use for teaching?"

OPINION DIVIDED ON DEVICES' POTENTIAL

Survey: "What device shows the greatest potential for education and training?"



Boots, shoes and bin Laden

Strange eLearning stories from across Africa

Time goes by

"Travelling in the rural areas of Eastern Ethiopia many years ago I met a group of kids wearing watches with the portrait of Osama Bin Laden. When I returned recently to this village I asked some of them what they had known at that time about the terrorist. They said: Nothing. The watches were a gift an American (!) tourist had given them.

Asking them when they got to know about him later, they answered that it was when an Internet café opened in their neighbouring village, where they were used to go to the market with their mothers on Saturdays.

This might not exactly be an eLearning story, but it's a story about learning using the Internet. "

Beate W., Ethiopia

A boot is a boot

"I spent April 2013 in Waterloo Village in Sierra Leone assisting with the delivery of a training programme for the teachers of the Peninsula school. During the session the teachers were being guided on the functions of the visual display screen. They were asked by the tutor to "open a window"... on request four teachers got out of their seats and literally opened the window! Another example was when the teachers were asked to "boot" the computer. One guy said "Me no have boot sir, only shoe". We all laughed together. Our learners were correct. A window is a window and a boot is a boot, if you haven't been taught any different.

This to me illustrates the need for tutors to be aware of the learning needs of the group, checking people's understanding. I learnt such a lot about my own teaching style from this experience. Brilliant!"

Yaina S., Sierra Leone

Pleasing mother

"eLearning is a fairly new concept in my village but the real revolution for us came when I purchased a smartphone and tablet combination. The entry of the smart has spelled greater opportunities for my family as my mother – 60 years old now – also hurries to check her email and Facebook account to see what new friends she has got and what new information has been posted by her friends. Prior to this, she had to rely on the good will of the Internet café in the next town, let alone her very hectic tailoring schedule and home chores.

Now we can check our mail and communicate with friends and loved ones from across the globe: and all in the comfort of our home.

My mother has started appreciating why I do most of my work on the computer. Prior to this, she thought I spent all of my time seated behind a computer screen idly; now she appreciates that there is a whole new world awaiting on the other side of the Internet connection. I have been truly liberated from her nagging and complaints as a result of helping her participate in the online learning experience."

Thomas M., Uganda

Malagasy dreaming

"This is a dream I had: the popular use of an electronic device by the 48.98% of Madagascans who don't know how to read or write. Recycled mobile phones distributed to every illiterate youth from 15 to 34, a project set in the framework of a partnership between the country and the manufacturer.

When I woke up, it was raining a light, insistent rain which tapped irritatingly on the roof and lulled me off at the same time. I remembered that it was nothing more than a dream – a dream in colour with touch-screens!"

Yvonne R., Madagascar

88 eLearning aphorisms

by Binyavanga Wainaina

Photo: Internaz

Binyavanga Wainaina is a Kenyan author, journalist and winner of the Caine Prize for African Writing. In April 2014, Time magazine included Wainaina in its annual TIME 100 as one of the "Most Influential People in the World."

1. Maybe we can start with the competition.

2. I come from a generation of self-taught producers who have made an economy for ourselves and others by bypassing the most irrelevant aspects of our stale education system.

3. I have never been to private school. I am good at what I do because I looked for knowledge where it is dynamic and relevant to my abilities.

4. I do not have a first degree. I failed at university.

5. eLearning is used across Africa by people who use texts to teach millions of young people that demon removal, not science or reason, is how to get rid of problems affecting our societies.

6. Before I sold my first writing, I spent at least 6 hours a day for four years networking, reading and learning from people around the world how to make my writing better. On the Internet.

7. I stopped attending class at University of Transkei.

8. We say that millions of Africans do not read books. Yet there are hundreds of functional translations of the Bible in almost every African language. Many are online.

9. In 2000, I met a young Nigerian writer on the Internet and we worked for an hour a day at least for a year sharing ideas and criticising each other's work. Her name is Chimamanda Adichie.

10. Africans read. A lot. The Bible. The Quran. Affiliated texts.

11. Billionaire pastors run classes in every possible forum online and elsewhere that deny the existence of evolution, that teach people to read only the Bible because all else is tainted.

12. Kenya's most accomplished animation expert taught himself online. His name is Bob Muchiri. He did not go to university or do a diploma. He learnt online. His parents are not rich.

13. For over twenty years our young people are taught that the earth is evil, governed by demons and witches, and end-times are near.

14. Of course, the only conclusion left for young people is – do not bother to engage with making your continent better. Leave it as it is because it is polluted. Invest in

heaven. Put your real work and commitment into heaven.

15. eLearning is vibrant, eLearning platforms exist all over the continent and they are widely used.

16. What are mirror neurons and what do we need to know about them?

17. To learn Guitar. Free online.

18. To attend Bible-study.

19. To hate your fellow Africans and act upon your fear and hate.

20. To collaborate with people you do not know and learn and grow from your working relationships with them.

21. "V. S. Ramachandran describes how, when you watch someone doing an intentional action, like reaching out for a sandwich, the motor control neurons in areas of your brain fire in a manner as if you were doing the action. You model in your brain what another person is doing. You then respond physically and mentally to your model almost as if it represents a distinct person. You understand what the other person is doing through reading your response to your model; you understand through empathy. The neuron systems which enable this empathy are called mirror neuron systems. If you see a person experiencing pain, your pain neurons fire almost as if you were in pain. Did you ever flinch back when you saw a person hit? Or smile when you saw someone smile? In this way you become the other person. "These neurons enable humans not only to empathise with others but to be sophisticated imitators. We mirror mostly unconsciously. We are so good at it that we need mechanisms in our brain and in our skin to prevent us from constantly imitating others.

"The ability to imitate in action and imagination facilitates learning and understanding. You learn through imitating the sound of a word, how to hold a hammer, how to write a formula – or solve a formula. As I said in my blog on imagination, you understand a character in a novel by creating a model of the person in your mind and then "reading" your response to the model. You can understand a time in history or how riding in a spaceship might affect you by creating a mental model and then reading your own response to the model." Ira Rabois, irarabois.com

"we live in an age where ideas can travel borderlessly, immediately"

22. eLearning is joining a website with a brotherhood dedicated to making you feel important and potent in a world that has forgotten you and urges you to kill unbelievers to go to heaven. They use examples, poetry, psychology, philosophy, video, music, and photos in their teaching strategy.

23. Boko Haram uses eLearning to teach impressionable and neglected young people that the more they kill for Jihad, the better heaven there will be.

24. In the age of social media, the ability to influence millions is possible in education. To make useful citizens who cooperate across cultures.

25. Boko Haram has given up on the benefits of life on this continent.

26. Every year in Africa tens of millions of young people receive cheaper and cheaper access to the World Wide Web.

27. More than 50 years on, we now know that the African project has very little to do with people living, voting, working, producing, selling, dreaming, birthing, fighting, loving in English, French, Portuguese or Spanish.

28. We know that the only people able to do this in Africa are the less than one percent whose parents abandoned their original languages often without a choice.

29. We live in an age where ideas can travel borderlessly, immediately.

30. Dakar, the capital of the French Colonies in Africa exports its culture and makes tens of millions of dollars in Wolof, not French.

31. In only a few years, young Nigerians using eLearning in the information age have taught themselves how to build what is now one of the most visible, dynamic film industries in the world.

32. Nollywood is not owned by some gargantuan corporate entity. It is thousands and thousands of independent producers, actors, small businesses, feeder businesses. The quality, variety of its products grows weekly. As I speak, in Dakar, Senegal, a French-speaking country, millions watch Nigerian movies, listen to Nigerian music.

33. There are a billion Africans.

34. Film. The BIGGEST new employer in Nigeria, is not taught in the Nigerian curriculum.

35. African governments say we want to create jobs.

36. The Nigerian music industry has exploded through eLearning. It also learned very quickly from the film industry.

37. What does an African marketplace look like?

38. Wikipedia: "There are by some counts over 3,000 languages spoken in Africa. About a hundred of the languages of Africa are widely used for inter-ethnic communication. Arabic, Somali, Berber, Amharic, Oromo, Swahili, Hausa, Igbo, Fulani and Yoruba are spoken by tens of millions of people. If clusters of up to a hundred similar languages are counted together, twelve are spoken by 75 percent, and fifteen by 85 percent, of Africans as a first or additional language. The high linguistic diversity of many African countries (Nigeria alone has over 500 languages, one of the greatest concentrations of linguistic diversity in the world) has made language policy a vital issue in the post-colonial era."

39. The established Western churches in Africa understand the above very well. Our education systems have refused to over 50 years.

40. Many of our languages remain unwritten, and many ideas in a modern world remain untranslated to our hinterlands, who are trapped in a bottle-neck of bad English, bad French, and an education system designed to internationalise the skills of very few.

41. You can learn English well, and Somali well and Yoruba well all together so long as the quality and thoughtfulness of the teaching is available.

42. You can do advanced mathematics in Warri Pidgin if you so choose. You can hire the best to make the curriculum.

43. Our marketplace of ideas, citizen-making, money making will be as diverse as our society. If governments deny this, we will lurch from crisis to crisis. Millions of niche markets serving a billion people who operate in complex environments.

"you need only three mathematics teachers in a country. The best three can teach everybody"

44. Complex environments can each and all now be named, researched, and serviced without incurring unsustainable costs.

45. A relevant education system can be designed. Wikipedia: "Anderson argues that products in low demand or that have a low sales volume can collectively make up a market share that rivals or exceeds the relatively few current bestsellers and blockbusters, if the store or distribution channel is large enough. Anderson cites earlier research by Erik Brynjolfsson, Yu (Jeffrey) Hu, and Michael D. Smith, that showed that a significant portion of Amazon.com's sales come from obscure books that are not available in brick-and-mortar stores. The long tail is a potential market and, as the examples illustrate, the distribution and sales channel opportunities created by the Internet often enable businesses to tap that market successfully. An Amazon employee described the long tail as follows: "We sold more books today that didn't sell at all yesterday than we sold today of all the books that did sell yesterday."

46. You need only three mathematics teachers in a country. Or a continent. The best three can teach everybody.

47. Economies of scale and niche diversity mean high quality interactive translation is possible.

48. You pay for it. Because you have to.

49. You pay for it because it is you versus Al-Shabaab. Boko Haram.

50. You pay for it because every once poor, now rich, country did, and does.

51. Dance has been used for learning for thousands of years by Africans. Dance, music help memories; help socialise people.

52. eLearning can use orality, movement, empathy to its maximum possibilities and also allow for complex texts to be deeply understood.

53. The best of us can teach all these things.

54. We also want economies that are intense, dynamic and local.

55. We also want economies that are international.

56. One can now have both. Nairobi people dance to Igbo pop that has

the Igbo market, the Nigerian market, the World market, the African market.

57. A three-year-old child can easily learn to read in more than one language.

58. eLearning will fail if it is not structurally a radical departure from the past, committed to a level of excellence not previously seen.

59. A citizenry is as good as its education.

60. Free laptops will make no difference.

61. We have to bypass the bureaucracies that are addicted to old ways of seeing.

62. When Africans marry, make love, even make war they do so most often in the languages and sensibilities they are genuinely committed to.

63. Keep: the English, the French. Commit to the ones that really matter. Students can easily learn three languages.

64. Great content, high quality, complex ideas, well presented, easy to break down, repeatable, entertaining.

65. Visible practical exercises in video, oral, written.

66. On-going examinations can run the entire life of a child's education. Daily, weekly, hourly if you want. At no significant extra cost.

67. Half-hearted eLearning is worse than no eLearning at all. You will lose generations.

68. In all our elections, poetry in our language is used to influence voters. Not English.

69. Everything good we make and sell is made excellent by the fact that we found a way to domesticate knowledge outside of our colonised education systems. Africa's greatest musicians learnt from mentors in their own languages.

70. The Chinese have learnt from other nations to adapt knowledge into their own languages and in ways that they know make them productive. In what they are innately INVESTED in and committed to.

71. Youssou Ndour can teach a curriculum.

72. You can afford to have Chimamanda Adichie teach masterclasses in writing creatively in English.

73. Fifty of the leading Congolese musicians can be contracted to teaching guitar, dance, drums to millions.

74. Construction, engineering, finance all can be taught to these models by our finest.

75. If we let our languages go, and remain rhetorically in the 15th century, we behave like we are in the 15th century.

76. In 2008 in Kenya, people with good diplomas and degrees were killing each other with bows and arrows and machetes.

77. As they were taught well to do.

78. Every meaningful civilisation translates the world's knowledge to its best advantage.

"every meaningful civilisation translates the world's knowledge to its best advantage"

79. Do not make digital content simplified. Your hundreds of millions of young people are bored.

80. Children learn from play.

81. Muscular diversity builds unity.

82. Why take all these risks?

83. Why build a railway from Lamu to Cameroon?

84. Because now that Africa is changing, now that platforms of communication are normalised, education must be as dynamic and bold as our citizens need it to be. Because we are in the most dangerous and promising season of our history.

85. Because it is time to leap and open ourselves and be the generation that accepted to be defined by positive and fearless change.

86. We do not need to "conserve our culture". We need to own its future. Broken culture can drown us.

87. Invest in having your most excellent teach the rest. That is how great societies have always been built.

88. Our finest new talents, our most promising entrepreneurs, are employing exactly this principle.

Pattern: Omid Mo'menzadeh

Finding funds

Our guide to international support for education

There is extensive support from multilateral institutions, civil society organisations, NGOs and public and private companies to help fill financing gaps for African countries working to improve education systems and integrate ICT into schools.

From specialised funds to knowledge programmes, **Annika Burgess** highlights some of the prominent organisations providing opportunities for extra education support across the continent.

The World Bank

New Economy Skills for Africa Programme – Information and Communication Technologies (NESAP-ICT)

The World Bank provides low-interest loans, interest-free credit and grants to developing countries. The Bank has historically supported a variety of programmes and projects for education, with a focus also on ICTs. In the fiscal year 2012, the Bank's new commitments for education rose to US$3 billion, with 64% support for basic education, 19% for tertiary and 17% for upper secondary/ vocational. Since 2008, the Bank has also been supporting eight countries in sub-Saharan Africa through the NESAP-ICT programme, focusing on developing skills for a new emerging ICT-based sector, as well as ICT in education. Pilot projects were launched in four countries (Ghana, Kenya, Nigeria and Tanzania), and partnerships have been established with the world's leading ICT companies – Microsoft and Intel, for example – as well as with learning institutions.

United States Agency for International Development (USAID)

With its "USAID Leland Initiative" in 1996, USAID was one of the first donor agencies to support ICTs in education, providing grant aid for pilot projects in a number of African countries. USAID works with multiple partners on projects which support ICT literacy and the integration of ICT in education. For example, USAID's partnership with Intel, amongst other things, expands access to broadband by connecting and developing cost-effective and efficient broadband solutions.

USAID also offers a number of funding opportunities, regardless of whether the organisation has had limited or no experience managing direct USAID grants. USAID calls on governments, partner organisations of all sizes and members of the wider development community to pursue contract, grant and cooperative agreement awards.

Higher Education for Development Initiative (HED): USAID, with the Gates Foundation, provides grants for collaborative partnerships between African and US higher education institutions to strengthen African higher education institution capacity. The partnerships have detailed five-year strategic plans with a 10-year vision to address national and regional development priorities in sub-Saharan Africa.

Department for International Development

Department for International Development (DFID)

The British Government's DFID supports numerous bilateral education programmes in Africa. DFID also has various development funds targeting specific areas. For example, the "Capacity Development Fund" helps Rwanda better plan, manage and deliver education; the "Financial Education Fund" supports educational projects that aim to help African citizens increase their financial knowledge and ability; and the "Innovation for Education Fund" provides an opportunity to test new ideas to improve the quality of education in Rwanda.

DFID funding for education in Ethiopia, Rwanda and Tanzania is expected to top around US$ 1.6 billion over the 2005-2015 period. The majority of this has been delivered through "budget support" – money given directly to recipient governments.

Agence française de développement (AFD) and la Francophonie

The Agence française de développement (AFD), France's foremost international development organisation, is engaged in many large-scale education projects across Africa. It has dedicated EUR 8 million to the reform of the Togolese education system under the Plan sectoriel de l'education (PSE), aiming at universal primary by 2022. In February 2014 the Centre d'Ibn Sina opened its doors in Tunis, a professional training centre constructed, equipped and staffed with the co-operation and co-financing of the AFD, and an injection of EUR 7.2 million.

Education among the international community of French speakers, the Francophonie, is supported by various organisations, including the Organisation international de la Francophonie (OIF) and the Agence universitaire de la Francophonie (AUF), which focuses on higher education and supports a large network of eUniversities across

Photo: Dan Petrescu

Zambian school children

FINAL PUSH FOR EFA

The global "Education for All" (EFA) movement aims to achieve global access to quality basic education for all by 2015. The World Bank, one of the world's largest providers of external funding for education, has been heavily involved funding programmes and projects to help countries reach this goal.

Fast Track Grant Initiative/ Global Partnership for Education

Created in 2002 as the World Bank's "Education for All Fast Track Initiative", now the'Global Partnership for Education" (GPE) is the fifth-largest donor to education. It offers grants to developing country partners for technical and financial support for the preparation, implementation and monitoring of education plans, in particular to help reach EFA Targets. Made up of various partners, from donor Governments to teachers and NGOs, throughout 2004-2012, the GPE provided funding worth around US$ 2.7 billion. To be eligible for grants, certain requirements need to be met, for example a sound education plan based on sector analysis and a financing strategy.

German BACKUP Initiative - German Society for International Cooperation (GIZ)

Meeting requirements to be eligible for GPE grants, as well as funding from other international donors, is a challenging task in itself. Therefore, the BACKUP initiative on education was launched, commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) for the period 2011-2017. BACKUP, which stands for Building Alliances, Creating Knowledge and Updating Partners, supports not only national Governments, but also national and regional civil society stakeholders in their efforts to effectively access and use international funding.

Applicants receive targeted support where their need is greatest and where no other source of funding is available. The initiative provides three different application modes: Fast Access Mode (EUR 20,000); Consultancy Mode (EUR 50,000) and Project Mode (EUR 100,000).

the world. The AUF's Elan-Afrique project is currently active in eight francophone African countries – Benin, Burkina Faso, Burundi, Cameroon, Mali, Niger, the Democratic Republic of the Congo and Senegal. It aims to improve primary education through support for bi- and multilingualism through a patchwork of co-operative initiatives throughout these countries. IFADEM, an initiative for distance teacher training, is a partnership between Ministries of Education in participating countries, the OIF and AUF, and is currently operating in 10 countries, with 10,000 teachers trained.

African Development Bank (AfDB)

The African Development Bank (AfDB) is a multilateral development finance institution established to contribute to the economic development and social progress of African countries. The AfDB has an education policy which promotes support for basic, vocational and adult education and training, as well as supporting the use of ICTs in education. Recently, the AfDB approved the US$ 103 million "Uganda Support to Higher Education, Science and Technology Project"; awarded $US15.6 million to the African Virtual University; US$ 45 million to support the creation of a Pan African University (PAU); and US $52.5 million for the Government of Tanzania to finance a "Technical, Vocational Education and Training (TVET) and Teacher Education Project".

European Commission

The European Commission and Africa are part of the Joint Africa-EU Strategy. It is a partnership which stems beyond a donor/recipient relationship towards a long-term cooperation. Work under this partnership is funded by the EU budget, individual EU Member States and, where possible, through AU Member States and African instruments and institutions such as the AfDB. The European Commission has provided support to the African Union and its institutions worth close to EUR 1 billion over the past 10 years.

The EU has been particularly focusing on initiatives in higher education, and aims to expand the "African Higher Education Harmonisation and Tuning" pilot initiative from 60 to 120 universities across the continent. It will also support the introduction of new quality practices, an increase of aligned partnerships and the internationalisation of higher education in Africa.

Canadian International Development Agency (CIDA)

CIDA, the Canadian Government's development assistance agency, helped establish the Education for All Fast Track Initiative (EFA FTI), launched in 2002. From 2010-2011, CIDA invested US$165 million in basic education, supporting Senegal's Ministry of Education to improve around 2,500 primary schools and train over 8,000 teachers. In Mozambique, CIDA's assistance has resulted in the distribution of 90 million textbooks reaching more than 3.5 million primary school students and teachers every year.

CIDA also provides funding schemes and programmes for NGOs, civil society organisations and other institutions. For example, the Canada Fund for Local Initiatives (CFLI), which makes average contributions of around US$10,000 to $40,000 per project has, amongst other things, enabled the African Leadership Academy to be created in South Africa.

Japan International Cooperation Agency (JICA)

Since the 1990s, JICA has been providing extensive support to improve basic education in sub-Saharan Africa. Figures from 2010 show that JICA helped build 2,600 schools in 22 countries; train over 90,000 teachers and implement management reforms in around 10,000 schools.

JICA also provides funding through "Grant Aid", for which financial cooperation is implemented by the Japanese Government with no obligation for repayment by the developing country concerned. This can be for varying purposes, including funds for "General Projects" in education, as well as to support NGOs. JICA is responsible for implementing the Grant Aid and handling all project aspects.

UNESCO

UNESCO is the UN's specialised agency for education, which has a range of programmes and projects especially to support the integration of ICTs. Currently, the "UNESCO-China Funds-in-Trust" (CFIT) project on "Enhancing Teacher Education for Bridging the Education Quality Gap in Africa" is supporting eight African countries with the use of ICTs, mobile learning, and knowledge production and sharing. The four-year (2012-2016) initiative has so far received US$8 million financial support from China in favour of teacher education.

Amongst several other projects,

UNESCO also leads the "Teacher Training Initiative for sub-Saharan Africa" (TTISSA) programme, which has been addressing teacher-related challenges over a period of ten years (2006-2015).

UNICEF

UNICEF, the United Nations Children's Fund, has long-standing experience engaging with governments and partners towards realising children's rights and achieving the MDGs. Funds from its "Schools for Africa" initiative, launched in 2004, have been critical in helping support education programmes. UNICEF also works with youth centres, community resource centres, teacher colleges and other learning spaces to promote ICTs. Through its "Voices of Youth Connect" initiate, UNICEF helps bridge the digital divide for schools and community centres in remote rural settings, as well as in low-income urban areas. The online platform promotes cross-cultural interactions between adolescents from different countries, allowing them to work together, develop their communication and computer skills and discuss advocacy issues.

Dubai Cares

Dubai Cares, the UAE-based philanthropic organisation, works to improve children's access to quality primary education in developing countries. It awards grants to implement projects or activities in relation to primary education, as well as supporting pre-primary initiatives that allow children to develop school readiness skills and programmes that foster successful transitions to post-primary education. Dubai Cares recently provided $US4 million for a school nutrition pilot project in Ethiopia which aims to enhance primary school enrolment rates, reduce absenteeism and improve the

OTHER EU MEMBER STATES SHOW EXTRA SUPPORT

Flemish Association for Development Cooperation and Technical Assistance (VVOB): Based in Brussels and largely financed by the Flemish and Belgian Governments, VVOB works under the motto "Education for Development". Providing technical assistance and capacity development to its partner countries, VVOB's annual budget for each programme ranges between EUR 700,000 and EUR 1,100,000. From 2011-2013, EUR 57 million went towards 15 programmes across 10 countries, for which six African countries benefited. In Kenya, for example, the ICT in education programme resulted in the creation of successful ICT coaching manuals and, amongst other things, a National ICT Innovation and Integration Centre.

The Swedish Program for ICT in Developing Regions (SPIDER): Primarily financed by the Swedish International Development Cooperation Agency (Sida), with complementary funding from Stockholm University, Spider is a resource centre for ICT Development (ICT4D). Financial support consists of seed funding, of a maximum SEK 500,000 (approx. EUR 55,000), for innovative projects of one or two years of duration. Projects are carried out as multi-stakeholder partnerships.

Finland: Finland is ranked above the international average in regard to the quality and effectiveness of its development aid. In 2011, Finland donated over EUR 1 billion in Official Development Aid (ODA), with African countries amongst the largest recipients. Mozambique receives both budget support and aid specifically for the education sector. In Tanzania, Finland funds municipalities – which are responsible for education – as well as supporting local government programme reforms. Finland also assists in ICT development, for example through its funding for the "African Leadership in ICT" programme.

Norway: The Norwegian Ministry of Foreign Affairs, with the Norwegian Agency for Development Cooperation (Norad), provide various education grants throughout Africa. Recently, there has been increased support for post-secondary education. For example, in South Sudan, where NOK 65 million (approx. EUR 11 million) over five years was allocated to support projects under the NUOOP Programme – Norwegian University Cooperation Programme for Capacity Development in Sudan.

learning abilities of the children in the region. A similar project in Ghana is receiving US$2.7 million in Dubai Cares funding.

Gates Foundation

The Bill and Melinda Gates Foundation has wide ranging investments across Africa to support development goals. It has provided grants to the African Virtual University to expand bandwidth access to more universities and national research and educational networks in Africa; partnered with the Hewlett Foundation's "Global Development and Population Program" in support of the "Quality Education in Developing Countries" (QEDC) initiative; ensures disadvantaged communities around the world have access to information through technology in public libraries through "Global Libraries" project; and recently approved funding for a pilot project expected to bring thousands of e-books to African libraries.

Korea Education and Research Information Service (KERIS)

The Korea Education and Research Information Service provides financial help for a variety of projects across the educational spectrum. Its stated aim, to "lay a foundation for a knowledge and information-based society by activation of eLearning", sees it active worldwide in projects affecting all levels of education. Recently, in collaboration with Samsung electronics, it has supported the establishment of three solar-powered Internet schools, in Kenya, Ghana and Ethiopia.

Country Profiles

Education and technology statistics and analysis from 55 African countries

Algeria

The People's Democratic Republic of Algeria suffered from nearly a decade-long civil war during the 1990s. The brutal conflict resulted in nearly 200,000 deaths. President Abdelaziz Bouteflika, who came into power in 1999, is credited with helping to negotiate the truce which ended the civil war and with restoring economic stability. Despite recent health problems and major protests in 2011 and 2012 demanding a regime change, he is likely to be re-elected this year.

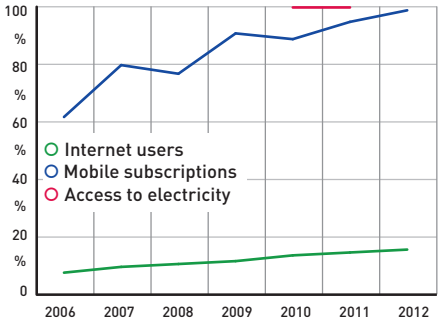
"with youth unemployment a major issue, one quarter of the national income is dedicated to education"

Algerians still face unrest today at the hands of an Islamist insurgency, with a number of recent bombings and attacks. Meanwhile, the economy remains resilient, largely thanks to the country's oil and gas rich land, which attracts significant interest from foreign energy companies.

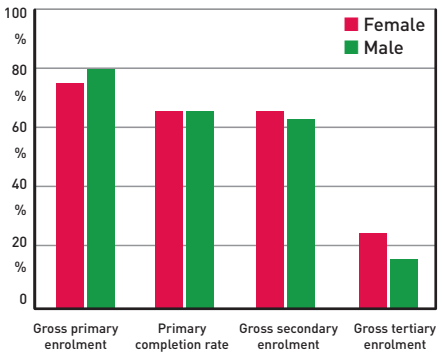
With youth unemployment a major concern, one quarter of the national budget is dedicated to education. It is free and officially compulsory for Algerians up to age 16 but enrolment drops off significantly from primary to secondary school. Algeria's large population of young people also poses a challenge for both the labour market and the education system, which is facing an increasing shortage of teachers.

While ICT in primary schools remains limited to teacher training, the Algerian Government's 2002 ICT policy included funding to equip all secondary schools with computer labs. It also led to the integration of ICT into the educational programmes of half of the country's middle schools by 2007. Furthermore, steps have been taken to increase public access to computers, with the "Computer for Every Home Initiative" launched in 2003. The 2009 "e-Algeria 2013" strategy set five-year goals for ICT infrastructure, training, human resources and the spread of new technologies. The plan came under criticism in 2012 for a lack of attention to tools for monitoring implementation.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	5,230,000 (2012)
Internet penetration	15.2% (2013)
Facebook users	4,111,320 (2013)
ICT service exports (% of service exports, BoP)	59% (2012)
Mobile penetration	96% (2009)
Broadband subscriptions	3.05 per 100 (2012)
Mobile subscriptions	103 per 100 (2012)
Television companies	Government-owned: ENTV (Canal Algérie, Algérie 3, Amazigh tv 4, Coran tv 5) Independent: Chorouk TV
Radio stations	Government-owned: Radio Algérienne
Electricity penetration	99.3% (2012)
Electricity use	1091 kWh/capita (2011)

Education

Number of students	1,210,272 (2012)
Student mobility	Outbound: 21,751 Inbound: 6,067 (2009)
Children out of primary	male: 30,941 female:55,330 (2009)
Language(s) of instruction	Arabic, French; Tamazight optional
Pupil/teacher ratio, primary	23 (2012)
Expenditure per student (% of GDP per capita)	Primary: 11.7% Secondary: 18.2% (2003)
Electricity in primary schools	97% (2011)
Literacy rate	male: 81.3%, female: 63.9% (2010)
Youth (15-24) literacy rate	male: 94% female: 89% (2011)
Unemployment	male: 8.4% female: 17.2% (2011)
Children in employment	5% (2011)
Education spending	20.3% of budget (2008)

Society and Politics

Date of independence	3 July 1962 (from France)
Style of government	Semi-presidential republic
2013 Ibrahim Index	52.5 (25th), + 1.8 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President Abdelaziz Bouteflika
Area	2,381,741 sq km
Population	37,087,812 (July 2013)
Population growth rate	1.9% (2013)
Birth rate	24.25‰ (2013)
Infant mortality	22.57‰ of live births (2013)
Life expectancy at birth	76.18 years (2013)
GDP (PPP)	$ 276.2 billion
Per capita	$7,600 (2012)
Growth rate	3% (2012)
GDP by sector	Agriculture 9.5% Industry 61% Services 29.6% (2012)
Budget	revenues: $82.69 billion expenditures: $92.47 billion (2012)
Percentage below poverty line	23% (2006)
Languages	Arabic (official), French (lingua franca), Berber dialects
Religions	Sunni Muslim (99%)
Monetary unit	Algerian Dinar

Angola

Angola was ravaged by a civil war for nearly three decades up until 2002, which forced over 330,000 civilians to flee, left hundreds of thousands more displaced within the country and caused major damage to infrastructure. Although peace seemed secure, more than half a million people were left battling starvation and even today the threat of uncovered landmines hinders agricultural development. Angola's president, José Eduardo dos Santos, has been in power for 33 years.

Rebuilding the country after such a turbulent past has been a challenging process but education and ICT policies are high on the Government's agenda. There is a focus not only on meeting basic human needs but also on creating a sustainable development model capable of responding to the new challenges of globalisation and the information society.

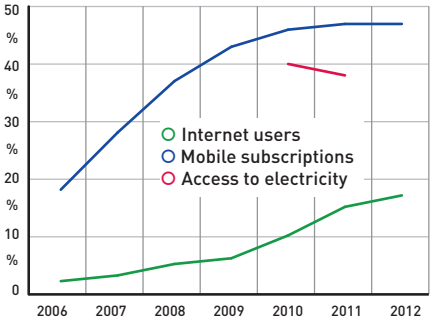
Angola has tripled the number of students in primary education since 2002 – from around 2 to 6 million – but, according to 2010 figures, there are still over 1.2 million out-of-school children. The Government has made a commitment to accelerate progress to reach the Education for All goals by 2015. This includes enlisting more teachers, increasing funding and developing better resources.

Poverty is a major obstacle to boosting the country's ICT capabilities. Only around 40% of the population has access to sufficient electricity and an estimated two-thirds of people live on less than $2 a day. Nonetheless, ICT policies continue to be developed at Government level, with a dedicated National Information Technology Agency.

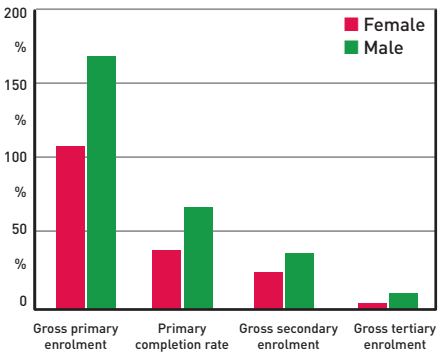
The Government aims to increase internet services by the means of a Trans-Atlantic fibre cable to enhance speeds. There are also plans to the launch the first Angolan telecommunications satellite, Angosat, in 2014, a project realised with Russian assistance. The satellite is expected to deliver improved infrastructure for the local telecom market to increase penetration across the country and in rural areas.

"a potential trans-Atlantic fibre cable is to enhance speeds"

Connectivity



Participation in education



ICT and Infrastructure

Internet users	2,976,657 (2012)
Internet penetration	16.9% (2012)
Facebook users	645,460 (2012)
ICT service exports (% of service exports, BoP)	4.5% (2012)
Broadband subscriptions	0.16 per 100 (2012)
Mobile subscriptions	49 per 100 (2012)
Television companies	State-controlled Televisao Popular de Angola, 2 terrestrial, 1 cable channel
Radio stations	State-controlled Radio Nacional de Angola, 5 channels; local private radio
Electricity penetration	40.2% (2010)
Electricity use	248kWh per capita (2012)

Education

Number of students	142,798 (2012)
Children out of primary	male: 57,382 female: 455,536 (2011)
Language(s) of instruction	Portuguese
Pupil/teacher ratio, primary	46 (2010)
Literacy rate	male: 82.6% female: 58.6% (2011)
Youth (15-24) literacy rate	male: 80% female: 66% (2011)
Unemployment	c. 25% (2012)
Children in employment	24% (2001)
Education spending	8.5% of budget (2011)

Society and Politics

Date of independence	11 November 1975 (Portugal)
Style of government	Unitary presidential republic
2013 Ibrahim Index	44.5 (39th), +18.1 from 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: José Eduardo dos Santos (since 1979)
Area	1,246,700 sq km
Population	18,565,269 (July 2013)
Population growth rate	2.78% (2013)
Birth rate	39.16‰ (2013)
Infant mortality	81.75‰ of live births (2013)
Life expectancy at birth	54.95 (2013)
GDP (PPP)	$123.1 billion (2012 est.) Per capita: $6,100 (2012)
Growth rate	5.2% (2012)
GDP by sector	agriculture: 10.2% industry: 61.4% services: 28.4% (2011)
Budget	revenues: $51.24 billion expenditures: $44.23 billion (2012)
Percentage below poverty line	40.5% (2006)
Languages	Portuguese (official), Bantu
Religions	indigenous beliefs 47%, Roman Catholic 38%, Protestant 15% (1998)
Monetary unit	Kwanza

Benin

Benin has a stable democracy, having held four peaceful presidential and legislative elections since the end of the Marxist-Leninist regime in 1989. The country still has significant progress to make in regard to development, ranking among the world's poorest countries. The Government is dedicated to improving conditions, outlining strategies to reach its aim to become an emerging economy by 2025. The country is one of Africa's largest cotton producers and economic and structural reforms, supported by the IMF and the World Bank, have encouraged growth in recent years.

Benin had some of the lowest enrolment rates in the world but increased political and donor support has enabled the country significantly to improve access to education. Since 1998, net enrolment rates for boys increased from 65% to 81%, whilst girls' enrolment rose from 32% to 58%. This is set to improve still further, with the World Bank announcing extra support for Benin's Decentralised Community Driven Services Project in 2014. The project aims to aid those living in the country's poorest regions by building new schools to serve around 90,000 students.

In 1995, Benin became the first African nation to join the GLOBE (Global Learning and Observations to Benefit the Environment) programme. Under the programme, in 1999, the USAID mission and four ISPs gave 115 people the opportunity to increase their ICT knowledge and awareness through the Train-the-Trainer programme. The 2005 NICI Plan envisioned the widespread use of ICTs in schools, with goals to reach by 2025.

Benin's Minister in charge of communication, Max Bartholomew Ahouèkè, last year launched a study on the development of a broadband strategy, admitting considerable effort is still needed to allow citizens greater access to the Internet. The Government also announced it will open technology incubation centres at schools and vocational training centres. Internet usage is low, and most connectivity is through the mobile networks rather than fixed-line services. In 2012, a third submarine fibre-optic cable system came online, helping to reduce the cost of international bandwidth.

ICT and Infrastructure

Internet users	335,957 (2012)
Internet penetration	3.8% (2012)
Facebook users	171,780 (2012)
ICT service exports (% of service exports, BoP)	23.0% (2010)
Broadband subscriptions	0.05 per 100 (2012)
Mobile subscriptions	90 per 100 (2012)
Television companies	State-run ORTB; several private stations, satellite available
Radio stations	National & regional state-owned stations, many private providers, international broadcasters on FM
Electricity penetration	27.9% (2012)
Electricity use	84 kWh/capita (2008)

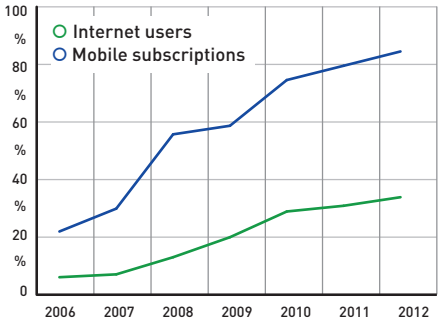
Education

Number of students	110,181 (2011)
Student mobility	Outbound: 3,280 (2009)
Children out of primary	male: 37,909 (2008) female: 142,178 (2008)
Language(s) of instruction	Yoruba, Baatonu, Adja, Fon, Ditamari, Dendi to high school; French
Pupil/teacher ratio, primary	44 (2012)
Expenditure per student (% of GDP per capita)	Primary: 15.0% (2010) Secondary: 24.7% (2005) Tertiary: 94.4% (2009)
Electricity in primary schools	23.0% (2011)
Literacy rate	male: 55.2% female: 30.3% (2010)
Youth (15-24) literacy rate	male: 66% female: 45% (2011)
Children in employment	46% (2006)
Education spending	27.8% (2010)

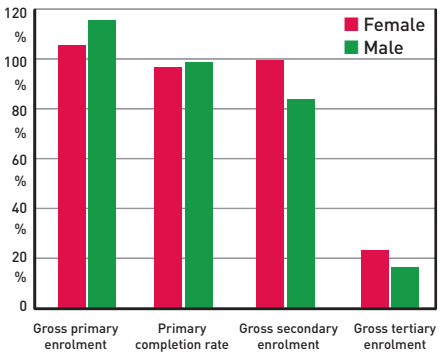
Society and Politics

Date of independence	1 August 1960 (from France)
Style of government	Republic
2013 Ibrahim Index	58.7 (13th) +2.5 since 2000
Democracy Index 2012	"flawed democracy"
Leader(s)	President: Thomas Boni Yayi (since 2006)
Area	112,622 sq km
Population	9,877,292 (July 2013)
Population growth rate	2.84% (2013)
Birth rate	37.02‰ (2013)
Infant mortality	58.54‰ of live births (2013)
Life expectancy at birth	60.67 (2013)
GDP (PPP)	$15.64 billion (2012) Per capita: $1,600 (2012)
Growth rate	5.4% (2012)
GDP by sector	agriculture: 32% industry: 13% services: 55% (2012)
Budget	revenues: $1.562 bn expenditures: $1.598 bn (2012)
Percentage below poverty line	37.4% (2007)
Languages	French (official), Fon, Yoruba in S, >6 tribal languages in N
Religions	Christian 42.8%, Muslim 24.4%, Vodoun 17.3%, other 15.5% (2002)
Monetary unit	CFA Franc

Connectivity



Participation in education



Botswana

Africa's longest continuous multi-party democracy, Botswana is a model of successful development, stability and growth. It has gone from being among Africa's poorest countries to boasting one of the fastest-growing economies in the world. Now classed as a middle-income country, Botswana can attribute its high GDP largely to diamond mining, as well as other sectors such as tourism and farming.

For the eighteenth year in a row Botswana was ranked Africa's least corrupt country in Transparency International's 2013 Corruption Perception Index. The ruling party, led by President Seretse Khama Ian Khama, has won all 10 elections since 1966.

Access to education is a priority in Botswana, with education free, though not compulsory, for children aged 6-15. Due to its economic stability, Botswana has been able to link its various national ICT and educational policies into a broader economic vision for the country. The Government has highlighted the need to integrate ICT into education, in order to provide students with the skills necessary for the 21st Century.

In 2007, the Government introduced "Maitlamo", the national ICT policy. The policy has so far been successful in working towards its aims of ensuring Botswana's communications network meets international standards and creating an environment for ICT growth in the country. "Maitlamo" includes an education pillar called "Thuto Net". The programme focuses on schools' connectivity, which has seen infrastructure developed in secondary schools across the country to ensure Internet access. In addition, the eGovernment Strategy (2011-2016) facilitates the use of ICT and the Internet to deliver public services, with the aim of making all Government services available online by 2016.

In 2008, a fibre-optic network was set up across the Kgalagadi wilderness by Botswana Telecommunications Company (BTC). There are also plans to introduce LTE wireless communications. These developments have led to more widespread Internet penetration and Internet access in public places such as libraries. However, the high cost of the technology and also lack of public awareness are hindering further progress.

ICT and Infrastructure

Internet users	268,620 (2012)
Internet penetration	11.5% (2012)
Facebook users	294,000 (2012)
ICT service exports (% of service exports, BoP)	41.9% (2012)
Broadband subscriptions	0.78 per 100 (2012)
Mobile subscriptions	150 per 100 (2012)
Television companies	1 state, 1 private station; satellite on subscription
Radio stations	2 state-owned national, 3 private local stations
Electricity penetration	45.4% (2012)
Electricity use	1,603 kWh/capita (2012)

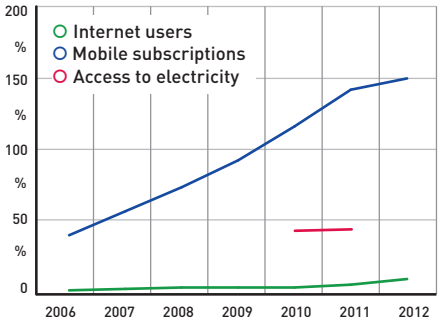
Education

Number of students	16,239 (2006)
Student mobility	Outbound: 7,420
Children out of primary	male: 26,064 female: 23,777 (2009)
Language(s) of instruction	Setswana in primary; English at all levels
Pupil/teacher ratio, primary	25 (2009)
Expenditure per student (% of GDP per capita)	Primary: 10.0% Secondary: 33.0% (2009) Tertiary: 284.1% (2007)
Literacy rate	male: 84.6% female: 85.6% (2011)
Youth (15-24) literacy rate	male 94% (2011) female: 97% (2011)
Unemployment	male: 15.3% female: 19.9 % (2006)
Children in employment	9% (2006)
Education spending	16.2% of budget (2009)

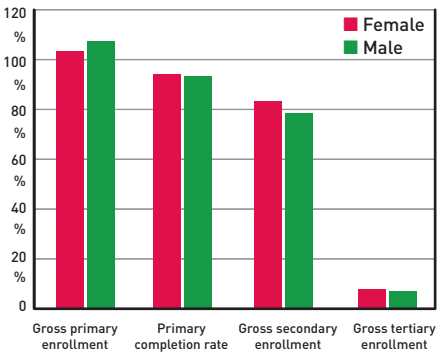
Society and Politics

Date of independence	30 September 1966 (from Britain)
Style of government	Parliamentary republic
2013 Ibrahim Index	77.6 (2nd) +5.6 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	President: Seretse Khama Ian Khama
Area	581,730 sq km
Population	2,127,825 (2013)
Population growth rate	1.35% (2013)
Birth rate	12.91‰ (2013)
Infant mortality	9.9‰ of live births (2013)
Life expectancy at birth	54.47 (2013)
GDP (PPP)	$32.27 billion (2012) per capita: $15,700 (2012)
Growth rate	4.2% (2012)
GDP by sector	agriculture: 1.9% industry: 38.6% services: 59.5% (2012)
Budget	revenues: $5.508 billion expenditures: $5.393 billion (2012)
Percentage below poverty line	30.3% (2003)
Languages	Setswana (national), Kalanga, Sekgalagadi, English (official)
Religions	Christian 71.6%, none 20.6%, Badimo 6%
Monetary unit	Pula

Connectivity



Participation in education



Burkina Faso

Burkina Faso means "the land of the men of integrity". Called the Republic of Upper Volta until the former President Thomas Sankara renamed it, Burkina was perhaps best known until recently for its poverty. It has one of the lowest GDP per capita figures in the world ($1,400) and a large part of the country's economic activity is funded by international aid.

Recently, however, mining has become a significant industry. Exports of gold account for one fifth of Burkina's economic output and it is now Africa's fourth-largest gold producer. The gold industry is a major user of child labour, though – a report by UNICEF estimated that as many as 700,000 children may be working in the mines.

"political stability has provided the foundation for growth and poverty reduction"

In spite of such depressing statistics, and a political system that remains distinctly authoritarian under President Blaise Campaore, there are nonetheless grounds for optimism about Burkina Faso's future. 60% of the country's population is under the age of 25, mobile telephony has experienced strong growth since the introduction of competition in 2000 and the Government has made significant improvements in the field of education.

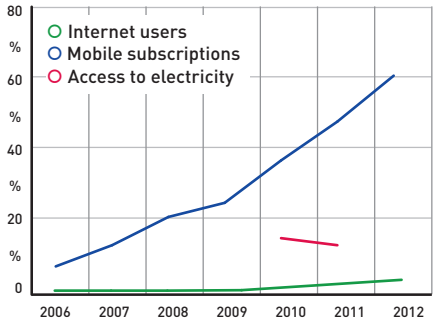
In the 1990's, Burkina Faso's primary school enrolment rate was among the lowest in the world – particularly in rural areas. However, recently it has increased – from 60% in 2006 to 80% in 2010. Completion rates increased from 40% to 45% over the same period. The improvement has been made with help from the International Development Association (IDA) – the World Bank's fund for the world's poorest countries.

A recent IDA report painted a comparatively rosy picture:

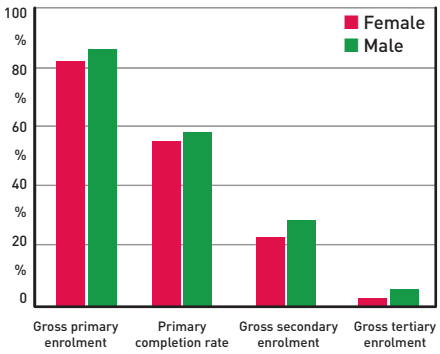
"Burkina Faso's political stability over the past 15 years, together with a country-led transition to a more open, market-driven economic model, has provided the foundation for growth and poverty reduction."

Now the Government is aiming for education for all by 2015. Major priorities for the next ten years are improving access and developing post-primary levels of education.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	518,253 (2012)
Internet penetration	3.7% (2012)
Facebook users	141,740 (2012)
ICT service exports (% of service exports, BoP)	21.1% (2010)
Broadband subscriptions	0.08 per 100 (2012)
Mobile subscriptions	57 per 100 (2012)
Television companies	1 state, 1 private
Radio stations	National and regional state-owned network, many private stations
Electricity penetration	14.6% (2012)

Education

Number of students	68,894 (2012)
Student mobility	2,453 (2009)
Children out of primary	male: 442,668 female: 474,376 (2012)
Language(s) of instruction	French, national languages
Pupil/teacher ratio, primary	48 (2012)
Expenditure per student (% of GDP per capita)	Primary: 15.4 Secondary: 17.1 Tertiary: 190.7 (2012)
Electricity in primary schools	10.1% (2012)
Literacy rate	male: 36.7% female: 21.6% (2007)
Youth (15-24) literacy rate	male: 47% female: 33% (2011)
Unemployment	male: 4.6% female: 2.9% (2006)
Children in employment	39% (2010)
Education spending	18.0% of budget (2011)

Society and Politics

Date of independence	5 August 1960 (from France)
Style of government	Parliamentary republic
2013 Ibrahim Index	53 (23rd) +1.2 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Blaise Compaore (since 1987)
Area	274,200 sq km
Population	17,812,961 (2013)
Population growth rate	3.06% (2013)
Birth rate	42.81‰ (2013)
Infant mortality	78.3‰ of live births (2013)
Life expectancy at birth	54.43 (2013)
GDP (PPP)	$24.57 billion (2012) Per capita: $1,400 (2012)
Growth rate	9% (2012)
GDP by sector	agriculture: 34.1% industry: 23.7% services: 42.2% (2012)
Budget	revenues: $2.5 billion expenditures: $2.846 billion (2012)
Percentage below poverty line	46.7% (2009)
Languages	French (official), Sudanic languages
Religions	Muslim 60.5%, Christian 23.2%, animist 15.3%
Monetary unit	CFA Franc

Burundi

Burundi, a small landlocked country, is working to rebuild peace and security after 13 years of ethnically-fuelled civil war. President Pierre Nkurunziza, a former Hutu rebel leader, was the first president to be chosen in democratic elections in 2005 and was re-elected in June 2010. The basic economic infrastructure was severely damaged during years of conflict but progress has since been made to improve humanitarian conditions and foster economic growth. A recent report by the UN Secretary General placed Burundi at the top of the list of countries having made the greatest strides in education, despite being among the world's poorest.

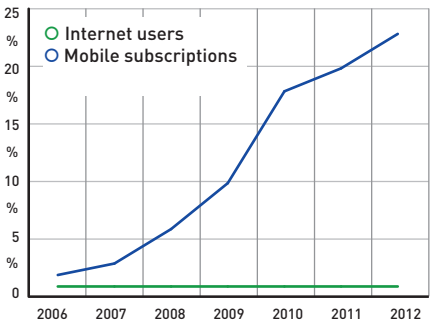
"Burundi is at the top of the list of countries having made the greatest strides in education"

It has been a long road to recovery for the battered education system, after one third of schools were destroyed in the war and teacher shortages became critical. The introduction of the "free school" policy in 2005 helped to boost primary education enrolment rates significantly, from 59% in 2005 to 96% in 2011. The Government and UNICEF's "Back to School" campaign also enabled schools to benefit from better teaching materials, desks, sanitation facilities and text books.

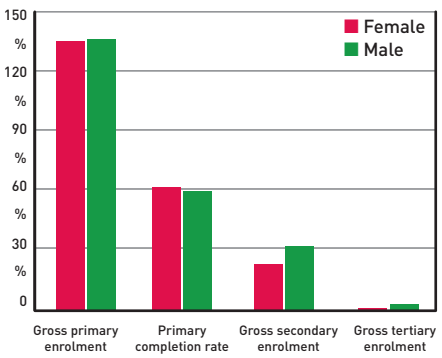
The first job of the Government remains to continue to establish a stable and accessible education system, but it also recognises the benefits of ICT integration. The 2012-2020 education plan only planned for ICT in tertiary education, aiming to increase the student-to-computer ratio and connect all university campuses to the Internet by 2015. Under the National Strategy and Human Resources Development Plan for ICT in Burundi 2011-2015, which recognises that Burundian youth should acquire relevant skills to prepare them for jobs in the IT sector, the Government plans to develop an ICT training programme.

There are plans to transform the country's ICT sector by 2025. Mobile phone access and usage is rapidly increasing, with year-on-year subscription growth at around 35.5%. Burundi's First Phase Backbone System (BBS) Network was launched in early 2014, connecting eight provinces to the National optical fibre backbone infrastructure. More provinces are expected to be reached under the next phases of the project.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	176,040 (2012)
Internet penetration	1.2% (2012)
Facebook users	41,900 (2012)
ICT service exports (% of service exports, BoP)	6.6% (2012)
Broadband subscriptions	0.00 per 100 (2012)
Mobile subscriptions	26 per 100 (2012)
Television companies	State-controlled RTNB
Radio stations	State-controlled RTNB nationwide; c.10 private stations locally

Education

Number of students	29,269 (2010)
Student mobility	Outgoing: 1,309 (2009)
Children out of primary	male: 39,887 female: 41,263 (2010)
Language(s) of instruction	Kurindi, French
Pupil/teacher ratio, primary	47 (2012)
Expenditure per student (% of GDP per capita)	Primary: 14.6% Secondary: 41.1% (2011) Tertiary:386.4% (2010)
Electricity in primary schools	3.6% (2012)
Literacy rate	male: 72.9% female: 61.8% (2010)
Youth (15-24) literacy rate	male: 78% female: 78% (2011)
Children in employment	26% (2012)
Education spending	26.6% of budget (2012)

Society and Politics

Date of independence	July 1 1962 (from Belgium)
Style of government	Republic
2013 Ibrahim Index	43.8 (40th) +8.8 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Pierre Nkurunziza (since 2005)
Area	27,830 sq km
Population	1,060,714 (2013)
Population growth rate	3.08% (2013)
Birth rate	40.04‰ (2013)
Infant mortality	58.86‰ of live births (2013)
Life expectancy at birth	59.69 (2013)
GDP (PPP)	$5.43 billion (2012) Per capita: $600 (2012)
Growth rate	4% (2012)
GDP by sector	agriculture: 34.7% industry: 18.3% services: 47% (2012)
Budget	revenues: $788.1 million expenditures: $880.3 million (2012)
Percentage below poverty line	68% (2002)
Languages	Kirundi, French (official), Swahili
Religions	Christian 82.8%, Muslim 2.5%, Adventist 2.3% (2008)
Monetary unit	Burundi Franc

Cameroon

Both culturally and geographically, Cameroon is an extremely diverse country. Its hundreds of languages, ethnic groups and traditional systems of government were brought together to make the modern state by the fusion of French and British colonies in 1961. This union remains strong, though secessionist movements appeared in the English-speaking southern provinces in the '90s.

Cameroon's economy is growing with the help of oil, timber and coffee exports. The tourism sector is also growing stronger, helping to promote economic development and the conservation of natural resources. However, the country's development is not increasing at a pace fast enough to tackle growing poverty. President Biya, who has been in power for three decades, is often criticised for not handing over the reins of Government. Currently serving a seven-year term, he is expected to again run in 2018.

Cameroon's literacy rates, some of the highest in Africa, are indicative of the country's educational successes. Nevertheless, progress in education is slow. Especially in regard to meeting the 2015 UN Millennium Development Goals, there has been little action.

Integration of ICT in schools started in private schools in the 1990s, but a specific policy was not introduced by the Government until 2001 under the Cyber Education project. This project has only recently started taking off owing to assistance from the French Government both technically and financially. In 2007, it was estimated that there were around 60,000 students with access to around 1,000 computers. The project has also led to a number of MRCs (Multimedia Resource Centres) being developed for schools across the country.

In the Cameroon National Information and Communication Infrastructure (NICI) policy, the Government recognises ICTs as a national priority in relation to education, health, forestry and governance. The country is taking steps to realise NICI plans and build up infrastructure to support it, as currently electricity is in short supply not just in rural areas but also in major towns. Fibre network expansion, increasing bandwidth and connecting remote areas remain major aims.

ICT and Infrastructure

Internet users	1,006,494 (2012)
Internet penetration	5.7% (2012)
Facebook users	562,480 (2012)
ICT service exports (% of service exports, BoP)	29.7% (2012)
Broadband subscriptions	0.01 per 100 (2012)
Mobile subscriptions	64 per 100 (2012)
Television companies	State-owned CRTV; 2 private stations
Radio stations	CRTV; 1 licensed private radio station; c.70 unlicensed stations
Electricity penetration	48.7% (2012)
Electricity use	256 kWh/capita (2012)

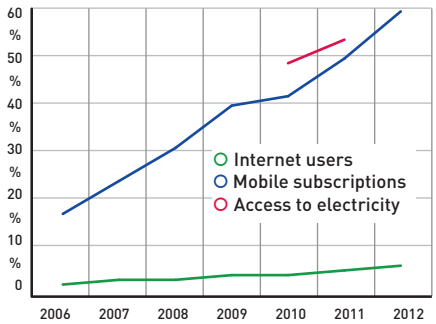
Education

Number of students	244,233 (2011)
Student mobility	Outgoing: 18,776 Incoming: 1,417 (2009)
Children out of primary	male: 50,688 female: 244,125 (2012)
Language(s) of instruction	French, English
Pupil/teacher ratio, primary	46 (2012)
Expenditure per student (% of GDP per capita)	Primary: 6.2 Secondary: 21.1 Tertiary: 41.9 (2011)
Electricity in primary schools	8.6% (2011)
Literacy rate	male: 78.3% female: 64.8% (2010)
Youth (15-24) literacy rate	male: 89% female: 77% (2011)
Unemployment	male: 3.1% female: 4.5% (2010)
Children in employment	31% (2006)
Education spending	16.3% (2011)

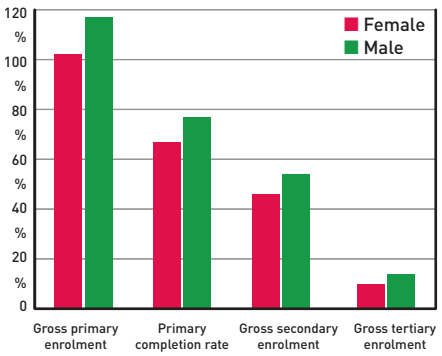
Society and Politics

Date of independence	1 January 1960 (France) 1 October 1961 (Britain)
Style of government	Multiparty presidential regime
2013 Ibrahim Index	47.0 (35th) +5.2 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Paul Biya (since 1982)
Area	475,440 sq km
Population	22,534,532 (2013)
Population growth rate	2.04% (2013)
Birth rate	31.93‰ (2013)
Infant mortality	58.51‰ of live births (2013)
Life expectancy at birth	55.02 (2013)
GDP (PPP)	$50.16 billion (2012) Per capita: $2,300 (2012)
Growth rate	4.6% (2012)
GDP by sector	agriculture: 20.8% industry: 27.5% services: 51.6% (2012)
Budget	revenues: $4.819 billion expenditures: $5.726 billion (2012)
Percentage below poverty line	48% (2000)
Languages	English, French (official), 24 African language groups
Religions	indigenous beliefs 40%, Christian 40%, Muslim 20%
Monetary unit	CFA Franc

Connectivity



Participation in education



Cape Verde

Over 600km offshore in the Atlantic lie the ten volcanic islands of Cape Verde. Today ranked among the most democratic countries in the world, Cape Verde held its first free presidential elections in 1991. President Jorge Carlos Fonseca from the Movement for Democracy (MFD) won the election in 2011, with a campaign based on modernising the economy, boosting tourism and alleviating unemployment.

Cape Verde's past struggles have been largely due to severe drought which affected agriculture and food supplies. This led to a high rate of emigration and today more people from Cape Verde live outside the country than inside it. Cape Verde lacks natural resources but has been able to improve living conditions with international aid.

Each of the nine inhabited islands has at least one secondary school; the island of Sao Tiago, the largest and most populous island of Cape Verde, has 15. All secondary schools are equipped with computers but not all schools have internet access. The Strategic Education Plan (2003-2013) recommended the use of ICT in education, with the specific objective of using information channels to introduce new educational technologies.

In 2014, with guidance from the Cape Verde Education Ministry, three schools were selected – two in Santiago Island and one in Sao Vicente Island – to be part of the global Connect to Learn initiative. Mobile operator CVMovel, Ericsson and the Portugal Telecom (PT) Foundation launched the ICT project to offer the three schools access to modern learning tools and educational resources. This includes teacher training, equipment and remote support.

"each island has at least one secondary school"

The high cost of Internet and communication services is a main challenge for Cape Verde. This is a result of a monopolistic market, which has led to prices being above similar countries. With little competition, industry innovation has also been lacking. In 2012, the country's Internet penetration was around 32% and in 2013 mobile usage reached 90%. This is set to rise further as Cape Verde looks to China to strengthen its mobile sector.

ICT and Infrastructure

Internet users	167,542 (2012)
Internet penetration	34.7% (2012)
Facebook users	107,340 (2012)
ICT service exports (% of service exports, BoP)	4.6% (2012)
Broadband subscriptions	3.78 per 100 (2012)
Mobile subscriptions	84 per 100 (2012)
Television companies	State-run RTC, private broadcasters, Portuguese services for Africa
Radio stations	RTC
Electricity penetration	88% (2010)

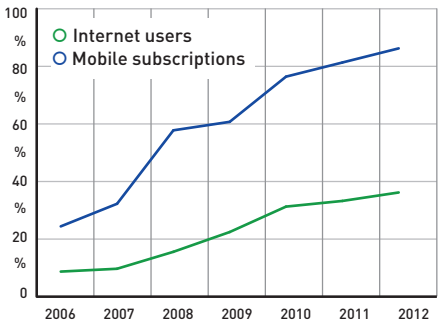
Education

Number of students	11,800 (2012)
Student mobility	Outbound: 3,309
Children out of primary	male: 354 female: 1,269 (2012)
Language(s) of instruction	Portuguese
Pupil/teacher ratio, primary	23 (2012)
Expenditure per student (% of GDP per capita)	Primary: 15.1% Secondary: 14.5% Tertiary: 34.2% (2011)
Electricity in primary schools	66.1% (2012)
Literacy rate	male: 89.7% female: 80.3% (2011)
Youth (15-24) literacy rate	male: 97% female: 99% (2011)
Unemployment	21% (2000)
Children in employment	3% (2001)
Education spending	14.4% of budget (2010)

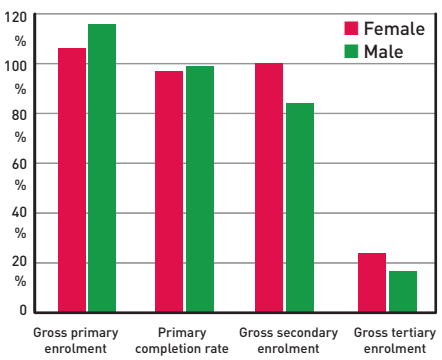
Society and Politics

Date of independence	5 July 1975 (from Portugal)
Style of government	Republic
2013 Ibrahim Index	76.7 (3rd) +6.0 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	President: Jorge Carlos Fonseca (since 2011)
Prime Minister	Jose Maria Neves (since 2001)
Area	4,033 sq km
Population	531,046 (2013)
Population growth rate	1.41% (2013)
Birth rate	20.96‰ (2013)
Infant mortality	25.13‰ of live births (2013)
Life expectancy at birth	71.28 (2013)
GDP (PPP)	$2.16 billion Per capita: $4,400 (2012)
Growth rate	2.5% (2012)
GDP by sector	agriculture: 9.4% industry:18.9% services: 71.7% (2012)
Budget	revenues: $409 million expenditures: $625.7 million (2012)
Percentage below poverty line	30% (2000)
Languages	Portuguese (official), Crioulo
Religions	Roman Catholic (syncretic), Protestant
Monetary unit	Escudo

Connectivity



Participation in education



Central African Republic

Internecine violence has broken out in the Central African Republic, and threatens to drive the state to total collapse. While some progress was made in 2008 and 2012 to stabilise the country, the 2013 coup fractured Central African society along social, ethnic and religious fault lines. It was led by the predominantly Muslim Seleka rebel alliance who stormed the capital of President Francois Bozize after the collapse of a power-sharing deal – the January 2013 Libreville Agreement – committing numerous human rights violations on their way. This led to brutal retaliation by majority Christian groups against Muslims, regardless of their affiliation.

Behind the religious divides, the war is based on conflicting land claims between the groups: nomadic Muslims arrived in the CAR from the North as cattle herders in the 19th century, whilst sedentary Christians engage predominantly in crop-farming.

Many schools were damaged or destroyed in the recent coup. According to Médecins Sans Frontières, over 650,000 children are currently out of school; at least 2,500 are estimated to have been recruited by rebel forces.

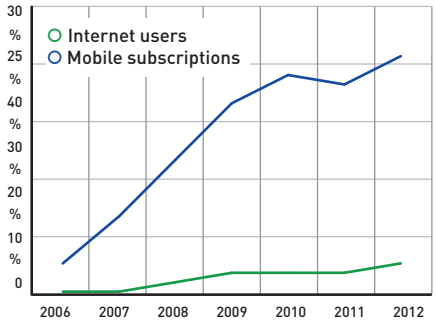
Under the previous Government, in 2007, the CAR became a main partner in the Pan-African Research Agenda on the Pedagogical Integration of ICT. However, owing to the Government's lack of commitment when the first phase of the programme (2008-2009) was evaluated, eight out of the 10 CAR schools examined failed to present an adequate integration plan.

With help from the United Nations Development Programme (UNDP), the Central African Government, and CISCO Systems, a local CISCO Academy was established at the University of Bangui. It delivers ICT training to help improve career and educational opportunities.

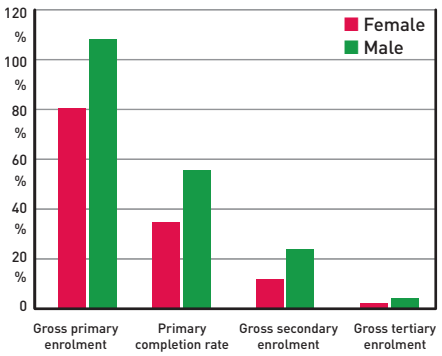
In 2011, Internet penetration in the CAR was gradually increasing but was still in the early stages of usage. Users are heavily dependent on Internet cafés for access and most are located in Bangui. Mobile subscription is still below 50% and mobile Internet remains slow. Recently, better telecommunications services were launched to help humanitarian groups access information.

However, progress must wait until stability returns to Central Africa.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	150,920 (2012)
Internet penetration	3.0% (2012)
Facebook users	163,780 (2012)
Broadband subscriptions	0.00 per 100 (2012)
Mobile subscriptions	23 per 100 (2012)
Television companies	State-owned RTC
Radio stations	RTC, a small number of private community stations

Education

Number of students	12,522 (2009)
Student mobility	Outgoing: 775 (2009)
Children out of primary	male: 65,962 female: 127,690 (2012)
Language(s) of instruction	French
Pupil/teacher ratio, primary	80 (2012)
Expenditure per student (% of GDP per capita)	Primary: 4.4% (2010) Secondary: 15.8% (2009) Tertiary: 113.5% (2011)
Electricity in primary schools	100% (2012)
Literacy rate	male: 69.6% female: 44.2% (2011)
Youth (15-24) literacy rate	male: 72% female: 58% (2011)
Unemployment	8% (2001)
Children in employment	29% (2010)
Education spending	12.0% of budget (2010)

Society and Politics

Date of independence	13 August 1960 (France)
Style of government	Republic
2013 Ibrahim Index	32.7 (49th) +3.8 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	Interim president: Catherine Samba-Panza (since Jan 2014)
Previously:	Michel Djotodia (since March 2013 coup)
Area	622,984 sq km
Population	5,166,510 (2013)
Population growth rate	2.14% (2013)
Birth rate	35.8‰ (2013)
Infant mortality	95.04‰ of live births (2013)
Life expectancy at birth	50.9 (2013)
GDP (PPP)	$3.849 billion (2012) Per capita: $900 (2012)
Growth rate	4.1% (2012)
GDP by sector	agriculture: 55.6% industry: 14.7% services: 29.7% (2012)
Budget	revenues: $340.8 million expenditures: $356.9 million (2012)
Languages	French (official), Sangho (national), tribal languages
Religions	indigenous beliefs 35%, Christian 50%, Muslim 15%
Monetary unit	CFA Franc

Chad

Chad has made steady economic progress over the last decade, largely thanks to the development of oil exports in 2004. In addition, the 2010 Chad-Sudan non-aggression treaty significantly improved the security situation, bringing stability to the long-suffering country. However, Chad has since had to deal with threats of conflict spilling over from neighbouring countries. Despite expectations for oil GDP to grow by 10.5% in 2014, with new transport contracts, the country is looking for ways to ease its dependence on oil, as revenue is declining and so too are supplies.

"91% of secondary school students failed exams in 2012"

Chad has relatively poor education infrastructure and lacks resources. 67% of the national student population attend public schools in rural areas. Education is free and compulsory for children aged 6-15, but Government funding is inadequate and parents are often forced to cover extra costs. In 2011, over half the country's young people were illiterate.

The Government has acknowledged the poor state of the education system, and in 2012 held its first four-day education forum to develop recommendations for working towards what President Déby described as a "rebirth of the Chadian education system". The forum was established after the release of the baccalauréat results (the French academic qualification at the end of secondary studies) which revealed 91% of students failed.

Chad has been making progress with new initiatives, such as the 10-year strategy, Education and Training in Liaison with Employment (EFE), and plans to integrate ICT policy. The Ministry of Education is exploring new ways to set up programmes to benefit both teachers and students. The main obstacle to overcome is the financial need.

So far, ICT developments have lagged behind most of Africa, but the country plans to strengthen national fibre networks to improve mobile Internet cost and access, and with help from the World Bank funded Central African Backbone (CAB) project, a regional broadband connection should be in place by 2016.

ICT and Infrastructure

Internet users	208,537 (2012)
Internet penetration	2.1% (2012)
Facebook users	43,120 (2012)
Broadband subscriptions	0.16 per 100 (2012)
Mobile subscriptions	35 per 100 (2012)
Television companies	State-owned RNT
Radio stations	RNT, c. 10 private stations

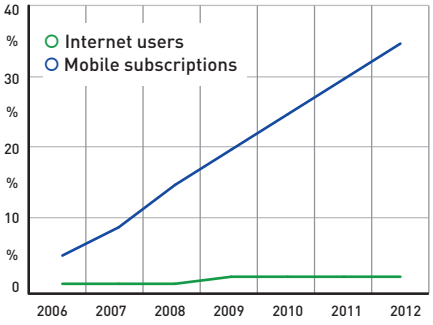
Education

Number of students	24,349 (2011)
Student mobility	Outgoing: 2,995 Incoming: 80 (2009)
Children out of primary	male: 300,981 female: 469,460 (2011)
Language(s) of instruction	French, Arabic
Pupil/teacher ratio, primary	61 (2012)
Expenditure per student (% of GDP per capita)	Primary: 6.6% Secondary: 24.0% Tertiary: 209.6% (2011)
Electricity in primary schools	4.7% (2011)
Literacy rate	male: 45.6% female: 25.4% (2011)
Youth (15-24) literacy rate	male: 53% female: 41% (2011)
Children in employment	26% (2010)
Education spending	11.8% of budget (2011)

Society and Politics

Date of independence	11 August 1960 (France)
Style of government	Republic
2013 Ibrahim Index	33.0 (48th) +1.2 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Idriss Deby (since 1990)
Area	1.284 million sq km
Population	11,193,452 (2013)
Population growth rate	1.95% (2013)
Birth rate	37.99‰ (2013)
Infant mortality	91.94‰ of live births (2013)
Life expectancy at birth	49.07 (2013)
GDP (PPP)	$26.58 billion (2012) Per capita: $2,500 (2012)
Growth rate	8.9% (2012)
GDP by sector	agriculture: 47.9% industry: 9.4% services: 42.6% (2012)
Budget	revenues: $2.748 billion expenditures: $2.979 billion (2012)
Percentage below poverty line	80% (2001)
Languages	French, Arabic (official), Sara (in south), >120 languages and dialects
Religions	Muslim 53.1%, Christian 34.3%, animist 7.3%
Monetary unit	CFA Franc

Connectivity



Participation in education

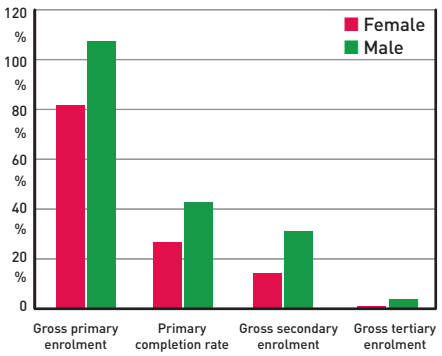


Photo: Jacques Taberlet

Comoros

Made up of three Indian Ocean Islands, Comoros is one of the smallest countries in the world. A history of political violence helped to impoverish Comoros, especially in rural areas. Recently, however, democracy has been strengthened by a smooth transition of power to the Government of Dr. Ikililou Dhoinine in May 2011. The election was seen as an opportunity to break the country's cycle of instability.

The Comoran economy is based mainly on the primary sector and retail services but, without a wealth of natural resources, the country still relies heavily on foreign aid and remittances from the diaspora. Future growth depends on a number of large foreign direct investment (FDI) projects in areas such as tourism.

Comoros has a young population; 53% are under 20 years of age. Most children attend Koranic schools as they are free. Based on the French system they cover primary, secondary and post-secondary education, which gives students the opportunity to focus on areas such as agriculture, business and science. Although school enrolment has increased over the past decades, drop-out rates are high, and there are no universities in the country, so higher education is only possible abroad. In 2011, the education minister set goals to reach enrolment rates of 75% for pre-school age children, make school attendance compulsory for ages 3-14, and achieve a net enrolment rate of 95 per cent in primary education by 2016.

"higher education is only possible abroad"

Comoros was the last country in the world to develop a mobile telephone network. Since 2003 the Comoran Government, with support of the UN Economic Commission for Africa, has been developing an ICT policy and strategic plan.

Electricity supply is a factor hindering ICT progress, with electricity only available for around six hours a day in most of Grande Comore; in Moroni, electricity supply is unreliable for most of the day. Last year the World Bank approved a $ 5 million grant to support efforts to improve supply and reduce power costs.

ICT and Infrastructure

Internet users	40,550 (2012)
Internet penetration	6.0% (2012)
Facebook users	19,940 (2012)
Broadband subscriptions	0.03 per 100 (2012)
Mobile subscriptions	32 per 100 (2012)
Television companies	State-owned 1 national, 1 regional
Radio stations	State-owned 1 national, 2 regional; a few private local

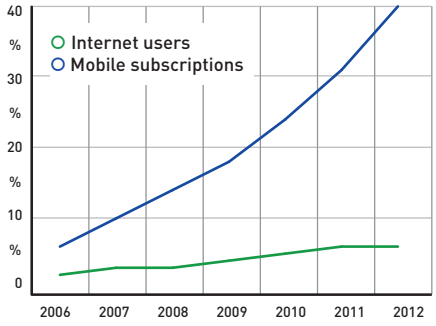
Education

Number of students	7,054 (2009)
Student mobility	Outgoing: 2,513
Language(s) of instruction	Shikomori in pre-school; French, Arabic
Pupil/teacher ratio, primary	28 (2011)
Expenditure per student (% of GDP per capita)	Primary: 27.4% (2008) Secondary: 25.1% (2002)
Electricity in primary schools	14.2% (2012)
Literacy rate	male: 80.5% female: 70.6% (2011)
Unemployment	20% (2006)
Children in employment	27% (2000)
Education spending	24.1% of budget (2002)

Society and Politics

Date of independence	6 July 1975 (from France)
Style of government	Republic
2013 Ibrahim Index	47.8 (32nd) +6.9 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Ikililou Dhoinine (since 2011)
Area	2,235 sq km
Population	752,288 (2013)
Population growth rate	1.97% (2013)
Birth rate	30.26‰ (2013)
Infant mortality	67.12‰ of live births (2013)
Life expectancy at birth	63.12 (2013)
GDP (PPP)	$868 million (2012) Per capita: $1,300 (2012)
Growth rate	3% (2012)
GDP by sector	agriculture: 51% industry: 10% services: 39% (2012)
Budget	revenues: $164.8 million expenditures: $155.9 million (2012)
Percentage below poverty line	60% (2002)
Languages	Arabic, French (official), Shikomoro
Religions	Sunni Muslim 98%, Roman Catholic 2%
Monetary unit	Comoran Franc

Connectivity



Participation in education

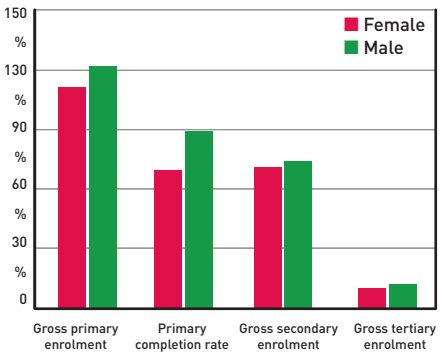


Photo: David Stanley

Congo, Democratic Republic

The Democratic Republic of Congo (DRC) has the potential to be one of the richest countries in Africa and a driver for growth across the continent. Yet, this potential, based on the country's vast mineral wealth, fuelled what has been described as "Africa's world war". Volatility remains today but the situation is set to improve as the Democratic Republic of Congo Government and M23 rebels signed a peace agreement in late 2013, after nearly two decades of fighting. The M23's alleged group leader Bosco Ntaganda surrendered and is awaiting trial on charges of war crimes and crimes against humanity. The conflicts claimed the lives of millions due to either violence, malnutrition or disease and significantly hampered the country's development.

In 2012, 3.5 million children of primary school age were out-of-school. The country's fragility affected public financing for education, leading to poor infrastructure and high school fees. The Government has since developed its first education sector plan, in cooperation with a specially appointed task force made up of stakeholders from Government departments, donors and civil society. The Interim Education Plan (2012-2014) aims to make primary education affordable for millions of families. The domestic budget for education has been increased from 9.5% of GDP in 2011 to more than 14% in 2013. The Government has said it will raise the budget further in 2015 to 15%. The DRC has received a $100 million support package from the Global Partnership for Education, which will go towards building or rehabilitating 153 schools, enabling over 75,000 children per year to go to school. The grant, implemented by the World Bank, will also improve student learning through better learning materials and strengthened teacher training. The DRC also joined the NESCO-China Funds-in-Trust (CFIT) project in October 2013, which aims to enhance the capacity of the key local Teacher Training Institutions through ICT.

The DRC's Internet and broadband market has made much-needed progress over the past year with the country connecting to low-cost, high-quality international bandwidth through the WACS submarine fibre optic cable in 2013. 3G mobile services and wireless networks using WiMAX and EV-DO technology are available and there are also imminent plans to introduce the country's first 4G (LTE) network.

ICT and Infrastructure

Internet users	915,400 (2012)
Internet penetration	1.7% (2012)
Facebook users	903,020 (2012)
Broadband subscriptions	0 per 100 (2012)
Mobile subscriptions	28 per 100 (2012)
Television companies	State-owned near-national station; >12 private
Radio stations	2 state-owned, >100 private, at least 2 international broadcasters
Electricity penetration	15.2% (2012)
Electricity use	105 kWh/capita (2012)

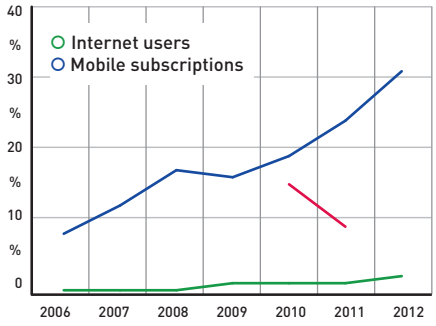
Education

Number of students	511,251 (2009)
Student mobility	Outgoing: 4,314 Incoming: 914 (2009)
Children out of primary	male: 2,416,394 female: 2,469,740 (1999)
Language(s) of instruction	National languages in primary; French
Pupil/teacher ratio, primary	35 (2012)
Expenditure per student (% of GDP per capita)	Primary: 4.9% Secondary: 15.1% (2010)
Electricity in primary schools	8.9% (2011)
Literacy rate	male: 76.9% female: 57% (2010)
Youth (15-24) literacy rate	male: 79% female: 53% (2007)
Children in employment	15% (2010)
Education spending	8.9% of budget (2010)

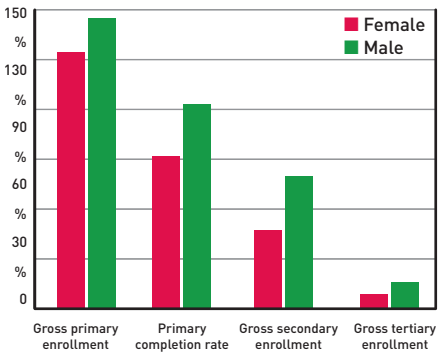
Society and Politics

Date of independence	30 June 1960 (from Belgium)
Style of government	Republic
2013 Ibrahim Index	31.3 (51st) +7.3 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Joseph Kabila (since 2001)
Area	2,344,858 sq km
Population	75,507,308 (2013)
Population growth rate	2.54% (2013)
Birth rate	36.34‰ (2013)
Infant mortality	74.87‰ of live births (2013)
Life expectancy at birth	56.14 (2013)
GDP (PPP)	$27.29 billion (2012) Per capita: $400 (2012)
Growth rate	7.2% (2012)
GDP by sector	agriculture: 46.3% industry: 20.8% services: 32.9% (2012)
Budget	revenues: $5.104 billion expenditures: $5.537 billion (2012)
Percentage below poverty line	71% (2006)
Languages	French (official), Lingala (trade language), Kingwana, Kikongo, Tshiluba
Religions	Christian 70%, Kimbanguist 10%, Muslim 10%, other 10%
Monetary unit	Congolese Franc

Connectivity



Participation in education



Congo, Republic

Vast undersea oilfields off the western coast accounted for 65% of Congo Brazzaville's GDP and 85% of Government revenue in 2008. Though one of sub-Saharan Africa's largest producers of oil, inequality in the country remains high, with the majority of the population living in poverty. Mineral wealth, in the form of metal and phosphate deposits, remains largely untapped.

Civil war and unrest in the 1990s laid waste to the Capital, Brazzaville, and dented efforts towards economic liberalisation; the peace the current Government presides over is best described as uneasy, and marred by incidences of corruption, electoral fraud and oppression.

Primary enrolment rates were hit hard by the decade of unrest, but have in recent years recovered and improved on 1991 figures.

Low connectivity, the high cost of ICTs, the lack of a venture capital culture (the legacy of a quarter century of Marxism) and a level of corruption that puts the Republic 154th on the 2013 Corruption Perceptions Index (CPI), make Brazzaville ostensibly unfertile ground for new technological enterprises. However, Internet café culture is burgeoning, and the city is home to the maker of the first African tablet and smartphone.

"though offering apparently unfertile ground for enterprise, Congo's Internet culture is burgeoning"

Owing to this low level of Internet penetration, radio and television remain the primary sources of news for the citizens of the Republic of Congo. Press freedom is good, while the Internet is entirely unrestricted.

ICT and Infrastructure

Internet users	295,132 (2012)
Internet penetration	6.1% (2012)
Facebook users	107,640 (2012)
Broadband subscriptions	0.01 per 100 (2012)
Mobile subscriptions	101 per 100 (2012)
Television companies	1 state-owned station, several private, satellite available
Radio stations	3 state-owned stations, several private
Electricity penetration	37.1% (2012)
Electricity use	172 kWh/capita (2012)

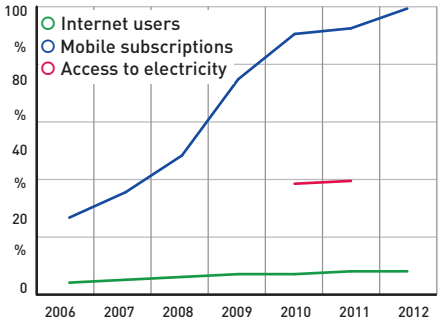
Education

Number of students	39,303 (2012)
Student mobility	4,702 (2009)
Children out of primary	male: 41,364 female: 14,900 (2012)
Language(s) of instruction	French
Pupil/teacher ratio, primary	44 (2012)
Expenditure per student (% of GDP per capita)	Primary: 11.2% (2010) Secondary: 16.4 (2002)
Literacy rate	male: 89.6% female: 78.4% (2003)
Youth (15-24) literacy rate	male: 87% female: 78% (2011)
Unemployment	53% (2012)
Children in employment	25% (2005)
Education spending	8.1% of budget (2005)

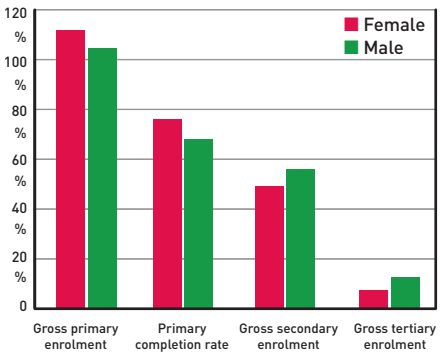
Society and Politics

Date of independence	15 August 1960 (from France)
Style of government	Republic
2013 Ibrahim Index	43.0 (43rd) +8.0 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Joseph Kabila (since 2001)
Area	342,000 sq km
Population	4,574,099 (2013)
Population growth rate	2.86% (2013)
Birth rate	39.63‰ (2013)
Infant mortality	72.45‰ of live births (2013)
Life expectancy at birth	55.6 (2013)
GDP (PPP)	$18.89 billion (2012) Per capita: $4,600 (2012)
Growth rate	3.8% (2012)
GDP by sector	agriculture: 3.4% industry: 76.8% services: 19.9% (2012)
Budget	revenues: $5.83 billion expenditures: $4.949 billion (2012)
Percentage below poverty line	46.5% (2011)
Languages	French (official), Lingala and Monokutuba (trade), Kikongo, other local languages and dialects
Religions	Christian 50%, animist 48%, Muslim 2%
Monetary unit	Congolese Franc

Connectivity



Participation in education



Côte d'Ivoire

Côte d'Ivoire has been slowly recovering from the political conflict which began in the early 2000s and erupted again when election tensions led to the 2010-2011 Ivorian crisis and the Second Ivorian Civil War. The economy suffered but the Government has since established a recovery programme, which has been aiding progress.

Côte d'Ivoire benefits from its status as the world's top exporter of cocoa and cashew nuts and its impressive macroeconomic performance is starting to reflect this. Currently the country boasts the second largest economy in West Africa, with Ivorian authorities committed to boosting medium-term growth, raising living standards and upgrading the economy's profile to emerging market status by 2020.

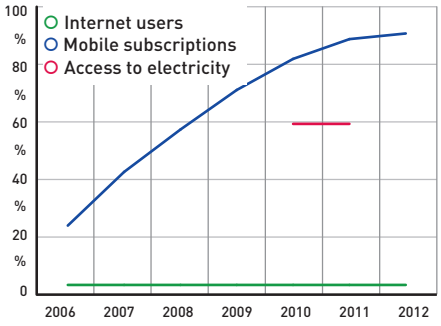
"the world's largest exporter of cashew nuts"

In 2011, Côte d'Ivoire developed a medium-term Action Plan for the Education Sector to focus its activities for the period 2012-2014. It included school infrastructure, distributing resources and teaching materials, and the re-launch of the school feeding programme. The national budget for education was also increased, with the largest percentage dedicated to basic education.

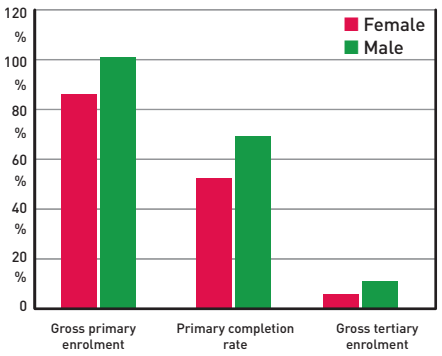
ICT use in education is a priority, with measures slowly being developed through training programmes and public and private initiatives. An example is the UNESCO-China Funds-in-Trust (CFIT) project "Enhancing Teacher Education for Bridging the Education Quality Gap in Africa". Through the use of ICTs, mobile learning, and knowledge production and sharing, the 2012-2016 initiative aims to enhance teacher education and professional development.

The Government has ambitious plans to build Côte d'Ivoire's digital economy. There has been a mobile boom over the past two years, and the introduction of 3G in 2012 helped to reduce the price of broadband Internet. The country is served by three international fibre-optic cables, helping to increase Internet access and capability. Côte d'Ivoire is yet to be introduced to 4G technology, but, nonetheless, the country is increasing its overall ICT usage and continuing to grow its social media and blogging communities.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	968,000 (2012)
Internet penetration	2.4% (2012)
ICT service exports (% of service exports, BoP)	28.5% (2010)
Broadband subscriptions	0.24 per 100 (2012)
Mobile subscriptions	96 per 100 (2012)
Television companies	2 state-owned; satellite
Radio stations	2 state-owned, some private, international services
Electricity penetration	58.9% (2012)
Electricity use	212 kWh/capita (2012)

Education

Number of students	144,270 (2010)
Student mobility	Outgoing: 5,770 (2009)
Children out of primary	male: 491,318 female: 651,110 (2009)
Pupil/teacher ratio, primary	42 (2012)
Expenditure per student (% of GDP per capita)	Primary: 16.3% (2012) Secondary: 32.4% (2000) Tertiary: 106.2% (2007)
Electricity in primary schools	24.8% (2009)
Literacy rate	male: 65.6% female: 47.6% (2011)
Youth (15-24) literacy rate	male: 72% female: 62% (2011)
Children in employment	35% (2006)
Education spending	24.6% of budget (2008)

Society and Politics

Date of independence	7 August 1960 (from France)
Style of government	Multiparty presidential regime
2013 Ibrahim Index	40.9 (44th) +1.8 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President : Alassane Ouattara (since 2010)
Area	322,463 sq km
Population	22,400,835 (2013)
Population growth rate	2% (2013)
Birth rate	29.83‰ (2013)
Infant mortality	61.66‰ of live births (2013)
Life expectancy at birth	57.66 (2013)
GDP (PPP)	$39.88 billion Per capita: $1,700 (2012)
Growth rate	9.8% (2012)
GDP by sector	agriculture: 27.2% industry: 21.2% services: 51.6% (2012)
Budget	revenues: $5.137 billion expenditures: $5.985 billion (2012)
Percentage below poverty line	42% (2006)
Languages	French (official), 60 native dialects
Religions	Muslim 38.6%, Christian 32.8%, indigenous 11.9%, none 16.7%
Monetary unit	CFA Franc

Djibouti

Djibouti's location at the southern entrance of the Red Sea has allowed the country to establish a main import-export route for Ethiopia and other landlocked countries. The nation's position also lends itself as a military base for foreign countries, namely France and the United States, which contributes directly and indirectly to Djibouti's income and has led to longstanding international ties. Due to recurrent drought and high food prices the rural food security situation is said to be critical. Foreign assistance is therefore relied upon, especially in the lean season.

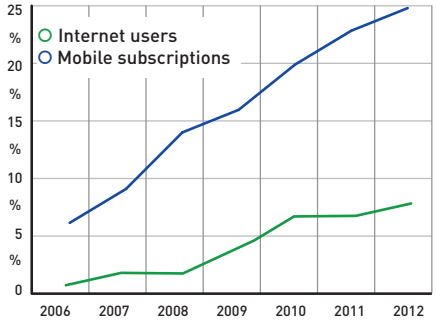
Djibouti has some of the lowest enrolment and literacy rates in the world but since 1999 the Government of Djibouti has been working with the World Bank to review the education system. Under two phases of the School Access and Improvement Project, by 2011 more than 7,000 children had gained access to schools and 102 classrooms were better equipped. The quality of schools and the curriculum were also improved with 95% of teachers and school directors receiving training.

ICT has been brought to the education agenda through the joint African Virtual University/African Development Bank/Nepad programme, as well as the 2010 USAID Djibouti Assistance to Education Project which saw computers, printers and UPSs being donated to schools in rural areas. Djibouti Telecom also deployed local area networks and provided internet connectivity, where possible. In April 2014, the Djiboutian Government signed a $3.8 million deal with the World Bank to support its Access to Quality Education project.

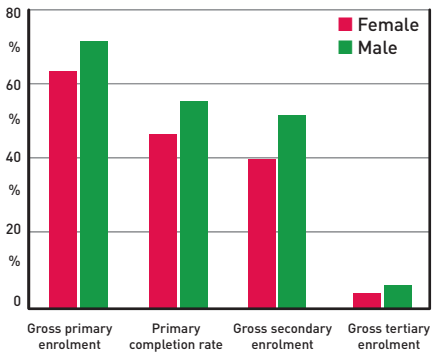
"some of the lowest literacy rates in the world"

ICT infrastructure development has been improving in Djibouti; however, due to the largely monopolised sector, costs are high and therefore mobile and Internet usage is still extremely low. The World Bank stated that the cost of a basic 1Mbps ADSL service currently costs $36 per month. Consequently, high-speed Internet is only accessible for the richest inhabitants or corporate/international firms. The country's digital telecommunications network is facilitated by an undersea optical fibre; 3G was introduced in 2011 and a 4G Broadband Wireless Network was recently launched.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	61,320 (2012)
Internet penetration	8.3% (2012)
Facebook users	50,140 (2012)
Broadband subscriptions	1.72 per 100 (2012)
Mobile subscriptions	23 per 100 (2012)
Television companies	State-owned RTD, no private
Radio stations	Two RTD channels, no private

Education

Number of students	4,705 (2011)
Student mobility	Outgoing: 1,646 Incoming: - (2009)
Children out of primary	male: 16,286 female: 18,818 (2012)
Language(s) of instruction	Afar, Somali in pre-school; Arabic at secondary; French at all levels
Pupil/teacher ratio, primary	34 (2013)
Expenditure per student (% of GDP per capita)	Primary: 22.5% (2007)
Electricity in primary schools	72.1% (2013)
Literacy rate	male: 78% female: 58.4% (2003)
Unemployment	59% (2007)
Children in employment	8% (2006)
Education spending	22.8% of budget (2007)

Society and Politics

Date of independence	27 June 1977 (from France)
Style of government	Republic
2013 Ibrahim Index	48.2 (30th) +1.7 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Ismael Omar Guelleh (since 1999)
Area	23,200 sq km
Population	792,198 (2013)
Population growth rate	2.26% (2013)
Birth rate	24.5‰ (2013)
Infant mortality	51.77‰ of live births (2013)
Life expectancy at birth	61.99 (2013)
GDP (PPP)	$2.354 billion (2012) Per capita: $2,600 (2012)
Growth rate	4.8% (2012)
GDP by sector	agriculture: 3.1% industry: 16.9% services: 80% (2012)
Budget	revenues: $465.9 million expenditures: $503 million (2012)
Percentage below poverty line	47% (2007)
Languages	French, Arabic (official), Somali, Afar
Religions	Muslim 94%, Christian 6%
Monetary unit	Djiboutian Franc

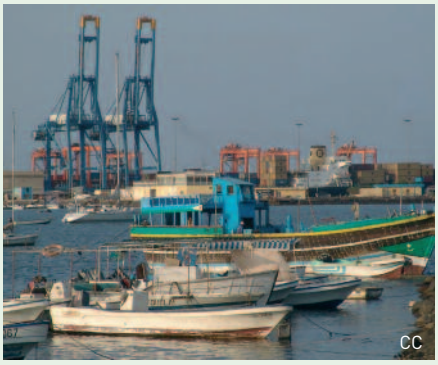


Photo: Charles Joffey

Egypt

After three years of revolutionary struggle, Egypt seems to have settled back to what has been, for five decades, the status quo – with power resting in the hands of a military Government and the Islamist Muslim Brotherhood, who formed much of ousted president Morsi's majority, subjected to the sort of oppression which has always motivated the movement's militant edge.

To national and international condemnation, over 500 Morsi supporters were condemned to death in March for their actions during a protest which saw the death of a single policeman. Economic hardship, a driving force behind the turmoil of the last few years, continues, with unrest negatively affecting Egypt's crucial tourist industry. Population growth has put an additional strain on Nile resources.

Encompassing some of the world's most ancient centres of learning, such as the Al-Azhar mosque, the foremost institution for the study of Sunni Islam, Egypt's higher education system is held in high esteem across the Arab world. Measures to address gender inequality in education have been highly effective, whilst enrolment rates put Egypt in good stead among other middle-income countries.

Despite these successes, UNESCO has identified deep inequalities in the system; poor areas are likely to suffer from inefficient resource allocation, whilst private tutoring gives an unfair advantage to the children of more well-off households. The highly centralised structure of education and examination has been blamed for restraining creativity and independence of thought and leading to a marked skills shortage.

Egypt, as a cultural hub within the Arab world, broadcasts widely throughout the region and is a leader in the development of telecommunications infrastructure; along with Morocco, it has some of the highest penetration rates in continental Africa. International capacity and use of the Internet have grown very rapidly over the last years, seemingly unimpeded by political events, which saw one of the most dramatic events in the history of Internet freedom – the 5-day total blackout in 2011. Schools are also beneficiaries of the developed infrastructure, and the potential for eLearning development in Egypt is considered promising.

ICT and Infrastructure

Internet users	29,809,724 (2012)
Internet penetration	44.1% (2012)
Facebook users	12,173,540 (2012)
ICT service exports (% of service exports, BoP)	7.3% (2012)
Broadband subscriptions	2.72 per 100 (2012)
Mobile subscriptions	115 per 100 (2012)
Television companies	State-run, 2 national, 6 local networks; 20 private satellite channels, Arabic channels
Radio stations	State-run, 70 stations; 2 private stations
Electricity penetration	99.6% (2012)
Electricity use	1,743 kwH/capita (2012)

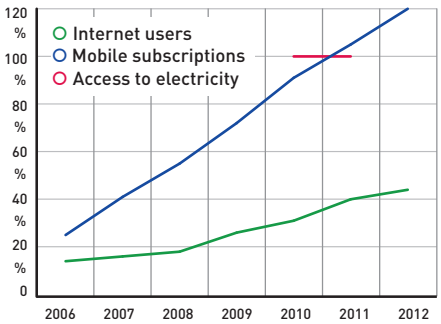
Education

Number of students	2,246,244 (2011)
Student mobility	Outgoing: 10,257 Incoming: 35,031 (2009)
Children out of primary	male: 61 (2004) female: 93,942 (2004)
Language(s) of instruction	Arabic
Pupil/teacher ratio, primary	28 (2010)
Literacy rate	male: 81.7% female: 65.8% (2012)
Youth (15-24) literacy rate	male: 91% female: 84% (2011)
Unemployment	male: 9.3% female: 24.1 (2012)
Children in employment	7% (2005)
Education spending	11.9% of budget (2008)

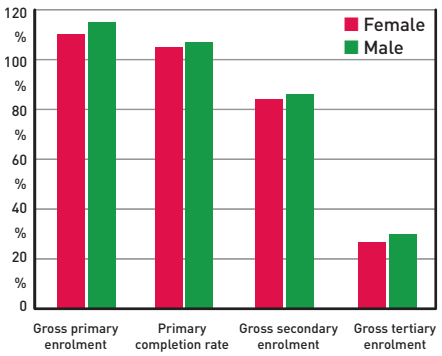
Society and Politics

Date of independence	28 February 1922 (from Britain); 18 June 1956 (end of British influence)
Style of government	Republic
2013 Ibrahim Index	55.0 (19th) +0.4 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	Interim president: Adly Mahmud Mansour
Area	1,001,450 sq km
Population	85,294,388 (2013)
Population growth rate	1.88% (2013)
Birth rate	23.79‰ (2013)
Infant mortality	23.3‰ of live births (2013)
Life expectancy at birth	73.19(2013)
GDP (PPP)	$534.1 billion (2012) Per capita: $6,500 (2012)
Growth rate	2.2% (2012)
GDP by sector	agriculture: 14.5% industry: 36.9% services: 48.6% (2012)
Budget	revenues: $50.1 billion expenditures: $77.71 billion (2012)
Percentage below poverty line	20% (2005)
Languages	Arabic (official), English, French
Religions	Muslim (mostly Sunni) 90%, Coptic 9%,
Monetary unit	Egyptian Pound

Connectivity



Participation in education



Equatorial Guinea

Equatorial Guinea is one of the smallest nations in Africa, made up of five small islands and a mainland territory. It struck oil in the 1990s and has since become the third-largest producer in sub-Saharan Africa. Oil reserves have significantly boosted the economy, with farming, forestry and fishing also contributing to the country's growing GDP. Despite the large increase in Government revenue over recent years, the population is yet to benefit significantly, with poverty still a major issue.

"the population is yet to benefit from oil revenues"

The Government of Equatorial Guinea says it has been dedicating oil revenues to improve education facilities which, in cooperation with international organisations, enabled the country to open its first national university in 1995. Primary and higher education is free, with private education in the secondary sector available and affordable. Education is a top priority under the Horizon 2020 development plan, which includes the development of new schools and teacher training.

The Government also plans to create technical and vocational training centres in the seven provincial capitals. Two centres have already been developed, in Malabo and Bata, and were recently modernised. Between them, the centres provide training to nearly 1,500 students. In 2012, President Teodoro Obiang Nguema Mbasogo launched the TICGE (Information Technology and Communication in Equatorial Guinea) programme, enabling 400 students to gain diplomas in information technology in November 2013. The Communications Technology Dissemination Programme also aims to train people in the use of new technologies in areas such as education and raise awareness of eLearning.

The multimedia centres developed in Malabo and Bata not only offer basic training but provide the public with access to computers and the Internet. Equatorial Guinea benefits from direct access to the international broadband network via a fibre-optic submarine cable, and was recently named among the beneficiaries of the World Bank's $215 million programme to strengthen regional broadband and reduce the cost of ICT services.

ICT and Infrastructure

Internet users	42,024 (2012)
Internet penetration	13.9% (2012)
Facebook users	32,980 (2012)
Broadband subscriptions	0.20 per 100 (2012)
Mobile subscriptions	68 per 100 (2012)
Television companies	1 state-controlled
Radio stations	1 state-controlled, 1 owned by president's eldest son

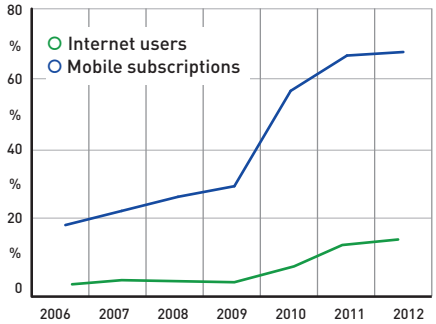
Education

Student mobility	Outgoing: 1,734 (2009)
Children out of primary	male: 19,142 female: 19,210 (2012)
Language(s) of instruction	Spanish
Pupil/teacher ratio, primary	26 (2012)
Electricity in primary schools	32.3% (2011)
Literacy rate	male: 97.1% female: 91.1% (2011)
Youth (15-24) literacy rate	male: 98% female: 98% (2011)
Unemployment	22.3% (2009)
Children in employment	28% (2000)
Education spending	4.0% of budget (2002)

Society and Politics

Date of independence	12 October 1968 (from Spain)
Style of government	Republic
2013 Ibrahim Index	40.9 (45th) +8.8 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Teodoro Obiang Nguema Mbasogo (since 1979)
Area	28,051 sq km
Population	704,001 (2013)
Population growth rate	2.58% (2013)
Birth rate	34.35‰ (2013)
Infant mortality	73.12‰ of live births (2013)
Life expectancy at birth	63.12 (2013)
GDP (PPP)	$19.7 billion (2012) Per capita: $26,500 (2012)
Growth rate	5.3% (2012)
GDP by sector	agriculture: 4.6% industry: 87.6% services: 7.8% (2012)
Budget	revenues: $6.429 billion expenditures: $6.585 billion (2012)
Languages	Spanish (official) 67.6%, other (French (official), Fang, Bubi) 32.4%
Religions	Christian, indigenous beliefs
Monetary unit	CFA Franc

Connectivity



Participation in education

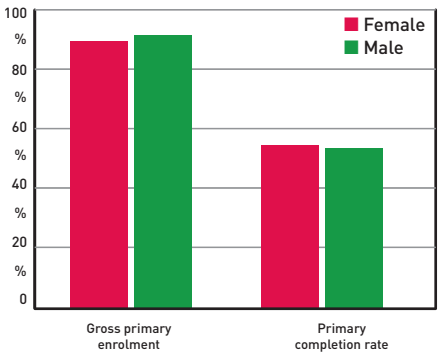


Photo: GNU Malabo Equatorial Guinea

Eritrea

Eritrea's efforts to rebuild after more than 30 years of border conflicts are being bolstered by mining sector revenue and favourable harvests. These factors contributed to Eritrea, in 2011, recording one of Africa's fastest growing economies. However, there is a lot to overcome to see significant gains, with drought, the global economic slowdown and military expenditure hampering development. A large amount of the population also serves in the army rather than contributing to the workforce. Despite progress Eritrea is one of the least developed countries in the world with food security a major issue. Elections have not been held since Eritrea gained independence in 1993, with President Isaias Afewerki in power for over 20 years.

Eritrea offers basic education in each of its mother tongues which is compulsory between ages 7-13. Enrolment rates, however, remain lower than other low-income countries and drop-out rates are high. In 2005, the Government introduced an ICT in Education Policy which showed promising signs early on. The Ministry of Information reported that under the policy most public secondary and junior level schools were equipped with ICT labs, even those in remote areas by way of solar energy. Teachers also received basic ICT training. From 2003 to 2009, the World Bank-supported Education Sector Investment Project established a further 4,416 computer labs.

Eritrea was the last African country to gain Internet access, in 2000, and still today mobile and Internet penetration remain among the lowest in the continent. As private access is expensive and requires Government authorisation, most people connect via Internet cafés in the capital city of Asmara. Internet is highly regulated by the Government, with service providers required to connect through the state-operated telecommunication services corporation EriTel. EriTel plans soon to roll out 3G services, and is also heading towards privatisation which will lead to a more liberalised market. High-speed Internet has not been available in Eritrea as the EASSy fibre optic submarine cable deployed along the east and south coast of Africa bypasses the country.

"the last African country to gain Internet access"

ICT and Infrastructure

Internet users	377,363 (2012)
Internet penetration	0.8% (2012)
Facebook users	20,940 (2012)
Broadband subscriptions	0.00 per 100 (2012)
Mobile subscriptions	5 per 100 (2012)
Television companies	1 state-owned, private forbidden; satellite permitted
Radio stations	2 state-owned
Electricity penetration	32.0% (2012)
Electricity use	49 kWh/capita (2012)

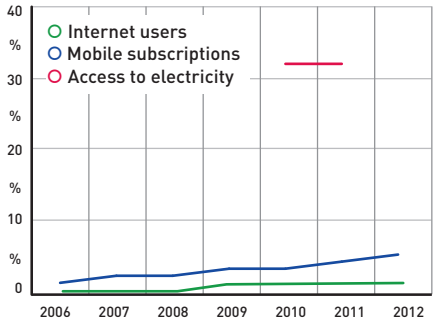
Education

Number of students	12,093 (2010)
Student mobility	Outgoing: 854 (2009)
Children out of primary	male: 255,356 female: 262,581 (2012)
Language(s) of instruction	Arabic, Tigrinya in primary; Italian, English in secondary and further
Pupil/teacher ratio, primary	41 (2012)
Expenditure per student (% of GDP per capita)	Primary: 9.0% Secondary: 16.0% Tertiary: 1,016.1% (2004)
Electricity in primary schools	31.9% (2012)
Literacy rate	male: 79.5% female: 59% (2011)
Youth (15-24) literacy rate	male: 92% female: 87% (2011)

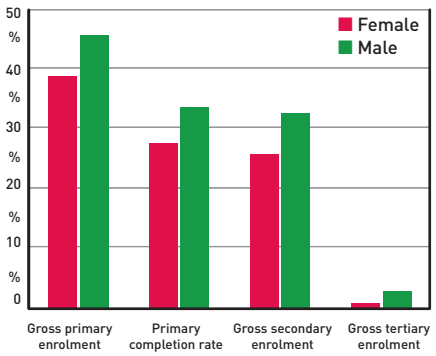
Society and Politics

Date of independence	24 May 1993 (from Ethiopia)
Style of government	Transitional
2013 Ibrahim Index	31.9 (50th) -5.5 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Isaias Afewerki (since 1993)
Area	117,600 sq km
Population	6,233,682 (2013)
Population growth rate	2.36% (2013)
Birth rate	31.39‰ (2013)
Infant mortality	39.38‰ of live births (2013)
Life expectancy at birth	63.19 (2013)
GDP (PPP)	$4.349 billion (2012) Per capita: $700 (2012)
Growth rate	7% (2012)
GDP by sector	agriculture: 12.2% industry: 26.9% services: 60.8% (2012)
Budget	revenues: $806.5 million expenditures: $1.19 billion (2012)
Percentage below poverty line	50% (2004)
Languages	Tigrinya (official), Arabic (official), English (official), Cushitic languages
Religions	Muslim, Coptic Christian, other Christian
Monetary unit	Nafka

Connectivity



Participation in education



Ethiopia

The successor to a series of states dating back to the Aksumite Empire of the 1st century BC, Ethiopia's long history of independence and influence, alongside its ancient religious traditions including the Ethiopian Orthodox Church, have given it a unique position in Africa and the world.

In recent decades a model of stability, after the droughts, famines and coups of the Marxist period that followed the reign of Haile Selassie I, landlocked Ethiopia nevertheless maintains uneasy relations with many neighbours – especially Eritrea, whose border is subject to a mostly unresolved dispute originating in the Ethiopian-Eritrean war of the late '90s and the Eritrean War of Independence before that.

The Ethiopian Government has sought to control the press, media and Internet. Its efforts have been seen by some as a stifling influence on technological innovation; Ethiopia was one of the last countries in Africa to allow mobile banking.

Telecommunications are in the hands of a Government-owned monopoly widely regarded as inefficient; nevertheless, many tech entrepreneurs have been encouraged by rapid economic growth to set up shop in Addis Ababa. Despite the low Internet penetration rates resulting from this system, or perhaps because of them, Ethiopia has been the scene of many internationally important eLearning projects.

"Brain drain" has been a significant problem for Ethiopia for some time – a 2000 study found that Ethiopia was losing up to 75% of its skilled workforce to emigration. Only one doctor remains in the country for every 30,000 people. However, with such a large community in the diaspora, Ethiopia is also one of the top ten receivers of remittances in sub-Saharan Africa. Official statistics have shown some grounds for optimism in education – primary school enrolment has increased substantially recently. Only about half of those enrolling managed to complete their studies, though.

"only one trained doctor remains in the country for every 30,000 people"

Connectivity

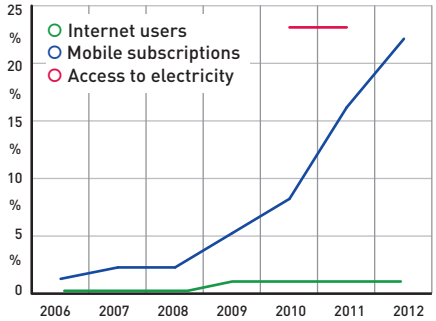


Photo: Bernard Gagnon

ICT and Infrastructure	
Internet users	960,331 (2012)
Internet penetration	1.5% (2012)
Facebook users	902,440 (2012)
ICT service exports (% of service exports, BoP)	6.5% (2012)
Broadband subscriptions	0.04 per 100 (2012)
Mobile subscriptions	24 per 100 (2012)
Television companies	1 public station
Radio stations	1 public broadcaster with regional stations, a few commercial, c.12 community stations
Electricity penetration	23.0% (2012)
Electricity use	52 kWh/capita (2012)

Education	
Number of students	693,287 (2009)
Student mobility	Outgoing: 4,899 (2009)
Children out of primary	Male: 1,357,416 female: 1,653,321 (2012)
Language(s) of instruction	Oromiffa, Amharic, Somali, Tigrinya in primary; English in secondary and further
Pupil/teacher ratio, primary	54 (2012)
Expenditure per student (% of GDP per capita)	Primary: 19.0% Secondary: 10.3% Tertiary: 24.4% (2010)
Electricity in primary schools	12.5% (2012)
Literacy rate	male: 49.1% female: 28.9% (2007)
Youth (15-24) literacy rate	male: 63% female: 47% (2011)
Unemployment	male: 11.7% female: 22.6% (2006; varies widely year by year)
Children in employment	27% (2011)
Education spending	25.4% of budget (2010)

Society and Politics	
Date of independence	Never colonised; in existence since 1st c. BC
Style of government	Federal republic
2013 Ibrahim Index	47.6 (33rd) +5.1 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	Prime minister: Hailemariam Desalegn (since 2012)
Area	1,104,300 sq km
Population	93,877,025 (2013)
Population growth rate	2.9% (2013)
Birth rate	38.07‰ (2013)
Infant mortality	58.28‰ of live births (2013)
Life expectancy at birth	60 (2013)
GDP (PPP)	$109 billion (2012) Per capita: $1,300 (2012)
Growth rate	8.5% (2012)
GDP by sector	agriculture: 46.2% industry: 10.6% services: 43.2% (2012)
Budget	revenues: $6.388 billion expenditures: $7.54 billion (2012)
Percentage below poverty line	29.2% (2009/10)
Languages	English, Arabic, Amharic (official), Oromo, Tigrayan (official regional) Somali, Sidamo, Wolaytta, Guragiegna Afar, Hadiyya, Gamo, others
Religions	Ethiopian Orthodox 43.5%, Muslim 33.9%, Protestant 18.6%, traditional 2.6%, Catholic 0.7%, other 0.7%
Monetary unit	Birr

Gabon

Gabon is one of Africa's most politically stable countries, and has played a strategic role in promoting peace in its region. It has had a multi-party system since the early 1990s, and a democratic constitution that allows for a more transparent electoral process. President Ali Ben Bongo took leadership in 2009, succeeding his father who was in power for 42 years. Gabon benefits from a richness of natural resources, with the country largely dependent on oil for the past 40 years.

"US$110 million have been put into broadband development"

Gabon managed to recover well from global economic slowdown, and has seen renewed growth over the past five years due to the Government's commitment to fiscal adjustment and structural reforms. There has been recognition of the need to diversify the economy to improve humanitarian development, as many people still live in poverty, for instance by creating jobs and building skills and capacities.

Gabon has a very young population, with 50% under the age of 19. Education is compulsory for children ages 6-16, but drop-out rates are high. The 2002 Education for All (EFA) initiative highlighted obstacles Gabon needs to overcome to improve education, such as adopting an official ICT policy and creating better synergies between the two ministries regulating the system – the Ministry of National Education and the Ministry of Higher Education. As part of the Government's aim to integrate ICT into the school curriculum, in 2011 the Ministry of Education partnered with Microsoft Africa for a four-day seminar on how to incorporate ICTs into the country's educational programmes.

Under the Gabon Emergent strategic plan, launched in 2009, ICT has been getting a boost. With technical and financial assistance from the World Bank, Gabon has invested roughly US$ 110 million in infrastructure to extend the broadband network coverage and reduce costs. Gabon Telecom and Airtel continue to see rapid growth, with 3G services soon to be available. In addition, the Government plans to connect Gabon to the Central African high-speed fibre-optic network by 2015.

ICT and Infrastructure

Internet users	128,665 (2012)
Internet penetration	8.6% (2012)
Facebook users	132,000 (2012)
ICT service exports (% of service exports, BoP)	37.7% (2005)
Broadband subscriptions	0.32 per 100 (2012)
Mobile subscriptions	187 per 100 (2012)
Television companies	2 state-owned, a few private
Radio stations	2 state-owned, a few private
Electricity penetration	60.0% (2012)
Electricity use	907 kWh/capita (2012)

Education

Student mobility	Outgoing: 5,161 (2009)
Language(s) of instruction	French
Pupil/teacher ratio, primary	25 (2011)
Electricity in primary schools	49.4% (2011)
Literacy rate	male: 92.3% female: 85.6% (2011)
Youth (15-24) literacy rate	male: 99% female: 97% (2011)

Society and Politics

Date of independence	17 August 1960 (from France)
Style of government	Multiparty presidential regime
2013 Ibrahim Index	52.8 (24th) +6.4 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Ali Ben Bongo (since 2009)
Area	267,667 sq km
Population	1,640,286 (2013)
Population growth rate	1.96% (2013)
Birth rate	34.82‰ (2013)
Infant mortality	48.02‰ of live births (2013)
Life expectancy at birth	52.15 (2013)
GDP (PPP)	$27.81 billion (2012) Per capita: $18,100 (2012)
Growth rate	5.6% (2012)
GDP by sector	agriculture: 3.7% industry: 64.3% services: 32% (2012)
Budget	revenues: $4.987 billion expenditures: $4.623 billion (2012)
Languages	French (official), Fang, Myene, Nzebi, Bapounou/Eschira, Bandjabi
Religions	Christian 55%-75%, animist, Muslim
Monetary unit	CFA Franc

Connectivity

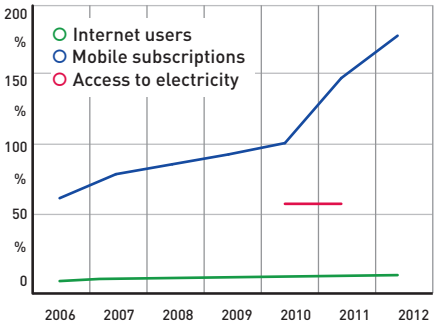


Photo: John Senet

a newly-built school in Gabon

The Gambia

The Gambia has maintained a reputation of relative stability and peace since its independence. President Yahya A.J.J. Jammeh seized power in a 1994 coup and has retained his position for four terms. Foreign aid is often relied upon, especially when world prices for the small African country's one prominent crop, peanuts, weaken. Gambia, however, capitalises on its location as a hub for trade in the region, as well as its popular tourist attractions. The country also recently achieved the Millennium Development Goal to improve access to water sources.

The Gambia is making advancements in education, not just in regard to accessibility but also in achieving gender parity targets for primary and secondary education. The Gambia Education Policy 2004-2015 aims to provide access to relevant and high quality basic education for all, and also includes ICT provisions.

For instance, the Computers-in-Schools Project aims to improve the overall student-to-computer ratio by equipping close to 80% of schools with computers by the end of 2013. In addition, the Gambian National SchoolNet Programme supports teachers and training with a focus on modernising the school system. In April 2014, the Government of The Gambia and the World Bank signed a financial agreement for three key projects, one being in the education sector. The $5 million in education financing will go towards the Gambia READ Project, which will increase access to basic education, improve quality of teaching and learning in lower basic schools, and strengthen education systems.

The Gambia is proud of its digital advancements, with the Minister of Trade, Integration and Employment describing the country's ICT progress as "humble strides". The country has hopes to evolve into the Continent's ICT hub in the next three to five years. The Gambia has four mobile operators, one fixed line operator and six ISPs. In 2012, The Gambia connected to the Africa Coast to Europe (ACE) submarine fibre-optic cable system, which helped boost Internet connectivity. Gambian infrastructure projects aim to connect the nation better, support ICT entrepreneurs and foster business opportunities.

ICT and Infrastructure

Internet users	200,057 (2012)
Internet penetration	12.4% (2012)
Facebook users	97,280 (2012)
Broadband subscriptions	0.03 per 100 (2012)
Mobile subscriptions	84 per 100 (2012)
Television companies	1 state-owned channel
Radio stations	1 state-owned, 4 private, international broadcasters

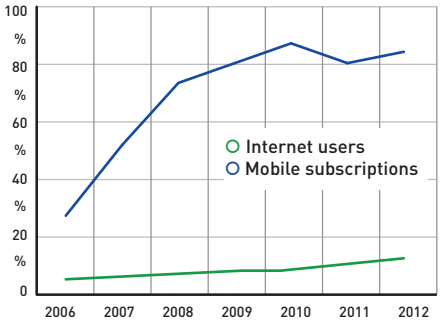
Education

Number of students	6,489 (2008)
Student mobility	Outgoing: 1,114 (2009)
Children out of primary	male: 41,242 female: 33,938 (2012)
Language(s) of instruction	English
Pupil/teacher ratio, primary	34 (2012)
Expenditure per student (% of GDP per capita)	Primary: 17.9% (2012) Secondary: 13.1% (2010) Tertiary: 77.5% (2008)
Electricity in primary schools	29.6% (2011)
Literacy rate	male: 60.9% female: 41.9% (2011)
Youth (15-24) literacy rate	male: 72% female: 62% (2011)
Children in employment	19% (2010)
Education spending	21.3% of budget (2012)

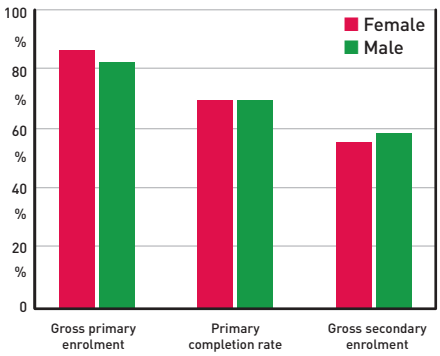
Society and Politics

Date of independence	18 February 1965 (from Britain)
Style of government	Republic
2013 Ibrahim Index	53.6 (22nd) +4.0 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Yahya Jammeh (since 1994)
Area	11,295 sq km
Population	1,883,051 (2013)
Population growth rate	2.29% (2013)
Birth rate	32.59‰ (2013)
Infant mortality	67.63‰ of live births (2013)
Life expectancy at birth	64.09 (2013)
GDP (PPP)	$3.409 billion (2012) Per capita: $1,900 (2012)
Growth rate	5.3% (2012)
GDP by sector	agriculture: 19.1% industry: 13.1% services: 67.8% (2012)
Budget	revenues: $230.7 million expenditures: $271.2 million (2012)
Languages	English (official), Mandinka, Wolof, Fula
Religions	Muslim 90%, Christian 8%, indigenous beliefs 2%
Monetary unit	Dalasi

Connectivity



Participation in education



Ghana

Ghana was the first African nation to declare independence from European colonisation in 1957, and is today one of the Continent's most stable and developed countries. Often seen as a model for political and economic reform, Ghana has a strong multi-party political system and has also made strides in media pluralism and civil society activism.

The economy thrives predominately on gold mining and cocoa exports, as the country is the world's second-largest producer of the foodstuff. Despite modest growth over the past two years, the economy is set to strengthen in 2016 with the commencement of gas production and the exploration of new oil fields.

Over the past decade, Ghana's spending on education has been around 25 per cent of its annual budget; today it boasts the second-highest school enrolment rate in all of Africa. Like many African nations, the six years of primary education and three years of junior secondary school is compulsory and free. From around 2003, there has been a strong emphasis on the development and implementation of ICTs in education. Among the objectives outlined in the ICT for Accelerated Development (ICT4AD) policy, computers were to be introduced into all primary, secondary, vocational and technical schools and ICT education was to be streamlined through the development of an ICT curriculum.

Six schools in six regions have benefited from the ongoing e-Schools Programme launched in 2005. A joint venture between the Government of Ghana, Oracle and the New Partnership for Africa Development (NEPAD), the programme supports schools by developing ICT infrastructure. By mid-2013, the Government's schools connectivity project had provided 459 schools and institutions with ICT laboratories and internet access.

The Government has been working to improve ICT infrastructure across the country. Bandwidth prices have reduced tenfold since 2007, and the Eastern Corridor Fibre Optic Broadband Infrastructure Project, which commenced in 2013, is expected to create faster and more reliable broadband and bridge the digital divide between urban and rural communities. eCommerce and mobile payments are also being embraced.

ICT and Infrastructure

Internet users	3,568,757 (2012)
Internet penetration	17.1% (2012)
Facebook users	1,630,420 (2012)
Broadband subscriptions	0.25 per 100 (2012)
Mobile subscriptions	100 per 100 (2012)
Television companies	1 state-owned, several private
Radio stations	2 state-owned, many private
Electricity penetration	60.5% (2012)
Electricity use	344 kWh/capita (2012)

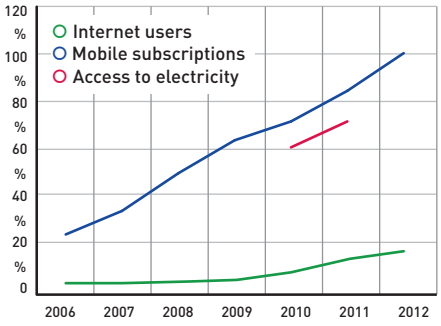
Education

Number of students	295,344 (2012)
Student mobility	Outgoing: 7,728 Incoming: 1,899 (2009)
Children out of primary	male: 310,258 female: 342,260 (2012)
Language(s) of instruction	English
Pupil/teacher ratio, primary	33 (2012)
Expenditure per student (% of GDP per capita)	Primary: 11.4% Secondary: 26.1% Tertiary: 147.9 (2009)
Electricity in primary schools	31% (2013)
Literacy rate	male: 78.3% female: 65.3% (2010)
Youth (15-24) literacy rate	male: 82% female: 80% (2011)
Unemployment	11% (2000)
Children in employment	34% (2006)
Education spending	24.4% of budget (2010)

Society and Politics

Date of independence	6 March 1957 (from Britain)
Style of government	Constitutional democracy
2013 Ibrahim Index	66.8 (7th) +5.3 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	President: John Dramani Mahama (since 2012)
Area	238,533 sq km
Population	25,199,609 (2013)
Population growth rate	2.19% (2013)
Birth rate	31.7‰ (2013)
Infant mortality	39.7‰ of live births (2013)
Life expectancy at birth	65.32 (2013)
GDP (PPP)	$82.65 billion Per capita: $3,300 (2012)
Growth rate	7.9% (2012)
GDP by sector	agriculture: 22.7% industry: 27.3% services: 50% (2012)
Budget	revenues: $9.282 billion expenditures: $14.13 billion (2012)
Percentage below poverty line	28.5% (2007)
Languages	English (official), Asante, Ewe Fante, Boron (Brong), Dagomba, Dangme, Dagarte, (Dagaba), Akyem, Ga, Akuapem
Religions	Christian 71.2%, Muslim 17.6%, traditional 5.2%, other 0.8%, none 5.2%
Monetary unit	Cedi

Connectivity



Participation in education

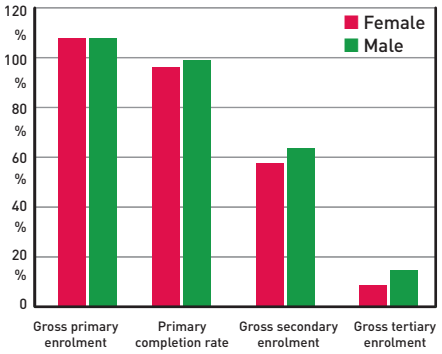


Photo: Louise Renaud

Kwabena, Ghanaian street artist and businessman, checks his mails first thing in the morning

Guinea

In 2010, Guinea welcomed its first democratically elected President, Mr Alpha Condé. The return to civilian rule following the 2008 military coup has led to renewed economic opportunities for the country. Namely, in 2012, Guinea reached completion point for the Heavily Indebted Poor Countries (HIPC) Initiative. Guinea is a leading bauxite exporter and has vast agricultural potential but the 2012 Limited Poverty Evaluation Survey showed that 55.2% of the population is considered to be poor. The economy was strained in 2000 when up to half a million refugees from Sierra Leone and Liberia settled in Guinea.

More needs to be done to help Guinea's young population – 45% of the country is between ages 15-19 – gain access to quality education. Guinea is falling behind world standards and the 2015 Millennium Development Goals for education. There was also a drop in Government expenditure on education from 14.3% of total expenditure in 2011 to 9.5% in 2012.

There have been a number of projects planned to introduce ICT into education but often factors such as poor power supply hamper development. In 2013, USAID provided computers to tertiary education institutes but some lacked the electricity supply to use them. The partnership project between African network for distance education RESAFAD and the Ministry for Civic and Pre-university Education was a success. It provided around 960 teachers with Internet training courses, which took place at a cyber café at the Institut Supérieur des Sciences d' Éducation Générale. The 2001-2004 National ICT Infrastructure Development Plan aimed to develop a dedicated telephone and Internet network for higher education institutions but it is uncertain if this goal was achieved.

Guinea's mobile and Internet use is growing at a slower pace than most African countries. Mobile Internet services remain too costly for most Guineans to afford. Internet is still rarely used and, if so, is mainly accessed at cyber cafés. The country recently connected to the ACE fibre-optic submarine cable, which is expected to reduce costs and make fast broadband services more available.

ICT and Infrastructure

Internet users	141,504 (2012)
Internet penetration	1.5% (2012)
Facebook users	68,780 (2012)
ICT service exports (% of service exports, BoP)	64.9% (2012)
Broadband subscriptions	0.01 per 100 (2012)
Mobile subscriptions	46 per 100 (2012)
Television companies	1 state-run
Radio stations	1 state-run broadcaster with regional; some private, several community

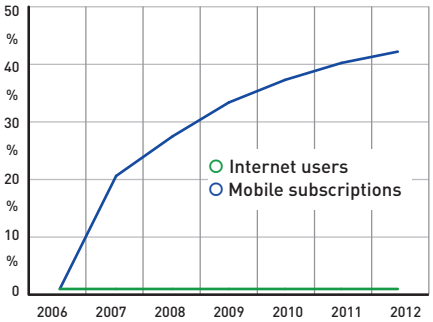
Education

Number of students	89,559 (2012)
Student mobility	Outgoing: 4,374 Incoming: 748 (2009)
Children out of primary	male: 155,398 female: 275,653 (2012)
Language(s) of instruction	French
Pupil/teacher ratio, primary	44 (2012)
Expenditure per student (% of GDP per capita)	Primary: 7.7% Secondary: 9.7% Tertiary: 105.5% (2012)
Electricity in primary schools	2.1% (2012)
Literacy rate	male: 52% female: 30% (2010)
Youth (15-24) literacy rate	male: 70% female: 57% (2011)
Children in employment	25% (2003)
Education spending	13.0% of budget (2012)

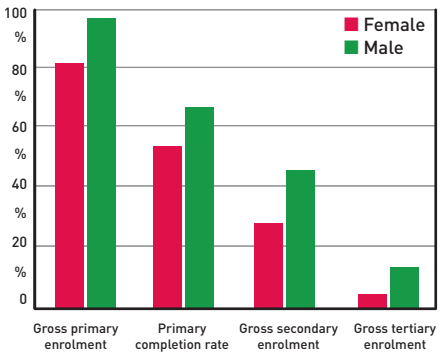
Society and Politics

Date of independence	2 October 1958 (from France)
Style of government	Republic
2013 Ibrahim Index	43.2 (42nd) +6.2 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Alpha Conde (since 2010)
Area	245,857 sq km
Population	11,176,026 (2013)
Population growth rate	2.64% (2013)
Birth rate	36.3‰ (2013)
Infant mortality	57.11‰ of live births (2013)
Life expectancy at birth	59.11 (2013)
GDP (PPP)	$12.04 billion Per capita: $1,100 (2012)
Growth rate	3.9% (2012)
GDP by sector	agriculture: 22.8% industry: 46.1% services: 31.1% (2012)
Budget	revenues: $1.296 billion expenditures: $1.483 billion (2012)
Percentage below poverty line	47% (2006)
Languages	French (official), ethnic languages
Religions	Muslim 85%, Christian 8%, indigenous beliefs 7%
Monetary unit	Guinean Franc

Connectivity



Participation in education



Guinea-Bissau

The former Portuguese colony of the Republic of Guinea-Bissau declared its independence in 1973, yet its development has been significantly hampered by bitter civil wars over the past 40 years. A presidential run-off vote was scheduled to take place in late May, after elections held in April 2014 did not determine a clear winner. The country has been without an elected president since the 2012 military takeover. The recent elections are set to turn the page on decades of political instability and military violence.

One key ramification of the military coup was that over 90% of state primary and secondary schools were closed because of a lack of funds and poor governance, leaving children in many areas without any education. Exceptions include those communities in which parents have banded together to fund and run educational programmes with very little money and resources. With just over half the population being literate, trained support for these children is not easy to find in most regions of Guinea-Bissau. Prior to the school shutdown, attendance rates for primary schools had risen to 67%, yet only one in five children completed secondary school.

Not much ICT progress was made in the relatively stable period before the coup, from mid-2009 to 2012. Due to the turbulent political situation in the country, progress is not expected to resume until the nation can redevelop its economy and reinstitute governance. The country's lack of Internet access is strongly demonstrated by the fact that currently under 3% of people use the Internet, one of the lowest rates of usage in sub-Saharan Africa.

"over 90% of state schools were shut down during the military coup"

In 2010, only 39% of the population had mobile phones and currently there is no 3G available. To reach a good standard of ICT, the next Government will need significantly to invest in terrestrial fibre, 3G infrastructure and electricity, as both ACE and WACS bypass the country and no other undersea fibre-optic cable connection is expected in the near future.

ICT and Infrastructure

Internet users	43,484 (2012)
Internet penetration	2.9% (2012)
ICT service exports (% of service exports, BoP)	55.4% (2010)
Broadband subscriptions	0.00 per 100 (2012)
Mobile subscriptions	69 per 100 (2012)
Television companies	1 state-owned, 1 Portuguese (RTP)
Radio stations	1 state-owned, several private, several community, international

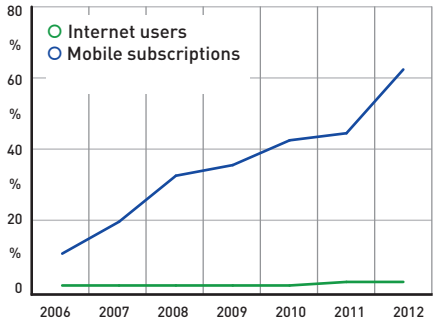
Education

Student mobility	Outgoing 1,365 (2009)
Children out of primary	male: 32,946 female: 37,137 (2010)
Language(s) of instruction	Portuguese
Pupil/teacher ratio, primary	52 (2010)
Electricity in primary schools	20.1% (2010)
Literacy rate	male: 68.9% female: 42.1% (2011)
Youth (15-24) literacy rate	male: 79% female: 65% (2011)
Children in employment	57 % (2010)

Society and Politics

Date of independence	Declared 24 September 1973; recognised 10 September 1974 (from Portugal)
Style of government	Republic
2013 Ibrahim Index	37.1 (46th) -1.8 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	Interim president: Manuel Serifo Nhamadjo (Since April 2012)
Area	36,125 sq km
Population	1,660,870 (2013)
Population growth rate	1.95% (2013)
Birth rate	34.28‰ (2013)
Infant mortality	92.66‰ of live births (2013)
Life expectancy at birth	49.5 (2013)
GDP (PPP)	$1.911 billion (2012) Per capita: $1,200 (2012)
Growth rate	-1.5% (2012)
GDP by sector	agriculture: 57.6% industry: 13.6% services: 28.7% (2012)
Budget	revenues: $129.1 million expenditures: $153.4 million (2012)
Languages	Portuguese (official), Crioulo, African languages
Religions	Muslim 50%, indigenous beliefs 40%, Christian 10%
Monetary unit	CFA Franc

Connectivity



Participation in education

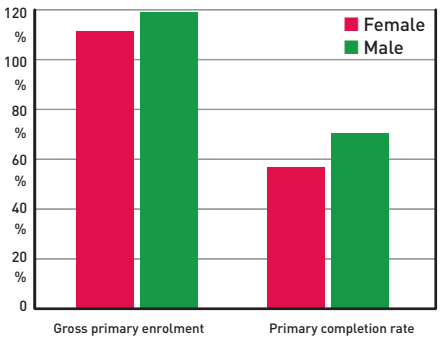


Photo: © jbdodane.com

Kenya

East Africa was the last major region on earth without a submarine Internet cable link: yet Kenya vies with the giant economies of Nigeria and South Africa for recognition as sub-Saharan Africa's most vibrant centre of technology and innovation. M-Pesa, the mobile banking system, is one source of this renown.

Despite the positivity, however, nearly 40% of Kenyans still live in poverty. Kenya has a comparatively stable political environment, last year celebrating 50 years of independence; though violence has marred several elections in past decades. President Uhuru Kenyatta was elected President in 2013.

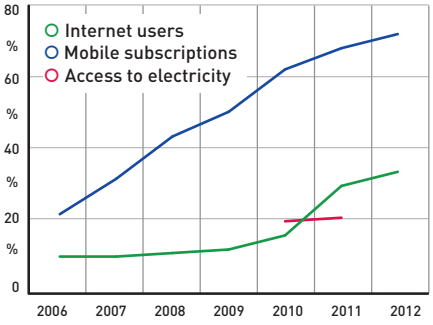
Approximately three quarters of the adult population are literate, with literacy rates higher among young people. This can be largely attributed to primary level education becoming free and compulsory in 2003. Around 10,000 schools in the country have power and over 4,000 schools on the national grid are set to be installed with power or use solar energy. It is estimated that approximately 2% of schools in Kenya have the necessary ICT infrastructure, but this is set to increase under the Government's key election promise to provide laptops for 20,000 primary schools across the country. Currently the plan has been delayed, after enquiries into the laptop supplier led to questions about possible corruption.

In 2004, as part of a Government training programme, 72,000 teachers gained the necessary skills to integrate ICT into the school curriculum. The Government is also trying to facilitate faster and more efficient issuance of work permits for foreign ICT experts to ensure that Kenya receives the right guidance needed to help boost innovation and teaching in the ICT sector.

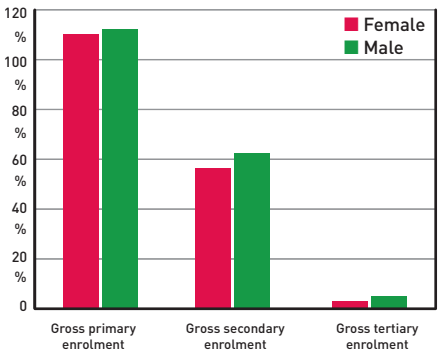
"Kenya is at the forefront of mobile technologies"

Of Kenyans who have access to the Internet, two-thirds use it daily. Kenya is considered to be at the forefront of mobile technologies; the industry is expanding by an average of 20% per annum. The Government's Vision 2030 development plan places education at the centre of the drive to transform Kenya into a middle-income economy.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	12,043,735 (2012)
Internet penetration	32.1% (2012)
Facebook users	2,045,900 (2012)
Broadband subscriptions	0.10 per 100 (2012)
Mobile subscriptions	72 per 100 (2012)
Television companies	c. 6 private, 2 state-owned channels
Radio stations	2 state-owned, many private, national and provincial
Electricity penetration	18.1% (2012)
Electricity use	155 kWh/capita (2012)

Education

Number of students	167,983 (2009)
Student mobility	Outgoing: 13,748 (2009)
Children out of primary	male: 563,421 female: 524,749 (2009)
Language(s) of instruction	Swahili in primary; English at all levels
Pupil/teacher ratio, primary	47 (2009)
Expenditure per student (% of GDP per capita)	Primary: 22.4% Secondary: 21.2% (2006) Tertiary: 274.4% (2004)
Literacy rate	male: 90.6% female: 84.2% (2010)
Youth (15-24) literacy rate	male: 92% female: 94% (2011)
Unemployment	40% (2008)
Children in employment	26% (2000)
Education spending	17.2% of budget (2010)

Society and Politics

Date of independence	12 December 1963 (from Britain)
Style of government	Republic
2013 Ibrahim Index	53.6 (21st) +1.5 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Uhuru Kenyatta (since April 2013)
Area	580,367 sq km
Population	44,037,656 (2013)
Population growth rate	2.27% (2013)
Birth rate	30.08‰ (2013)
Infant mortality	42.18‰ of live births (2013)
Life expectancy at birth	63.29 (2013)
GDP (PPP)	$75 billion Per capita: $1,800 (2012)
Growth rate	4.6% (2012)
GDP by sector	agriculture: 29.3% industry: 17.4% services: 53.6% (2012)
Budget	revenues: $7.418 billion expenditures: $9.485 billion (2012)
Percentage below poverty line	50% (2000)
Languages	English (official), Kiswahili (official), indigenous languages
Religions	Christian 82.5%, Muslim 11.1%, Traditionalists 1.6%, other 1.7%, none 2.4%
Monetary unit	Kenyan Shilling

Lesotho

Entirely landlocked by South Africa, the mountain Kingdom of Lesotho is a former British protectorate that gained its independence in 1966 and is now led by Prime Minister Thomas Thabane. Although still largely financially dependent upon its surrounding neighbour South Africa, Lesotho has a strong cultural fabric and national identity. Many skilled workers do however still seek employment in the more established industries of South Africa, where wages are often higher.

Since the Government made primary-level school attendance compulsory and free in 2000, enrolment and retention rates have increased. A large majority of students progress to secondary level, with half of the students being female, but tertiary education attendance remains low. Currently, there is insufficient state investment in education at the secondary and tertiary levels, limiting capacity for vocational education and training to meet industry demands.

In 2005, the National ICT Policy highlighted the need to introduce ICT literacy and training programmes at all stages of the education system, as well as the importance of distance learning to enable access to education for the population living in remote areas. The Education Sector Strategic Plan (2005-2015) placed specific attention on secondary schools, setting goals to equip classrooms with ICT facilities by the end of 2015. Lesotho is also involved in the New Partnership for Africa Development (NEPAD) e-schools project, which aims to integrate ICT into the curriculum and provide access to necessary technology.

Despite low mobile and internet penetration, Lesotho has seen recent ICT advancements. An important step was the telecommunications industry's move from a state-owned monopoly to a privatised national operator. Mobile communications company Vodacom first introduced mobile broadband services in the country based on HSPA technology and has also rolled out a wireless broadband network. Several other Internet service providers have also launched their own wireless infrastructure. Although landlocked, Lesotho benefits from connectivity to submarine fibre optic cables on the African east and west coasts, which enabled bandwidth to quadruple in 2012; however, broadband prices remain high.

ICT and Infrastructure

Internet users	83,813 (2012)
Internet penetration	4.6% (2012)
Facebook users	51,440 (2012)
ICT service exports (% of service exports, BoP)	18.0% (2012)
Broadband subscriptions	0.13 per 100 (2012)
Mobile subscriptions	59 per 100 (2012)
Television companies	1 state-owned
Radio stations	2 state-owned
Electricity penetration	17.0% (2012)

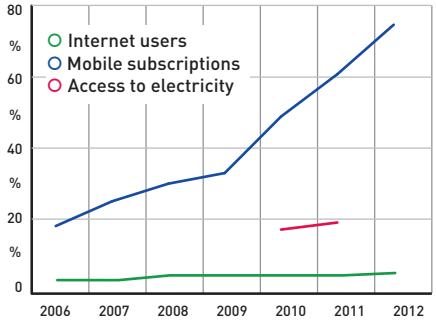
Education

Number of students	25,507 (2012)
Student mobility	Outgoing: 4,258 (2009)
Children out of primary	male: 33,971 female: 27,318 (2012)
Language(s) of instruction	English
Pupil/teacher ratio, primary	34 (2012)
Expenditure per student (% of GDP per capita)	Primary: 22.8% Secondary: 51.2% (2008) Tertiary: 1,240.9% (2006)
Literacy rate	male: 83.3% female: 95.6% (2010)
Youth (15-24) literacy rate	male: 86% female: 98% (2011)
Unemployment	male: 23.0% female: 28.0 (2008)
Children in employment	23% (2000)
Education spending	23.7% of budget (2008)

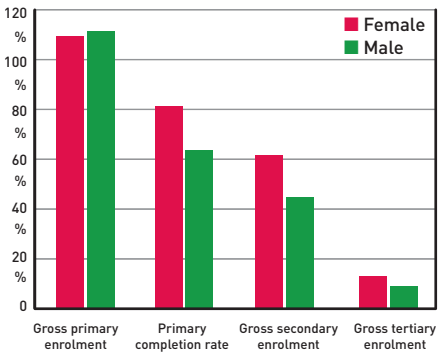
Society and Politics

Date of independence	4 October 1966 (from Britain)
Style of government	Parliamentary constitutional monarchy
2013 Ibrahim Index	61.9 (9th) +7.7 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	Head of state: King Letsie III (since 1990) Prime minister: Motsoahae Thomas Thabane (since 2012)
Area	30,355 sq km
Population	1,936,181 (2013)
Population growth rate	0.34% (2013)
Birth rate	26.31‰ (2013)
Infant mortality	51.93‰ of live births (2013)
Life expectancy at birth	52.3 (2013)
GDP (PPP)	$4.041 billion Per capita: $2,100 (2012)
Growth rate	4.5% (2012)
GDP by sector	agriculture: 7.4% industry: 34.6% services: 58% (2012)
Budget	revenues: $1.658 billion expenditures: $1.536 billion (2012)
Percentage below poverty line	49% (1999)
Languages	Sesotho, English (official), Zulu, Xhosa
Religions	Christian 80%, indigenous beliefs 20%
Monetary unit	Loti

Connectivity



Participation in education



Liberia

In late 2005, Ellen Johnson Sirleaf became the first elected female head of state in the Republic of Liberia, as well as in the whole of Africa. The West African nation, with just over four million citizens, is working toward fully democratic governance. Since the signing of the Accra Comprehensive Peace Agreement ended the civil war in 2003, the country has largely stabilised. Despite progress, a majority of the population still lives in extreme poverty (living on less than $1.25 per day), reflected by an unemployment rate of over 80%.

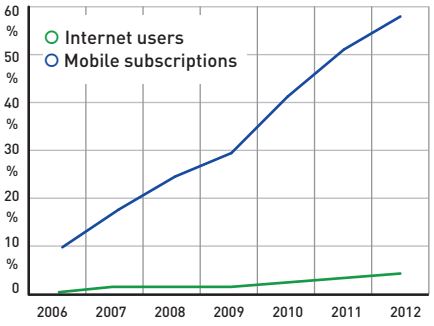
Primary and secondary education is free and compulsory from the ages of 6-16, and higher education is provided by a number of public and private universities. In 2013, President Sirleaf called for an education system overhaul after all 25,000 high school students sitting state university entrance exams failed. ICT in education was brought to the agenda in the 2009 National ICT Policy in which the Government pledged its commitment to establish a national eLearning strategy. This included drafting ICT curriculums for all age groups and encouraging all educational institutions to purchase computers and establish Internet access. There was also a plan to incorporate eLearning to supplement campus-based education and training, which became a reality in 2013.

The Government has developed a plan called "E-Liberia: Vision 2010", which was aimed at promoting the Liberian telecommunications infrastructure and markets to support education, economic- and social development within Liberia, among other things. Figures from 2012 showed slow ICT uptake compared to some neighbouring countries, but a lot has happened in 2013 to facilitate Internet and mobile access, increase speeds and reduce costs.

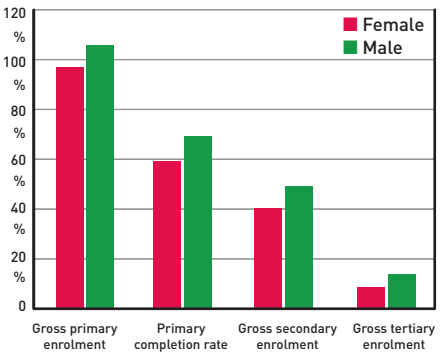
"the education system is being overhauled after university exams failure"

There are now six major players in the ICT sector and Liberia is connected to the ACE submarine cable system – offering connectivity to telecommunications networks in Europe, America and Asia. 4G services which extend to rural cities have been launched. The country is embracing online radio and video conferencing, and is incorporating technologies in other parts of daily life, such as church services.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	116,637 (2012)
Internet penetration	3.8% (2012)
Broadband subscriptions	0.00 per 100 (2012)
Mobile subscriptions	56 per 100 (2012)
Television companies	3 private, satellite available
Radio stations	1 state-owned, 15 private, 25 local

Education

Student mobility	Outgoing: 526 (2009)
Children out of primary	male: 194,426 female: 194,833 (2011)
Language(s) of instruction	English
Pupil/teacher ratio, primary	27 (2011)
Literacy rate	male: 64.8% female: 56.8% (2010)
Youth (15-24) literacy rate	male: 71% female: 82% (2011)
Unemployment	male: 3.4% female: 4.1% (2010)
Children in employment	21% (2007)

Society and Politics

Date of independence	26 July 1847 (from USA)
Style of government	Republic
2013 Ibrahim Index	50.3 (29th) +24.8 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Ellen Johnson Sirleaf (since 2005)
Area	111,369 sq km
Population	3,989,703 (2013)
Population growth rate	2.56% (2013)
Birth rate	35.75‰ (2013)
Infant mortality	70.93‰ of live births (2013)
Life expectancy at birth	57.81 (2013)
GDP (PPP)	$2.645 billion Per capita: $700 (2012)
Growth rate	8.3% (2012)
GDP by sector	agriculture: 76.9% industry: 5.4% services: 17.7% (2002)
Budget	revenues: $380.9 million expenditures: $427.1 million (2012)
Percentage below poverty line	80% (2000)
Languages	English 20% (official), 20 ethnic languages
Religions	Christian 85.6%, Muslim 12.2%, Traditional 0.6%, other 0.2%, none 1.4%
Monetary unit	Liberian Dollar

Photo: Erik Hershman

Libya

After declaring its independence from Italy in 1951, Libya – one of the world's richest sources of oil – has experienced much political and social hardship under totalitarian regimes. Following the overthrowing of the Government in 2011, after years under Colonel Muammah Gaddafi, Libya is still in a transitional period. Many foreign embassy staff have been removed over the past two years due to the volatile situation in the capital.

Libyan citizens are provided with free education from primary up to university level, however there is overcrowding in schools and the curricula are in need of modernisation. There is also a shortage of qualified teaching staff to meet demand. During the 2011 conflict, around one third of Libyan schools were seriously damaged and around a quarter were used for military or humanitarian purposes, rather than as educational institutions. To add to this chaos, the Libya Telecom & Technology (LTT) shut-down the local Internet for more than five months as a means to suppress the rebel movement in 2011, as directed by Colonel Gaddafi's Government.

Libya is one of the top-performing countries in Africa in regard to the Human Development Indicators in Innovation and Technology, and many experts believe that with stabilisation of its political situation, and a renewed focus on its ICT infrastructure, it could be the African leader in ICT in years to come. Libya is developing ICT infrastructure to better connect universities, build distance-learning capabilities and provide access to academic research databases. Within the context of ICT, the Libyan Government is focusing on eGovernment, in particular through the "e-Libya initiative". Also involving eCommerce and eLearning, Deputy Minister for Communications and Informatics, Mr Mohamad Benrasali says, the initiative "has a number of strategic objectives that aim to build a knowledge-based economy through ICT".

Massive investments were made by the former Government into a next-generation national fibre optic backbone network, the expansion of DSL and WiMAX broadband services. In 2014, the first ever private mobile licence is expected to be awarded and better telecoms laws are in the works in advance of eventual LTE.

ICT and Infrastructure

Internet users	954,275 (2012)
Internet penetration	19.9% (2012)
Facebook users	781,700 (2012)
Broadband subscriptions	1.04 per 100 (2012)
Mobile subscriptions	148 per 100 (2012)
Electricity penetration	99.8% (2012)
Electricity use	3,926 kWh/capita (2012)

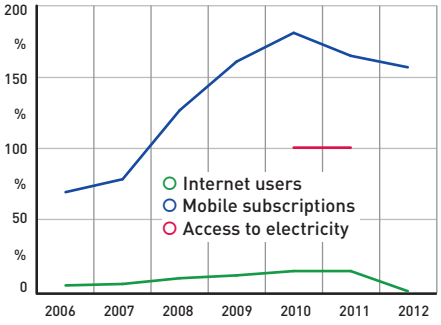
Education

Student mobility	Outgoing: 4785 (2009)
Language(s) of instruction	Berber in primary; Arabic at all levels
Literacy rate	male: 95.8% female: 83.3% (2011)
Youth (15-24) literacy rate	male: 100% female: 100% (2011)
Unemployment	30% (2004)

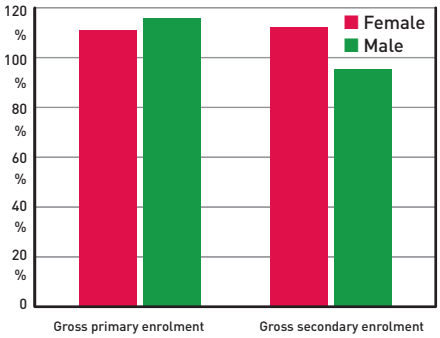
Society and Politics

Date of independence	24 December 1951 (from UN trusteeship)
Style of government	Transitional
2013 Ibrahim Index	45.3 (38th) -0.4 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	Chairman of the General National Congress: Nuri Abu Sahmein (since 2013) Interim Prime Minister: Abdullah Al-Thinni (since 2014)
Area	1,759,540 sq km
Population	6,002,347 (2013)
Population growth rate	4.85% (2013)
Birth rate	18.74‰ (2013)
Infant mortality	12.26‰ of live births (2013)
Life expectancy at birth	75.83 (2013)
GDP (PPP)	$76.52 billion Per capita: $11,900 (2012)
Growth rate	104.5% (2012)
GDP by sector	agriculture: 1.6% industry: 43.6% services: 54.8% (2012)
Budget	revenues: $57.48 billion expenditures: $35.08 billion (2012)
Percentage below poverty line	c. 33% at or below
Languages	Arabic (official), Italian, English, Berber
Religions	Sunni Muslim (official) 97%, other 3%
Monetary unit	Libyan Dinar

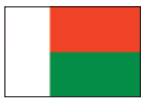
Connectivity



Participation in education



Bryn Pinzgauer Roman remains at Sabratha



Madagascar

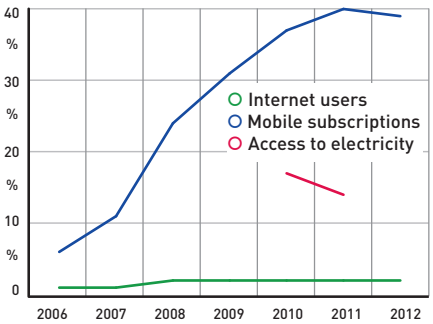
Throughout its years of political crisis, Madagascar's economy slumped and poverty deepened but today the country is finally eyeing recovery. In 2013, the first democratic elections were held since the 2009 coup, and the new President, Hery Rajaonarimampianina, was inaugurated in January 2014. Under the new Government, Madagascar hopes to boost trade, and will be drawing up a funding framework with help from the International Monetary Fund. Madagascar's finance minister has indicated that the economy has the potential to grow by three per cent this year and hit 12% in five years' time.

Progress made in education, under Former President Marc Ravalomanana's "Fast Track Initiative", had Madagascar on track to provide elementary education to all its school- age children. However, this began to unravel when humanitarian aid was halted after the 2009 illegal takeover of power. Over the years, organisations such as UNICEF were able to provide support to help minimise the impact of the political and economic crisis. A $64 million "Fast Track" grant contributed to teacher salaries, lunches, school supplies and construction. Madagascar also received $60 million in Global Partnership for Education grants from 2006-2008 and $64 million for the period 2009-2013. Other international donor funds had been frozen in the lead up to the elections, but now the country should again start to benefit from external support.

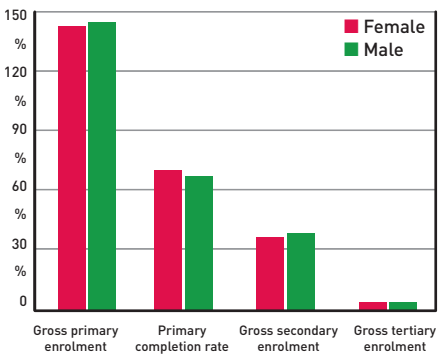
"the blogging and freelance community have been establishing ICT hubs"

Although Madagascar has no ICT policy for education, the Malagasy Action Plan (MAP) 2007-2012 promoted the expansion of ICT infrastructure including the establishment of ICT centres in schools. Recently, ICT centres have been created and training workshops were held across the country. A core group of innovators continues to discuss how ICT can strengthen society, namely in the capital of Antananarivo where the city's blogging and freelance IT community have been establishing ICT hubs and co-working spaces. Madagascar is linked to the submarine fibre optic cable EASSy (East Africa Submarine System), and although Internet penetration is still low, mobile rates are at over 30% and increasing fast.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	418,099 (2012)
Internet penetration	2.1% (2012)
Facebook users	282,880 (2012)
Broadband subscriptions	0.04 per 100 (2012)
Mobile subscriptions	39 per 100 (2012)
Television companies	State-owned TNM; private channels in urban areas
Radio stations	State-owned RNM; private broadcasters in urban areas
Electricity penetration	17.4% (2012)

Education

Number of students	90,235 (2012)
Student mobility	Outgoing: 4,089 Incoming: 1,237 (2009)
Language(s) of instruction	Malagasy for the first 7 years of primary; French beyond
Pupil/teacher ratio, primary	43 (2012)
Expenditure per student (% of GDP per capita)	Primary: 6.5% Secondary: 8.3% Tertiary: 102.0% (2012)
Electricity in primary schools	3.5% (2010)
Literacy rate	male: 67.4% female: 61.6% (2009)
Youth (15-24) literacy rate	male: 66% female: 64% (2011)
Unemployment	2.6% (2005)
Children in employment	28% (2007)
Education spending	21.1% of budget (2012)

Society and Politics

Date of independence	26 June 1960 (from France)
Style of government	Republic
2013 Ibrahim Index	45.7 (37th) -11.7 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Hery Rajaonarimampianina
Area	587,041 sq km
Population	22,599,098 (2013)
Population growth rate	2.65% (2013)
Birth rate	33.58‰ (2013)
Infant mortality	46.13‰ of live births (2013)
Life expectancy at birth	64.85 (2013)
GDP (PPP)	$21.18 billion Per capita: $900 (2012)
Growth rate	1.9% (2012)
GDP by sector	agriculture: 27.8% industry: 16.2% services: 56% (2012)
Budget	revenues: $1.758 billion expenditures: $1.929 billion (2012)
Percentage below poverty line	50% (2004)
Languages	French (official), Malagasy (official), English
Religions	indigenous beliefs 52%, Christian 41%, Muslim 7%
Monetary unit	Ariary

Malawi

In 2014, Malawi had a record 12 candidates competing in the presidential election and, for the first time in electoral history, citizens were able to watch presidential candidate debates. This is in stark contrast to the authoritarian rule the country faced for 30 years after independence. From 2007, Government initiatives started to take effect, leading to economic growth and improved healthcare and education. However, unavoidable factors such as natural disasters are still affecting the large majority of Malawians reliant on substance farming. Today, around 31.4% of the population still live in poverty.

The education sector has recently received a funding boost, enabling plans to build 2,000 classrooms, 1,000 teacher houses and three teacher training colleges to go ahead, as well as the rehabilitation of secondary schools and technical colleges. When primary education became free in 1994, attendance rates increased by more than a million a year. Today, the system is still strained by teacher shortages, and tens of thousands of extra classrooms are needed to meet demands. Although primary school attendance is high, drop-out rates are a major problem with few students continuing to high school or university.

Malawi's national ICT policy includes the promotion of ICT in education systems. Initiatives in this area include "Computers for African Schools Malawi", which over the past decade has provided ICT training to teachers, delivered computers and printers to schools and developed the ICT Curriculum. eLearning has been possible through the Pan-African eNetwork initiative. It connects five regional leading universities to a tele-education hub via satellite, which links 53 remote virtual classes across the Continent.

Both mobile and Internet usage are low, mainly due to high costs and limited accessibility. However, through the Infrastructure Services Project and the Malawi Communications Infrastructure Project, both supported by the World Bank, the Government has been able to establish telecentres throughout the country, providing computers, Internet and other services. By the end of the project, all city capitals and major cities will be linked to competitively-priced bandwidth.

ICT and Infrastructure

Internet users	716,400 (2012)
Internet penetration	4.4% (2012)
Facebook users	203,840 (2012)
ICT service exports (% of service exports, BoP)	27.1% (2012)
Broadband subscriptions	0.01 per 100 (2012)
Mobile subscriptions	28 per 100 (2012)
Television companies	1 government-owned
Radio stations	State-run national, private in urban areas
Electricity penetration	8.7% (2012)

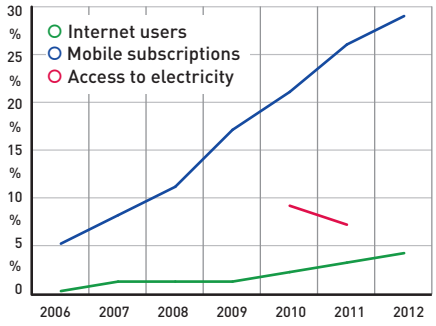
Education

Number of students	12,203 (2011)
Student mobility	Outgoing: 2,160 (2009)
Children out of primary	male: 117,887 female: 39,276 (2007)
Language(s) of instruction	Chichewa in primary; English at all levels
Pupil/teacher ratio, primary	74 (2012)
Expenditure per student (% of GDP per capita)	Primary: 7.8% Secondary: 33.2% Tertiary: 1,754.0 (2011)
Electricity in primary schools	10.3% (2012)
Literacy rate	male: 81.1% female: 68.5% (2010)
Youth (15-24) literacy rate	male: 87% female: 87% (2011)
Children in employment	26% (2006)
Education spending	14.7% of budget (2011)

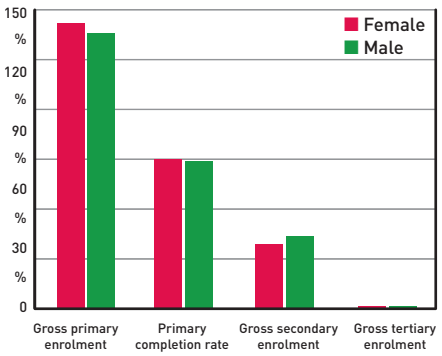
Society and Politics

Date of independence	6 July 1964 (from Britain)
Style of government	Multiparty democracy
2013 Ibrahim Index	56.9 (16th) +5.2 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	Elections due in late May
Area	118,484 sq km
Population	16,777,547 (2013)
Population growth rate	2.74% (2013)
Birth rate	39.98‰ (2013)
Infant mortality	76.98‰ of live births (2013)
Life expectancy at birth	52.78 (2013)
GDP (PPP)	$14.11 billion (2012) Per capita: $800 (2012)
Growth rate	1.9% (2012)
GDP by sector	agriculture: 29% industry: 19.2% services: 51.8% (2012)
Budget	revenues: $1.032 billion expenditures: $1.358 billion (2012)
Languages	English (official), Chichewa (common), Chinyanja, Chiyao, Chitumbuka, Chilomwe, Chinkhonde, Chingoni, Chisena, Chitonga, Chinyakyusa, Chilambya
Religions	Christian 82.6%, Muslim 13%, other 1.9%, none 2.5%
Monetary unit	Malawi Kwacha

Connectivity



Participation in education



Mali

Landlocked, and situated across both arid and tropical zones, Mali shares with a broader region its climatic vulnerability, political fragility and poverty. While desertification and drought remain major long-term threats to the state and its inhabitants, in recent years attention has been drawn by a flare-up of conflicts which can be read as a product or expression of the increasing precariousness of the Sahel.

The 2012 coups overthrew a well-established constitutional democracy; the succeeding Tuareg insurgency saw a secessionist state declared in the North; Islamic groups hijacked the rebellion and imposed extremist rule, before the recapture of the territory by French and Malian forces.

Across northern Mali, education – especially girls' education – suffered drastically from the effects of war and the extremists' draconian legislation.

Mali also shares with the region a network of ancient cultural traditions which persist to this day; scribes who still write letters for illiterate citizens of Bamako, itinerant scholars and griots; the yearly ritual re-plastering of the Great Mosque of Djenné; and musicians who have achieved world-wide fame. The city of Timbuktu, heavily damaged during the occupation, is an epicentre of Islamic learning; its 12th-century Sankore Madrasah still of great renown in West Africa.

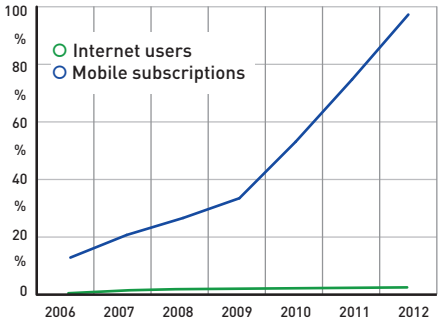
With limited finance to hand, the Government has concentrated on primary education in its effort to meet the Millennium Development Goals, achieving a marked increase in enrolment rates – though an insufficiency of teachers and resources have affected the quality of education. The increase in primary school leavers has strained the secondary system, which has insufficient places for the number of new applicants.

"an epicentre of ancient learning under threat"

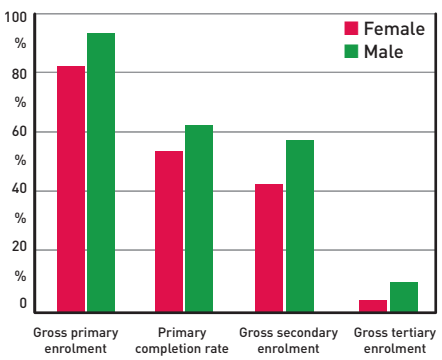
While illiteracy rates remain high, radio is the primary means of mass communication in Mali. Internet access has improved in recent years through Mali's connection to undersea cable networks, though costs remain high; training centres in Bamako, Internet cafes and telecentres are helping to equip the population with the skills to make use of online resources.

In 2013, Mali became one of only a few countries in the world to offer free domain names.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	414,985 (2012)
Internet penetration	2.2% (2012)
Facebook users	212,020 (2012)
ICT service exports (% of service exports, BoP)	33.9% (2010)
Broadband subscriptions	0.01 per 100 (2012)
Mobile subscriptions	90 per 100 (2012)
Television companies	1 national public company, private international services
Radio stations	1 national public broadcaster, community radio

Education

Number of students	97,278 (2012)
Student mobility	Outgoing: 3,282 (2009)
Children out of primary	male: 267,984 female: 369,267 (2012)
Language(s) of instruction	National languages, English compulsory second language in primary; French at all levels
Pupil/teacher ratio, primary	48 (2011)
Expenditure per student (% of GDP per capita)	Primary: 13.5% Secondary: 31.2% Tertiary: 168.4% (2011)
Electricity in primary schools	8.3% (2012)
Literacy rate	male: 43.1% female: 24.6% (2011)
Youth (15-24) literacy rate	male: 56% female: 34% (2011)
Unemployment	36.1% (2005)
Children in employment	36% (2010)
Education spending	18.2% of budget (2011)

Society and Politics

Date of independence	22 September 1960 (from France)
Style of government	Republic
2013 Ibrahim Index	50.7 (27th) 0 change since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Ibrahim Boubacar Keita (sice September 2013)
Area	1,240,192 sq km
Population	15,968,882 (2013)
Population growth rate	3.01% (2013)
Birth rate	46.06‰ (2013)
Infant mortality	106.49‰ of live births (2013)
Life expectancy at birth	54.55 (2013)
GDP (PPP)	$17.79 billion Per capita: $1,100 (2012)
Growth rate	-1.2% (2012)
GDP by sector	agriculture: 38.7% industry: 23.9% services: 37.4% (2012)
Budget	revenues: $1.821 billion expenditures: $1.948 billion (2012)
Percentage below poverty line	36.1% (2005)
Languages	French (official), Bambara 46.3%, Peul/foulfoulbe, Dogon, Maraka/soninke, Malinke, Sonrhai/djerma, Minianka, Tamacheq, Senoufo
Religions	Muslim 94.8%, Christian 2.4%, Animist 2%, none 0.5%
Monetary unit	CFA Franc

Mauritania

Mauritania hopes to prolong its period of political stability after the June 2014 presidential elections. International sanctions were lifted in September 2009, after a presidential election established a national unity Government. President Mohamed Ould Abdel Aziz, who came into power after the 2008 military coup but was officially elected the following year, will be running for re-election.

Recent mineral discoveries have stimulated the country's growth. In 2103, Mauritania exported more than 13 million tons of iron ore valued at about $1.4 billion, making it the second largest exporter in Africa. However, despite increased incomes, poverty still affects a major part of Mauritania's population, particularly in rural areas.

Education is compulsory between the ages 6-14. Enrolment rates continue to increase but drop-out rates are a cause for concern. Public school is free, but other costs, such as books and lunches, make education unaffordable for many poor children. Inadequate national infrastructure also prevents some children from travelling to and from school. The Mauritanian Government aims to improve schooling to prepare the nation's youth for the workforce, but the Prime Minister has admitted that the system has so far been "incapable of addressing basic development requirements". Strategies have been devised, he says, to develop the sector and raise standards.

ICT in education has been introduced through initiatives such as the World Bank's "World Links Programme", which provided schools across the country with free Internet connectivity. The Community Technology Access (CTA) project, announced by the United Nations High Commissioner of Refugees (UNHCR), set up classrooms for refugees in Mauritania with computers, WiFi, software and an educational curriculum.

As a largely desert country, electricity supply is an issue slowing down ICT progress. Better access to international bandwidth, since the country connected the ACE fibre-optic cable, however, has helped to reduce costs. There are a handful of students, who can use Internet cafés for their studies, and influential bloggers are starting to emerge.

ICT and Infrastructure

Internet users	151,163 (2012)
Internet penetration	5.4% (2012)
Facebook users	106,200 (2012)
Broadband subscriptions	0.18 per 100 (2012)
Mobile subscriptions	111 per 100 (2012)
Television companies	1 state-run with 6 regional channels
Radio stations	1 state-run

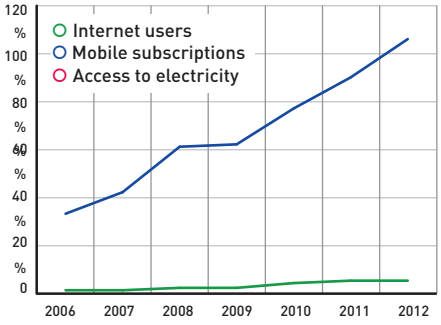
Education

Number of students	17,878 (2012)
Student mobility	Outgoing: 3,056 (2009)
Children out of primary	male: 92,785 female: 76,533 (2012)
Language(s) of instruction	Arabic, French
Pupil/teacher ratio, primary	40 (2012)
Expenditure per student (% of GDP per capita)	Primary: 11.5% Secondary: 23.2% Tertiary: 108.5% (2011)
Electricity in primary schools	2.4% (2012)
Literacy rate	male: 65.3% female: 52% (2011)
Youth (15-24) literacy rate	male: 71% female: 65% (2011)
Unemployment	male: 23.9% female: 44.0% (2008)
Children in employment	16% (2007)
Education spending	14.7% of budget (2011)

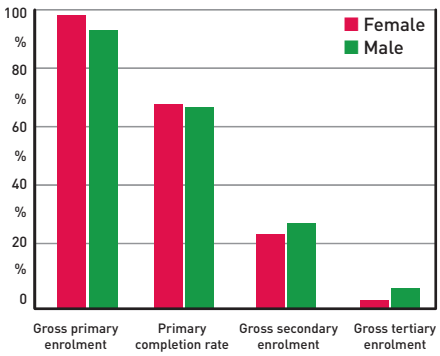
Society and Politics

Date of independence	28 November 1960 (from France)
Style of government	Military junta
2013 Ibrahim Index	47.3 (34th) +0.7 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Mohamed Ould Abdelaziz (since 2008)
Area	1,030,700 sq km
Population	3,437,610 (2013)
Population growth rate	2.29% (2013)
Birth rate	32.31‰ (2013)
Infant mortality	57.48‰ of live births (2013)
Life expectancy at birth	61.91 (2013)
GDP (PPP)	$7.604 billion (2012) Per capita: $2,100 (2012)
Growth rate	6.9% (2012)
GDP by sector	griculture: 16.7% industry: 53.4% services: 29.9% (2012)
Budget	revenues: $1.561 billion expenditures: $1.449 billion (2012)
Percentage below poverty line	40% (2004)
Languages	Arabic (official), Pulaar, Soninke, Wolof (national), French, Hassaniya
Religions	Muslim (official) 100%
Monetary unit	Ouguiya

Connectivity



Participation in education



Mauritius

Mauritius is one of Africa's success stories, maintaining peace and stability, whilst also achieving strong economic growth and diversity. Its population of African, Indian, European and Chinese descent, Mauritius benefits from its upmarket tourism and business-friendly environment. The country was ranked nineteenth globally for its business climate in the 2012 World Bank "Doing Business Report". Democracy and standards of governance are also high, and Prime Minister Navin Ramgoolam is currently serving his third term.

Mauritius is progressive in terms of social development, providing free education through to university for all its citizens, transport for school children and free healthcare. The country also aims to become a higher education hub, with specialised campuses for local and international students. It invests heavily in the development of tailor-made infrastructure for the growing number of foreign students. In 2012, two new universities – the Open University of Mauritius and Université des Mascareignes – were set up and the Medine Education Village (MEV) is expanding its facilities to accommodate more international education providers to cater for over 5,000 students.

Technology has long been an education priority. Since a 2006 Government initiative, all state secondary schools have been provided with Internet connections. Teachers have also benefited from the online Partners in Learning Africa Network (PiLN), which facilitates sharing of resources and best practices. The Cyber Caravan Project, which was first launched in 2000, benefits rural communities. The caravans are equipped with computers and broadband Internet; they offer training courses to people of all ages and competences. As of April 2014, around 154,208 people had completed ICT Literacy and ICT Awareness courses.

Mauritius ranked the highest in Africa for accessibility of digital content in the 2014 Global Information Technology Report. The country was the first in Africa to provide commercial 3G, in 2004, and then the next year became the first in the world to develop a nationwide WiMAX wireless broadband network. The nation also has 4G services available in some areas and plans to create more Wi-Fi access points and better eGovernment services.

ICT and Infrastructure

Internet users	458,927 (2012)
Internet penetration	41.4% (2012)
Facebook users	367,900 (2012)
ICT service exports (% of service exports, BoP)	35.4% (2012)
Broadband subscriptions	10.57 per 100 (2012)
Mobile subscriptions	113 per 100 (2012)
Television companies	State-run MBC with 13 stations, 2 pay-TV stations,
Radio stations	1 state-run, some private
Electricity penetration	99.4% (2012)

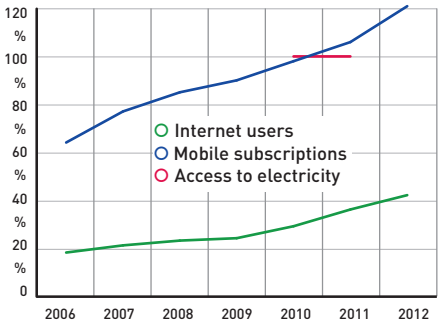
Education

Number of students	40,165 (2012)
Student mobility	Outgoing: 7,859 Incoming: 62 (2009)
Children out of primary	male: 1,086 female: 1,081 (2012)
Language(s) of instruction	Creole, French in primary; English in secondary and further
Pupil/teacher ratio, primary	21 (2012)
Expenditure per student (% of GDP per capita)	Primary: 10.5% Secondary: 19.0% Tertiary: 8.8% (2012)
Electricity in primary schools	100% (2012)
Literacy rate	male: 91.1% female: 86.7% (2011)
Youth (15-24) literacy rate	male: 96% female: 98% (2011)
Unemployment	male: 6.0% female: 13.0% (2012)
Education spending	11.8% of budget (2012)

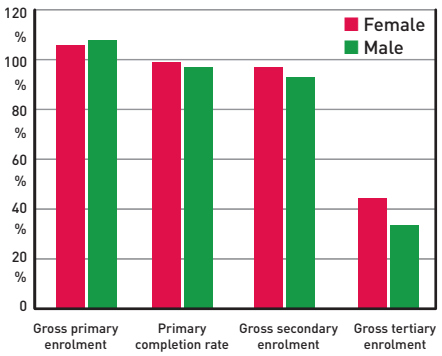
Society and Politics

Date of independence	12 March 1968 (from Britain)
Style of government	Parliamentary democracy
2013 Ibrahim Index	82.9 (1st) +7.3 since 2000
2012 Democracy Index	"full democracy"
Leader(s)	President: Rajkeswur " Kailash" Purryag (since 2012) Prime minister: Navin Ramgoolam (since 2005)
Area	2,040 sq km
Population	1,322,238 (2013)
Population growth rate	0.68% (2013)
Birth rate	13.62‰ (2013)
Infant mortality	10.89‰ of live births (2013)
Life expectancy at birth	74.94 (2013)
GDP (PPP)	$19.98 billion Per capita: $15,400 (2012)
Growth rate	3.3% (2012)
GDP by sector	agriculture: 4.5% industry: 22.7% services: 72.8% (2012)
Budget	revenues: $2.456 billion expenditures: $2.664 billion (2012)
Percentage below poverty line	8% (2006)
Languages	English (official, <1%), Creole, Bhojpuri, French
Religions	Hindu 48%, Christian 32.4%, Muslim 16.6%, none 0.4%
Monetary unit	Mauritian Rupee

Connectivity



Participation in education



Morocco

Morocco, with its key position at the Pillars of Hercules, Mediterranean climate and long history of independence among Arabic states, interrupted by a period of Spanish-French colonisation, looks as much towards Europe as it does towards Africa. This history is reflected in the modern day by its disputes with Spain over the status of its northern neighbour's exclaves in North Africa; its more fraught relations, complicated by a number of issues including Western Sahara, with Algeria; the importance of European tourism to the economy; and its status as a non-NATO ally. The constitutional monarchy, once all too willing to suppress opposition, instituted careful reforms in 2011 and avoided the unrest that gripped much of the Arab World that year.

"Fes is seat of the oldest university in the world"

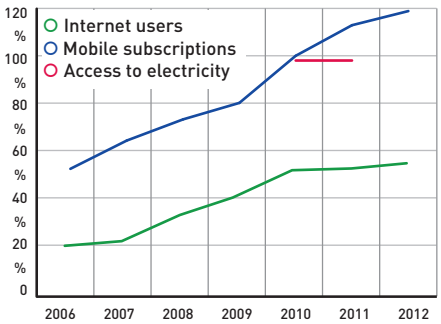
The city of Fes is the seat of the oldest university in the world, the University of Al-Karaouine. However, beside these enviable institutions, Morocco is marked by some of the highest illiteracy rates in the Arab World. Recent years have seen marked improvement, partly as a result of the "Decade of Education" that ran from 1999-2009.

The principal inequalities in education fall along linguistic and urban-rural divisions. While the language of education is classical Arabic, over 50% of the population is Berber, and has little knowledge of Arabic. While public education is free, other costs (such as transport, uniforms and loss of the child's labour at home) often prevent poor rural families' access.

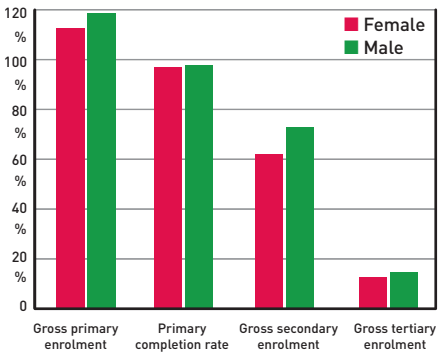
High penetration rates make Morocco an ideal location for eLearning, though progress in the sector has so far been slow. Initiatives have concentrated on the difficulties faced by marginalised groups, such as rural girls. Businesses are also starting to cotton on to the benefits of distance learning.

In the online world, heightened censorship in recent years has seen a clampdown on Internet freedom: with some teenagers arrested for pictures showing them kissing on Facebook.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	16,477,712 (2012)
Internet penetration	55.0% (2012)
Facebook users	5,091,760 (2012)
ICT service exports (% of service exports, BoP)	21.8% (2012)
Broadband subscriptions	2.09 per 100 (2012)
Mobile subscriptions	120 per 100 (2012)
Television companies	State-owned RTM, 1 partially state-owned, satellite available
Radio stations	RTM with 10 regional channels, 2 private
Electricity penetration	98.9% (2012)
Electricity use	826 kWh/capita (2012)

Education

Number of students	505,681 (2011)
Student mobility	Outgoing: 42,009 Incoming: 7,928 (2009)
Children out of primary	male: 40,211 female: 47,036 (2012)
Language(s) of instruction	Arabic, French
Pupil/teacher ratio, primary	26 (2012)
Expenditure per student (% of GDP per capita)	Primary: 16.7% Secondary: 30.7% Tertiary: 82.3% (2009)
Electricity in primary schools	86.7% (2013)
Literacy rate	male: 76.1% female: 57.6% (2011)
Youth (15-24) literacy rate	male: 87% female: 72% (2011)
Unemployment	male: 8.7% female: 9.9% (2012)
Children in employment	8% (2007)
Education spending	25.7% of budget (2008)

Society and Politics

Date of independence	2 March 1956 (from France)
Style of government	Constitutional monarchy
2013 Ibrahim Index	58.0 (14th) +5.1 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	King: King Mohammed VI (since 1999) Prime minister: Abdelilah Benkirane (since 2011)
Area	446,550 sq km
Population	32,649,130 (2013)
Population growth rate	1.04% (2013)
Birth rate	18.73‰ (2013)
Infant mortality	25.49‰ of live births (2013)
Life expectancy at birth	76.31 (2013)
GDP (PPP)	$168.9 billion Per capita: $5,200 (2012)
Growth rate	2.7% (2012)
GDP by sector	agriculture: 15.1% industry: 31.7% services: 53.2% (2012)
Budget	revenues: $25.35 billion expenditures: $33.32 billion (2012)
Percentage below poverty line	15% (2007)
Languages	Arabic, Tamazight (official), Tachelhit, Tarifit), French (lingua Franca)
Monetary unit	Dirham

Mozambique

Mozambique emerged from 16 years of civil war as one of the world's fastest growing economies. Today, with important Foreign Direct Investments into its oil and natural resources sectors, and both coal and titanium also becoming important sources of revenue, Mozambique's economy continues to go from strength to strength. However, poverty remains widespread.

Primary school education became free in 2005 and today 100% of the children are enrolled in primary school, up from 69% in 2003. Issues remain in retention, with drop-out rates high, and often teachers do not have adequate training.

Work has been undertaken to introduce technology to classrooms. In 1997, SchoolNet Mozambique established the "Internet for Schools" pilot project, which helped 10 secondary schools improve computer literacy and trained teachers to integrate ICT into the learning process. By 2006, SchoolNet had set up computer labs in 75 secondary schools, around 25 with Internet access. Mozambique is also part of the New Partnership for Africa Development (NEPAD) e-schools programme, which aims to integrate ICT in the curriculum at secondary and primary school level. Mozambique's third mobile phone operator, Movitel, has also connected 205 state-owned schools to the Internet. These include secondary schools, teacher training colleges, technical and professional education institutes and higher education establishments. A number of UNESCO-developed Community Multimedia Centres (CMCs) have been set up around the country to improve ICT literacy among the public. They include four or five computers with Internet access, a printer, digital camera, photocopy machine, fax machine and telephones. Participants are trained to use the equipment to create local community radio, as well as to establish a cyber café to generate income.

In order further to develop ICT infrastructure, boost competition and reduce investment costs, in 2013, the Government drafted a revision of the 2004 Telecommunications Act. The cost of international bandwidth had long hampered Internet use. Recently, however, two international fibre-optic submarine cables landed in Mozambique. There have also been developments in ADSL and 3G mobile services have been launched.

ICT and Infrastructure

Internet users	1,011,185 (2012)
Internet penetration	4.8% (2012)
Facebook users	362,560 (2012)
ICT service exports (% of service exports, BoP)	31.1% (2012)
Broadband subscriptions	0.08 per 100 (2012)
Mobile subscriptions	33 per 100 (2012)
Television companies	1 state-run, 1 private; RTP Africa (Portugal), TV Miramar (Brazil)
Radio stations	State-owned national network, private & community stations
Electricity penetration	15.0% (2012)
Electricity use	447 kWh/capita (2012)

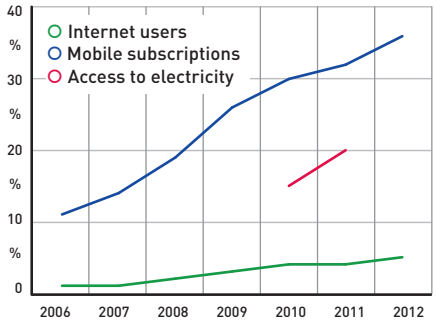
Education

Number of students	113,464 (2010)
Student mobility	Outgoing: 2,093 (2009)
Children out of primary	male: 286,479 female: 405,033 (2012)
Language(s) of instruction	Portuguese
Pupil/teacher ratio, primary	55 (2012)
Expenditure per student (% of GDP per capita)	Primary: 15.0% Secondary: 86.0% (2006)
Literacy rate	male: 70.8% female: 42.8% (2010)
Youth (15-24) literacy rate	male: 79% female: 65% (2011)
Unemployment	17% (2007)
Children in employment	22% (2008)
Education spending	21.0% of budget (2006)

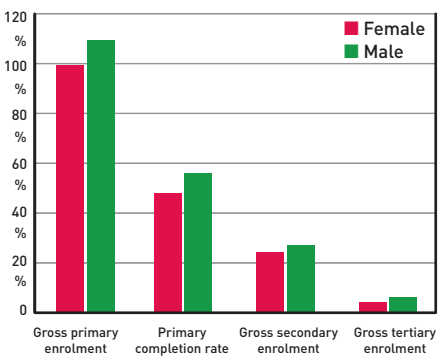
Society and Politics

Date of independence	25 June 1975 (from Portugal)
Style of government	Republic
2013 Ibrahim Index	54.8 (20th) +2.3 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Armando Guebuza (since 2005)
Area	799,380 sq km
Population	24,096,669 (2013)
Population growth rate	2.44% (2013)
Birth rate	39.08‰ (2013)
Infant mortality	74.63‰ of live births (2013)
Life expectancy at birth	52.29 (2013)
GDP (PPP)	$25.95 billion Per capita: $1,200 (2012)
Growth rate	7.4% (2012)
GDP by sector	agriculture: 29.9% industry: 24.6% services: 45.5% (2012)
Budget	revenues: $4.115 billion expenditures: $4.707 billion (2012)
Percentage below poverty line	52% (2009)
Languages	Portuguese (official), Emakhuwa, Xichangana, Cisena, Elomwe, Echuwabo, other Mozambican languages 30.1%
Religions	Christian 56.1%, Muslim 17.9%, other 7.2%, none 18.7%
Monetary unit	Metical

Connectivity



Participation in education



Namibia

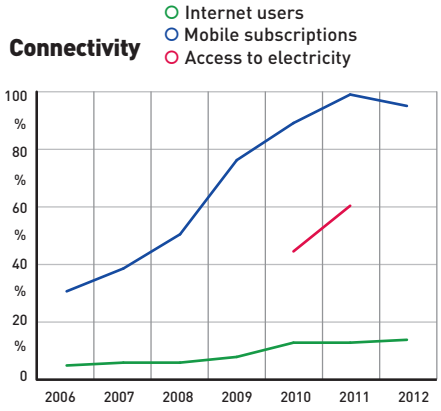
Namibia gained independence from South Africa in 1990 and has since enjoyed stability, with good governance and economic management. The current President Hifikepunye Pohamba came to power in 2004, and was re-elected in 2009 in what was described as transparent, peaceful and fair elections. Ongoing issues in Namibia exist in social inequalities, as well as its high rates of poverty.

Namibia is on track to meet the Millennium Development Goals for education, environment and gender. One of the least densely populated countries in the world, Namibia has around 1,500 schools. Education is compulsory between the ages 6-16, with the Government providing free primary education. Namibia allocates more than 20% of its national budget to education and a budget is also allocated for specifically supporting ICT in education. With several active initiatives and programmes, the country is considered to be at the forefront of integrating ICTs in education.

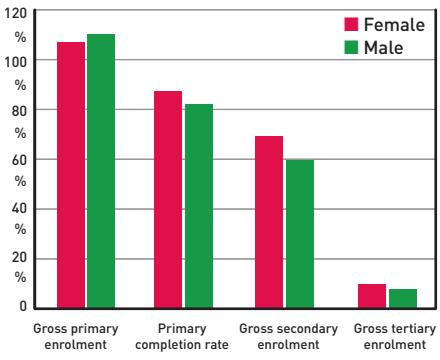
In 2005, the 'ICT Integration for Equity and Excellence in Education Policy' was launched, which has since been built upon and sub-programmes developed. An ICT for Education Steering Committee was also created to provide specific guidance on ICT-related projects and activities. The long-term "Training Sector Improvement Programme" (ETSIP) for 2005-2020 was recently revised. Its key purpose is to transform Namibia into a knowledge society, which is hoped to be achieved through nine sub-programmes. A curriculum revision also envisioned establishing eLearning centres and integrating ICT as a tool across the syllabus, as well as making Computer Studies a subject for grades 8-12. Other initiatives include, amongst others, the Minsitry of Education's "TECH/NA!", which provides international assistance to help educational institutions reach ICT goals; SchoolNet Namibia (2000-2009), supported by USAID, and others, which provided schools with Internet access and technical support; the country also promotes distance learning through the "Open and Distance Learning (ODL)" programme.

Access to Internet increased in 2011 when Namibia connected to the West Africa Cable System (WACS) fiber-optic submarine cable. Mobile penetration is showing significant growth with help from the introduction of 4G services.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	259,899 (2012)
Internet penetration	12.9% (2012)
Facebook users	231,340 (2012)
ICT service exports (% of service exports, BoP)	27.0% (2011)
Broadband subscriptions	2.78 per 100 (2012)
Mobile subscriptions	103 per 100 (2012)
Television companies	1 private, 1 state; satellite & cable
Radio stations	State-run radio in many languages, c.12 private
Electricity penetration	43.7% (2012)
Electricity use	1,549 kWh/capita (2012)

Education

Number of students	19,707 (2008)
Student mobility	Outgoing: 7,809 Incoming: 2,004 (2009)
Children out of primary	male: 24,768 female: 18,706 (2012)
Language(s) of instruction	Afrikaans, German, others at primary; English
Pupil/teacher ratio, primary	41 (2012)
Expenditure per student (% of GDP per capita)	Primary: 17.6% (2010) Secondary: 15.8% (2008) Tertiary: 118.2% (2006)
Electricity in primary schools	58.3% (2012)
Literacy rate	male: 89% female: 88.5% (2010)
Youth (15-24) literacy rate	male: 91% female: 95% (2011)
Unemployment	male: 14.7% Female: 18.9% (2012)
Education spending	22.4% of budget (2008)

Society and Politics

Date of independence	21 March 1990 (from South Africa)
Style of government	Republic
2013 Ibrahim Index	69.5 (6th) +2.3 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	President: Hifikepunye Pohamba (since 2004)
Area	824,292 sq km
Population	2,182,852 (2013)
Population growth rate	0.75% (2013)
Birth rate	20.72‰ (2013)
Infant mortality	45.62‰ of live births (2013)
Life expectancy at birth	52.03 (2013)
GDP (PPP)	$16.82 billion Per capita: $7,800 (2012)
Growth rate	5% (2012)
GDP by sector	agriculture: 16.3% industry: 22.4% services: 61.3% (2008)
Budget	revenues: $4.524 billion expenditures: $4.885 billion (2012)
Percentage below poverty line	55.8% (2005)
Languages	English (official), Afrikaans (common language), German 32%, indigenous languages
Religions	Christian 80% to 90% (at least 50% Lutheran), indigenous beliefs 10% to 20%
Monetary unit	Namibian Dollar

Niger

Niger is subject to much of the instability that has affected the rest of the Sahel in recent years: instability which the coup-prone Government may not have the power to prevent. Events in neighbouring Mali in 2013 had a dramatic effect on security in the north of the country, where the Tuareg rebellion has led to the emergence of terrorist groups. A joint terrorist attack was carried out in May 2013 on a uranium facility in Arlit and a barracks in Agadez. Long-standing grievances between regional groups over the outcomes of previous peace agreements exacerbate the political fragility of the country.

Like many countries of the Sahel, Niger is underdeveloped, with a high incidence of poverty, low literacy rates and a wide gender disparity in education. This is due in part to the difficulty of providing education to nomadic children, though the continuing effects of historic slavery also have an effect. The practice of slavery was only outlawed here in 2003; however, many still suffer its effects and child labour is a large factor in poor primary school completion rates. A new labour code, passed in 2012, has achieved a moderate improvement in the elimination of some forms of child labour.

"providing education to the children of nomadic families is proving difficult"

The ACE system, which went live in December 2012, provided Niger's first access to undersea Internet cables. However, connectivity does not currently extend much further than the cities of the south and overall penetration is very low.

Mobile phones present an opportunity for ICT initiatives; in 2012, 5.4 million Niger citizens owned mobiles – around a third of the population. Though there is some awareness of ICT in Niger's educational facilities, the lack of equipment makes initiatives hard to implement. Internet users make up only a tiny fraction of the population.

ICT and Infrastructure

Internet users	212,480 (2012)
Internet penetration	1.4% (2012)
Facebook users	63,500 (2012)
ICT service exports (% of service exports, BoP)	5.4% (2010)
Broadband subscriptions	0.02 per 100 (2012)
Mobile subscriptions	32 per 100 (2012)
Television companies	1 state, 3 private
Radio stations	1 national, state-run; 30 private, 100 community stations

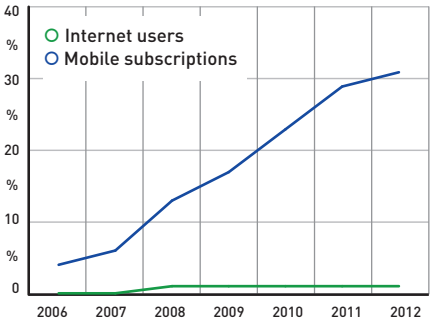
Education

Number of students	21,764 (2012)
Student mobility	Outgoing: 1,742 Incoming: 1,026 (2009)
Children out of primary	male: 454,802 female: 593,905 (2012)
Language(s) of instruction	French, national languages
Pupil/teacher ratio, primary	39 (2012)
Expenditure per student (% of GDP per capita)	Primary: 21.8% Secondary: 52.5 % Tertiary: 580.1% (2011)
Electricity in primary schools	3% (2012)
Literacy rate	male: 42.9% female: 15.1% (2005)
Youth (15-24) literacy rate	male: 52% female: 23% (2011)
Children in employment	43% (2006)
Education spending	21.7% (2011)

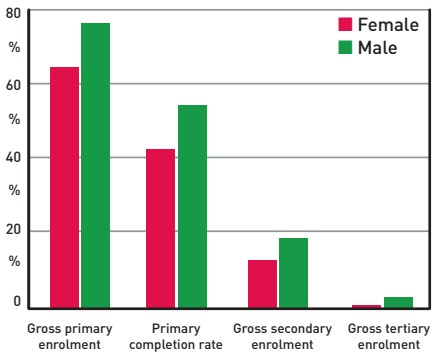
Society and Politics

Date of independence	3 August 1960 (from France)
Style of government	Republic
2013 Ibrahim Index	50.4 (28th) +7.6 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Mahamadou Issoufou (since 2011)
Area	1.267 million sq km
Population	16,899,327 (2013)
Population growth rate	3.32% (2013)
Birth rate	46.84‰ (2013)
Infant mortality	87.98‰ of live births (2013)
Life expectancy at birth	54.34 (2013)
GDP (PPP)	$12.99 billion Per capita:$800 (2012)
Growth rate	11.2% (2012)
GDP by sector	agriculture: 35.8% industry: 14.2% services: 50% (2012)
Budget	revenues: $1.698 billion expenditures: $1.871 billion (2012)
Languages	French (official), Hausa, Djerma
Religions	Muslim 80%
Monetary unit	CFA Franc

Connectivity



Participation in education



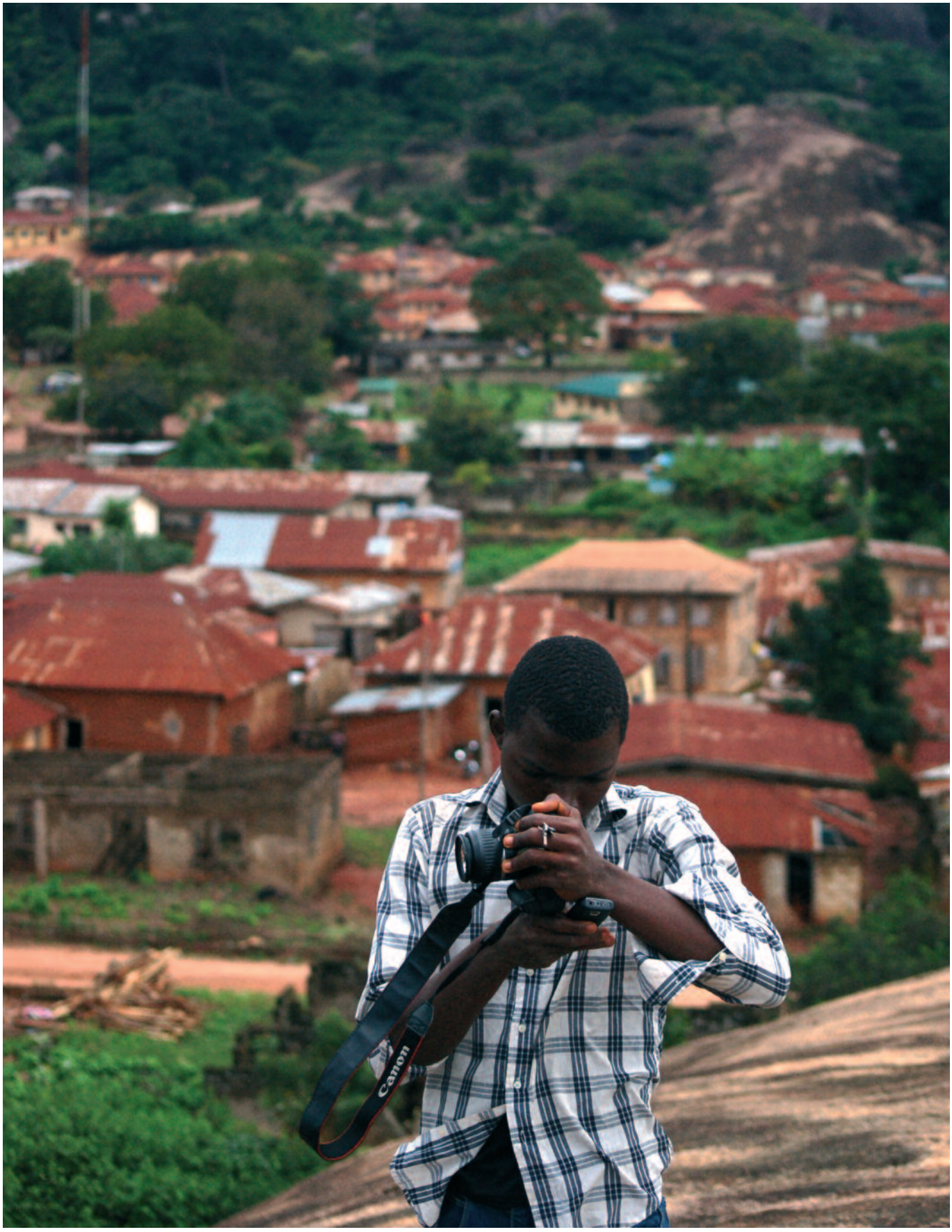


Photo: Dprince Sulayman

Nigerian Joseph Akinwunme from Ekiti State, Lagos, networks with other budding photographers

Nigeria

With the largest economy and population in Africa, Nigeria is a sprawling federal state, whose impressive diversity also manifests itself in contradiction and, increasingly, conflict. Here there is vast oil wealth, but widespread poverty; the megacity of Lagos, the largest in Africa, and extensive underdeveloped rural areas. So it is perhaps unsurprising that Nigeria has seen great education triumphs and great disasters over recent years.

After departing from military rule the Government of Nigeria has been left struggling to find compromises between diverse ethnic and religious groups. Separatist and rebel movements are on the rise, the most dangerous, especially from the point of view of education, being the insurgency in the north known in short as Boko Haram – part of a wave of extremism affecting the Sahel.

Many high-profile attacks on academic institutions have been attributed to this group and the number of pupils forced out of school has been estimated at 10,000.

Yet in Yola, within the region of Boko Haram influence, the American University of Nigeria is based; providing each student with a laptop on entry, it is one of many Nigerian education institutions to have embraced technology. Osun State started distributing 150,000 laptops to school pupils in 2011, in an effort that is the envy of other states.

What Nigerian eLearning represents is a patchwork of projects and experiments, as diverse as the state itself: but there is no coherent strategy in place so far; the draft 2012 national ICT policy, intended to transform the state into a knowledge economy, has yet to reach full approval.

"a patchwork of projects and experiments as diverse as the state itself"

Nigerian influence extends far beyond its own borders; both through its hegemony over the region and its cultural influence throughout Africa and the world, represented by the burgeoning film and media industries of Lagos – a success based on the growing importance of digital technology across the continent.

ICT and Infrastructure

Internet users	48,366,179 (2012)
Internet penetration	32.9% (2012)
Facebook users	6,630,200 (2012)
ICT service exports (% of service exports, BoP)	4.4% (2012)
Broadband subscriptions	0.01 per 100 (2012)
Mobile subscriptions	68 per 100 (2012)
Television companies	Nearly 70 government-controlled stations and federal and regional level
Radio stations	40 government-owned stations, 20 private
Electricity penetration	50.3% (2012)
Electricity use	149 kWh/capita (2011)

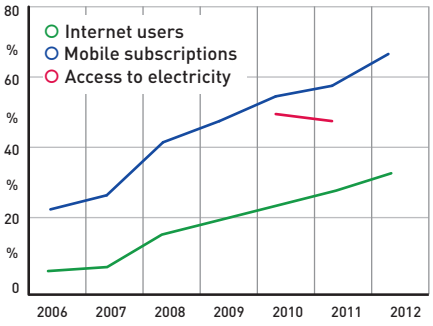
Education

Student mobility	Outgoing: 31,405 (2009)
Children out of primary	male: 5,374,076 female: 5,753,795 (2010)
Language(s) of instruction	Mother tongue in primary; English at all levels
Pupil/teacher ratio, primary	36 (2010)
Electricity in primary schools	34.7% (2008)
Literacy rate	male: 72.1% female: 50.4% (2010)
Youth (15-24) literacy rate	male: 78% female: 66% (2011)
Unemployment	23.9% (2011)
Children in employment	29% (2009)

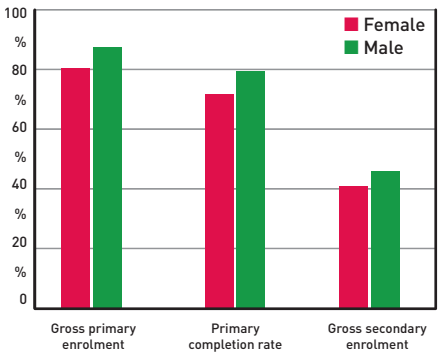
Society and Politics

Date of independence	1 October 1960 (from Britain)
Style of government	Federal republic
2013 Ibrahim Index	43.4 (41st) +0.8 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Goodluck Jonathan (since 2010)
Area	923,768 sq km
Population	174,507,539 (2013)
Population growth rate	2.54% (2013)
Birth rate	38.78‰ (2013)
Infant mortality	72.97‰ of live births (2013)
Life expectancy at birth	52.46 (2013)
GDP (PPP)	$444.3 billion (2012) Per capita: $2,700 (2012)
Growth rate	6.6% (2012)
GDP by sector	agriculture: 30.9% industry: 43% services: 26% (2012)
Budget	revenues: $22.35 billion expenditures: $27.87 billion (2012)
Percentage below poverty line	70% (2010)
Languages	English (official), Hausa, Yoruba, Igbo, Fulani, over 500 others
Religions	Muslim 50%, Christian 40%, indigenous beliefs 10%
Monetary unit	Nigerian Naira

Connectivity



Participation in education



Rwanda

2014 marks the twentieth anniversary of the Rwandan genocide. In twenty years this small, densely-populated country has made remarkable progress in reconciliation, reconstruction and growth. Under the leadership of Paul Kagame, who has been in power ever since his army ended the ethnic conflict, the country has seen a level of prosperity return, with a particular emphasis on the use of technology. Kagame has been dubbed the "technology President" for his use of social media and strong support for tech enterprise in Rwanda. Though much of the population still lives in poverty, economic reforms aimed at turning Rwanda into a middle-income country by 2020 have seen the country become a key player in business in the region.

"Technology used to serve people as tools for finding solutions is a great thing. It gives technology a real meaning" the President has said.

The Government of Rwanda has placed ICT at the centre of its development policies and is able to boast of having one of the most developed communications infrastructures in Africa, with some of the fastest Internet speeds. A series of national plans – Vision 2020, the ICT Sector Strategic Plan 2013-18 and SMART Rwanda, which brings in the partnership of World Bank experts – have been set up. These are set to turn Rwanda into a key player in ICT in East Africa.

The average education level in Rwanda remains low despite the implementation of mandatory primary and secondary schooling. Rwandans are expected to complete 10 years of education; however, the average is around 3 years (lower than in other countries in sub-Saharan Africa). A shortage of teachers, remote populations and a lack of textbooks are all partly to blame. Around 40% of teachers in Rwanda have less than 5 years of teaching experience. Enrolment numbers doubled between 1998 and 2008, before slowing in recent years.

"technology, used to serve people as tools for finding solutions, is a great thing"

ICT and Infrastructure

Internet users	818,048 (2012)
Internet penetration	8.0% (2012)
Facebook users	188,800 (2012)
ICT service exports (% of service exports, BoP)	3.8% (2012)
Broadband subscriptions	0.02 per 100 (2012)
Mobile subscriptions	50 per 100 (2012)
Television companies	1 government-owned
Radio stations	Radio Rwanda (government-owned; 9 private

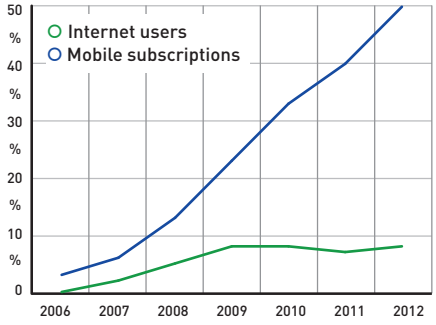
Education

Number of students	71,638 (2012)
Student mobility	Outgoing: 2,188 (2012)
Children out of primary	male: 120,058 female: 94,943 (2010)
Language(s) of instruction	French; English in further
Pupil/teacher ratio, primary	59 (2012)
Expenditure per student (% of GDP per capita)	Primary: 7.3% Secondary: 32.7% Tertiary: 88.9% (2012)
Electricity in primary schools	35% (2012)
Literacy rate	male: 74.8% female: 67.5% (2010)
Youth (15-24) literacy rate	male: 77% female: 78% (2012)
Children in employment	29% (2019)
Education spending	24.8% of budget (2012)

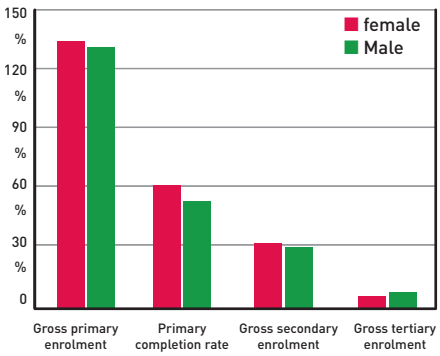
Society and Politics

Date of independence	1 July 1962 (from Belgium-administered UN trusteeship)
Style of government	Presidential multiparty system
2013 Ibrahim Index	57.8 (15th) +10.9 since 2000)
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Paul Kagame (since 1994)
Area	26,338 sq km
Population	12,012,589 (2013)
Population growth rate	2.7% (2013)
Birth rate	35.49‰ (2013)
Infant mortality	61.03‰ of live births (2013)
Life expectancy at birth	58.85 (2013)
GDP (PPP)	$15.02 billion Per capita: $1,400 (2012)
Growth rate	8% (2012)
GDP by sector	agriculture: 32.1% industry: 15% services: 52.8% (2012)
Budget	revenues: $1.701 billion expenditures: $1.781 billion (2012)
Percentage below poverty line	44.9% (2011)
Languages	Kinyarwanda, French, English (official), Kiswahili (commercial)
Religions	Christian 93.6%, Muslim 4.6%, indigenous beliefs 0.1%, none 1.7%
Monetary unit	Rwandan Franc

Connectivity



Participation in education



São Tomé

São Tomé and Príncipe

The tiny archipelagoes of São Tomé and Príncipe, the second-smallest African country by population, are poised to come into vast wealth from untapped oil fields located in their coastal waters. Change is coming to the remote islands of the Gulf of Guinea.

"oil is set to shake up island life"

For decades overlooked by international interests, the islands once relied heavily on cocoa exports and their economy was left vulnerable to sharp changes in global prices. Seeking to diversify, Governments attempted to encourage tourism. However, the enticing notion of the islands as an undiscovered paradise unfortunately remained largely true in life; knowledge of the country remained low in the wider world, while tourists were put off by the difficulty of travel and sporadic outbreaks of malaria.

The arrival of the oil industry in undisturbed waters, while recognised as a potential boon, is expected to cause no small amount of disruption to island life. The Santomean Government is anxious to avoid the effects of "Dutch Disease" and "resource curse" which have blighted other African nations on the cusp of wealth. Anxious that revenues should be fairly distributed, free of corruption, and to the benefit of other economic sectors, in 2004 it drew up a law placing all revenues in a single Federal Reserve bank account, access to which requires the signatures of four officials.

São Tomé and Príncipe is governed under a system of multiparty democracy that gives it high ratings on indices of African governance. This Government has instituted a $3.6 million Education for All Programme aimed at improving participation rates, educational quality and teacher training, in the years up to 2011.

While São Tomé and Príncipe is without a national ICT plan, it does benefit from a direct link through the ACE undersea cable to the international broadband fibre-optic network. Bahnhof ST, one of the country's ISPs, has opened Internet schools both on São Tomé and Príncipe, where students can use fully-equipped computer labs.

ICT and Infrastructure

Internet users	36,928 (2012)
Internet penetration	21.6% (2012)
Facebook users	6,940 (2012)
ICT service exports (% of service exports, BoP)	8.3% (2012)
Broadband subscriptions	0.52 per 100 (2012)
Mobile subscriptions	71 per 100 (2012)
Television companies	1 government-owned
Radio stations	1 government-owned, 3 private authorised 2005

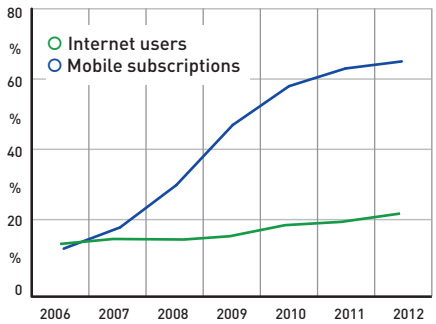
Education

Number of students	1,421 (2012)
Student mobility	Outbound: 653 (2009)
Children out of primary	male: 234 female: 52 (2008)
Language(s) of instruction	Portuguese
Pupil/teacher ratio, primary	29 (2012)
Electricity in primary schools	65.3% (2012)
Literacy rate	male: 80.3% female: 60.1% (2008)
Youth (15-24) literacy rate	male: 95% female: 96% (2011)
Children in employment	8% (2006)

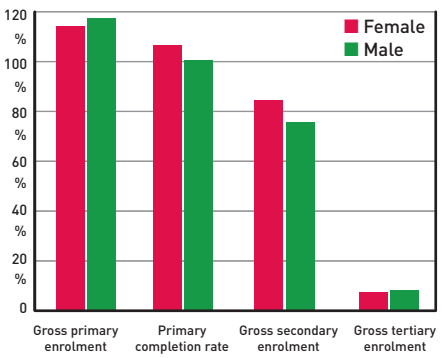
Society and Politics

Date of independence	12 July 1975 (from Portugal)
Style of government	Republic
2013 Ibrahim Index	59.9 (11th) +3.2 since 2000
2012 Democracy Index	-
Leader(s)	President: Manuel Pinto da Costa (since 2011, previously 1975-1990) Prime minister: Gabriel Arcanjo Ferreira da Costa (since December 2012)
Area	964 sq km
Population	186,817 (2013)
Population growth rate	1.94% (2013)
Birth rate	36.05‰ (2013)
Infant mortality	50.48‰ of live births (2013)
Life expectancy at birth	63.86 (2013)
GDP (PPP)	$397 million Per capita: $2,100 (2012)
Growth rate	4% (2012)
GDP by sector	agriculture: 13.9% industry: 19.4% services: 66.6% (2012)
Budget	revenues: $88.38 million expenditures: $116.7 million (2012)
Percentage below poverty line	66.2% (2009)
Languages	Portuguese (official)
Religions	Christian 77.5%, other 3.1%, none 19.4%
Monetary unit	Dobra

Connectivity



Participation in education



Senegal

Senegal is one of the most stable countries in Africa with a multi-party democracy and peaceful leadership changes. The 2012 elections were the first to include two female candidates and resulted in President Macky Sall replacing Abdoulaye Wade who had been in power for 12 years. Senegal aspires to be a high middle income country by the next decade, but often growth is hampered by poor harvests as the economy relies heavily on agriculture. Poverty and a weak investment environment are also issues for the country but the new Government has developed an ambitious programme to tackle these and other challenges.

Over the past decade the Government has been focusing on improving education. The Constitution adopted in 2001 guarantees access to education and it is now compulsory and free up to the age of 16. Enrolment rates have significantly increased but problems lie in drop-out rates as many children are expected to work.

Integrating ICT in education has also been a Government priority, first envisioned in the "Ten-Year Education and Training Program" (2001-2010), as well as in the Ministry of Education's (MoE) 2003 computerisation plan. The MoE has also developed partnerships over the years to help establish affordable ICT infrastructure in schools, including joining Microsoft's "Partners in Learning" programme in 2004. The country is also part of the New Partnership for Africa Development (NEPAD) e-schools programme, which integrates ICT in the education curriculum at secondary and primary school level. Recently UNESCO launched a project in Senegal that leverages mobile technologies to support student learning in mathematics.

Although prices may be high by global standards, Senegal's most prominent telecommunications company, Sonatel, offers some of the lowest retail and wholesale prices in the region. By mid-2013, mobile penetration was around 85% and with the recent arrival of several competing international fibre optic submarine cables, the broadband market has been given a boost and prices have been lowered. 3G mobile broadband is popular, representing 70% of all internet connections. Currently, 4G LTE is being tested.

ICT and Infrastructure

Internet users	2,269,681 (2012)
Internet penetration	19.2% (2012)
Facebook users	675,820 (2012)
ICT service exports (% of service exports, BoP)	33.6% (2010)
Broadband subscriptions	0.73 per 100 (2012)
Mobile subscriptions	88 per 100 (2012)
Television companies	State-run RTS with 2 stations, private subscription services
Radio stations	RTS service national and regional, local and community radio
Electricity penetration	53.5% (2012)
Electricity use	187 kWh/capita (2012)

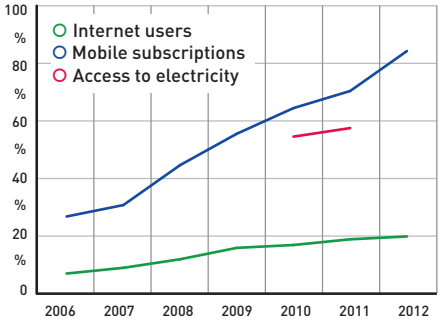
Education

Number of students	92,106 (2010)
Student mobility	Outgoing: 11,396 (2009)
Children out of primary	male: 252,157 female: 186,399 (2012)
Language(s) of instruction	French
Pupil/teacher ratio, primary	32 (2012)
Expenditure per student (% of GDP per capita)	Primary: 17.1% Secondary: 29.1% Tertiary: 194.6% (2010)
Electricity in primary schools	21.8% (2012)
Literacy rate	male: 61.8% female: 38.7% (2009)
Youth (15-24) literacy rate	male: 74% female: 56% (2011)
Unemployment	male: 7.0% female: 13.6% (2006)
Children in employment	17% (2011)
Education spending	24.0% of budget (2009)

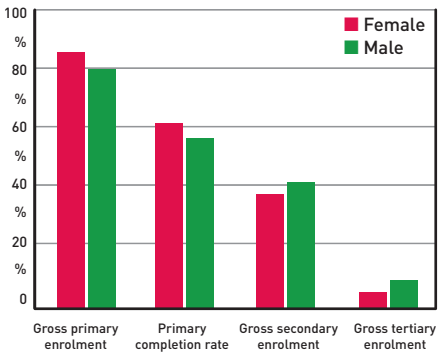
Society and Politics

Date of independence	4 April 1960 (from France)
Style of government	Republic
2013 Ibrahim Index	61.0 (10th) +4.3 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	President: Macky Sall (since 2012)
Area	196,722 sq km
Population	13,300,410 (2013)
Population growth rate	2.51% (2013)
Birth rate	35.64‰ (2013)
Infant mortality	53.93‰ of live births (2013)
Life expectancy at birth	60.57 (2013)
GDP (PPP)	$26.29 billion Per capita: $2,000 (2012)
Growth rate	3.5% (2012)
GDP by sector	agriculture: 15% industry: 22.9% services: 62.1% (2012)
Budget	revenues: $3.271 billion expenditures: $4.094 billion (2012)
Percentage below poverty line	54% (2001)
Languages	French (official), Wolof, Pulaar, Jola, Mandinka
Religions	Muslim 94%, Christian 5%, indigenous beliefs 1%
Monetary unit	CFA Franc

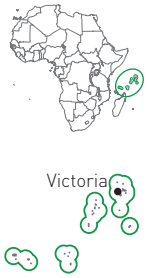
Connectivity



Participation in education



Seychelles



The Seychelles, with their clear seas, beaches and rich wildlife, are a highly desirable destination for international tourism, which, ahead of fishing, is the major contributor to the economy. The ruling party in this multi-party democracy is the Seychelles People's Progressive Front, in power since the bloodless coup of 1977 which brought to power President René. He was succeeded as head of state by the current president James Michel James.

"in 2012 the Seychelles Tourism Academy launched its first tourism eLearning course"

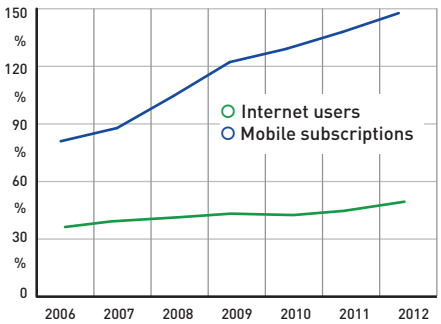
The Seychellois enjoy a high level of per capita income, though the economy is vulnerable to downturns in the international tourism market. Education is developed at all levels, though a significant brain drain effect is felt. To counter this, the University of the Seychelles, the only non-vocational post-secondary institution in the archipelago, was set up in 2009.

eLearning in the islands is of great benefit to the tourist sector, helping to train the large workforces it requires. In 2012 the Seychelles Tourism Academy launched its first online course, in sustainable tourism. The University of the Seychelles collaborates as part of the network known as the Virtual University of the Small States of the Commonwealth, set up to share free resources online that are relevant to the particular situations faced by similar countries.

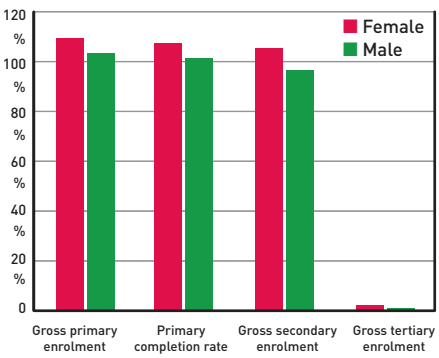
The Seychelles is an African leader in ICT development, with high penetration rates and the most developed infrastructure in southern Africa. The national ICT policy was introduced in 2007 and includes education, skills, industry, Government and access as key objectives.

Photo: Jonathan E. Shaw

Connectivity



Participation in education



ICT and Infrastructure

Internet users	38,854 (2012)
Internet penetration	47.1% (2012)
Facebook users	27,600 (2012)
ICT service exports (% of service exports, BoP)	6.4% (2012)
Broadband subscriptions	11.72 per 100 (2012)
Mobile subscriptions	159 per 100 (2012)
Television companies	1 government-run; cable and satellite
Radio stations	2 government-run

Education

Number of students	103 (2012)
Student mobility	Outgoing: 464 (2009)
Children out of primary	male: 337 female: 183 (2009)
Language(s) of instruction	Creole in primary; English, French at all levels
Pupil/teacher ratio, primary	13 (2011)
Expenditure per student (% of GDP per capita)	Primary: 8.7% Secondary: 7.2% Tertiary: 545.7% (2011)
Electricity in primary schools	100.0% (2011)
Literacy rate	male: 91.4% female: 92.3% (2011)
Youth (15-24) literacy rate	male: 99% female: 99% (2011)
Unemployment	male: 6.1% female: 4.9% (2005)
Education spending	12.6% of budget (2006)

Society and Politics

Date of independence	29 June 1976 (from Britain)
Style of government	Republic
2013 Ibrahim Index	75.0 (4th) +5.5 since 2000
2012 Democracy Index	-
Leader(s)	President: James Michel James (since 2004)
Area	455 sq km
Population	90,846 (2013)
Population growth rate	0.9% (2013)
Birth rate	14.85‰ (2013)
Infant mortality	11.06‰ of live births (2013)
Life expectancy at birth	74.01 (2013)
GDP (PPP)	$2.295 billion Per capita: $25,000 (2012)
Growth rate	2.9% (2012)
GDP by sector	agriculture: 2% industry: 18.6% services: 79.4% (2012)
Budget	revenues: $438.3 million expenditures: $415.4 million (2012)
Languages	English (official) 4.9%, Creole
Religions	Christian 93.2%, Hindu 2.1%, Muslim 1.1%, none 0.6%
Monetary unit	Seychelles Rupee

Sierra Leone

2012 saw the first elections in Sierra Leone without UN supervision, a turning point in the country's journey away from the horrors of the civil war. It was also that year that former President Charles Taylor was found guilty of war crimes at the International Criminal Court. Since the end of the war rapid progress has been made, with substantial economic growth; poverty is still widespread, however, unemployment high and human development, according to the UN's metrics, at one of the lowest levels in the world.

Many children remain out of formal education, despite the progress that has been made in rebuilding the school system: measures including increasing the numbers of teachers, reconstructing many of more than 1,000 schools destroyed during the war, engaging in UNICEF- and USAID-supported programmes to increase female participation, awarding grants to marginalised students and supporting centres for street children.

An advisory board on national ICT policy was launched in 2011. Sierra Leone missed out on the opportunity to connect to the SAT3 Atlantic cable; the Government considers ICT crucial to socio-economic development. The Vision 2025 programme for technology envisages the training of many Sierra Leonese students in science and technology to support such development.

"many children remain out of formal education, despite the progress that has been made in rebuilding the school system"

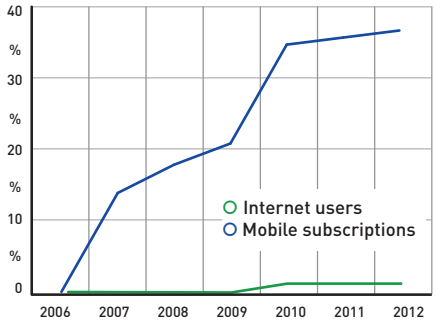
Photo: Dorothy Vorhees — The cotton tree

ICT and Infrastructure	
IInternet users	69,240 (2012)
Internet penetration	1.3% (2012)
Facebook users	76,880 (2012)
ICT service exports (% of service exports, BoP)	57.2% (2012)
Broadband subscriptions	0.00 per 100 (2007)
Mobile subscriptions	36 per 100 (2012)
Television companies	1 government-owned, 1 private, pay-TV
Radio stations	1 government-owned national station, c.24 private in cities

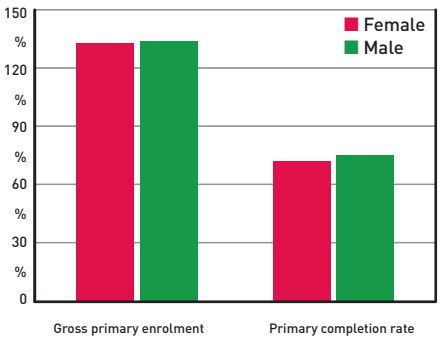
Education	
Student mobility	Outgoing: 678 (2009)
Language(s) of instruction	English
Pupil/teacher ratio, primary	33 (2012)
Expenditure per student (% of GDP per capita)	Primary: 6.9% (2011)
Literacy rate	male: 54.7% female: 32.6% (2011)
Youth (15-24) literacy rate	male: 69% female: 50% (2011)
Unemployment	male: 4.5 female: 2.3% (2004)
Children in employment	26% (2010)
Education spending	14.9% of budget (2012)

Society and Politics	
Date of independence	27 April 1961 (from Britain)
Style of government	Constitutional democracy
2013 Ibrahim Index	48.0 (31st) +14.8 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Ernest Bai Koroma (since 2001)
Area	71,740 sq km
Population	5,612,685 (2013)
Population growth rate	2.3% (2013)
Birth rate	37.77‰ (2013)
Infant mortality	74.95‰ of live births (2013)
Life expectancy at birth	56.98 (2013)
GDP (PPP)	$7.97 billion Per capita: $1,300 (2012)
Growth rate	15.2% (2012)
GDP by sector	agriculture: 51.8% industry: 15% services: 33.2% (2012)
Budget	revenues: $576.9 million expenditures: $773.5 million (2012)
Percentage below poverty line	70.2% (2004)
Languages	English (official), Mende (southern vernacular), Temne (northern vernacular), Krio (lingua franca)
Religions	Muslim 60%, Christian 10%, indigenous beliefs 30%
Monetary unit	Leone

Connectivity



Participation in education



Somalia

A level of peace has returned to Somalia but its fate as a country remains unclear. Decades of war have left the eastern and southern parts of the country in ruins and the threat from Al-Shabaab militants – though driven out of their urban strongholds – remains, despite the formation of a formal government in Mogadishu in 2012, the first in over two decades.

"the task of reconstruction has only just begun"

Meanwhile breakaway regions in the north still operate largely under their own governance: Puntland, on the tip of the Horn of Africa, which is the base for the Somali pirates who drew international attention in previous years, when at the height of economic hardship their activities peaked; and Somaliland, a self-declared independent state to the west, which has resisted much of the conflict, though engaging in border disputes with its neighbour.

The total lack of government over two decades of war and strife has left generations of Somalians without access to schooling; the country's heavily damaged infrastructure and fractured society necessitate flexibility in the provision of education. Accurate data is lacking for much of the country; primary enrolment rates are at about 42%, with just over a third of attendees female.

Attempts to provide educational services have focused to a great extent on methods of distance learning, such as the Africa Educational Trust and BBC World Service's Somali Distance Education and Literacy programme (SOMDEL), which provides radio lessons by Somali professionals living in London or Nairobi for study in classes or at home.

Recognising education as one of the key ways to reconstruct the country, and involve its disadvantaged youth in the effort, the Government called a National Education Conference in Mogadishu last year. In partnership with UNICEF, it announced a Go2School Programme lasting from 2013-16, aimed initially at getting a million of 4.4 million out-of-school children into education.

The dust of war may have settled in Somalia, but the great task of reconstruction has only just begun.

ICT and Infrastructure

Internet users	126,070 (2012)
Internet penetration	1.4% (2012)
Facebook users	123,480 (2012)
Broadband subscriptions	0.00 per 100 (2008)
Mobile subscriptions	7 per 100 (2012)
Television companies	2 private broadcasting Al-Jazeera % CNN, some government-owned regional stations
Radio stations	Government-owned Radio Mogadishu, regional governmental & private services

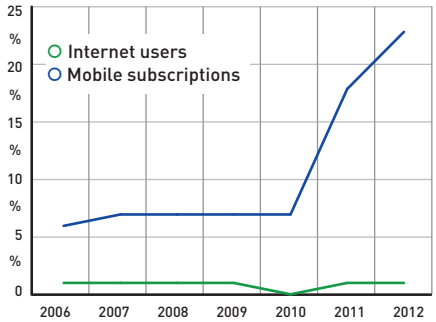
Education

Student mobility	Outgoing: 1,741 (2009)
Language(s) of instruction	Somali
Literacy rate	male: 49.7% female: 25.8% (2001)
Children in employment	49 % (2006)

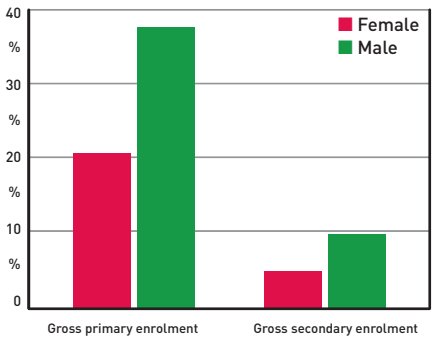
Society and Politics

Date of independence	1 July 1960 (From Britain & Italian UN trusteeship)
Style of government	Transitional
2013 Ibrahim Index	8.0 (52nd) -1.7 since 2000
2012 Democracy Index	-
Leader(s)	President: Hassan Sheikh Mohamud (since September 2012)
Area	637,657 sq km
Population	10,251,568 (2013)
Population growth rate	1.67% (2013)
Birth rate	41.45‰ (2013)
Infant mortality	101.91‰ of live births (2013)
Life expectancy at birth	51.19 (2013)
GDP (PPP)	$5.896 billion Per capita: $600 (2010)
Growth rate	2.6% (2010)
GDP by sector	agriculture: 59.3% industry: 7.2% services: 33.5% (2012)
Languages	Somali (official), Arabic (official), Italian, English
Religions	Sunni Muslim (official)
Monetary unit	Somali Shilling

Connectivity



Participation in education



Mogadishu University

South Africa

A member of the BRICS group since 2010, South Africa holds the position of a rapidly-emerging, newly industrialised economy with significant regional influence: "Africa's superpower". The 20 years since the ending of Apartheid – marked on the 27th April 2014 – have seen a now firmly-established democracy take on heavy challenges, if with variable measures of success so far.

South Africa's Human Development Index dropped after the fall of the old regime, largely because of the effect the AIDS crisis had on its health component, a crisis the Government was slow to tackle. It has now, however, risen beyond previous levels. Meanwhile the land reform programme, once intended to redistribute 30% of agricultural land to black South Africans by 2014, has fallen far short of its targets, leaving smallholders marginalised.

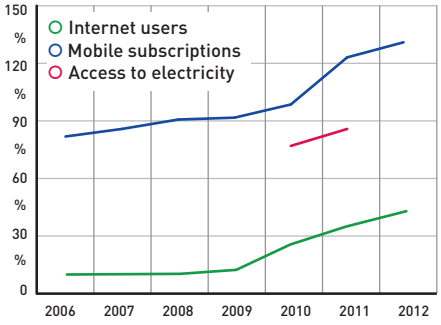
A similar pattern can be identified within education. Inheriting a system designed for the benefit of the few, democratic Governments have made huge progress towards reform, but have failed so far fully to address economic realities and deeply-engrained inequalities. The wealthy have access to private institutions and to the well-funded public schools in rich areas, while educational provision for the poor is seen, despite successes, as dysfunctional. In the 2013 final exam results, 31% of the cohort attained grades sufficient for university entrance, while youth unemployment rates remain, at 52% in 2012, some of the highest in the world.

An Employment Tax incentive Act was signed in 2013, designed to create jobs for young workers and those in special economic zones; whether it will prove effective against such high unemployment rates is yet to be seen.

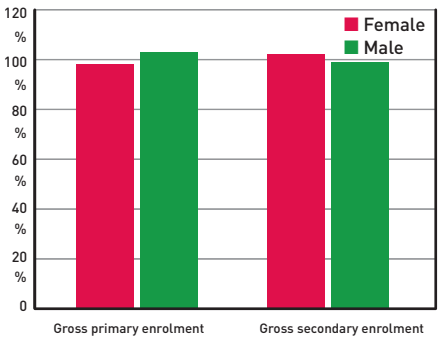
> **"reforms have so far failed fully to address deeply-engrained inequalities"**

South Africa has made great progress this year in eCommerce and cable infrastructure development; meanwhile, tech hubs are burgeoning, and a national ICT strategy has been launched. However, other African countries are emerging as significant rivals: Kenya, with its rapid pace of development, and Nigeria, which is now the largest economy in sub-Saharan Africa.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	8,500,000 (2012)
Internet penetration	41.0% (2012)
Facebook users	6,269,600 (2012)
ICT service exports (% of service exports, BoP)	10.6% (2012)
Broadband subscriptions	2.18 per 100 (2012)
Mobile subscriptions	135 per 100 (2012)
Television companies	SABC, 4 stations; private e.tv, national and local channels
Radio stations	SABC, 18 stations in all official languages, >100 community stations
Electricity penetration	75.8% (2012)
Electricity use	4,694 kWh/capita (2012)

Education

Student mobility	Outgoing:6,062 Incoming: 60,856 (2009)
Children out of primary	male: 335,764 female: 320,723 (2012)
Language(s) of instruction	11 national languages, according to constitution; English main language of instruction
Pupil/teacher ratio, primary	30 (2012)
Expenditure per student (% of GDP per capita)	Primary: 17.5% Secondary: 19.7% (2010)
Electricity in primary schools	85.2% (2012)
Literacy rate	male: 93.9% female: 92.2% (2011)
Youth (15-24) literacy rate	male: 97% female: 98% (2011)
Unemployment	male: 22.7% female: 27.7% (2012)
Education spending	19.2% of budget (2010)

Society and Politics

Date of independence	31 May 1910 (from Britain); 31 May 1961 (republic); 27 April 1994 (majority rule)
Style of government	Republic
2013 Ibrahim Index	71.3 (5th) +0.6 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	President: Jacob Zuma (since 2009)
Area	1,219,090 sq km
Population	48,601,098 (2013)
Population growth rate	-0.45% (2013)
Birth rate	17.36‰ (2013)
Infant mortality	42.15‰ of live births (2013)
Life expectancy at birth	49.48 (2013)
GDP (PPP)	$576.1 billion (2012) Per capita: $11,300 (2012)
Growth rate	2.5% (2012)
GDP by sector	agriculture: 9% industry: 26% services: 65% (2007)
Budget	revenues: $99.56 billion expenditures: $117.8 billion (2012)
Percentage below poverty line	31.3% (2009)
Languages	IsiZulu, IsiXhosa, Afrikaans, Sepedi, English, Setswana, Sesotho, Xitsonga, siSwati, Tshivenda, isiNdebele (official), other 0.5%
Religions	Christian 79.7%, Muslim 1.5%, none 15.1%
Monetary unit	Rand

South Sudan

After initial confidence, Africa's youngest state has been rocked by an outbreak of tribal violence over the last few months, sparked by a power struggle between President Kiir and his dismissed Vice-President Riek Machar.

99% of the population voted for secession in 2011, after autonomy was granted to South Sudan from its northern neighbour in 2005, ending the decades of civil war that had plunged many parts of the region into humanitarian crisis. Relations with Sudan have been strained since then by arguments over the sharing of oil, and border trouble in the region of Abyei which, arising from disputes between Muslim herdsmen and South Sudanese farmers, bears some similarity to the strife currently afflicting the Central African Republic.

"internal, external relations under strain"

While 75% of the oil wealth in the region lies within the borders of South Sudan, the industrial infrastructure – refineries and pipelines – are in Sudan's possession. Various breakdowns in relations have therefore caused the intermittent shutdown of production and increased economic hardship for the southern state, 98% of whose Government revenue comes from the sector.

The mainstay of the vast majority of the population is subsistence farming; though here as well a lack of development prevents the South Sudanese from tapping the riches on offer: namely, their fertile land and plentiful Nile water. A WFP Purchase for Progress initiative launched in 2010 is attempting to encourage the accumulation of agricultural surpluses and business-oriented agriculture.

South Sudan's literacy rates may be the lowest in the world, estimated between 20-25%. Only 1% of girls finish primary school and only one quarter of schoolchildren are female, according to UNICEF. Among the enormous challenges faced by the education system is the lack of qualified teachers and lecturers – many of whom either came from the North or moved there during the war – and the sudden increase in pupils caused by the return of refugees, with which the already war-torn, temporary infrastructure could not cope.

Language is proving equally complicated. Having fought for decades to throw off the Arabic yoke, the new state chose English as its language of instruction; yet with an immense diversity of ethnic groups and indigenous tongues, and a whole generation of schoolchildren brought up with Arabic, the transition is proving difficult.

Faced with massive difficulties and monumental tasks, the South Sudanese cannot yet enjoy their newfound freedom. And, at the moment, it appears that the unity of purpose that inspired the creation of the state has broken down.

ICT and Infrastructure

Internet users	100 (2012)
Broadband subscriptions	0.00 per 100 (2012)
Mobile subscriptions	19 per 100 (2012)
Television companies	Government-controlled
Radio stations	Several private

Education

Language(s) of instruction	English
Literacy rate	male: 40% female: 16% (2009)

Society and Politics

Date of independence	9 July 2011 (from Sudan)
Style of government	Republic
Leader(s)	President: Salva Kiir Mayardiit (since 2005)
Area	644,329 sq km
Population	11,090,104 (2013)
Population growth rate	4.23% (2013)
Birth rate	38.5‰ (2013)
Infant mortality	69.97‰ of live births (2013)
GDP (PPP)	$11.64 billion (2012) Per capita: $1,100 (2012)
Growth rate	-47.6% (2012)
Percentage below poverty line	50.6% (2009)
Languages	English, Arabic (Juba and Sudanese variants) (official), regional languages including Dinka, Nuer, Bari, Zande, Shilluk
Religions	animist, Christian
Monetary unit	Sudanese Pound

Photo: Fabrizio Demartis

Sudan

One of the largest African states, Sudan is still beset by problems connected to the secession of South Sudan in 2011. These include a continuing border conflict and a dispute over the sharing of oil revenues. The Western region of Darfur is still suffering from a long- standing humanitarian crisis. Corruption is also of grave concern, with the country ranking 174th out of 177 states on the 2013 Corruption Perceptions Index (though Transparency International admits that little data is available relating specifically to the successor states of pre-2011 Sudan).

Despite losing most of its oil to South Sudan, Sudan still has plentiful resources, including gold and cotton. The suitability of the region for the cultivation of the Gum Acacia makes the country the largest producer of gum arabic in the world, which is crucial to the production of soft drinks, though the years of conflict have caused substantial damage to the industry.

Sudan's education system suffers from a marked gender disparity; literacy rates for women are about 20% lower than for men. However, Sudan also has a long history of providing female education; a women's university was established in 1907 and, since then, substantial gains have been made in overcoming the social prejudice towards girls' education.

"substantial gains have been made in overcoming the social prejudice towards girls' education"

The Sudanese Government exercises substantial controls over many aspects of life, including the media and the Internet. In 2013, when protests and riots erupted in Khartoum over the ending of fuel subsidies, an Internet blackout took place which, since Sudan has three independent Internet providers, could probably only have been the coordinated work of the central authorities.

ICT and Infrastructure

Internet users	6,499,275 (2012)
Internet penetration	21.0% (2012)
ICT service exports (% of service exports, BoP)	3.8% (2012)
Broadband subscriptions	0.05 per 100 (2012)
Mobile subscriptions	60 per 100 (2012)
Television companies	Government-controlled with military censor
Radio stations	Government-controlled, 1 private station
Electricity penetration	35.9% (2012)
Electricity use	143 kWh/capita (2012)

Education

Language(s) of instruction	Arabic
Pupil/teacher ratio, primary	38 (2009)
Literacy rate	male: 80.7% female: 63.2% (2011, pre-secession)
Unemployment	male: 12.7% female: 19.3% (2008)

Society and Politics

Date of independence	1 January 1956 (from Egypt and the UK)
Style of government	Federal Republic
2013 Ibrahim Index	-
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Omar Bashir (since 1989)
Area	1,861,484 sq km
Population	34,847,910 (2013)
Population growth rate	1.83% (2013)
Birth rate	30.84‰ (2013)
Infant mortality	54.23‰ of live births (2013)
Life expectancy at birth	62.95 (2013)
GDP (PPP)	$85.42 billion (2012) Per capita: $2,500 (2012)
Growth rate	-3.3% (2012)
GDP by sector	agriculture: 27.7% industry: 31.2% services: 41.1% (2012)
Budget	revenues: $3.95 billion expenditures: $9.087 billion (2012)
Percentage below poverty line	46.5% (2009)
Languages	Arabic, English (official), Nubian, Ta Bedawie, Fur
Religions	Sunni Muslim, small Christian minority
Monetary unit	Sudanese Pound

Connectivity

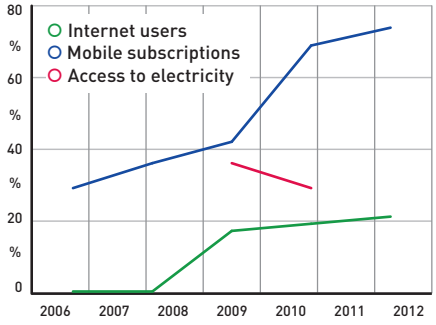


Photo: Azri Alhaq

Swaziland

Swaziland is one of only a few absolute monarchies left in the world, alongside Brunei, four states of the Arabian Peninsula and Vatican City. Its kings have in the past allowed varying levels of opposition; but any apparent constitutional advances have only served to cement the power of the ruling family, headed currently by King Mswati III. He has no plan to give up power, describing the country as "not yet ready" for party politics.

"one of the last six absolute monarchies left in the world"

Ethnically homogenous Swaziland, where most of the inhabitants originate from a single tribe, is well known outside its borders for its distinctive culture; the traditional customs practised by Swazis inform much of the country's law and governance. Handicrafts also form an important export.

Economically Swaziland depends on its neighbour South Africa, which virtually encircles the country and accounts for the majority of international trade. The country is vulnerable to droughts, from which the subsistence farming that supports its population is liable to suffer heavily, leading to chronic food shortages.

Literacy rates in Swaziland are high, and participation in primary education has risen over the last decade. The major obstacle to education progress is HIV. Swaziland has the highest infection rate in the world: a quarter of the adult population is affected, leaving tens of thousands of children orphaned and without access to basic services.

Social media had become an important medium of free speech, and has helped with political campaigns – though the Government has fired a few warning shots over the bows regarding the use of Facebook.

Jacaranda trees

ICT and Infrastructure

Internet users	251,448 (2012)
Internet penetration	20.8% (2012)
Facebook users	89,500 (2012)
ICT service exports (% of service exports, BoP)	29.0% (2010)
Broadband subscriptions	0.27 per 100 (2012)
Mobile subscriptions	66 per 100 (2012)
Television companies	State-owned TV, SA services
Radio stations	3 state-owned, 1 private

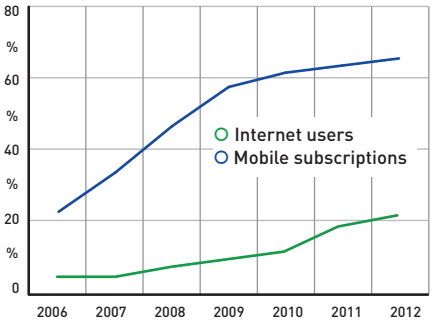
Education

Number of students	8,904 (2011)
Student mobility	Outgoing: 3,864 (2009)
Children out of primary	male: 17,122 female: 14,735 (2007)
Language(s) of instruction	English
Pupil/teacher ratio, primary	29 (2011)
Expenditure per student (% of GDP per capita)	Primary: 19.9% Secondary: 40.8% (2011) Tertiary: 321.9% (2006)
Electricity in primary schools	95.9% (2012)
Literacy rate	male: 88.4% female: 87.3% (2011)
Youth (15-24) literacy rate	male: 92% female: 95% (2011)
Unemployment	40% (2006)
Children in employment	7% (2010)
Education spending	21.0% of budget (2011)

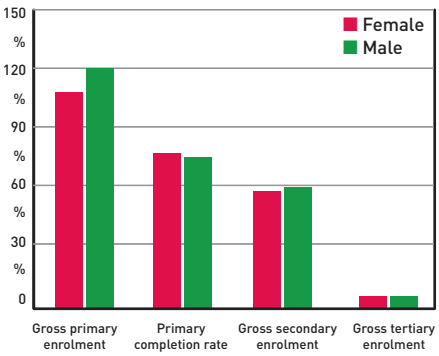
Society and Politics

Date of independence	6 September 1968 (from Britain)
Style of government	Absolute monarchy
2013 Ibrahim Index	50.8 (26th) +4.3 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	King: Mswati III (since 1986)
Area	17,364 sq km
Population	1,403,362 (2013)
Population growth rate	1.17% (2013)
Birth rate	25.68‰ (2013)
Infant mortality	57.19‰ of live births (2013)
Life expectancy at birth	50.01 (2013)
GDP (PPP)	$6.174 billion (2012) Per capita: $5,700 (2012)
Growth rate	-1.5% (2012)
GDP by sector	agriculture: 7.5% industry: 47.9% services: 44.6% (2012)
Budget	revenues: $1.451 billion expenditures: $1.438 billion (2012)
Percentage below poverty line	69% (2006)
Languages	English (governmental), siSwati (official)
Religions	Zionist 40% (a blend of Christianity and indigenous ancestral worship), Roman Catholic 20%, Muslim 10%, Anglican, Baha'i, Methodist, Mormon, Jewish and others 30%
Monetary unit	Lilangeni

Connectivity



Participation in education



Tanzania

Before he went into politics, Tanzania's founding father and first President, Julius Nyerere, was a teacher. At the heart of his vision of a fairer, post-colonial society lay a "profound belief in the power of education." In fact, education was so central to his concept of the Tanzanian road to socialism, that it was said of his period in power that "Tanzania has been something of a giant in-service seminar, with Nyerere in the professor's chair."

It is hardly surprising, therefore, that Tanzania's achievements in education since independence have, in many respects, been impressive. In 1961, 80% of the population was illiterate and, until 1974, fewer than 50% of the country's children attended primary school. Free tuition (since 2001) has led to a massive increase in primary school enrolment. By 2009, 95% of the country's children were enrolled in primary school – one of the highest enrolment ratios in Africa and with virtual parity between girls and boys.

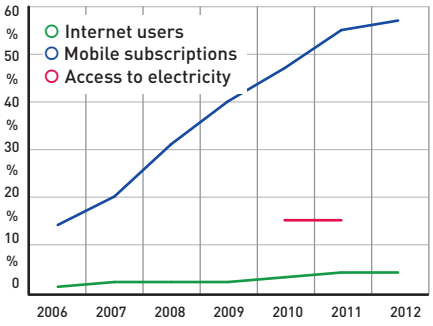
However, the figures mask significant underlying problems, particularly with retention, completion and transition to secondary education. The impressive rates of primary school enrolment have not been accompanied by a proportional increase in resources for teachers, classrooms and books.

Drop-out rates from primary education are high and enrolment rates for lower secondary education are comparatively low (30.8%) too. Many challenges persist throughout the education system with the quality, learning outcomes and the relevance of graduates' skills to the wider economy being particular problems. And, despite an increase of 300% in education spending between 2003 and 2007, there is still a chronic shortage of teachers.

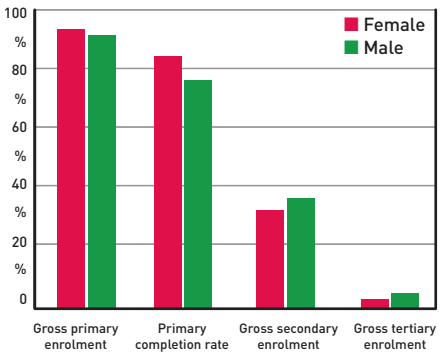
> **"Tanzania has been something of a giant in-service seminar"**

In 2011 the Government launched an ambitious programme to boost primary school learning outcomes, the Tanzania Twenty-First Centrury (TZ21) Programme, and whilst the goal of ensuring that every Tanzanian child successfully completes free basic education remains a key component of the Government's development agenda, it is difficult to avoid the conclusion that the country still has a long way to go before it reaches Nyerere's vision of "self-reliance through education".

Connectivity



Participation in education



ICT and Infrastructure

Internet users	5,629,532 (2012)
Internet penetration	13.1% (2012)
Facebook users	705,460 (2012)
ICT service exports (% of service exports, BoP)	13.3% (2012)
Broadband subscriptions	0.01 per 100 (2012)
Mobile subscriptions	57 per 100 (2012)
Television companies	1 state-owned, multiple private
Radio stations	1 state-owned, > 40 private
Electricity penetration	14.8% (2012)
Electricity use	92 kWh/capita (2012)

Education

Number of students	166,014 (2012)
Student mobility	Outgoing: 5,393 (2009)
Children out of primary	male: 76,842 female: 91,636 (2008)
Language(s) of instruction	Swahili in primary; English at all levels
Pupil/teacher ratio, primary	46 (2012)
Expenditure per student (% of GDP per capita)	Primary: 10.9% (2009) Secondary:16.2% (2010) Tertiary: 870.9% (2010)
Electricity in primary schools	14.1% (2012)
Literacy rate	male: 75.5% female: 60.8% (2010)
Youth (15-24) literacy rate	male: 78% female: 76% (2011)
Unemployment	male: 2.7% female: 4.2% (2011)
Children in employment	21% (2006)
Education spending	18.3% of budget (2010)

Society and Politics

Date of independence	9 December 1961 (Tanganyika, from Britain) 10 December 1963 (Zanzibar, from Britain) 26 April 1964 (Union)
Style of government	Republic
2013 Ibrahim Index	56.9 (17th) +1.4 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Jakaya Kikwete (since 2005) President of Zanzibar: Ali Mohamed Shein (since 2010)
Area	947,300 sq km
Population	48,261,942 (2013)
Population growth rate	2.82% (2013)
Birth rate	37.25‰ (2013)
Infant mortality	45.1‰ of live births (2013)
Life expectancy at birth	60.76 (2013)
GDP (PPP)	$73.12 billion (2012) Per capita: $1,600 (2012)
Growth rate	6.9% (2012)
GDP by sector	agriculture: 27.7% industry: 25.1% services: 47.2% (2012)
Budget	revenues: $5.571 billion expenditures: $6.706 billion (2012)
Percentage below poverty line	36% (2002)
Monetary unit	Tanzanian Shilling

Togo

Togo's economy has been damaged by years of isolation over its human rights record and poor governance. Widespread protests in 2013 underlined the need for social and political reform in the run-up to the presidential elections in 2015. Economic progress has been made in recent years with the expansion of the deepwater port in Lomé and growth in mining and agriculture. The potential for unrest in this tiny country is still significant, however, with the Government often at logger-heads with the trade unions.

Fees for primary education in Togo were abolished at the beginning of the 2008/9 academic year and a 12% increase in the primary school population was achieved. This caused a strain on school resources, however: there was a lack of teaching materials, staff shortfalls and inadequate school buildings.

Though the Government has no official ICT policy, a 2003 revision of the national education policy acknowledged the importance of computer training and the initiation of students into productive work and revenue-generating activities. However, only private institutions are able to afford computers, while state schools must rely on support from NGOs; this has put ICT equipment out of the hands of most pupils.

"the importance of computer training in education is acknowledged, despite the Government having no official ICT plan"

The WACS cable landed in Togo in June 2012, providing the country's first link to the undersea network.

Photo: Philippe Reymond

ICT and Infrastructure

Internet users	356,300 (2012)
Internet penetration	4.0% (2012)
Facebook users	117,420 (2012)
ICT service exports (% of service exports, BoP)	23.2% (2010)
Broadband subscriptions	0.08 per 100 (2012)
Mobile subscriptions	56 per 100 (2012)
Television companies	2 state-owned; 5 private, local
Radio stations	State-owned network, many private & community stations
Electricity penetration	27.9% (2012)
Electricity use	104 kWh/capita (2007)

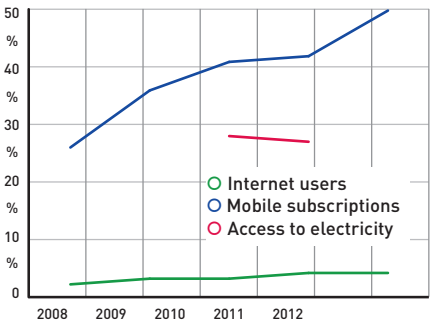
Education

Number of students	65,617 (2012)
Student mobility	Outgoing: 2,805 Incoming: 459 (2009)
Children out of primary	male: 7,767 female: 59,304 (2008)
Language(s) of instruction	Éwé, Kabiyé in primary; French at all levels
Pupil/teacher ratio, primary	42 (2012)
Expenditure per student (% of GDP per capita)	Primary: 9.4% (2012) Secondary: 15.7% Tertiary: 73.8% (2011)
Electricity in primary schools	8.2% (2011)
Literacy rate	male: 74.1% female: 48% (2011)
Youth (15-24) literacy rate	male: 88% female: 75% (2011)
Children in employment	28% (2010)
Education spending	14.3% of budget (2011)

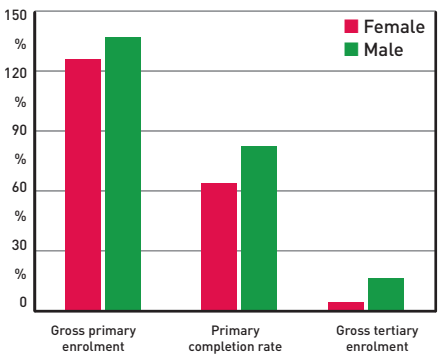
Society and Politics

Date of independence	27 April 1960 (from France/UN)
Style of government	Republic under transition
2013 Ibrahim Index	45.8 (3th) +8.2 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Faure Gnassingbe (since 2005)
Area	56,785 sq km
Population	7,154,237 (2013)
Population growth rate	2.73% (2013)
Birth rate	34.9‰ (2013)
Infant mortality	48.28‰ of live births (2013)
Life expectancy at birth	63.62 (2013)
GDP (PPP)	$6.87 billion (2012) Per capita: $1,100 (2012)
Growth rate	5.6% (2012)
GDP by sector	agriculture: 28% industry: 33.7% services: 38.2% (2012)
Budget	revenues: $764.1 million expenditures: $905.3 million (2012)
Percentage below poverty line	32% (1989)
Languages	French (official), Ewe and Mina (in south), Kabye and Dagomba (in north)
Religions	Christian 29%, Muslim 20%, indigenous beliefs 51%
Monetary unit	CFA Franc

Connectivity



Participation in education



Tunisia

Protests in Tunisia that caused the downfall of the autocratic President Zine al-Abidine Ben Ali marked the opening of the period of revolutionary unrest across the Arab World that continues to this day. Sparked by the self-immolation of Mohamed Bouazizi, a young man forced by high unemployment to sell fruit by the wayside, the Tunisian opening of the Arab Spring has proved more of an unqualified success than the movements it precipitated elsewhere.

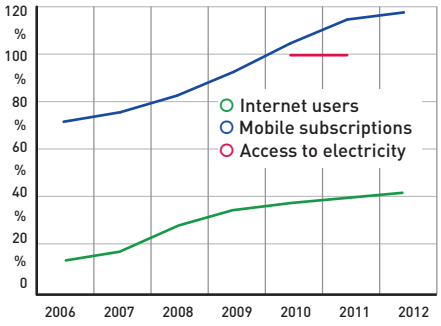
However, the new-found democracy is still on a rocky footing. The secularist basis of the constitution, guaranteeing rights to women not granted elsewhere in the Arab World, has been challenged; terrorism remains a threat, as it has been for the past decade; and after the killing of two opposition politicians, fresh elections are to take place this year. Meanwhile, the unemployment rate has fallen from 18.9% to 15.3% by January this year, but not yet to pre-2011 levels.

Enjoying some of the highest literacy- and Internet penetration rates in Africa, Tunisia has been successful in creating an egalitarian education system and developing advanced infrastructure. The current ten-year national ICT plan dates from 2005 and aims to create an information society. The Virtual University of Tunisia is a flagship eLearning project in the state and has set up 132 access centres since 2004, along with 14 video conferencing suites, 14 digital production laboratories and a filming/editing studio.

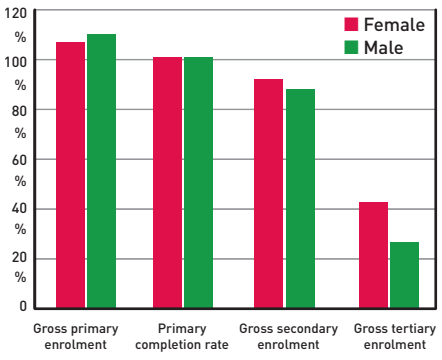
Tunisia enjoys some of the highest literacy and penetration rates in Africa, an egalitarian education system and advanced infrastructure"

Internet freedom is a major topic of public discourse: the previous Government's information ministry had kept close control on the Internet and on social media in particular, also using it as a means to carry out constant surveillance on citizens. These blocks were instantly lifted on the overthrow of the regime. Tunisians are now looking for safeguards to uphold their new-found freedoms in the future.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	4,196,564 (2012)
Internet penetration	41.4% (2012)
Facebook users	3,328,300 (2012)
ICT service exports (% of service exports, BoP)	9.6% (2012)
Broadband subscriptions	4.79 per 100 (2012)
Mobile subscriptions	120 per 100 (2012)
Television companies	State-run ERTT with 2 TV networks, 1 private, Egyptian % Arabic satellite services
Radio stations	ERTT; 3 private
Electricity penetration	99.5% (2012)
Electricity use	1,297 kWh/capita (2012)

Education

Number of students	357,392 (2012)
Student mobility	Outgoing: 18, 493 Incoming: 2,404 (2009)
Language(s) of instruction	Arabic to secondary; French at all levels
Pupil/teacher ratio, primary	17 (2012)
Expenditure per student (% of GDP per capita)	Primary: 17.3% Secondary: 24.4% (2008) Tertiary: 49.4% (2010)
Literacy rate	male: 87.4% female: 71.1% (2010)
Youth (15-24) literacy rate	male: 98% female: 96% (2011)
Unemployment	male: 15.0% female: 27.4% (2011)
Education spending	21.5% of budget (2010)

Society and Politics

Date of independence	20 March 1956 (from France)
Style of government	Republic
2013 Ibrahim Index	66.0 (8th) +4.4 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Moncef Marzouki (since 2011)
Area	163,610 sq km
Population	10,835,873 (2013)
Population growth rate	0.95% (2013)
Birth rate	17.12‰ (2013)
Infant mortality	24.07‰ of live births (2013)
Life expectancy at birth	75.46 (2013)
GDP (PPP)	$104 billion (2012) Per capita: $9,700 (2012)
Growth rate	3.6% (2012)
GDP by sector	agriculture: 9% industry: 30.3% services: 60.7% (2012)
Budget	revenues: $11.85 billion expenditures: $13.07 billion (2012)
Percentage below poverty line	3.8% (2005)
Languages	Arabic (official), French (commerce), Tamazight
Religions	Islam (official) 98%, Christian 1%, Jewish and other 1%
Monetary unit	Tunisian Dinar

Uganda

President Yoweri Museveni has been in power in Uganda since 1986 and has announced his intention to stand for office again in 2016.

Drawing strong support from his party, the National Resistance Movement, he has been criticised both for stifling opposition and for his populist agenda. Since the beginning of 2014, international attention on Uganda has been focused predominantly on the latest populist measure: the anti-homosexuality bill passed in March, which led many Western nations to withdraw aid. Criticism in Uganda has pointed out the hypocrisy of donor nations and the international community for focusing on the rights of a tiny minority, while ignoring more widespread human rights abuses in the countries they support.

"there are probably more mobile phones in Uganda than lightbulbs"

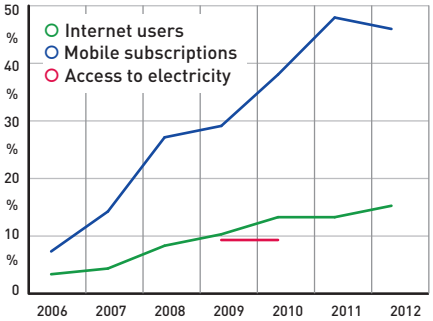
The loss of at least $100m in aid has already had an effect on research in Uganda, which is predominantly financed through international donations. It has yet to be seen whether this shortfall will be made up from other sources.

Uganda's education system has made huge strides towards achieving the Millennium Development Goals; Universal Primary Education (UPE) was established in 1997 and gender equality is near even at this level, though female participation falls off sharply in secondary and tertiary education. Though UPE abolished all school fees, there are concerns that costs are being transferred to pupils in other ways; schools demand that attendees bring stationery, cleaning and even building materials with them.

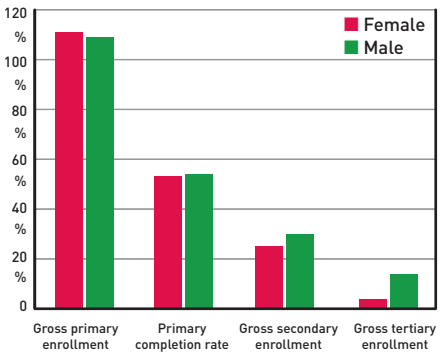
Lack of electricity is a prime concern in Uganda, where most power is derived from the Nile dams, which do not yet supply more than 10% of the country. However, the telecommunications markets benefit from intense competition and mobile penetration is high – at close to 30%, it has been suggested that there are probably more mobile phones in Uganda than lightbulbs.

This year Google announced the trial of a fibre network in Kampala that is expected to bring prices down further; Uganda – as much of East Africa – is seen as a place where innovative solutions in ICT can grow and prosper.

Connectivity



Participation in education



ICT and Infrastructure

Internet users	4,376,672 (2012)
Internet penetration	14.7% (2012)
Facebook users	562,240 (2012)
ICT service exports (% of service exports, BoP)	14.1% (2012)
Broadband subscriptions	0.11 per 100 (2012)
Mobile subscriptions	46 per 100 (2012)
Television companies	Public UBC; over 35 private
Radio stations	UBC; >150 private
Electricity penetration	8.5% (2012)

Education

Number of students	289,545 (2011)
Student mobility	Outgoing: 3,461 (2009)
Children out of primary	male: 377,922 female: 285,052 (2011)
Language(s) of instruction	Mother tongue in primary; English at all levels
Pupil/teacher ratio, primary	48 (2011)
Expenditure per student (% of GDP per capita)	Primary: 7.6% (2012) Secondary: 20.7% (2009) Tertiary: 45.6% (2012)
Electricity in primary schools	1,5% (2011)
Literacy rate	male: 82.6% female: 64.6% (2010)
Youth (15-24) literacy rate	male: 90% female: 85% (2011)
Unemployment	male: 3.1% female: 5.1% (2009)
Children in employment	25% (2010)
Education spending	15.1% of budget (2012)

Society and Politics

Date of independence	9 October 1962 (from Britain)
Style of government	Republic
2013 Ibrahim Index	56.0 (18th) +5.5 since 2000
2012 Democracy Index	"hybrid regime"
Leader(s)	President: Yoweri Museveni (since 1986)
Area	241,038 sq km
Population	34,758,809 (2013)
Population growth rate	3.32% (2013)
Birth rate	44.5‰ (2013)
Infant mortality	62.47‰ of live births (2013)
Life expectancy at birth	53.98 (2013)
GDP (PPP)	$50.77 billion (2012) Per capita: $1,400 (2012)
Growth rate	2.8% (2012)
GDP by sector	agriculture: 23.5% industry: 27.2% services: 49.3% (2012)
Budget	revenues: $3.098 billion expenditures: $3.701 billion (2012)
Percentage below poverty line	24.5% (2009)
Languages	English (official), Ganda or Luganda (in school), other Niger-Congo languages, Nilo-Saharan languages, Swahili, Arabic
Religions	Christian 83.9%, Muslim 12.1%, none 0.9%
Monetary unit	Ugandan Shilling

Western Sahara

This profile represents the entire disputed territory, as well as that inhabited by its people in exile.

Photo: Michele Benericetti

Facing the Moroccan Wall

The situation in Western Sahara is the longest-running occupation in the world outside of the Middle East. Many of its people, the Sahrawis, are in exile; its territory is partitioned, with Morocco administering the lion's share; and despite international recognition of the Saharan people's right to self-determination, the political situation is in deadlock.

The origins of the stand-off date back to the fall of Spanish colonial rule in 1975. While the Polisario Front, representing the Sahrawi people, fought a guerrilla war for liberation from their colonial overlords, territorial claims were made by Morocco and Mauritania. These were rejected by the International Court in favour of Sahrawi independence; Morocco responded with the "Green March", sending 300,000 settlers southwards into the territory. In the war that ensued, Morocco gained control of all the cities and natural resources in the western two thirds of the country. Mauritania relinquished its control of the other third, which is now in the hands of the Sahrawi Arab Democratic Republic's Government, based in Tindouf, south-west Algeria.

For the displaced population in Tindouf, the temporary life of the refugee camps has of necessity gained permanence. Most Government and organisation is carried out by Polisario; some subsistence farming, based on novel technologies that reduce the need for water, helps to feed the Sahrawis, but because of the harshness of the region, much support is still needed from Algeria and humanitarian organisations.

Education has long been a priority for refugees and for the Polisario Government. There are 29 pre-schools, 31 primaries, seven secondary schools, academic instutions "27 February" and "12 October" and a number of training institutions. Because of the importance given to education, the literacy rate rose from 5% in 1975 to 90% in 1995. There is little gender gap in education, partly because of its high value to the inhabitants and partly because of the strong position of women in their society. There is no Internet connection in the camps.

"the 'Wild West' of Africa"

In 2011, a Wikileaks cable by US ambassador to Morocco Thomas T. Riley revealed that the parts of Western Sahara under Moroccan control are a considerable economic burden for the occupying power. Morocco is investing $800m in the region to promote growth (Riley: "one of the larger per capita aid programmes in history") in the hope that it will solve the political impasse: "economics will trump politics" in the words of Derham Derham, a Dakhla native quoted in *Riley*. The Government subsidises many aspects of life in Western Sahara: agriculture – which, rather surprisingly, includes the farming of Holstein cows – businesses and, most crucially, water, produced at $3/m^3$ in desalinisation plants and sold at the state-wide rate of $0.23.

Despite rumours of phosphate richness and offshore oil, fishing is likely to remain the lifeblood of Western Sahara. The fishing grounds are rich in octopus and sardines, though stocks are being overexploited. Many EU states have, to the condemnation of Sahrawis and the opposition of EU lawyers, forged agreements with Morocco to fish in the area.

At the moment, according to Riley, Western Sahara is the "Wild West" of Africa – the political situation unresolved, local connections are of greatest importance to those who do business there. However, rapid urban growth, high unemployment and scarce resources may make it an "economic basket case" in ten years.

It is yet to be seen exactly how "economics will trump politics" in Western Sahara.

Zambia

Zambia's stability and transparent, efficient multi-party democratic system of government have made it stand out internationally among its neighbour countries. Economic reforms have started to transform the country of late, though its income is still heavily reliant on copper, which forms 60 per cent of its exports. Tourism is seen by the Government as key to diversification and the acceleration of growth; as the location of the Victoria Falls and other natural wonders, Zambia has much to draw in international visitors.

"stability and transparency that stand out among neighbouring countries"

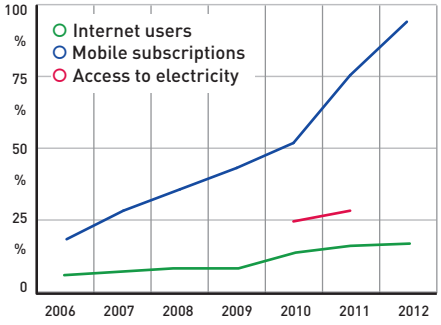
International investment is also not lacking, with China providing many channels of finance over recent years. Thousands of Chinese immigrants – one census even suggests 100,000 – live in Zambia and many mining, industrial and trade concerns are staffed by Chinese workers. The relationship accounts for US$2.2 billion in trade. Nevertheless, Sino-Zambian relations are not always rosy on the human level; many Zambians employed by Chinese concerns have complained of exploitation.

Health is of grave concern in Zambia, which has been hit hard by the global AIDS pandemic. In 2014, Minister of Health Dr Joseph Kasonde announced that 6,000 nurses would be trained by eLearning over the next 5 years.

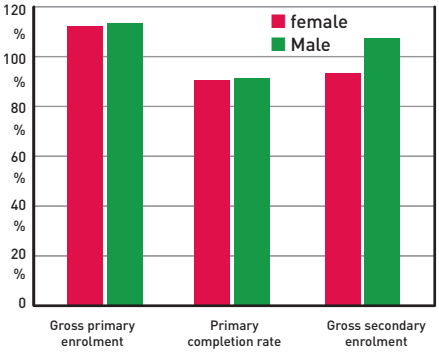
Technology is taking off in other areas too, with rural areas rapidly taking to mobile connectivity to ensure access to education; meanwhile, the capital Lusaka has provided a successful base for tech entrepreneurship. Despite Government interference and spying in online affairs, social media is a strong channel for independent debate.

Photo: Rik Dekker

Connectivity



Participation in education



ICT and Infrastructure

Internet users	1,589,010 (2012)
Internet penetration	13.5% (2012)
Facebook users	327,600 (2012)
ICT service exports (% of service exports, BoP)	6.8% (2012)
Broadband subscriptions	0.11 per 100 (2012)
Mobile subscriptions	76 per 100 (2012)
Television companies	State-owned ZNBC with 1 station; several private
Radio stations	ZNBC, 3 networks; c.24 private
Electricity penetration	18.5% (2012)
Electricity use	599 kWh/capita (2012)

Education

Student mobility	Outgoung: 5,029 (2009)
Children out of primary	male: 73,692 female: 51,122 (2012)
Language(s) of instruction	English
Pupil/teacher ratio, primary	49 (2012)
Literacy rate	male: 71.9% female: 51.8% (2007)
Youth (15-24) literacy rate	male: 82% female: 67% (2011)
Unemployment	14% (2006)
Children in employment	41% (2005)

Society and Politics

Date of independence	24 October 1964 (from Britain)
Style of government	Republic
2013 Ibrahim Index	59.6 (12th) +8.6 since 2000
2012 Democracy Index	"flawed democracy"
Leader(s)	President: Michael Sata (since 2011)
Area	752,618 sq km
Population	14,222,233 (2013)
Population growth rate	2.89% (2013)
Birth rate	42.79‰ (2013)
Infant mortality	68.58‰ of live births (2013)
Life expectancy at birth	51.51 (2013)
GDP (PPP)	$23.69 billion (2012) Per capita: $1,700 (2012)
Growth rate	7.2% (2012)
GDP by sector	agriculture: 20.5% industry: 33.3% services: 46.3% (2012)
Budget	revenues: $4.255 billion expenditures: $5.253 billion (2012)
Percentage below poverty line	64% (2006)
Languages	Bantu: Bemba, Nyanja, Tonga, Lozi, Nsenga, Lunda, Luvale (official) , Chewa, Tumbuka, Lala Kaonde; English (official), others 22.5%
Religions	Christian 50%-75%, Muslim and Hindu 24%-49%, indigenous beliefs 1%
Monetary unit	Kwacha

Zimbabwe

Zimbabwe, once considered the breadbasket of southern Africa, suffered dramatically from Robert Mugabe's land programmes of the 2000s and from severe droughts that occurred in the same period. The hugely fertile farmland, 70% of it in white hands, that had produced wheat, corn and tobacco for export across the region, was redistributed over a very short period, often with violence, often to Mugabe's associates and Zanu PF supporters. Mismanagement, corruption and drought had a catastrophic effect on productivity and on the agriculture-based economy, which only began to recover in 2009 after the formation of a unity Government.

Zimbabwe's education statistics have taken a heavy blow from the economic hardship that has resulted from Mugabe's policies; low investment and low pay for teachers caused strikes, a brain drain as teachers and lecturers emigrated and the crumbling of much education infrastructure. This was particularly marked in rural areas, which had in the past benefited the most from the post-independence Government's socialist policies. 94% of rural schools had closed by 2009, according to UNICEF, and attendance had dropped from 80% to 20%.

Nevertheless, with literacy rates that have been rated the highest in Africa, there is clearly still much to be envied in the Zimbabwean system, despite the hardships it is enduring. In 2010 the Government announced a national ICT plan, in 2012 an eLearning programme, under which all schools were to be connected to the Internet by 2014 – though measures of these initiatives' progress are, to date, scanty.

> **"literacy rates have been rated the highest in Africa"**

The hyperinflation of the economic crisis did have a positive effect for one particular sector in Zimbabwe: mobile banking, which is experiencing rapid growth, probably in part due to mistrust of paper money. Though Government regulation made Zimbabwe a late starter in the sector, mobile penetration rates of over 100% provide fertile ground for the cashless economy; the system now in place is expected to rival Kenya's renowned M-Pesa.

ICT and Infrastructure

Internet users	1,981,277 (2012)
Internet penetration	17.1% (2012)
Broadband subscriptions	0.55 per 100 (2012)
Mobile subscriptions	97 per 100 (2012)
Television companies	Government-owned, limited
Radio stations	Government-owned,
Electricity penetration	36.9% (2012)
Electricity use	757 kWh/capita (2012)

Education

Number of students	94,012 (2012)
Student mobility	Outgoing: 20,208 Incoming:889 (2009)
Language(s) of instruction	Ndebele, Shona in primary; English at all levels
Literacy rate	male: 87.8% female: 80.1% (2011)
Underemployment	95% (2009)
Education spending	8.3% of budget (2010)

Society and Politics

Date of independence	18 April 1980 (from Britain)
Style of government	Parliamentary Democracy
2013 Ibrahim Index	35.4 (47th) +1.5 since 2000
2012 Democracy Index	"authoritarian regime"
Leader(s)	President: Robert Mugabe (since 1980)
Area	390,757 sq km
Population	13,182,908 (2013)
Population growth rate	4.38% (2013)
Birth rate	32.41‰ (2013)
Infant mortality	27.25‰ of live births (2013)
Life expectancy at birth	53.86(2013)
GDP (PPP)	$7.167 billion (2012) Per capita: $600 (2012)
Growth rate	4.4% (2012)
GDP by sector	agriculture: 20.3% industry: 25.1% services: 54.6% (2012)
Budget	revenues: $985 million expenditures: $1.095 billion
Percentage below poverty line	68% (2004)
Languages	English (official), Shona, Sindebele, many tribal dialects
Religions	syncretic (Christian/indigenous beliefs) 50%, Christian 25%, indigenous beliefs 24%, Muslim and other 1%
Monetary unit	Zimbabwe Dollar

Connectivity

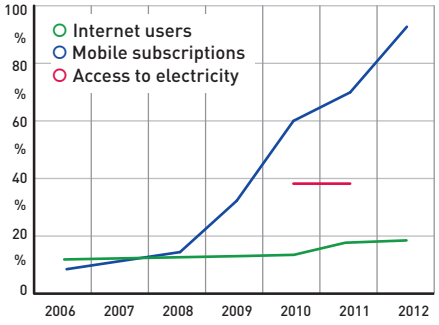


Photo: Swathi Sridharan (ICRISAT) CC

Sorghum farming

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Photo: Joachim Huber **The Zambezi in Zambia**

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