

RETHINKING THE GLOBAL DIGITAL DIVIDE

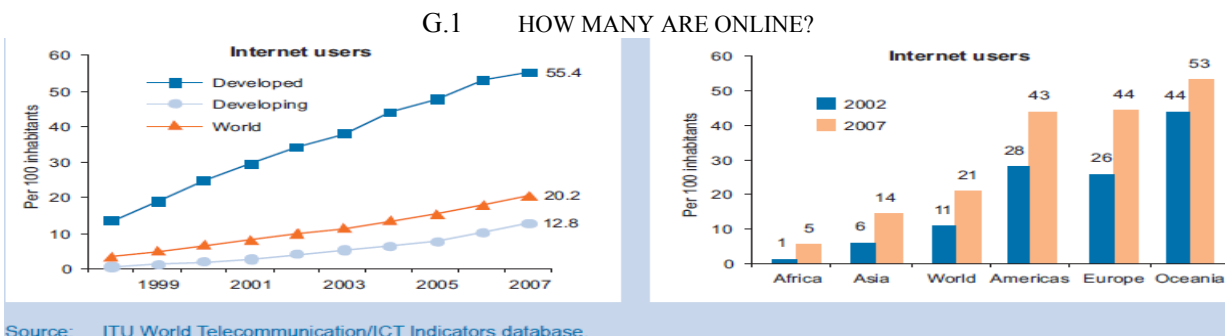
—ETHIOPIA, AFRICA, ON MY MIND

By Genet Mersha October 25, 2009

When computers first came to the market in 1981 (IBM #5150) and Internet followed in 1995 (Internet explorer), it was not difficult for global citizens to foresee the emergence yet of another divide—the so-called global digital divide. No sooner than the information revolution became a reality, more than three-quarters of nations were light years behind the technologically advanced world, which included a few developing countries that in good time have staked their future in national development. Consequently, today the technological revolution and its galactic implications on the future of many developing countries and their citizens has become one of the agendas of concern before the international community.

The most widely employed definition of the digital divide comes from the Organization for Economic Cooperation and Development (OECD) in one of its 2001 publications. By that definition, the digital divide is recognized as “the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities.” At the end of its definitional paragraph, OECD states, “The digital divide reflects various differences among and within countries”, as if it were trying to convey the message it is a kaleidoscope capable of mirroring the state of the divisions within and between nations.

That is what the articulation by Kofi Anan, the then Secretary-General of the United Nations, brought out to the international community in Geneva in 1999, "People [already] lack many things: jobs, shelter, food, health care and drinkable water. Today, being cut off from basic telecommunications services is a hardship almost as acute as these other deprivations, and indeed may reduce the chances of finding remedies to them." IN other words, he tried to highlight how much existing divisions would be sealed by the added global digital divide in ways difficult to unseal easily without conscious concerted national and international action.



In its 2009 report, the International Telecommunications Union (ITU) gave its upbeat assessment, yet still somber in substance. It observed the last decades have seen uninterrupted growth in terms of telecommunications and ICT infrastructure development and service uptake (*Measuring the Information Society: The ICT Development Index --2009*). By the end of 2008, it enumerated the race in ITC development achieved with four billion mobile cellular subscriptions worldwide. For ITU, that represented an ITC penetration rate of 61 per cent. Moreover, it estimates that the world has 1.3 billion fixed telephone lines – or 19 per 100 inhabitants – and almost a quarter of the world’s 6.7 billion people are using the Internet.

However, the somber side of this story is that fixed Internet access in developing countries has remained limited, and, where available, is often slow and/or expensive. High-speed connections (broadband), on which the future of communications rests, are rare. While increasing steeply in high-income countries, mobile broadband is still insignificant in most developing countries. Thus, the ITU acknowledges that, despite the record numbers and all the high penetration ITC rates globally, as shown in G.1 (above) and G.2 (below), major differences remain in ICT levels between regions and between developed and developing economies.

Strong ICT growth rates

By the end of 2008:

- 246 million mobile cellular subscriptions
- 32 million Internet users
- 10.6 million fixed telephone lines

Annual ICT Growth (CAGR) 2003-2008	Mobile cellular subscriptions	Internet users	Fixed telephone lines
Africa	47%	31%	2.4%
World	23%	17%	2.5%

June 2009

Source: ITU

Let us turn our attention for a moment to the Nobel Committee for enlightenment. If one puts the thread properly in the eye of the needle thereafter, it is possible to see that the issue here is not only how high the numbers go. What matters most is what accrues to every person globally by way of benefits and as a matter of right in having access to information or being able to inform others, depending on one's endowments, vocation and circumstances. The contrary is not difficult to imagine.

In 2001, the Nobel Committee recognized economists George Akerlof, Michael Spence and Joseph Stiglitz as fathers of economics of information and bestowed upon them that year's prestigious award "for their analyses of markets with asymmetric information." Their findings in effect underscore the vital importance of information in the marketplace for both buyers and sellers, thereby facilitating efficient functioning of the market for goods and services. It is clear here that governments also benefit from it, for instance, in the valuation of public goods and services. In sum, at its best the power of information puts everyone in a win-win situation.

Similarly, the importance of the undeterred flow of information in the sphere of politics and governance and in improving socio-political life can hardly be exaggerated. Let us look at it this way. As in the marketplace, the impact of its lack is catastrophic, especially to the development of democracy and strengthening of respect for human dignity. In today's society, that deficit is characterized by exclusion, inequality, the arrogance of power and problems pertaining to peace and security, stereotyping as political strategy, poor economic growth and uneven development and subjugation that eventually gives way to societal polarization and conflicts. With Internet today's reality of our world, **IF ONLY** governments get their cues from a longstanding Syms' ad, "An educated customer is our best customer", the world would have been a much better place!

It can be said with confidence that the true meaning, power and value of information is well-encapsulated in an August 4, 1822 letter to W. T. Barry by James Madison, the architect of the First Amendment of the U.S. Constitution guaranteeing the right of free speech. It read, "*A people who mean to be their own governors must arm themselves with the power that knowledge gives. A popular government without popular information or the means of acquiring it is but a prologue to a farce or a tragedy or perhaps both.*" (Quoted in J. Stiglitz's lecture at Oxford "On Liberty, the Right to Know, and Public Discourse: The Role of Transparency in Public Life (January 27, 1999).

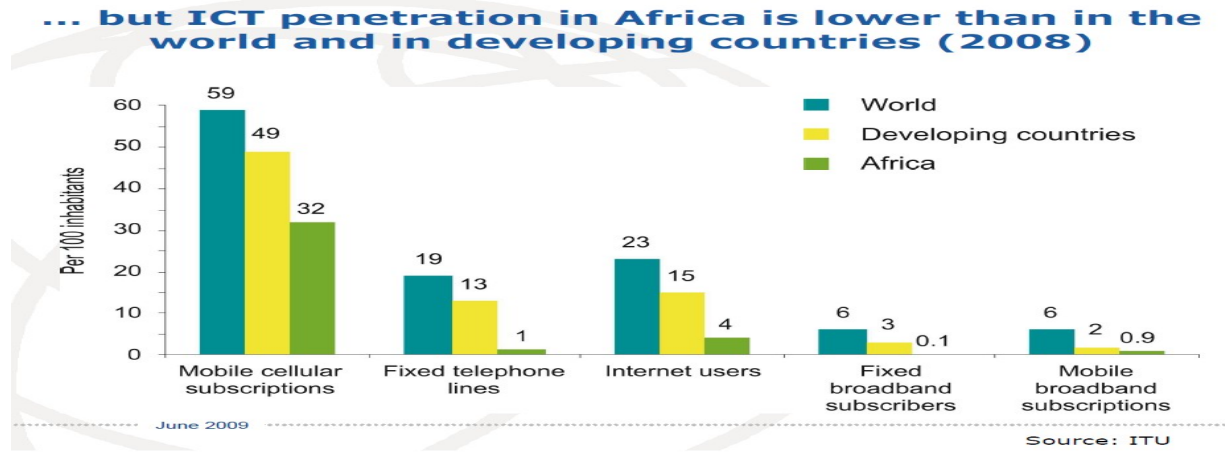
To understand this in concrete terms, one should simply pose the following questions in today's context. For instance, what is globalization to an entrepreneur, if she/he cannot seek out for her/his businesses from home or office within and across different geographic and time divides and take advantage of prices that competition and efficient markets offer? Similarly, how could democracy flourish in an environment where the media is muzzled, journalists persecuted, independent thinking seen no differently from the actions of lyncher or mugger, as a result of which the electorate is left to the mercy of information diced and processed and packaged by designated candidates and their election organizers?

How could people take initiative to expand the frontiers of their knowledge and develop their skills and understanding of health issues, best child rearing methods, the economy, efficient use of energy, environmental protection, etc., if they do not have access to information at their own pace and in areas of their choosing? In

view of this, fortunately, the search for means to bridge the digital divide by governments with foresight, the private sector, civil society organizations, philanthropists and individuals with cause has continued in earnest. So far, the most fundamental recognition has been the fact that ICT in itself is the very solution to existing divisions and the inequalities they endangered, instead of exacerbating them – as originally presumed.

Nonetheless, the tricky part is the implications of delay. It should be viewed within the context of the rapid changes in technology that render today’s costly achievements in developing countries obsolete tomorrow. While the inaction of some governments in Africa is stunning, there is also some good news. The latest one is the launching of Seacom, the first undersea fibre optic cable in East Africa, which cost the Kenya government and a group of African investors \$700 million. Seacom reached land in East Africa through the port city of Mombassa in July 2009. No sooner than it arrived, Seacom is seen reliably facilitating links amongst East African countries, from Kenya to Uganda and Tanzania and Rwanda, etc., even as it is now being finalized.

G.3



Therefore, for now a number of Sub-Saharan African countries have stepped up to the plate to take advantage of modern communications technology in some form. As shown in G.2, above, from 2003 to 2008, mobile telephone subscription has grown by 47 percent and Internet users by 31 percent; growth in fixed telephone lines is eclipsed partly by expansion of mobile phone subscriptions—WHERE IT DID! Unfortunately, the growth so far attained, as represented by the figures referred to above, are deceptive; they give the impression that Africa has made good progress overall. Nonetheless, as can be seen from the graphs below, the reality is different especially in some African countries that are at the lowest wrung in overall ICT penetration.

This does not mean the recognition that ICTs have great potentials for national development has been lost on them. An instance of this is Ethiopia’s experience and its unrealized hopes. On 4 May 2005, eleven days before the 2005 election, Prime Minister Meles Zenawi pledged before a conference organized jointly by his government and Cisco Systems Inc. that Ethiopia would expand Internet coverage from a handful of users to the entire country in three years. The keynote address by the prime minister to the conference was potent and confident. The attendees cheered and applauded, especially when he said, “Not long ago, many of us felt that we were too poor to seriously invest in information and communications technology. Now we believe that we are too poor not to invest as much as we can in ICT. We realize that while ICT may be a luxury for the rich, for us—the poor countries—it is a crucial weapon to fight poverty and thus ensure our survival.”

Cisco reported, “**The high-speed core network delivers services to remote areas by using very small aperture terminal (VSAT) satellite technology. The Internet Businesses solutions Group (IBSG) also worked with government stakeholders to share best practices, gained from multiple partnerships with companies and governments around the world, to help define the long-term strategy**” (*Cisco Customer Case Study*). Thus, Cisco has designed WoredaNet and schoolNet. The first one aims at 16,000 villages, reportedly to link 600 local administrations with 11 regional government offices (e-mail, Internet Access, file-sharing and videoconferencing facilities). SchoolNet is, Cisco says, an education network connecting 450 secondary schools with access to ICT, e-mail and the Internet.

In spite of these partial efforts, the question still is what Ethiopia is aiming at? If the available information is credible, five years have passed since that famous pledge by the prime and the ITU in its 2009 report says Ethiopia is at its 2002 level on five yardsticks, listed in Table 1 on page 10. The only exception is its not-negligible jump in international Internet bandwidth/Internet user/bits to 842 in 2007 from a ranking of 200 in 2002. In other words, Ethiopia's record in ICT pIn a few developing countries, broadband is offered for big businesses and few households that can afford it, as is the case in Ethiopia—though in limited numbers and when government wills it! Therefore, it is clear what the country's present standing is, but why has that tantalizing promise become fragrance for the wind!—*shito lenfas!*enetration is one of the poorest.

What impedes ICT penetration in Africa?

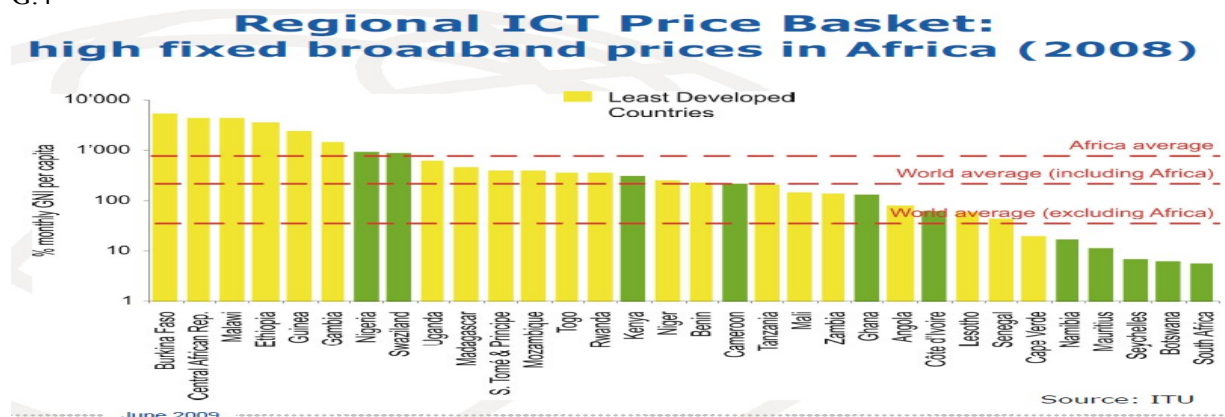
Initially, the digital divide was seen as a function of affordability of ICT requisites such as the cost of infrastructures, computers, mobile phones and their related equipment and software licenses, although the level of income and user skills is also an important consideration. There is no doubt that the lack of resources cannot be underestimated. It is a simple common sense that the level of ICT attainments by a country and its gross national income (GNP) or GDP per capita are closely correlated.

Nevertheless, one important lesson that came out of the global search for means to bridge the global divide is that **price alone is barely the main obstacle**. Studies have established that the culprit also lies in **attitudes and unpreparedness of policy-makers to embrace the future of their countries**. Many African countries lack the capacity to overcome the inertia of backward thinking rooted in selfish interests of some strongmen in power that are too busy ensuring maintenance of the status quo. Six years after his 1999 speech on the global digital divide, Mr. Kofi Anan in 2005 stressed, “The hurdles are more of a political than financial nature. It is possible to lower the costs of connectivity, computers and mobile phones.” Available data validate his authoritative claim.

Do you remember Seacom that we discussed a moment ago? Since its cable went live in August in Kenya, the BBC reports that Internet providers in that country have increased Internet speeds and lowered costs. This is because the cost of infrastructures has come down. For instance, it is reported, among others, that a decade ago one kilometre of standard fibre optic cable cost over \$5,000. It is now just \$300. While the conclusion that being a latecomer is tempting here, the more instructive lesson would be to see how much waiting has cost Africa in terms of its development and its future. Thus, while some governments continue to drum up the prohibitiveness of price factors, they have not even disguised their sole interest in using existing opaque telephone infrastructures as both source of revenues and for mind control a la Big Brother. Recent studies show that such policy stances and attitudes have weighed down heavily on ITC development via exorbitant service fees and high taxation, as G.4 and G.5 indicate; it becomes impediment to ICT development, thereby denying users of the benefits thereon.

Some experts worry that exaggeration of cost factors invites undue pressures to lure some governments into looking for unworthy shortcuts, without investigating what that impose on the countries later on. On the other hand, while some governments continue to milk revenues generated by existing structures, they are not seen making adequate efforts either by plowing back the revenues into a national ‘ITC fund’ towards greater improvement or fostering a means to attract domestic and foreign capital in the example of Kenya or its collaborators in East Africa. Such policies have failed to look beyond the cosmetic sprinkle of a few mobile phone services here and there without ITC penetration being the context of their objectives.

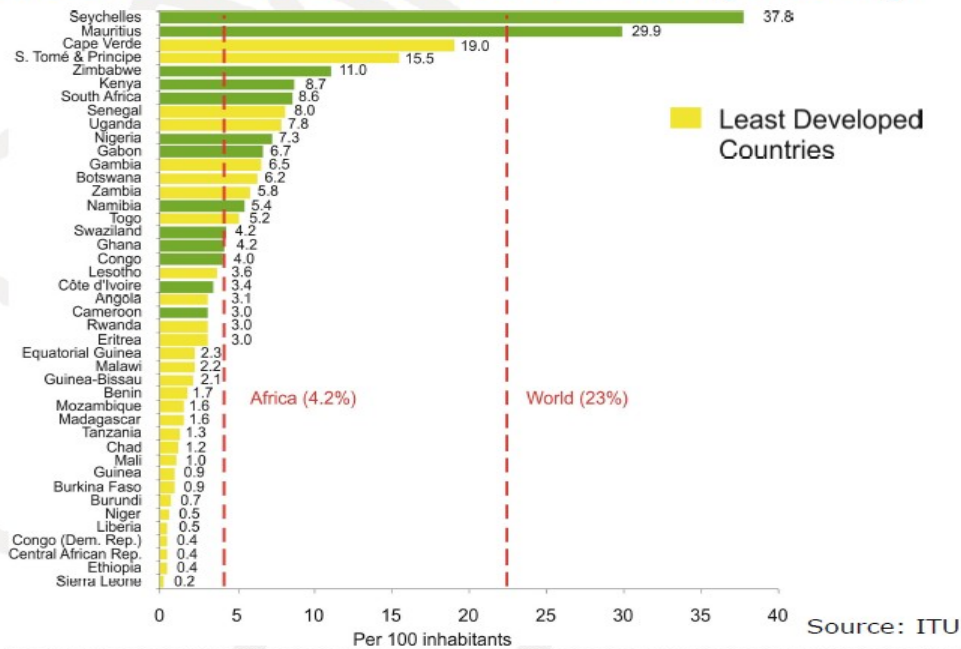
G.4



This article would like to stress here the need for sane minds and clean hands to weigh carefully all options. Michelle Wong of Victoria University (Australia) argues, “Economic development benefits would not be quickly accrued to developing countries in such a move. These countries are likely to take a considerable period of time in building their capabilities to absorb, master, use, and innovate new technologies. Nevertheless, this process may be expedited by the deliberate policies and guidance from government in these countries, with support from the international arena. At the same time, government in these countries must constantly reassess the impact of policies and align them with the social objectives so as to remain user-focused in the need to harness the technology quickly”(*Digital Divide: The Case of Developing Countries, Informing Science and Information Technology*, Volume 6, 2009).

G.5

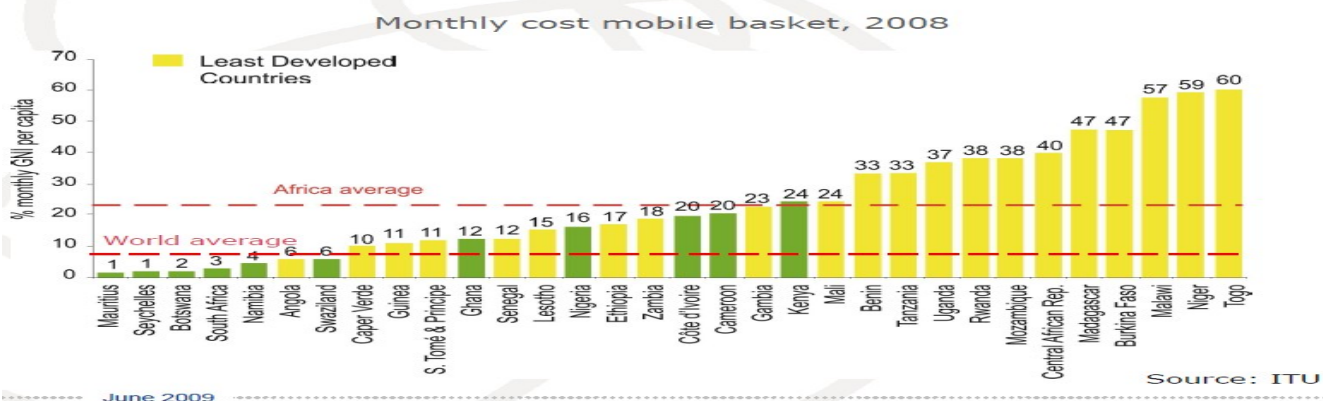
... but Internet user penetration remains low in most African countries (2008)



The fact remains that broadband is an essential tool for national development. Many of the most effective applications and services that can foster development are only available through a high-speed Internet connection, for example those related to e-commerce, e-government or e-banking, e-health or education. Already before today’s communications capabilities became our reality, in his 1995 book Bill Gates wrote about his vision in *The Road Ahead*, as if it were there as he was writing. He says, “*What characterizes this period in history is the completely new ways in which information can be changed and manipulated, and the increasing speeds at which we handle it. The computer’s abilities to provide low-cost, high-speed processing and transmission of digital data will transform the conventional communication devices in homes and offices.*”

G.6

Mobile cellular prices limit uptake in some African countries

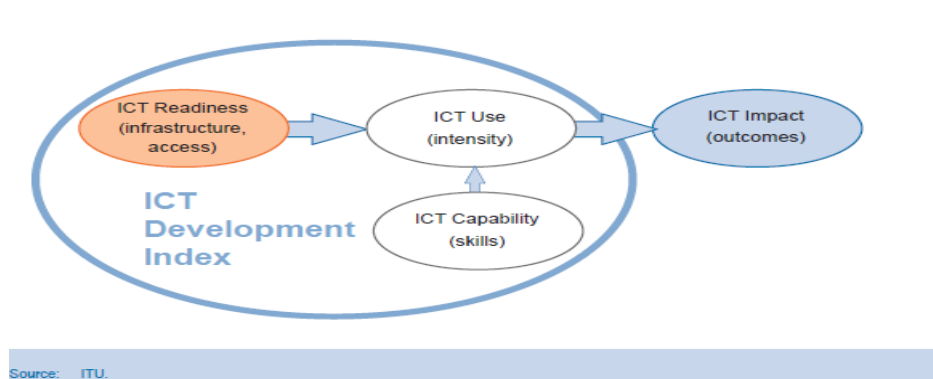


Stages in ICT development

It seems, with a view to pushing ICT development, the approaches involved, and the options in general with a concise graphical message, the ITU has come up with ICT Development stages that should be taken by different countries, as shown in G.7, below. ITU acknowledges that a country's development towards an information society follows a certain sequence of ICT access and increased use along the path of national transformation and integration into the global information society. It says this approach is a sequential one. However, this does not mean that certain indicators in the sequence cannot be leapfrogged – for example, mobile networks substituting fixed ones. ITU reassures its member states that the indicators may change; but the basic stages remain.

The first stage is to ICT readiness is the level of networked infrastructures and access to ICT. The second stage deals with ICT intensity, reflecting the level of use of ICTs in the society. Finally, the third stage focuses on assessing the impact of ICT with the goal of reflecting the result of efficient and effective ICT use. Thus, ITU began to apply the three-stage framework or model widely to define its statistical indicators for measuring each country's performance, according information in its publication referred to above.

G.7



For those countries wishing to make the most of it, the latest advice by ITU presents two main reasons for choosing fixed broadband (or high-speed) Internet access tariffs, over the narrow (low-speed or dial-up) tariffs. ITU's view is predicated on the fact that broadband is very important as a development enabler now as well as in the future. The report states,

Broadband-based applications have the greatest impact on people, society and businesses. A high-speed, always-on connection provides users with a completely different Internet experience, allowing them to download documents or videos and using applications that are simply unavailable to those with a dial-up connection. The second reason is that broadband is spreading quickly. Although in a few countries broadband is offered mainly to businesses, almost all low-income countries are starting to provide commercial broadband services to private end-users. While in 2001, the number of fixed broadband subscribers represented only 15 per cent of the world's total Internet subscribers, this rate increased to almost 60 per cent by the end of 2007. In a number of developing countries, including Senegal, Morocco and Chile, broadband subscribers represent over 90 per cent of all Internet subscribers.

Competition as means of lowering prices for ICT development and usage

In the United Nations, most data compilation and analysis in this area is carried out by the ITU. Its extensive database on global price baskets has been used by other agencies of the Organization such as the World Bank, UNDP, UNESCO, and UNCTAD and the Office of the High Commissioner for Human Rights, among others, and governments. One of the most important tasks in the area is tracking prices of ICT services, as its goal of enabling governments measure ICT affordability.

The main objective of the ITU Price Basket is to raise awareness of global ICT prices for ICT usage to allow policy makers to evaluate their respective countries and benchmark them against those of other countries. However, ITU's primary concern is that policy discussions and analysis in many countries have stalled, mainly focusing on availability and affordability of infrastructure, whereas the 'power of price' is often addressed barely sufficiently. Using this information, the ITU hopes, "policy makers can identify where they stand globally, and in comparison with other countries. This information is expected to help put national prices into perspective and, if necessary, provide a starting point for looking into ways of lowering them. For example,

governments could introduce new pricing system or strengthen competition by reviewing operators' revenues and efficiency, or, according to ITU, their own tariff policies. Check out G.4 -G.5 for reality check.

Towards this end, the ITU came up with measurement of the international digital divide that ranks countries based on the relative price of fixed telephony, mobile cellular telephony and fixed broadband Internet services. Relying on its studies, ITU indicates policies that make a difference even before they come into force. *"In the area of competition, for example, it is not uncommon that incumbents with a monopoly status reduce prices or change other policies just by facing the forthcoming entrance of a competing operator. On the other hand, other policy changes may have a longer-term effect on prices, like those affecting standards or upcoming technologies."*

Does foreign ownership of existing infrastructures accelerate development?

We live now at a time of huge global reserve imbalances. Most of the surplus is now in the hands of China and other emerging markets. This vast wealth has not stopped these new wealthy countries from worrying about the sustainability of their holdings and investments in the light of the rising deficits in many western countries and the subsequent economic problems. Pressure by the deficit countries is building on the surplus reserve countries to take measures with a view to reducing their huge reserves, among others, by raising domestic demand in their respective countries and other investments.

This has encouraged interest in unique investments such as African resources and potentials –farmlands, agro-industries, manufacturing, hotel and tourism, power sources and telecommunications. Consequently, we witness tentative rumors and campaigns to acquire foothold in Ethiopian telecom by foreign companies or in partnership with domestic interests. Already, among others, Egypt and South Africa are eying keenly for opportunities. Recently, India's Bharat Samchar Nigam (BSNL) is in talks with Ethiopian officials to run operations on ETC (Bloomberg Oct. 15).

This has come at the heel of two worrisome experiences. Firstly, once acquisition has been effected, the anticipated infrastructural development has barely materialized in those countries that have sold stakes to investors. What has happened is other than expansion of the mobile sector, mostly in urban areas, it has merely become a cash machine for investors. Secondly, when existing infrastructures are put to the market, the values of past investments are undervalued under various pretexts. On both counts, thus, this has now forced a number of developing countries to examine carefully the paths they need to take to achieve their goals of improving ICT penetration.

In other words, this is to say the new effort is now aiming at ensuring that the values of existing investments are not lost. In terms of the future, the agreements need to include within the contract period the kind of expansion that is expected, presumably feasible under current economic conditions. The fact of this being not always easy has been demonstrated on several occasions by misplaced hopes of a number of developing countries that by itself has become an impediment to their progress in ICT development. For some developing countries, this has resulted in so many fruitless efforts that have bred corrupt practices, not ICTs. In the end, the losers are the countries themselves, whose progresses are pulled back or are thrown into new and/or existing political tensions.

Lessons from Ghana

Although President John Mills of Ghana was winner in the 2008 national election, he does not seem to have an easy first year in power. His victorious ride to power was confronted by the scandal surrounding the Ghana Telecom (GT) affair, which was sold at throwaway price by the outgoing government to Vodafone. The latter acquired 70 percent of Ghana Telecom for \$900 million. Many Ghanaian likened the money received for their national asset from Vodafone chicken feed. A concerned Ghanaian based in London also estimates, "Currently, Ghana Telecom owns One-Touch mobile services, has near monopoly over fixed lines, dominates broadband services, and has a major share of the internet backbone, SAT-3. Assuming, conservatively, a combined subscriber base of 2,000,000 and daily average net revenue per subscriber of \$3.00, GT can easily make \$2.2 billion per year, or \$11.0 billion in five years, far more than the \$500.0 million investment being promised by Vodafone."

The emotions Ghanaians exhibited on this matter has not left out the country's diaspora, as represented by the association of Ghanaians abroad (GLU). In a statement, the GLU President said, "the founders of our nation Ghana did not use taxpayers' funds to set up State-owned enterprises (SOEs) only to be sold to foreigners, or to

insiders of the government who use proxies to buy these SoE's and leave the real stakeholders with the debts. This practice must be stopped, by any means necessary". To put their money where their mouth is, GLU members have raised the prospect of them raising funds to put GT back in the hands of Ghanaians. At the time of writing this article, it was not clear how much success they have met.

Obviously, the new administration of President John Atta Mills had promised the nation during campaigning for election that he would launch an investigation into the Vodafone deal. Thus, as president, he set up a committee to investigate the situation and make recommendations. In July, his committee returned its conclusions, among other things, blaming the interference by the outgoing president and noting that the deal "was negotiated in an inelegant manner by Government, which gave everything and took nothing in the context of the inequalities in bargaining power that were allowed to prevail."

Since then, a number of Ghanaians and foreigners are implicated in bribe taking. Some cabinet ministers have resigned. While Vodafone refused to comment, according to the *Guardian*, President Mills has asked the country's Commission on Human Rights and Administrative Justice (CHRAJ) to conduct an investigation into the allegations of bribery against Ghanaian public officials. To tap it off, a few months after the deal, Vodafone had written down the value of its stake in GT by £250 million, attributing its actions to the worsening economic climate. Many in Ghana consider this a questionable move. One should imagine the kind of hindrance this has placed before Ghana to develop its national information system. Not surprisingly though, buffeted by years of IMF's structural adjustment policies pushed down the throats of many developing countries, already before this GT has had an unfortunate history of rotating between foreign hands: the erstwhile colonial masters, then Malaysians and Norwegians afterwards and now the British again.

At least, for Ghanaian citizens, with their democracy taking firmer roots today, their struggle to make the rule of law a reality is increasingly proving more and more promising. Citizens, government and the opposition have acted responsibly so far. Once again, as the ballot box experiences, this has put that country as an example to the rest of Africa in handling such matter forthrightly and legally, instead of resorting to violations of human rights and the search for scapegoats.

The scandal surrounding telecom transactions is not uniquely Ghanaian, but a deep-rooted problem of irresponsibility to the peoples of Africa, which many in other regions also share. In our case, it is even of little surprise not a single African leader has emerged as taker of the five million dollars prize money the Mo Ibrahim Foundation has set for 2009 for good leadership. The BBC reports Mr. John Kufour was one of the two forerunners, along with South Africa's former President Thabo Mbeki. This writer would like to stress here no awareness whether that has to do with the GT scandal in the case of Mr. Kufour.

ICT access as a human rights issue

While the United Nations has succeeded in declaring May 17 as the World Information Society Day, it has barely made headway in developing specific protocol on ICT access as a legal and human rights. However, the longstanding objective remains developing regulations for the 'information superhighway.' That would also facilitate efforts at bridging the global digital divide that separates peoples within their countries or the rich countries from poor countries, which makes the denial of access a violation of human rights. Unfortunately, international efforts along that direction (Conferences in Geneva and Tunisia in 2003 and 2005, respectively), were frustrated by the unanswered question of who owns the Internet.

Favouring success are two things. First, the interests of the world community itself in a free flow of information on the medium. Second, for the UN its chief legal weapon is the Universal Declaration of Human Rights, especially paragraph 19, which states, ***"Every one has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers."***

During this decade, the world has taken a giant stride country by country, mostly in Europe, as regards Internet access. In reality, in a number of countries, ICT access is recognized as fundamental human rights, despite the lack of success at international forum to elaborate convention or protocols. Already in October this year, the Finnish government took exemplary actions in translating that into practice. Not only has it become the first country in the world to create laws to regulate access via broadband, on October 14, it committed to make ICT access as a legal right of every person to have one-megabit broadband connection as of July 2010, and raise it to 100 Mb broadband by the end of 2015.

On the other hand, President Sarkozy of France elaborated the so-called Loi Hadopi law—"three strikes and you are out"—to fight against pirates stealing copyrighted music, video and films. The law was rejected the first time it came before MPs in April. It passed in May, arousing controversy of violation of fundamental human rights. Mr. Sarkozy and his justice minister prepared facilities and regulations how courts would act in accordance with that law. In a country where by the admission of the government, there are 180,000 cases of piracy every year before the courts, this would not only have been an expensive venture, but also would have empowered law enforcement to disconnect a person from internet for life.

Fortunately, in exercising its duties under the law, the French Constitutional Court intervened last June and stopped the president and his minister of justice from taking any such action by reminding them access to ICT is "a fundamental human right that cannot be taken away by anything other than a court of law, only when guilt has been established there." In so deciding, the Court ruled against the Sarkozy initiative, according to *Le Monde*, which wrote on 12 June 2009, "The law created an internet Big Brother who would hit innocent people whose web connections were being used by others, such as children, employees or people illegally hooking into their wi-fi." Even the president's wife abandoned her husband on this saying, 'this law will punish the average amateur user, while the 'nerds' will find ways around it.'"

Conclusion

As discussed above, the Internet has a great potential to enable and promote national development. It helps to transform countries into Information Societies. This allows them to reap ICT benefits in their economic and national development endeavours. Of course, this presumes better incomes and basic levels of literacy, including some degree of computer skills. The longer a country postpones ICT penetration under flimsy excuses or deterrence of political interests, recognition must set in that it would be difficult, if not impossible, to catch up with the rest of the fast advancing world.

Let us consider two examples. China is said to have made awesome progress connecting millions to ICTs by providing services at relatively low costs, according to ITU through "limited and state-orchestrated competition." The Gambia is another country cited in Africa as one of the fast growing, although its level of development is still low. Most of The Gambia's improvements, according to ITU says, are due to higher mobile cellular penetration, accompanied by the number of Internet users and literacy rates that contribute to the relative higher ranking of the country. Mobile cellular subscriptions have increased steeply in that country during the past few years, reflecting the stiff competition that cut down costs. It is said, out of almost a million telephone subscribers, there are over 800'000 mobile cellular telephone users and about 50'000 fixed telephone lines in service.

In brief, three factors that need to be taken into account to facilitate ITC penetration are:

First, a country needs visionary and committed leadership that could usher it into the age of information technology. In other words, this requires resource commitment as well as political, for instance, not to use information as an instrument of control. That is no different from deliberate policy of restraining development. Secondly, the ICT price factor becomes an impediment mostly when government taxes and other policy measures are prohibitive. Therefore, governments need to rethink their information technology tax policies, including the price of computers, Internet services, and the willingness to provide favourable treatment and incentives to entrepreneurs setting up computer-skill transfer centres/schools and Internet cafes. Competition is an important factor in reducing prices and spreading computer literacy. After all, such shifts would only support and strengthen efforts towards the goals of national development, which government profess are committed to promote and support.

Thirdly, latecomers [countries] are late because they have been unwilling or incapable of mobilizing domestic/regional/international capital as the countries of East Africa have done. To move along that direction, the adoption of appropriate legislations that favour participation by domestic investors would facilitate conditions for the achievement of that goal, ICT development. In the event some governments cannot or are not willing to do that for some reason, at least, they must establish an ICT fund, financed from incomes generated from services of existing communications outfits and whatever else they can muster from other sources towards providing ICT services with clear plans in mind. However, persisting on that path would only prolong the time before a country could attain its objectives. There is also the risk of such lone ranger unilateral course in the

long-run pushing the country into domestic and foreign debt, thus having destructive consequences on the economy.

Finally, it is worth noting that Africa has successful national institutions that have proved to be an envy of the world, whose experiences are invaluable. Take the example of the Ethiopian Airlines. They got it right because they have enjoyed autonomy, built themselves on skills, modern management, technology, and education and merit as their grounding, no matter what the colour of the government of the day. That is what the telecom industry requires!

Table 1. International Development Index (IDI) 2009*

INDICATORS	Ethiopia		Ghana		Kenya		Tanzania		Uganda	
	2002	2007	2002	2007	2002	2007	2002	2007	2002	2007
Fixed telephone lines per 100 inhabitants	0.5	1.1	1.3	1.6	1.0	0.7	0.5	0.4	0.2	0.5
Mobile cellular Subscriptions/100 inhabitants	0.1	1.5	1.9	32.4	3.7	30.2	1.7	20.6	1.5	13.6
International Internet Bandwidth/Internet user/bits	200	842	71	565	65	112	200	250	77	306
Proportion of households with computer	0.1	0.2	0.3	5.1	1.0	5.5	1.7	2.3	0.3	5.1
Prop. of households with Internet	0.1	0.1	0.2	1.8	0.7	2.2	0.3	0.6	0.1	-
ICT use indicator/154 countr.	152	153	124	122	115	103	144	143	132	126
IDI ranking/ countr.	147	147	122	114	116	116	145	138	140	133
IDI skills	142	139	119	117	112	112	142	139	134	139

Source: Extracted from *Measuring the Information Society: The ICT Development Index --2009*)

INDICATORS EXPLAINED (Source: ICT Development Index report 2009)

- **ICT use indicator:** For most developed and larger developing countries, Internet user data are based on user surveys conducted usually by national statistical agencies. Either the data are provided directly from the NSOs to the ITU, or ITU does the necessary research to obtain them. For countries where Internet user surveys are not available, it is common to estimate the number of users based on a multiple of the numbers of actual paying Internet subscribers.
- **IDI ranking** is based on five indicators: fixed line penetration, mobile cellular penetration, international Internet bandwidth per Internet user, the proportion of households with computers and the proportion of households with Internet access.
- **IDI skills:** These relate to. In the absence of comparable data for a large number of countries that would measure more specific ICT-related skills, adult literacy, secondary and tertiary enrolment are considered as a critical enabler for effective ICT use and are therefore cannot be separated from the use component.