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Progress made in the implementation of and follow-up to the World Summit on the Information Society outcomes at the regional and international levels

**Development-oriented policies for socio-economic inclusive information society, including access, infrastructure and an enabling environment****Report of the Secretary-General***Executive summary*

The effective use of information and communication technologies (ICTs) holds the potential of boosting economies, improving healthcare delivery, enhancing education and learning processes, and strengthening democratic processes. Recent studies show a marked increase in the penetration and usage of these technologies, particularly in developing countries. These studies show that the “digital divide” between developed and developing countries is gradually shrinking with an observed increase in mobile phone subscriptions and internet usage. However, relatively high costs, and poor and unreliable infrastructure, combined with other challenges such as the lack of human and financial resources, regulatory and policy challenges, and inequality among stakeholders in terms of access to technology, present key barriers to the effective use of ICTs. Some of these barriers can be overcome by putting in place a supportive and coherent national plan together with policies that foster competition, as well as respond to the need for open access applications. It is important for countries to note that policies and strategies must address country-specific needs and as such these policies and strategies should therefore be contextual.

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## Introduction

1. At its eleventh session, held in May 2008, the Commission on Science and Technology for Development (CSTD) reviewed the progress made in the implementation of the outcomes of the World Summit on the Information Society (WSIS). The substantive discussions of the commission underscored the essential role of science and technology in meeting development goals, and the need for information and communication technologies (ICTs) to be accessible, fast and affordable for low-income populations. The commission also called for greater collaboration among the various entities, all stakeholders and Governments to emphasize the importance of an enabling environment in building a truly development-oriented, people-centred and inclusive information society.

2. In response to the conclusion of the eleventh session of the commission and in order to assist the CSTD in its deliberations at its twelfth session, the UNCTAD secretariat held an inter-sessional panel meeting in Santiago, Chile, from 12 to 14 November 2008, in which an issues paper on the theme “Development-oriented policies for socio-economic inclusive information society, including access, infrastructure and an enabling environment” was presented and discussed. This report is based on the findings of the panel and additional research by the UNCTAD secretariat.

### I. Socio-economic inclusive information society: access and use

3. Trends over the last year show continued rapid growth of the use of mobile phones as the primary form of ICT access and connectivity in many developing countries. The use of the short message service (SMS) not only provides a low-cost alternative to voice communications, but also enables access to a wide variety of data services, including financial transactions, news and market price updates.<sup>1</sup> It is estimated that there are eight times as many mobile phones as fixed lines, three times as many mobile phones as personal computers and nearly twice as many mobile phones as TV sets.<sup>2</sup>

4. Mobile telephony can facilitate economic growth both at micro and macro levels. In a study of the economic impact of mobile communications in developing countries, Waverman et al., (2005) found that a doubling of mobile penetration in low-income and lower-middle-income countries would lead to a 10 per cent rise in output. At the micro level, the impact is even more promising in the conduct of business, for direct and indirect employment opportunities, in the healthcare system and the agriculture sector. Innovative uses of mobile phones – such as m-banking<sup>3</sup> – mean that microenterprises as well as individuals (who are most often “unbanked”), have better access to simple forms of banking which are faster, cheaper and safer.

<sup>1</sup> Gartner study, see [http://www.smstextnews.com/2008/05/2\\_3\\_trillion\\_messages\\_sent\\_this\\_year.html](http://www.smstextnews.com/2008/05/2_3_trillion_messages_sent_this_year.html).

<sup>2</sup> <http://www.unctad.org/en/docs/a63d72>.

<sup>3</sup> The impact of telephony on the bottom of the socio-economic pyramid is demonstrated in a study in the Lao People’s Democratic Republic conducted by Gi-Soon Song, which found that 80 per cent of users earned less than \$1 a day. Their phone use focused on contact with family members and information on government issues, and by substituting one trip per month by a phone call, it was found that the poor could generate an average surplus of up to \$103 per year. *Source:* <http://www.lao.net/html/ICT/conf01soonsong.htm>.

**Box 1. Some examples of successful mobile applications**

Mobile phones can be used for more than phone calls. In Africa, the diversity of mobile applications is impressive in disseminating and sharing information:

(a) In South Africa, Wizzit allows anybody with a mobile phone to access his/her bank account from their pocket, with the opportunity to make person-to-person payments, transfers and pre-paid purchases without a bank account. There is no monthly fee – people only pay for transactions they execute.

(b) In Kenya, an SMS job vacancy service has succeeded in creating annual revenue of \$100,000. The service has more than 30,000 subscribers who receive between 150 and 200 job vacancy announcements per week. Using a pre-paid service, 60–70 per cent of the offers are filled by the subscribers, which results in much faster results for the employers;

(c) TradeNet, now operating in 17 countries, provides information about agricultural goods for people wishing to sell or buy commodities. After negative experiences with external funding, TradeNet decided to provide the basic information for free but charge for tailored and more sophisticated services to remain financially sustainable in the long term;

(d) In Cape Town, South Africa, SMS is used in healthcare projects to alert Tuberculosis patients to take their medication, thereby boosting recovery rates of patients and reducing financial costs and the burden on the public healthcare system as a whole;

(e) In India, mobile phones facilitate social ties and blur caste boundaries. It has been the major help, especially for women, to maintain the communication with families, in cases where they may be mistreated in their in-law's house, fall ill, or face starvation.

*Sources:*

<http://www.wizzit.co.za> ;

[http://www.balancingact-africa.com/news/back/balancing-act\\_339.html](http://www.balancingact-africa.com/news/back/balancing-act_339.html); <http://www.tradenet.net>;

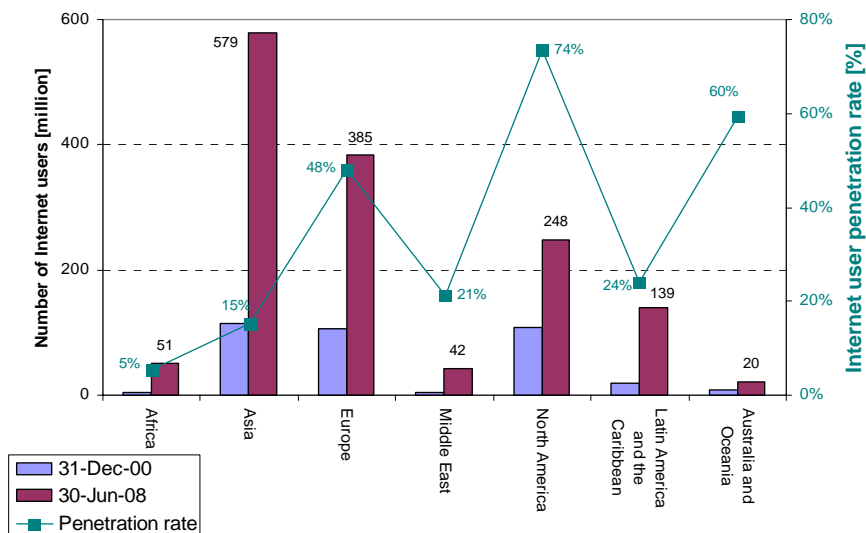
[http://www.balancingact-africa.com/news/back/balancing-act\\_341.html](http://www.balancingact-africa.com/news/back/balancing-act_341.html));

<http://www.valt.helsinki.fi/blogs/tenhunen/post4.htm>.

5. Regarding Internet access and connectivity, the global Internet user community has grown by more than 300 per cent in the last eight years (see figure 1 below) China has the largest number of Internet users in the world (253 million) followed by the United States (220 million), which makes the Chinese language the second most important language among users over the Internet after English. Regionally, North America and Europe recorded the slowest growth in the number of Internet users in the same period depicted in

figure 1, while the Middle East and Africa recorded the fastest growth (1,180 per cent and 1,030 per cent, respectively).<sup>4</sup>

**Figure 1. Number of Internet users and Internet user penetration rate (2000–08)**



Source: <http://www.internetworldstats.com/stats.htm>.

6. Broadband services, however, show a different pattern whereby broadband connectivity is mainly concentrated in high-income economies, especially in Europe, which account for nearly three quarters of the total 300 million broadband subscribers recorded at the end of 2007 (see figure 2 below).<sup>5</sup> Lower-middle-income economies accounted for 20 per cent of global broadband subscribers (with China alone accounting for 87 per cent of these or 15 per cent of the global total). Low-income countries accounted for less than 1 per cent of total global broadband subscribers, with India and Viet Nam accounting for virtually all of these.

7. Access to broadband is fast becoming essential, and should no longer be regarded as a “luxury option” for Internet connection. As ICTs are a driving force in the development of science, technology and innovation capabilities more generally, the issue of broadband is one that warrants closer attention. It cannot be denied that most of the desirable applications envisioned for the information society are only possible through broadband access.<sup>6</sup> Maximizing the potential of ICTs to be harnessed for development may require maximizing the technological possibility for connectivity.<sup>7</sup>

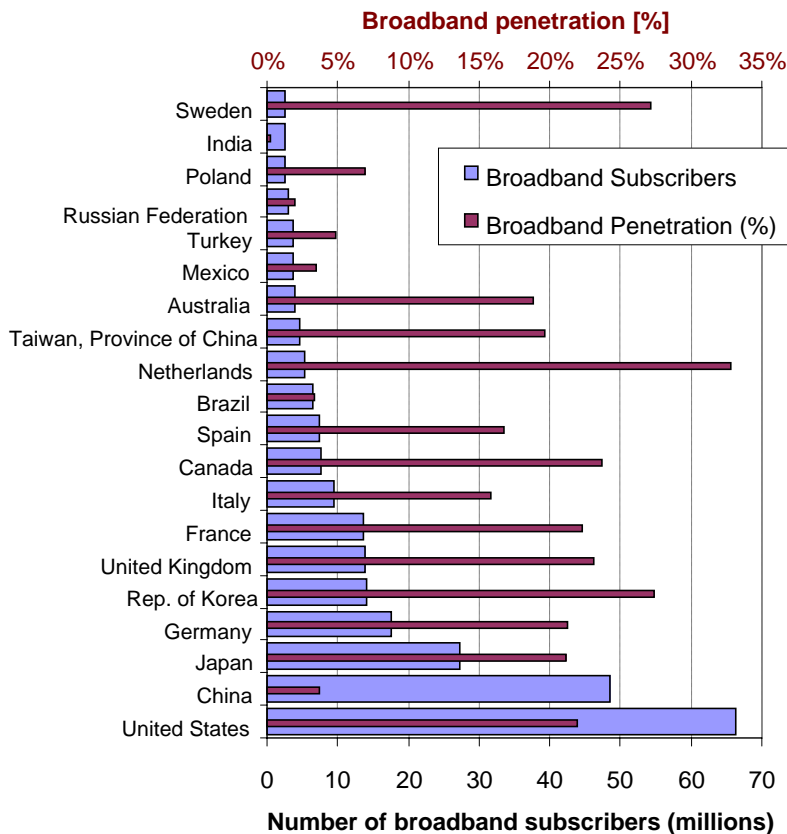
<sup>4</sup> <http://www.internetworldstats.com/stats.htm>.

<sup>5</sup> Internet world statistics <http://www.internetworldstats.com/stats.htm>.

<sup>6</sup> ITU (2006). World Information Society Report 2006. Geneva. International Telecommunications Union (ITU).

<sup>7</sup> UNCTAD (2007). *Information Economy Report 2007–2008: Science and Technology for Development – the new Paradigm of ICT*. Geneva and New York.

**Figure 2. Countries with the highest number of broadband subscribers**  
(September 2007)



Source: <http://www.internetworldstats.com/stats.htm>.

8. A majority of the population in developing countries relies on radio and television broadcasting services, which are low-cost and readily accessible to all. In Africa, there are more than three times as many radios as televisions, and 10 times more radio receivers than fixed telephone lines.<sup>8</sup> An estimated 60 per cent of the population can be reached by existing radio networks. A recent study found that the number of community radio stations was growing in a majority of countries studied, with a total of 402 community stations in operation in 2006 (although most of these were concentrated in South Africa and the Democratic Republic of the Congo).<sup>9</sup> Innovative uses of radio and television broadcasting, combined with other ICTs, have emerged. For example, there are listener clubs among

<sup>8</sup> More specifically, 20 radio receivers per 100 people compared to 2 fixed telephone lines for 100 people. In 2006, the African Media Development Initiative studied radio use in 17 African countries. It found that radio was the most accessible and the most consumed media in all of the countries, which included Angola, Botswana, Cameroon, the Democratic Republic of the Congo, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Senegal, Somalia, South Africa, Sierra Leone, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe (BBC World Survey Trust, 2006).

<sup>9</sup> BBC World Survey Trust 2006.

farmers, “beeping an engineer” project in Cameroon and a “farmer-to-farmer” exchange group in Bolivia, just to mention a few.

9. Promoting access is not in itself sufficient to ensure the accrual of full benefits from ICT. The potential of ICT to bring social or economic value for its users depends also on other factors, such as their ability to access relevant content or to derive economic opportunities from using ICT. In order to fully understand how different users benefit from ICT, detailed quantitative and qualitative studies that seek to understand how individuals from disadvantaged communities exploit and benefit from ICT use are required.

10. UNCTAD<sup>10</sup> has developed the 12 Cs Pro-Poor ICTs Framework (see box 2) that identifies 12 key elements that should act as benchmarks for the analysis of the impacts of ICTs on the livelihoods of the users. Within this framework, Connectivity (e.g. ICT access) is one element – among several others – that influences the ability of people to benefit from ICT. Governments seeking to create awareness and building pro-poor ICT capacities, both at policy and programme levels, may wish to consider UNCTAD’s framework as a starting point for evaluating the extent to which specific ICT policies or programmes are pro-poor.<sup>11</sup> A study of Chilean telecentres summarized in box 3 below provides an example of how the 12 Cs framework can be applied.

11. International organizations, corporations and public–private partnerships have played a major role towards ICT access by sharing the costs of deployment of community-based learning centres. For example, in 2006, the Canadian Government’s International Development Research Centre (IDRC) and Microsoft each contributed Can\$17 million (\$14.11 million) to establish a new organization called telecentre.org, which is devoted to capacity-building of telecentre operators in developing countries. The Swiss Agency for Development and Cooperation subsequently contributed an additional CHF 5 million (\$4.35 million) to the project, which aims to train over a million people to operate telecentres. The Asian Development Bank, the IDRC, and the New Partnership for Africa’s Development’s (NEPAD’s) African e-Schools programme supported ICT access initiatives in schools and libraries. The Bill and Melinda Gates Foundation established a Global Libraries initiative in 2006, which provided over \$30 million in 2007 to support the provision of free Internet access in national public library systems in Eastern Europe, Asia, Africa and Latin America. In addition, a number of private companies are supporting dedicated ICT training facilities and access points through corporate social responsibility programmes. For example, AMD, the largest chip manufacturer, has put in place the 50x15 initiative, which aims to help accelerate digital inclusion by enabling affordable Internet connectivity and computing capabilities; and Microsoft, through its Unlimited Potential programme, is supporting community-based technology and learning centres in 89 countries worldwide.

## **II. ICT infrastructure: national and international networks and traffic**

12. The main infrastructure hurdles facing most developing countries include the lack of a reliable power supply source, which is a necessity for all telecom infrastructures, and a transport network into rural areas. Together with that, the rapid growth in mobile phone and Internet use is placing increasing demands on the underlying telecommunication

<sup>10</sup> See chapter 3 on Pro-Poor ICT Policies and Practices in UNCTAD (2006a).

<sup>11</sup> UNCTAD (2006b).

infrastructure. In most developing countries, at least 70–80 per cent of Internet traffic is international, a pattern reinforced by recent macroeconomic trends, including Business Process Outsourcing (BPO) to low-wage nations, greater regional trade and cooperation, and the emergence of pan-regional operators needing increased intraregional telecommunications bandwidth. With the capacity limitations of satellites, there is sufficient demand to warrant fibre optic connectivity. There is also a growing need for upgrades in the existing lines and an increase in the number of providers to ensure continuity of service and to avoid monopoly pricing practices.

### The 12 Cs of the pro-poor ICTs framework

12 Cs	Key issues	Questions
<b>Connectivity</b>	- Infrastructure & technology (hardware/software) accessible & affordable	Extent to which the planned infrastructure and technology ensure the people living in poverty can use and afford them.
<b>Content</b>	- Relevant - Accessible - Beneficiaries involved	Extent to which the content is relevant to the needs of the targeted population. Can women and men access and use it to meet their needs? Is it available in the local language & accessible to non-literate and ICT-illiterate people? Do beneficiaries participate in the development of the content?
<b>Community</b>	- Who benefits? - Beneficiaries participate	Who should be the target group? How do the different stakeholders participate in the programme? Are beneficiaries taking part in the design and implementation of the programme? How will the intervention affect the different groups (women, men, old, young, illiterate, etc.) of the community?
<b>Commerce</b>	- Supports livelihoods	Does the planned intervention sustain the livelihoods of the beneficiaries? To what extent does it support the economic activities of the beneficiaries?
<b>Capacity</b>	- Beneficiaries' capacity - Organizations' capacity	Do beneficiaries have, or can they acquire, the capacity to participate in the programme? Do the organizations involved have the (financial and organizational) capacity to develop and implement the programme?
<b>Culture</b>	- Supportive culture - Learning promoted	Is there a forward-looking and supportive culture for using ICTs for poverty reduction?
<b>Cooperation</b>	- Stakeholders' cooperation favourable	To what extent is the cooperation among the different stakeholders favourable to ICTs for poverty alleviation?
<b>Capital</b>	- Financial sustainability	Are there sufficient financial resources?
<b>Context</b>	- Adapted to context - Influences context	Is the policy or programme adapted to the local context? Is the intervention able to influence changes for a more favourable context for using ICTs for poverty alleviation?
<b>Continuity</b>	- Monitoring and evaluation - Flexible, promotes learning - Potential for increased impact - Socially sustainable	Does the policy or programme incorporate a monitoring and evaluation component? Does it promote learning and allow flexibility for adaptation? Could the ICT programme be scaled up? To what extent is it socially sustainable?

/...



12 Cs	Key issues	Questions
<b>Control</b>	- Beneficiaries' ownership - Stakeholders accountable	Do beneficiaries have ownership of the policy or programme? Do beneficiaries have a say in the design, implementation and evaluation of the policy or programme? Are the different stakeholders accountable?
<b>Coherence</b>	- Pro-poor	To what extent is the ICT policy or programme consistent with other pro-poor policies and interventions?

Source: UNCTAD, based on Rao (2003).

**Box 2. A Gender Perspective on Supporting Livelihoods through ICT: the case of Chilean Telecentres**

In 2006, UNCTAD conducted a study on Chilean telecentres and their contribution to poverty, in particular among women. Chile was selected because the Government had put in place a broad ICT strategy for development that includes support for telecentre networks. Chile's development in the last decade, including in the area of access to and use of ICTs, has been notable. However, wide gender and economic disparities, including in ICT access and use, persist.

The research applied UNCTAD's 12 Cs pro-poor ICT framework to survey and interview stakeholders from different Chilean telecentre networks. The 15 in-depth responses, albeit from a limited number of participants, provide a flavour of the capacity of the telecentres to support livelihoods.

The Chilean telecentre network is a resourceful initiative: (a) it has strong and continued political support; (b) it strenuously engages with different actors; (c) it has implemented a large-scale ICT literacy campaign; and (d) it has had successful experiences in sustainability and community involvement.

However, its relevance for reducing poverty among women is limited by several factors: (a) some stakeholders understate, where others take for granted, the importance of telecentres for reducing poverty; (b) there is limited understanding of how poor men and women use and benefit from telecentres; (c) gender is not mainstreamed – for instance, no specific training content, evaluations or resources have been developed/earmarked for (poor) women – and the involvement and ICT capacity of women's institutions and organizations are limited; and (d) telecentres have yet to provide specific skills and livelihood opportunities.

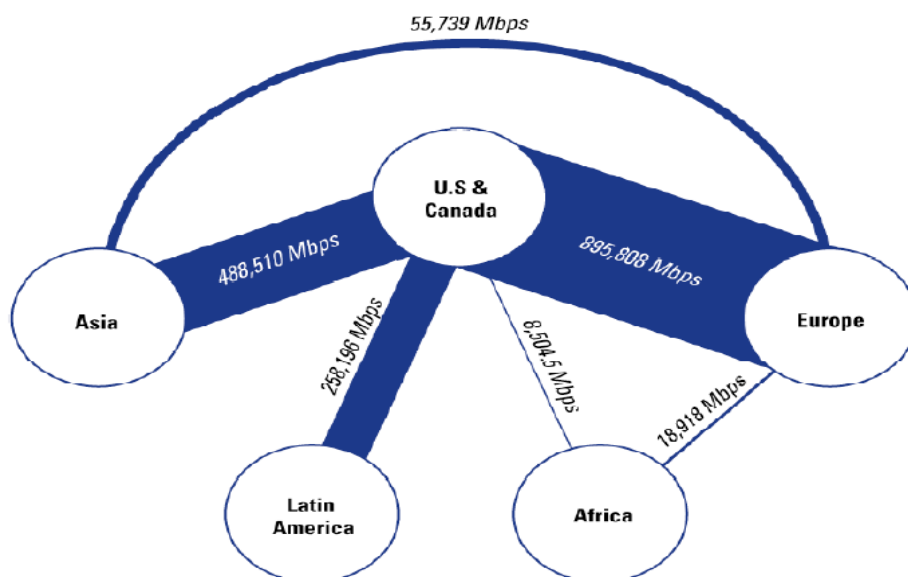
Source: UNCTAD (2008a).

13. Many international fibre optic cable projects are underway, either to link countries not previously connected to the global-fibre grid, or to augment existing international links. These international fibre projects will vastly improve the availability of international and cross-continental bandwidth over the next two to three years. Intercontinental capacity is expected to increase from the current 1.7 Tbps (figure 3), to at least 30 Tbps by

2011/2012,<sup>12</sup> meeting the need for international bandwidth for almost all countries, except some least developed countries of the South Pacific and a number of small islands in the middle of the oceans (e.g., the Laccadive Islands, Seychelles, St. Helena, Asunción and Tristan da Cunha,<sup>13</sup> etc.), where the cost of a cable connectivity remains unjustifiable. These islands will likely continue to remain connected to the Internet by satellite.

14. Due to the often dispersed population of developing regions, many infrastructure projects seek to establish not only the national backbones to service major towns, but also to serve as international links to neighbouring countries. In this context, South–South investment plays a significant role. For example, a recent African survey<sup>14</sup> documented the largest build-up of long-distance telecommunication infrastructure recorded to date. Since the start of the project in mid-2006, over \$1 billion in contracts have been issued for about 30,000 km of optic fibre in 17 countries, with loans from China Exim Bank for about two thirds of the amount. These projects will help accelerate the ICT uptake and smooth out the variations in access to ICT infrastructure within and between African countries.

**Figure 3. Worldwide interregional internet bandwidth 2006**



Source: [www.telegeography.com](http://www.telegeography.com).

15. Many countries are considering the alternative infrastructure available and are taking advantage of technological convergence. To augment ICT access and connectivity, various countries have launched new satellites and provide open access networks. In Africa, the NEPAD Broadband Infrastructure Network<sup>15</sup> is similar to a project run in Stokab<sup>16</sup> (the

<sup>12</sup> ICT in Africa: Boosting Economic Growth and Poverty Reduction, Tenth Meeting of the Africa Partnership Forum, Tokyo, Japan, 2008.

<sup>13</sup> See [http://news.bbc.co.uk/1/hi/world/africa/country\\_profiles/6748187.stm](http://news.bbc.co.uk/1/hi/world/africa/country_profiles/6748187.stm).

<sup>14</sup> WSIS Follow-up Report 2008.

<sup>15</sup> More information is available on

<http://www.eafricacommission.org/projects/126/nepad-ict-broadband-infrastructure-network>.

Swedish City of Stockholm's open access network) and will interconnect countries in East and Southern Africa. Its operation is based on an equal, open-access principle, which will result in increasing operational efficiency and reduced costs. In other countries, satellite continues to play a vital role in television broadcasting and in connecting more isolated and rural areas. Two satellites were launched in 2007 to cater to these needs in Africa – the Regional African Satellite Communication Organization (RASCOM) launched a satellite with the aim of reducing costs for countries with no international cable connectivity, as well as providing domestic links for those with limited national terrestrial networks. In cooperation with China, Nigeria launched a communication satellite in May 2007, with a footprint covering 38 African and 5 European countries. Other developing countries that have launched communication satellites in the last 12 months include Brazil, China and Viet Nam.

16. Technological convergence can also provide multiple, low-cost backbone activities to supplement the national and international telecommunication infrastructure. Developments such as Internet Exchange Points (IXPs), local domain name servers, Internet TV (IPTV) and radio, Internet Protocol or IP-based infrastructure (including Next Generation Networks or NGN, IPv4, and IPv6), and voice-over Internet Protocol (VoIP) operator (Skype) can help reduce the costs of international Internet connectivity and improve access speeds to local websites. Mirror servers, which help reduce demands for international bandwidth as well as improving reliability and responsiveness for users, are often located in IXPs, and are not costly to set up. The use of these devices can, however, prove problematic as the need for large amounts of reliable bandwidth increases. On a long-term basis, the need for fibre optic cable connecting directly to the end user may be an imperative.

### III. ICT and the role of policy

17. The latter part of the twentieth century has, for the most part, witnessed a global trend moving away from state-run economies towards more open market economies.<sup>17</sup> Telecommunications have been included in this movement – there has been a steady trend toward the privatization of State-owned companies, growth of competition and foreign investment, and liberalization of regulation. According to ITU "...today's telecommunication market: [is] *private, competitive, mobile and global*. The pace at which these have occurred is remarkable, that calls for liberalization of the industry are increasingly overtaken by reality."<sup>18</sup> The ITU regulatory survey reported that since its start in 1994, the number of countries that have privatized the ICT sector has doubled and the number of countries providing competitive basic services has grown by over 500 per cent, including such services as voice telephone services (for example, VoIP), fixed-line broadband and broadband wireless access.

18. Governments play a vital role in encouraging the dissemination and adoption of ICTs and, as such, policies which promote competition can be helpful to the development of markets. Experiences in many countries suggest that greater competition can reduce the cost of telecommunication services significantly and improve ICT services. Governments may explore locally relevant policies to adapt, change and extend mobile services and networks in order to allow greater ICT access in remote rural areas. In addition to

<sup>16</sup> More information on Stokab is available on <http://www.stokab.se/templates/StandardPage.aspx?id=306>.

<sup>17</sup> UNCTAD (2006b).

<sup>18</sup> ITU World Telecommunication Development Report 2002, ITU, Geneva.

liberalizing market-entry types of regulations, Governments have placed ICT planning and initiatives high on their agendas. Some examples of this include:

(a) Chile was the first country in South America that had taken a leadership position in developing a comprehensive ICT plan, developing e-government services, a comprehensive school network and curriculum programme and coordinating telecentres;

(b) The Indian Government has convened task forces which led planning and reform, and both national and State governments have encouraged investment in infrastructure and supported efforts to bring telephony and Internet connectivity to rural villages;

(c) The Singapore Government has played a major role in ICT planning by making direct investments and developing and offering e-government services;

(d) In addition to planning ICT development, the Chinese Government has allowed State-owned enterprises to compete with each other and has allowed competition among companies connecting to state-owned backbones; and

(e) In the United States, the National Science Foundation has funded the building of a backbone Internet network, while universities and research networks pay for their individual connection to the network.<sup>19</sup>

19. To varying degrees, nearly all countries have liberalized their telecommunication industries during the last 25 years, and there is some evidence to suggest that the consequent increase in competition among retail providers has led to more innovative services at lower prices. Market liberalization has resulted in considerable advances, but some basic elements – financial, technological, infrastructure and human capacity – are still lacking in some markets, preventing even greater connectivity and benefits.

20. There exist challenges and opportunities, especially as concerns policy coordination, when countries seek to implement policies to promote ICT development. A coherent approach to national policy is needed, taking into account political, educational, cultural, scientific, legal, regulatory and financial factors. The main objective of regulation is to ensure transparency and openness while promoting a level playing field and limiting the abuse of market power. Effective regulation can promote and strengthen predictability, stability and consistency for telecommunication operators, as well as for investors and end users. At the policy level, multi-thematic, coherent policymaking has produced tangible results (box 4).

21. National policies should take into account regional realities and contexts, too. In addition to the benefits in infrastructure cooperation, regional cooperation can play an important role in capacity-building and providing platforms for policy discussion, as shown in the case of Communications Regulators' Association of Southern Africa (CRASA, box 5). Such initiatives can contribute towards regional integration, which is increasingly important for ICT development, especially as telecommunication, broadcasting, Internet and allied technologies and services are converging rapidly. Given market size and harmonized investment, and regulatory frameworks at regional levels, the issues of hospitable investment conditions, the protection of intellectual property rights, transparency of regulation, and protection of privacy and personal data, and to a certain extent, the information society issues such as computer misuse and cyber crime, electronic signatures and transactions, as well as elements of e-government and broadcasting can be addressed more effectively.

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<sup>19</sup> UNCTAD (2006b).

**Box 3. Multiple policy perspectives**

**Mauritius** is among the top four sub-Saharan African countries (South Africa, Seychelles and Botswana) in the e-Government Readiness Index and digital diffusion index. Mauritius' development vision identified early on the importance of building an information economy (including ICT development) in ensuring that it could develop into a modern nation and enhance its competitiveness in the global marketplace. Its reforms in the telecommunication sector began in 1997 with analytical work and extensive consultations. Recent top-level commitment and specific funding for ICT projects – such e-government and e-education – has generated a new impulse to strengthening Mauritius' emerging knowledge economy. A key step towards the realization of its goal has been Mauritius' decision to connect to the Southern Africa Far East fibre optic submarine cable, as this significantly enhanced its connectivity. Today, 90 per cent of the population has access to the Internet, and 89 per cent of Mauritian households have fixed-line telephone access. Other factors which have helped determine the country's supportive ICT environment include stable politics, follow-through in ensuring regulations were implemented and effective liberalization of the ICT sector. In the international context, its bilingual environment is another asset. Overall, Mauritius has achieved tremendous progress in ICT development, thanks to a common vision and a supportive public policy framework.

**Chile** succeeds in promoting competition in the ICT sector through government planning and applications. Chile is the first Latin American nation to privatize and liberalize its telecommunication sector. The results have shown improvements in teledensity and efficiency. To strive for providing universal service, the Chilean Government will require operators applying for licenses to cover rural areas or charge a universal service fee to subsidize the rural areas. In other cases, providers have to bid for the Government subsidy in return for extending their services to cover remote areas. Today, Chile ranks first or second among South American countries in nearly all per capita telecommunication indicators, including fixed and mobile subscribers, Internet users, personal computers, cost of calls and Internet access. In the Chilean national plan — the Digital Agenda — it defines an action plan of 34 initiatives, covering many areas, including e-government, education and community access, to name a few. All of these initiatives intend to achieve the use of ICT for the economic, social and cultural empowerment of its people.

*Sources:*

[http://www.itu.int/ITU-D/ict/cs/mauritius/material/CS\\_MUS.pdf](http://www.itu.int/ITU-D/ict/cs/mauritius/material/CS_MUS.pdf);

[http://www.novatech2007.org/downloads/country\\_profiles/](http://www.novatech2007.org/downloads/country_profiles/)

[Mauritius\\_Country\\_Profile.pdf](#); [http://www.unctad.org/en/docs/iteipc20065\\_en.pdf](http://www.unctad.org/en/docs/iteipc20065_en.pdf).

**Box 4. CRASA's role as catalyst**

CRASA, previously known as TRASA, is one of a number of regional associations of independent national communications regulators in Africa – the change in name reflects increased diversity from telecommunications to communications. It sees itself as “providing a platform for regulators to exchange ideas, views and experiences in all aspects of regulation of the information and communications sector” and serves as facilitator for regional harmonization in the Southern African Development Community region. One of the central functions of CRASA is to make recommendations on key policy guidelines. Furthermore, CRASA helps promote capacity-building among its members, which include authorities from 13 different countries. It also has an associate member from the private sector, working with the Nokia Siemens Networks.

Source : <http://www.crasa.org>.

## IV. Findings

22. Despite the remarkable progress in the deployment of ICT, the cost of Internet access and services remain high, particularly for broadband access. Broadband should not be considered a luxury option of Internet connection. The CSTD should promote broadband as an essential tool that is needed for all purposes (education, business, video, health, social networking and services).

23. As individual access to the Internet remains too costly in many developing countries, and especially in rural areas, shared access points have an important role to play in increasing access; hence, telecentre initiatives should be encouraged. However, the right range of services must be found to generate the levels of usage required to make them sustainable.

24. International organizations, corporations and public–private partnerships are critical players in the promotion of access to ICT and improved facilities.

25. The potential of ICT to bring about social and economic benefits to its users depends on a larger set of factors that goes beyond access and connectivity. Other factors such as the users' ability to access relevant content and apply the same in ways that are relevant to their contexts are also important in attaining an “all inclusive” information society.

26. The existing telecommunications infrastructure in most developing countries cannot adequately support modern ICT applications. Consequently, the quality and quantity of these infrastructures need to be upgraded in order to serve the rapidly expanding market. South–South as well as North–South partnerships play a significant role in providing the needed human and financial resources.

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