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SESSION BACKGROUND PAPER

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Strengthening a Knowledge-Based Society Connect a School, Connect a Community *Background Paper – Panel 4*

1. PURPOSE OF THIS PAPER

The focus of this Background Paper is to describe how school connectivity initiatives could foster broadband connectivity in the CIS region to support the use of Information and Communication Technologies (ICTs) in education, as well as economic and social development for vulnerable and marginalized groups including women and girls, youth and children, persons with disabilities, indigenous people and people living in underserved areas.

The objective is to facilitate discussion on the next steps that could be taken by CIS countries to improve school connectivity. In particular, it focuses on:

- a) Demand-driven Broadband Connectivity Initiatives;
- b) Funding options, including the promotion of Public Private Sector initiatives;
- c) How connected schools can be used as community ICT Centres for vulnerable and marginalized groups; and
- d) Issues of technology neutrality in connecting schools.

2. BACKGROUND

ITU launched the *Connect a School, Connect a Community* flagship initiative as a public-private partnership effort to promote broadband school connectivity to serve both students and the communities in which they live. The initiative was endorsed by the United Nations Secretary-General in the 2009 ITU World TELECOM Youth Forum.¹ Through *Connect a School, Connect a Community*, ITU is working with a range of partners to identify and compile best practices on policies, regulation, applications, services, training materials and practical experiences to be shared with interested countries through the development of an online Toolkit and related capacity-building activities. Building on this Toolkit, ITU is also implementing initiatives with various partners which apply, test and report the results of innovative, replicable and scalable models of broadband school connectivity in different countries. The CIS countries are invited to join the *Connect a School, Connect a Community* initiative by:

¹ http://www.itu.int/newsroom/press_releases/2009/36.html

1. adopting the best practices identified in its Toolkit;
2. enriching the Toolkit with best practices from the region;
3. sharing training materials to be made available on the Toolkit platform; and
4. adapting and translating training materials available on the Toolkit platform for use in their connected schools.

3. CURRENT SITUATION

a. Demand-Driven Broadband Connectivity:

One of the most effective ways to promote widespread broadband connectivity is through regulatory and sector reforms that foster private sector investment, as discussed in the [Fostering an Enabling Environment](#) Background Paper. The goal of creating an enabling environment is to encourage private sector **supply** of broadband services in a competitive market environment.

However, in some cases, additional efforts beyond sector reform may be required. In particular, efforts may be required to extend broadband networks to rural or remote areas and promote broadband use by vulnerable and marginalized populations. Additional efforts may also be required if necessary sector reforms have not been fully implemented or where private sector players remain unconvinced of the business case for investing in rural and remote areas – opting instead to maximize their profits by serving only higher-income, higher-margin urban areas. In addition to promoting private sector supply of broadband services, the government may also adopt additional policy measures to promote greater **demand** for broadband connectivity.

Providing support for school connectivity is one such demand-based policy initiative that governments can adopt to promote broadband connectivity in rural, remote and underserved areas for use by vulnerable and marginalized groups. Children and young people attending connected schools can participate more fully in the Information Society through access to knowledge resources and by using ICTs for their social, educational and economic benefit. In addition, school connectivity promises to increase demand for commercial broadband services, content, and applications as children and young people, the future generation, become a new generation of ICT consumers.

Moreover, once schools are connected to broadband, these public institutions can be used as community Information and Communication Technology (ICT) centres serving vulnerable and marginalized populations including disadvantaged women and girls, indigenous people and persons with disabilities in line with the 2006 ITU World Telecommunication Development Conference (WTDC-06) Resolutions 11, 38, 46, 55 and 56².

Connecting schools as community ICT centres could enable many more citizens to use ICTs to promote social, educational and economic development. Governments are likely to find that concentrating their efforts on school connectivity may be ultimately more cost-effective than developing separate programmes for special communities and populations. Again, using schools as community ICT centres also promotes greater demand for commercial broadband services, in line with private sector objectives.

² See Resolution 55 (Doha, 2006) Gender; Resolution 38 (Rev. Doha, 2006), Youth and Children; Resolution 46 (Doha, 2006), Indigenous People); Resolution 11 (Rev. Doha, 2006), Persons living in rural and underserved areas; Resolution 56 (Doha, 2006), Persons with Disabilities.

Connecting schools is one of the [World Summit on the Information Society \(WSIS\) targets](#). World leaders participating in WSIS set the clear goal of connecting all primary, secondary and tertiary schools by 2015 as a top priority. Universal primary education and increased literacy rates, both of which can be facilitated through ICTs, are also key objectives of the [Millennium Development Goals \(MDGs\)](#). Policy-makers and educators understand that broadband connectivity at schools offers a range of short-term, medium-term and long-term benefits.

In the short-term, extending broadband connectivity to schools enables educators to take advantage of new and emerging content and tools to update and enrich curricula, while providing individual instructors with tools that can facilitate and expand collaboration with colleagues both near and far. Radio and television have been used to augment education in classroom settings and to connect rural students to educational opportunities for several decades, but the combination of computers and the availability of broadband connections enable a far greater expansion in the types of content available and introduce new levels of interactivity in educational settings. Broadband connectivity allows students and teachers to access current online research and instructional materials, including images, audio recordings and videos. By accessing such materials, students are able to complement more traditional oral instruction or written materials. Combined with tools allowing collaboration among students and teachers, broadband-enabled educational tools have the potential to be a positive force in educational programs around the world, enabling the creation of more effective and engaging educational models.

In cases where broadband replaces a slower Internet connection, such as dial-up service, students and educators will have improved access to existing resources that may have been too time-intensive to download over a slow connection, or simply unavailable without the bandwidth provided by broadband connectivity. Broadband connectivity also provides new opportunities and additional value to coursework focused on promoting training on ICTs, transforming isolated personal computers (PCs) or computer labs into tools for accessing information from around the world. Despite significant differences in the levels of development of educational programs around the world, broadband-enabled educational tools can be incorporated into curricula across all socio-economic levels, although areas of focus must be customized to suit the needs of each community.

Once broadband networks have been extended to schools in previously unconnected communities (or indeed to other public facilities such as libraries, hospitals and municipal government offices), broadband networks can also be used for commercial purposes in the affected communities. Operators may find it profitable to sell broadband subscriptions to households or businesses, while other entrepreneurs may open commercial Internet cafés, call centres, back-office support services and local language content/software development businesses, in addition to a host of other economic activities.

In short, connecting schools offers a win-win opportunity for the government, its citizens and the private sector. However, this raises two essential questions: how to pay for school connectivity and how to use connected schools to benefit the broader community at large?

b. Funding:

One option is for the government to fund school connectivity programmes entirely itself, where sufficient government resources exist. As an example, the Russian Federation relied exclusively on government funding to connect all 52,000 of its schools to the Internet in a

USD 100 million project³. It is important to recognize, however, that broadband connectivity is only one cost element necessary to implement school connectivity effectively. Other costs include: monthly broadband access fees; the purchase of computing devices (whether personal computers, netbooks or low-cost computing devices such as wireless broadband handsets); electricity; the development of ICT-based educational and vocational training materials; teacher training, etc. There are a range of other investments in skills, software and applications that extend beyond basic hardware and connectivity.

Government funding may be provided through national ICT budgets, national, state/provincial or local educational budgets, telecommunications and ICT universal access/service funds and/or in general economic stimulus plans that include funding for broadband connectivity. The use of universal access/service funds is discussed in the background paper [Fostering an Enabling Environment](#), while economic stimulus plans are covered in the background paper [Beyond the Crisis: ICT As An Engine for Economic Growth](#).

In the current climate, few governments may be likely to have the necessary resources to fund comprehensive school connectivity plans alone. For this reason, governments may seek to fund school connectivity via private-public partnerships (PPPs). PPPs share investment risk, while leveraging the stakeholders' respective competencies. For example, the government may have access to greater funding that can be used to pay for certain elements such as electricity, computing devices and/or teacher training. The government can also establish requirements and/or incentives for the private sector to support other key cost elements or improve operational efficiency and performance. Likewise, local school boards and even families may be expected to cover certain costs, in addition to support from development or donor agencies, development banks, and/or the private sector (e.g., donations from ICT equipment manufacturers).

The private sector could then be asked to provide schools with free broadband connectivity bundled with computing devices, educational and/or training applications and content. Private sector requirements could be implemented through universal service or licensing obligations. Private sector incentives could also be established through corporate social responsibility (CSR) initiatives or by lowering licensing fees for wireless broadband spectrum in exchange for the provision of free connectivity to schools.

Local school boards can also take on responsibility for the maintenance of ICT equipment, teacher training and development of educational content. Governments could also establish programmes that enable wealthier families to purchase computing devices at a discount or through staggered payments, while subsidizing such devices for low-income families or seeking donations from computing device manufacturers. Partial funding for school connectivity may also be found from development banks or donor agencies, although such organizations often require partial or matching government funding (see Table 1.1, Sample Allocation of Costs for School Connectivity). While the actual allocation of costs will vary depending on national and local circumstances, it is important for governments to be aware of the full range of costs associated with connecting schools in their planning.

Communications and educational policy-makers and regulators can also work together to create national school connectivity plans addressing the costs and effective use of ICTs for education, vocational training and social development. Today, many countries have developed national Master ICT Plans that may or may not address the goal of connecting schools. Many countries have also established separate Master Education Plans that may or may not include promoting ICTs for education. Communications and educational policy-makers working in concert can develop Smart School Connectivity Plans (SSCPs) that identify schools to be

³ ITU News March 2009.

connected, funding sources, technologies to be used, and how the connectivity will be sustained. A plan also can align education sector targets with national ICT goals and provide mechanisms involving key stakeholders as well as address how the cost of broadband connectivity affects the cost of ICT for education, and how these costs can rise or fall, depending on the national ICT regulatory framework. Such SSCPs can also examine the need to effectively introduce ICTs in the educational curriculum to ensure that major investments in connecting schools and equipping them with computing devices have tangible benefits.

In order to be more effective, school connectivity plans should be consistent with policies to promote country ICT connectivity along with specific connectivity for the education sector. Within a national framework, school connectivity plans are best coordinated with policies, plans, strategies, and programs for universal service and broadband and digital and Information Society agendas.

These issues are more fully explored in the *Connect a School, Connect a Community* Toolkit under development by ITU.

c. Using schools as Community ICT Centres:

Part of the development of SSCPs can focus on the role that connected schools can play in the social, educational and economic development of vulnerable and marginalized groups. Many countries have adopted policies that seek to promote the social, educational and economic development of various marginalized groups, such as disadvantaged women, persons with disabilities and indigenous people. Vulnerable and marginalized groups can benefit from life-skills training, such as language, numeracy and basic ICT literacy adapted to their needs. They can also benefit from continuing education for economic development, such as training on ICT-enabled careers and basic business skills training. For example, a variety of promising language literacy training programmes are being delivered in countries such as Egypt, through computer labs and online courses. These materials, developed by local non-governmental organizations (NGOs) and international organizations (such as UNESCO) could help promote literacy training for adult populations in connected schools. Likewise, basic business skills for small- and medium-sized enterprises (such as training on running mobile remittance businesses, back office processing and call centres, etc.) could also be delivered through connected schools. ITU is currently developing training materials for rural women to promote their economic development that will be shared via the *Connect a School, Connect a Community* platform.

Governments seeking to implement such school-based community ICT centres can put in place national and local policies to ensure that space be provided in schools for such community centres and that centres remain open beyond normal school hours for use by the community. They can also seek to provide life skills and economic empowerment training. A range of issues related to using schools as community ICT centres is explored more fully in the Toolkit under development by ITU.

d. Technology Neutrality

In developing national school connectivity plans, governments can consider a range of technological options, including wire-line broadband networks such as ADSL (asymmetric digital subscriber line), cable TV, fibre optic networks; wireless broadband networks, including UMTS (universal mobile telecommunication system), HSDPA (high speed downlink packet access), WiMAX and Wi-Fi, as well as satellite and digital broadcasting technologies. Many governments may seek to issue public tenders for the provision of broadband services to schools. Such public tenders can specify the minimum level of broadband connectivity to be provided without specifying the technological platform for its delivery, leaving this choice with the private sector providers better-placed to make such decisions.

4. CONCLUSIONS AND RECOMMENDATIONS

CIS countries may wish to implement comprehensive school connectivity plans to promote broadband school connectivity to serve both students and the communities in which they live. School connectivity can be effectively achieved by implementing best practices on policies, regulation, applications, services, training materials and other practices which ITU is collecting and publishing in its *Connect a School, Connect a Community* online Toolkit that will be published shortly.

CIS countries are invited to join the *Connect a School, Connect a Community* initiative, by both by enriching the Toolkit with their experiences and best practices and by adopting best practices identified in the Toolkit. In particular, CIS countries are invited to share with ITU any training materials that they have developed to be posted on the Toolkit website, and adapt and translate training materials available on the Toolkit platform for use in their connected schools.

Table 1.1 Sample Allocations of Costs for School Connectivity

Cost Element	Government	Private Broadband Service Provider	Computing Device Supplier	NGOs Development Banks
1. Fully equipped personal computers or low cost laptops with operating systems, software and assistive technology for persons with disabilities. Operating systems and software language interface and keyboards to be adapted as required for the beneficiary country (e.g., Russian operating systems and keyboards for Russian-speaking countries) as well as the battery charger configurations.	X	X	X	X
2. Schools connected to electricity and broadband Internet connectivity (e.g., over 250 Kbit/s). <ul style="list-style-type: none"> Governments may ensure Internet access through a public tender open to all licensed broadband providers or may enter into agreements with individual broadband providers to ensure 	X	X		

<p>broadband connectivity for targeted schools.</p> <ul style="list-style-type: none"> Electricity may be provided either via the electricity grid or through generators. 				
3. Additional memory devices, printers and servers to support each school along with networking devices for each school, including network adapters and routers and firewalls.	X	X	X	X
4. Shipping costs of the computing devices to schools.	X	X	X	X
5. An IT expert to install Wi-Fi networks, printers, scanners, additional memory devices and servers, as required, and to provide service and support for networking and computing devices.	X	X	X	
6. Training materials on the maintenance of the network and computing devices so that countries can train national IT experts to repair and maintain them.		X	X	
7. Educational content development.	X	X	X	X
8. Training materials, trainers and training sessions for teachers on teaching students to use the Internet and computing devices and the use of educational materials for use on the computing devices.	X	X	X	X
9. Identification of schools and timeline for distributing computing devices.	X			
10. Nomination of coordinator(s)/project managers responsible for coordination with the Ministry of Education, Ministry of Communication, national regulatory authority, other partners such as broadband service providers and any NGOs, international donors or private sector players who may support school connectivity as well as coordinating with all schools, including the teachers, students and parents to build their support.	X			
11. Exempting the import of the computing devices for use in schools from custom duties and taxes as appropriate.	X			
12. Identification of local IT specialists to participate in the technical maintenance and support training.	X			
13. Ensuring that teachers participate in training on how to teach students to use the Internet and computing devices and how to use educational materials designed for use on the computing devices.	X			
14. Ensure that computing devices in each school will be reserved for use in a public ICT community centre that can be open to adults in the community for literacy training, business training and ICT-enabled career training. The community ICT centres are for the benefit of vulnerable and marginalized populations including women, persons with disabilities, indigenous people and	X			

people living in underserved or rural areas.				
15. Assume responsibility for software upgrades as required.	X			
16. Ensure that student training in the use of computing devices is included in the school curriculum of the beneficiary schools.	X			
17. Conduct an evaluation of the pilot phase of each project and identify areas for improvement.	X			