Distinguished Delegates:

I have the honor to be among the first to welcome you to the Southern Regional Model United Nations XIX conference. This year's meeting of the Commission on Science and Technology for Development will undoubtedly be a challenging and rewarding experience. My name is Charles Keller, and I have the privilege of serving as the Director of the CSTD. I am currently a senior at Georgia State University with a major in Political Science. I first became involved with Model United Nations conferences in the 6th grade in Illinois, and I have been addicted ever since. This year will mark my thirteenth year of involvement in various Model UN and Model Arab League conferences, and over fifty total conferences attended. I have been involved with SRMUN for four years: two years as a delegate and two years on staff.

Joining me on the dais this year will be my Assistant Director, David Tomaschik. David is in his final year of his undergraduate program majoring in Computer Science, and he has been to over thirty MUN conferences. This will be David's second year on SRMUN staff. We have both worked hard to select topics that fit well with the overall scope of the CSTD and the theme for SRMUN XIX: *Promoting Partnerships for a Sustainable Future.* The topics we have prepared for you will be an excellent opportunity for progress in the United Nations' involvement in the scientific and technical fields:

I: Integrating Technology into Formal Educational Programmes
II: The Impact of Content Filtering on Communication Developments
III: Developing Educational Platforms to Promote Energy Conservation Programmes in Developing Countries

Our first topic addresses an area underrepresented by the United Nations: the growing role of technology in education. This topic will allow you to pioneer new initiatives to integrate technology into education, and allow you to evaluate a variety of private programs that may be improved by the UN. The Impact of Content Filtering on Communication Developments allows the CSTD to examine the future of the Internet. You will be charged with addressing important questions related to the freedom of the Internet and whether the United Nations should implement standards for Internet "openness". You will also have an opportunity to evaluate the impact of current energy conservation standards worldwide with our third topic, and you will have the responsibility to determine the future of energy conservation efforts in developing states. I firmly believe that these topics will provide you the chance to come up with impressive new ideas to solve a variety of difficult technology-related problems facing the world in the coming years. Your role as knowledgeable experts in the fields of science and technology will ensure that each Member State has an important stake in the debate that will take place.

I can assure you that I know very well the amount of research you have already invested into these important topics, and I am confident that you will be able to convey this research in a meaningful way in your position papers. Position papers must be submitted on-line via the SRMUN website and will be due by Midnight on October 24, 2008.

One of the best tools to prepare for this conference will be the SRMUN website (http://www.srmun.org), which is filled with links, position paper guidelines, and a detailed explanation of the rules of procedure. The SRMUN website will prove to be very beneficial to your delegation's success, so please take advantage of it! The CSTD will be an average-sized committee, with as many as 32 delegations in attendance. If you have any questions throughout your preparation process, please don't hesitate to contact David or myself. We will both be happy to help you! I look forward to seeing you this November at SRMUN XIX!

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History of the Commission on Science and Technology for Development

The Commission on Science and Technology for Development (CSTD) is an integral part of the United Nations system. Created as a subsidiary body of the Economic and Social Council (ECOSOC) in 1992, the Commission was part of a project to modernize the United Nations and its resources.[1] The CSTD was specifically created to replace the Intergovernmental Committee on Science and Technology for Development (IGCSTD) and its own subsidiary, the Advisory Committee on Science and Technology for Development (ACSTD), which both reported to the General Assembly (GA) instead of the ECOSOC.[2] The Commission held its first meeting in New York, NY, on April 1993. Since this first meeting, the Commission has held its meetings in Geneva, Switzerland, and has reported to the Secretariat of the United Nations Conference on Trade and Development.[3]

The CSTD is a highly technical committee, charged with providing both the GA and the ECOSOC with the appropriate advice and recommendations to form the basis of new proposals, treaties, and documentation within the scientific and technical fields.[4] The work of the CSTD is vital to the success of the United Nations, particularly as the world embraces the technological progress of the information age. Recently, the Commission has turned its attention to issues such as bridging the digital divide and providing for equitable access to technological resources for persons of every socioeconomic class.[5] The reports of the CSTD on these issues will help shape future resolutions on questions related to international governance for telecommunications, developing technical standards for the basis of laws related to technological and scientific issues, and many others that will be brought up at the United Nations as scientific and technological advancement develops further. In addition to these important contributions, the CSTD focuses on the following general mandate:

- the examination of science and technology questions and their implications for development;
- the advancement of understanding on science and technology policies, particularly in respect of developing countries and;
- the formulation of recommendations and guidelines on science and technology matters within the United Nations system.[6]

The CSTD is composed of 43 Member States elected by ECOSOC for four-year terms. Persons appointed by their respective Member States are usually experts in various fields of science and technology.[7] The Economic and Social Council elects Member States of the CSTD regionally, with 11 members from African states, nine members from Asian states, eight members from Latin America and Caribbean states, five members from Eastern European states, and ten members from Western European and Other states.[8]

In July of 2006, ECOSOC resolution *E/2006/46* called for a further evaluation of the CSTD and changes to the focus of the CSTD as a part of the response to the World Summit on the Information Society (WSIS).[9] The Commission

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[1] "Mandate and Institutional Background." Commission on Science and Technology for Development. http://www.unctad.org/Templates/Page.asp?intItemID=2700&lang=1

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Report on the tenth session. Commission on Science and Technology for Development. http://www.unctad.org/Templates/Download.asp?docid=8635&lang=1&intItemID=4066 p.10

[6] "Mandate and Institutional Background." Commission on Science and Technology for Development. http://www.unctad.org/Templates/Page.asp?intItemID=2700&lang=1

[7] "Membership." Commission on Science and Technology for Development. http://www.unctad.org/Templates/Page.asp?intItemID=2698&lang=1

[8] Ibid.

[9] "WSIS Follow-up – Mandate." Commission on Science and Technology for Development. http://www.unctad.org/Templates/Page.asp?intItemID=4240&lang=1

was selected to serve as a focal point for the implementation of the changes recommended by the WSIS. Specifically, the CSTD was called upon to complete the following tasks:

- Review and assess progress at the international and regional levels in the implementation of Action Lines, recommendations and commitments contained in the outcome documents of WSIS;
- Share best and effective practices and lessons learned, and identify obstacles and constraints encountered, actions and initiatives to overcome them and important measures for further implementation of WSIS outcomes;
- Promote dialogue and foster partnerships in coordination with other appropriate United Nations funds, programmes and specialized agencies to contribute to the attainment of the WSIS objectives and implementation of its outcomes; and
- Use information and communication technology (ICT) for development and achievement of internationally-agreed development goals, with the participation of Governments, private sector, civil society, the United Nations and other international organizations, according to their different roles and societies.[10]

As the CSTD matures and achieves its recent organizational goals, the CSTD will become an even more critical part of the United Nations system.

Current Member States of the Conference on Science and Technology for Development are:
ANGOLA, ARGENTINA, AUSTRIA, BELARUS, BELGIUM, BRAZIL, BURKINA FASO, CHILE, CHINA, CUBA, DEMOCRATIC REPUBLIC OF CONGO, DOMINICAN REPUBLIC, EL SALVADOR, EQUATORIAL GUINEA, ERITREA, FINLAND, FRANCE, GAMBIA, GERMANY, INDIA, IRAN (ISLAMIC REP. OF), ITALY, JAMAICA, JORDAN, LATVIA, LESOTHO, MALAYSIA, OMAN, PAKISTAN, PERU, PHILIPINES, RUSSIAN FEDERATION, SIERRA LEONE, SLOVAKIA, SRI LANKA, SUDAN, SWITZERLAND, TUNISIA, TURKEY, UGANDA, UNITED KINGDOM, UNITED STATES OF AMERICA

[10] Ibid.

Topic I. Integrating Technology into Formal Educational Programmes

Introduction

As technological innovation becomes an increasingly important part of global development, education becomes critical to the success of the world's entire population. While education is vital to learning how to understand and take advantage of each new breakthrough, education itself benefits from new ways to reach students and ensure they have the tools necessary to thrive in modern society. Gutenberg's printing press led to exponential increases in literacy rates throughout Europe and the rest of the world as access to information was made more readily available to the masses. The invention of the microprocessor led to amazing new methods of collaboration and research in educational institutions throughout the world, which eventually gave birth to the Internet and new ways for students and teachers around the world to communicate and share ideas with one another.

The United Nations has already made significant strides towards advancing education throughout the world, particularly through laying out ambitious programs such as The Millennium Development Goals (MDGs). Adopted in 2000, the MDGs were established to ensure that the United Nations satisfies its obligations to protect the Earth's entire population.[11] The Second Millennium Development Goal, to achieve universal primary education by 2015, outlines the UN's dedication to the issue of education[12]. However, it is imperative that the UN begins now to develop more effective ways to make its plans a reality. Education levels vary widely throughout UN Member States, with some states boasting impressive literacy rates of 99 percent or higher while others struggle to reach state-wide literacy rates of 10 percent[13]. The United Nations, through the Commission on Science and Technology for Development, can develop new educational programs that take advantage of cost-effective technology designed to ensure that the entire world's population has an equal chance at a quality education. Specifically, the UN has the opportunity to build upon the recommendations presented in the CSTD's first issue paper on "science, technology, and engineering for innovation and capacity-building in education and research.[14]

History of Computers in Education

The computer was first introduced to education in 1944 at Harvard University.[15] The IBM Automatic Sequence Controlled Calculator, or Harvard Mark I, weighed in at five tons and was made up of over 750,000 parts.[16] Early computers such as the Mark I or the University of Pennsylvania's 1946 Electronic Numerical Integrator And Computer (ENIAC) were impressive machines for their time period, but their bulk and difficult programming method limited their use to scholars in fields such as science or mathematics.[17]

Computers began serving broader roles in education in 1959 with Donald Bitier's Programmed Logic for Automated Teaching Operations (PLATO), a network based at the University of Illinois.[18] PLATO consisted of several thousand terminals for use not only by University of Illinois students, but also by area elementary schools and other

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[11] The UN Millenium Development Goals. http://www.un.org/millenniumgoals/

[12] Ibid.

[13] "Education for All Global Monitoring Report: Statistics Table 2006." http://portal.unesco.org/education/en/ev.php-URL_ID=43366&URL_DO=DO_TOPIC&URL_SECTION=201.html

[14] Issue Paper on Science, Technology, and Engineering for Innovation and Capacity-Building in Education and Research. CSTD Secretariat. 28 November 2007. http://www.unctad.org/sections/dite_dir/docs/dite_pcbb_stdev0088_en.pdf

[15] "The IBM Automatic Sequence Controlled Calculator." Columbia University Computing History. http://www.columbia.edu/acis/history/ascc.html

[16] Ibid.

[17] "Computers in Education: A Brief History." T.H.E. Journal. June 1997. http://www.thejournal.com/articles/13739. p. 2.

[18] Ibid., p. 3.

colleges in the area.[19] The one-on-one interaction between students and computers was further strengthened in 1963 by John Kemeny and Thomas Kurtz at Dartmouth University with the invention of the Beginner's All-Purpose Symbolic Instructional Code (BASIC).[20] BASIC allowed students to program computers to do tasks without complicated punch cards, and therefore expanded the benefits of computing resources to students not specifically trained in mathematics or related fields.

Each of these innovations built up to the final breakthrough of the computer as an essential instrument in education, particularly at the collegiate level. In the late 1970s, the "microcomputer" was first mass-produced and sold commercially. For the first time, individuals, businesses, libraries, and smaller schools could afford to purchase computers.[21] Universities started encouraging or even requiring students to purchase personal computers, and some grade schools began to put computers in individual classrooms for younger students to more easily learn to use computers.[22]

The Digital Divide: Developing States Unable to Acquire Adequate Technology

As computers and technology have become simultaneously cheaper and more powerful, their role in education has become more and more important. While many developed states have the resources to ensure that their children are properly trained for the increasingly digital economy, developing states as a whole are lagging behind in ensuring that their students have access to computers and other important technology. A number of initiatives have been implemented at the governmental level to offer funding and other resources to state-wide educational systems, but many have had only mixed results.[23] Some developing states are forced to put the funds they receive towards other programs or towards basic education, and they are unable to purchase and maintain computers for their student populations.[24]

This noticeable gap between developed and developing states with regard to accessing important technology is called the Digital Divide.[25] The United Nations has taken notice of the problem, but progress on closing the Divide is slow. The primary reason for the sluggish response is the fact that much of the developing world has more pressing problems than technological proliferation. Michael Fors, a Fellow at the United Nations Institute for Training and Research (UNITAR), explains that "While technology can be a boost to [developing states'] economies, it does little if basic needs are not met."[26] However, once these basic needs are met, there are many challenges that must be met. Infrastructure for modern technology such as high-speed Internet pipelines and proper electrical wiring for computers is virtually non-existent in some developing states.[27] Without these critical components, it can be very difficult to create a technological revolution. Beyond basic infrastructure, developing states also face the challenge of teaching their populations how to take full advantage of the technology. Without technologically experienced people already within a state's population, the state can find it difficult to teach its citizens how to get the most from technology. The last, and most challenging, obstacle to closing the digital divide is financing. These large-scale upgrade projects to aging infrastructures take many years and large sums of money

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[19] Ibid.

[20] Ibid.

[21] Ibid., p. 4.

[22] Ibid.

[23] "Towards a New Information and Communication Technologies Strategy for African Least Developed Countries." Samira Kria-Chaker. International Telecommunications Union. 2003. http://www.itu.int/osg/spu/wsis-themes/access/backgroundpaper/LDC percent20Paper2011.pdf

[24] Ibid.

[25] What the United Nations Can Do - Closing the Digital Divide. Michael Fors. 2003. http://www.un.org/Pubs/chronicle/2003/issue4/0403p31.asp

[26] Ibid.

[27] Ibid.

to complete, and developing states find it difficult to arrange funding for such large initiatives.[28]

To respond to this technological gap in developing state educational systems, a few non-governmental organizations (NGOs) and corporations such as the One Laptop Per Child (OLPC) program, Microsoft, and Intel have attempted to directly offer computers and software at both the government level and the local level for little or no cost.[29,30,31] This unique approach to the technological education problem is still in its early stages, but it is a promising solution to the growing problem.

Case Study: One Laptop Per Child

The One Laptop Per Child program was created by Nicholas Negroponte, a professor at the Massachusetts Institute of Technology, in order to "[see that] children in even the most remote regions of the globe [are] given the opportunity to tap into their own potential, to be exposed to a whole world of ideas, and to contribute to a more productive and saner world community."[32] While Negroponte is quick to point out that "[The OLPC is] an education project, not a laptop project", the primary goal of the program is to promote education in developing states by giving "XO" laptops directly to children.[33] These special "XO" laptops are specifically designed to be as powerful as possible at the lowest possible cost while still offering an appealing user experience to young children.

One reason the OLPC's XO laptop has enjoyed a great level of success is because of the unique ways in which the XO is built and functions. At the software level, the XO is unique because it operates strictly on Free and Open-Source Software (FOSS).[34] This means that the software used in the laptop can be freely distributed or modified by anyone interested in doing so. Such freedom allows enthusiasts of the project to contribute new educational programs or tools for the laptop, and even for the children who own the laptops to learn to customize the machines for their own uses. This type of software liberty is in contrast to the vast majority of software purchased in stores, which often limits the use of the software and prevents its modification.[35] At the most basic level, the use of FOSS has the benefit of reducing the cost of the laptop substantially, as the laptop is not burdened with expensive commercial software licenses such as office suites that can cost as much as $389 and operating system licenses that can cost as much as $264.[36,37]

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[28] "Towards a New Information and Communication Technologies Strategy for African Least Developed Countries." Samira Kria-Chaker. International Telecommunications Union. 2003. http://www.itu.int/osg/spu/wsis-themes/access/backgroundpaper/LDC percent20Paper2011.pdf

[29] "Software by Microsoft Is Nearly Free for the Needy." Steve Lohr. New York Times. 19 April 2007. http://www.nytimes.com/2007/04/19/technology/19soft.html

[30] "Intel Kicks Off Low-Cost PC Effort." Jeremy Kirk. IDG News Service. http://www.pcworld.com/article/125281/intel_kicks_off_lowcost_pc_effort.html

[31] "'$100 laptop' production begins." Jonathan Fildes. BBC News. 22 July 2007. http://news.bbc.co.uk/2/hi/technology/6908946.stm

[32] "Mission Statement." One Laptop Per Child. http://www.laptop.org/en/vision/mission/index.shtml

[33] "Vision of OLPC." One Laptop Per Child. http://www.laptop.org/en/vision/index.shtml

[34] "Laptop Software." One Laptop Per Child. http://www.laptop.org/en/laptop/software/

[35] "Proprietary and Free and Open Source Software." United Nations Educational, Scientific, and Cultural Organization Secretariat. February 2008. http://portal.unesco.org/ci/en/files/26346/120703775436_-_FOSS.doc/6 percent2B-percent2BFOSS.doc

[36] Microsoft Office Professional 2007 Full Version Product Page. Amazon.com. 20 July 2008. http://www.amazon.com/Microsoft-Office-Professional-2007-VERSION/dp/B000HCVR30

[37] Microsoft Windows Vista Ultimate with SP1 Product Page. Amazon.com. 20 July 2008. http://www.amazon.com/Windows-Vista-Ultimate-with-SP1/dp/B0013O77GM/ref=sr_1_1?ie=UTF8&s=software&qid=1216586559&sr=1-1

The XO is also unique because of its specially-designed hardware package – every aspect of the machine was carefully designed to ensure the XO is ideal for the children for which it is intended. For example, the XO is equipped with a special display that has two different modes: a color mode that consumes "one watt—about one seventh of the average LCD power consumption in a laptop", and a black-and-white display that consumes only 0.2 watts.[38] These specifications are critical for developing states where access to regular power is difficult.[39] In fact, the display and the entire unit consume so little power that the XO can be operated with a hand crank.[40] However, what makes the display truly unique is that it is readable in direct sunlight, anticipating its use in a variety of consistently sun-covered environments.[41] The XO is also equipped with virtually no moving parts, and it is completely sealed. This means that children can drop it, carry it through the rain, or accidentally sit on it with little risk of damaging the XO. One other custom-designed feature of the XO for developing states is the special "mesh" networking system the XO laptops employ. The XO mesh networking capabilities mean that an XO laptop can get a wireless signal from another XO rather than requiring a direct connection to an access point as is required in standard wireless networking.[42] This allows for children scattered throughout a large area to serve as connection points for an Internet signal that may be far away from a majority of the children.[43]

OLPC Distribution

The OLPC distribution scheme is yet another aspect of the program tailored to developing states. Not only are the XO laptops uniquely marked and colored to discourage reselling the machines, the OLPC organization only distributes the laptops to entire villages or areas at once. This system discourages theft of the laptops by ensuring that everyone who wants one has access to an XO laptop instead of one particular child in a village getting one first, which would open the child up to being robbed by other jealous children in the area.

Peru is one of many states that have embraced the OLPC program. In 2007, Peru purchased 40,000 XO laptops for distribution throughout the state.[44] Peru made the decision to purchase the machines after conducting its own trial with 60 students that attended a rural primary school in Peru.[45] In 2008, Peru chose to extend that agreement to 400,000 units to be distributed throughout Peru.[46] The positive impact of the XO laptops is plain to see in the rural regions of Peru as young students use the machines both in the classroom and at home throughout the day and night."[47] Aside from the obvious direct educational benefit of the laptops, Oscar Becerra, Peru's head of educational technology, points out that the entertainment value of the XO laptops also contributes to education: "If we make education pertinent, something the student enjoys, then it won't matter if the classroom's walls are straw or the students are sitting on fruit boxes."[48]

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[38] "Hardware Highlights." One Laptop Per Child. http://www.laptop.org/en/laptop/hardware/highlights.shtml

[39] News and Broadcast: Infrastructure – At a Glance. World Bank. http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20127296~menuPK:34480~pagePK:34370~theSitePK:4607,00.html

[40] Ibid.

[41] Ibid.

[42] "Factfile: XO Laptop: Wifi." BBC News. 23 July 2007. http://news.bbc.co.uk/2/hi/technology/6679431.stm#wifi

[43] "Hardware Features." One Laptop Per Child. http://www.laptop.org/en/laptop/hardware/features.shtml

[44] "Peru Purchases 40k Laptops from OLPC." Mass High Tech: The Journal of New England Technology - Mass High Tech. http://www.bizjournals.com/masshightech/stories/2007/12/03/daily27.html

[45] Ibid.

[46] "OLPC's Peruvian Honeymoon." Technology Review Published by MIT. http://www.technologyreview.com/blog/editors/22035/

[47] "Laptop project enlivens Peruvian hamlet." Frank Bajak and eSchool News staff. Associated Press. January 2, 2008.

[48] Ibid.

The OLPC project also has distribution deals with a number of other states and local governments. For example, the city of Birmingham, Alabama has a contract to purchase 15,000 of the XO laptops.[49] Libya has agreed to purchase 1.2 million of the machines as part of an ambitious project to create an "e-democracy" in which many of the communications between government officials and the public would be electronic.[50] In addition to other regions and states, OLPC also has agreements with Argentina, Brazil, Nigeria and Thailand to purchase XO laptops.[51]

An Alternative to the OLPC: Intel Classmate PC

"We are big believers at Intel that all children, everywhere, deserve the chance to change the world, and that possibility begins with a strong education." Craig R. Barrett: Chairman of the Board, Intel Corporation.[52] Intel created the Classmate PC in order to improve education worldwide, but it is widely speculated that the Classmate PC was a response to the OLPC project, despite the fact that Intel was originally on OLPC's board.[53] Intel firmly objects to that accusation, and states that "Intel continues to treat our mission simply as another market."[54]

The biggest difference between the Classmate PC and the XO laptop is the availability of Microsoft Windows with the Classmate PC. In addition to the cosmetic difference between Windows and Linux, the Classmate PC's use of Windows is a firm departure from the OLPC project's philosophy on Free and Open-Source Software. The XO laptop also features lower power consumption and better screen readability in bright light.[55] The Classmate PC has a larger hard drive and the option for a larger amount of RAM than the XO laptop.[56]

Aside from these differences, the recently released 2nd edition of the Classmate PC and the XO laptop share a number of features such as mesh networking, educational software, theft-deterrence, and exceptionally sturdy construction designed to withstand the stress of exposure to active children. The Classmate PC simply differs in how it is constructed with those features, and the different type of license that is attached to its educational software and operating system. While the XO laptop has an open-source license, the Classmate PC comes with software from Intel, Microsoft, and their partners. Because of this, the software's use is restricted by the End User License Agreement (EULA), and users are prohibited from modifying or distributing the software installed on the machine freely.[57]

Intel Classmate PC Distribution

The Classmate PC's distribution channels are much more standardized than their OLPC counterparts. Intel deals directly with state governments to secure sales of their product and distributes their laptops to school districts rather than directly to children as OLPC does. In addition to this difference, Intel also deals with governments of developed states in the distribution of the Classmate PC. For example, the Classmate PC is currently in pilot

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[49] "Peru Purchases 40k Laptops from OLPC." Mass High Tech: The Journal of New England Technology - Mass High Tech. http://www.bizjournals.com/masshightech/stories/2007/12/03/daily27.html

[50] Brian Whitaker. "All Libyan Pupils to Get Laptop and Web Access." The Guardian. October 12, 2006. http://www.guardian.co.uk/technology/2006/oct/12/news.libya

[51] Ibid.

[52] "Mission Quote." Craig R. Barrett. http://www.classmatepc.com/mission.html

[53] "Intel won't kill Classmate PC, Quits OLPC." PC Advisor. January 4, 2008. http://www.pcadvisor.co.uk/news/index.cfm?newsid=11726

[54] Ibid.

[55] "Product Info." Intel Classmate PC. http://www.classmatepc.com/product.html

[56] Ibid.

[57] "Microsoft Windows XP EULA." Microsoft Corporation. http://download.microsoft.com/documents/useterms/Windows percent20XP_Professional_English_9e8a2f82-c320-4301-869f-839a853868a1.pdf

programs in the United States and Australia, with plans to eventually market the Classmate PC in developed states as a retail product.[58] However, this has not stopped Intel from also marketing their device in developing states such as India, Mexico, and Indonesia.[59]

Other Technology in Education

While the computer is the most significant technological device in education today, there are other technologies that are playing a growing role in education. As textbook costs grow, there is an increasing demand for cheaper ways to provide current information to school children, particularly in developing states that struggle to afford even basic supplies for their students.

One solution to this problem that has started to develop over the past few years is an innovation called the "open textbook". Similar to the concept behind FOSS, open textbooks operate on the principle that anyone can use, reuse, and distribute them as desired.[60] One organization that has embraced open textbooks is opentextbook.org.[61] Opentextbook.org keeps a database of open textbooks on a variety of topics. Teachers can download a textbook for their class, ensure that it is accurate to their satisfaction, and distribute it to their students free of charge.[62] If teachers choose to embrace these books, they can save their schools significant sums of money. As teachers begin to start using open textbooks regularly, some may decide to contribute their own knowledge back to an open textbook, thereby strengthening the integrity of the textbooks for everyone involved. Theoretically, if enough teachers used and contributed to open textbooks, the vast majority of educational material could become available to the entire world free of charge. This could lead to a transformation of even the smallest, most impoverished schools into modern centers of learning with all of the world's information at their fingertips.

Another important technological breakthrough that is just beginning to have an impact on global education is the development of collaborative education software. With the development of software such as Blackboad and Ulearn, universities around the world can communicate anything from research projects to simple conversations about scholarly subjects.[63] Students can even earn their entire degree from home.[64] These opportunities allow potential students who can't afford transportation or have families to attend to at home to become better educated. These types of programs can be especially attractive to potential students in developing states who can't afford a car to get to a university or who have a full work schedule and could only attend classes during off-peak hours. These collaborative software systems have the potential to bring an extended education to students who simply don't have the means to obtain a collegiate degree at a traditional college or university.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) has also worked on a program called the UNESCO Technological Education Guide, which was created to improve global technological education.[65] This guide was designed to be distributed directly to students to improve their technological literacy in areas such as technology's role in society, understanding how to solve problems with technology, and analyzing

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[58] "Intel brings Classmate PC to EU." Janet Harris. Techwatch. http://www.techwatch.co.uk/2008/03/21/intel-brings-classmate-pc-to-eu/

[59] Ibid.

[60] "About Open Textbooks." Opentextbooks.org. http://www.opentextbook.org/about/

[61] Ibid.

[62] Ibid.

[63] "Blackboard – Educate. Innovate. Everywhere." Blackboard. http://www.blackboard.com/

[64] "Degrees Available Via Distance Learning Technologies." Board of Regents of the University System of Georgia. http://www.usg.edu/academics/programs/distance_ed/de_degrees.phtml

[65] UNESCO Technological Education Guide. M. J. Dyrenfurth, et al. UNESCO. 2003. http://portal.unesco.org/education/en/ev.php-URL_ID=24016&URL_DO=DO_TOPIC&URL_SECTION=201.html

technology as a tool to solve future problems.[66] The United Nations has also worked on other technological education initiatives through UNESCO, such as the Global e-school and Communities Initiative (Gesci).[67] Gesci was created to give students worldwide an opportunity to receive an education with all of the advantages of modern technology.[68] Gesci facilitates the distribution and use of technology for education to communities or states in need, such as India, through support from Member State governments, experts in technology from around the world, and from private donors and organizations.[69] According to Gesci officials "Gesci is expected to assist India to achieve the goal of primary education for all by 2010, five years ahead of the UN deadline stated in the Millennium Development Goals."[70]

Conclusion

The One Laptop Per Child project has gone through significant changes since it was born as the "$100 Laptop", including an almost doubling in its production costs.[71] However, the OLPC continues to secure more distribution contracts and constantly reviews and upgrades its hardware and software. The OLPC will have to find ways to cut its costs back down towards the $100 per laptop mark in order to be truly successful over the long term, especially with new competition in its market, such as the Intel Classmate PC.

The Classmate PC has made significant inroads into the student market in developing and developed states alike. However, with a much higher $285 price tag, the Classmate PC has had a hard time moving itself into most low-income markets.[72] Much like the OLPC, the Classmate PC's success will rest on its price over the long term. Both machines have the features and appeal to attract users, but they must ensure that their market can afford their products.

The understanding and usage of technology have become prerequisites for a strong education. Even in developing states, technology is being integrated into school curricula thanks to programs such as the OLPC project and the Intel Classmate PC. Students are being given the option to achieve a college education without even leaving their homes. Those without access to textbooks are being given access to all the knowledge they could dream of without cost. As computers become even cheaper and Internet access becomes a basic human need worldwide, education will become increasingly shaped by technology. As the year 2015 approaches, the United Nations must find ways to deliver all of this critical technology to the world's students if the UN wishes to achieve the second, or any, of the MDGs.

Committee Directive

Delegates are strongly encouraged to become familiar with the role of the computer in education, and particularly the successes and failures of current projects such as the OLPC and the Classmate PC. One particular area that should be examined is the pricing point and distribution method of each of these machines. For example, delegates should determine whether or not the OLPC distribution method is improving access to educational technology, or if the more traditional government-based distribution method favored by the Classmate PC is a more favorable way to get technology to children for education purposes. In addition to distribution methods, there are dramatic

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[66] Ibid.

[67] "Bangalore Chosen as India Headquarters for UN Technology in Education Initiative." UNESCO. 28 July 2005. http://portal.unesco.org/ci/en/ev.php-URL_ID=19610&URL_DO=DO_TOPIC&URL_SECTION=201.html

[68] Ibid.

[69] Ibid.

[70] Ibid.

[71] "Peru Purchases 40k Laptops from OLPC." Mass High Tech: The Journal of New England Technology - Mass High Tech. http://www.bizjournals.com/masshightech/stories/2007/12/03/daily27.html

[72] "Intel's Classmate PC Enrolls." Sumner Lemon. PC World. 11 June 2007. http://www.pcworld.com/article/132748/intels_classmate_pc_enrolls.html

differences in how the OLPC and Classmate PC are funded, with the OLPC funded through donations from private citizens around the world in addition to government-wide purchases. Conversely, the Classmate PC is funded and distributed by the states that purchase the Classmate PC for their student populations. Delegates should have a strong idea of what their state expects to achieve from these projects, and if their states are either donors to or recipients of either of these important projects. Delegates should also be familiar with other important uses of technology in education such as online collaboration capabilities and new approaches to information sharing such as open textbooks.

When researching these programs, pay particular attention to what works with each program and what doesn't. Delegates may want to consider ways of integrating some of these programs into UN programs, or creating similar programs under the administration of the UN. While the programs covered in this guide are all important topics to keep in mind, it is also encouraged that delegates come up with new and innovative ways to integrate technology successfully into education. The background guide should be a starting point for research, but it should not restrict delegates from exploring other approaches to technology in education.

Topic II. The Impact of Content Filtering on Communication Developments

"The right to freedom of opinion and expression is fundamental to development, democracy and peace, and must remain a touchstone for our work ahead." – Former Secretary-General Kofi Annan, addressing the first World Summit on the Information Society.[73]

Introduction

Throughout the centuries, a variety of technologies have been developed to assist in communications and education. No single technology has changed the face of both, as much as the Internet. The Internet has allowed people access to information they would never have had before. It has allowed an unprecedented growth in the ability of people to self-publish content, leading to an explosion of creative ideas and innovation. Some Member States have chosen to limit or restrict the access of their citizens to some or all of the content available on the Internet. This is done either through legislation, technological measures, or, in most cases, a combination of both. These restrictions significantly weaken the abilities of the Internet and other telecommunications technology to help provide both support in development in education.

The Commission on Science and Technology for Development (CSTD) was created specifically for "the examination of science and technology questions and their implications for development"[74] and, as such, may specifically consider the question of Internet content filtering and its role on development. Additionally, CSTD acts as a forum for "the formulation of recommendations and guidelines on science and technology matters within the United Nations system."[75] The Commission has an opportunity to help direct action from a variety of United Nations organs including the General Assembly and the United Nations Conference on Trade and Development (UNCTAD) to help address and resolve these issues and to promote better development through an open and transparent Internet.

Online software such as blogs (online electronic journals, derived from the term "web log"), web forums, and newsgroups permit people to express opinions, publish papers, and discuss ideas. For example, they allow political minorities new avenues in which to be heard, and as such, are often the target of State-sponsored censorship. Statements which are considered subversive may result in the author being placed in prison and the host of the content being ordered to remove the information. In some cases, residents may even be penalized for reading such content.

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[73] "Address by the Secretary-General to the World Summit on the Information Society." United Nations. http://www.itu.int/wsis/geneva/coverage/statements/opening/annan.html

[74] "CSTD Mandate and Background." United Nations Conference on Trade and Development. http://www.unctad.org/Templates/Page.asp?intItemID=2700&lang=1

[75] Ibid.

There are several non-governmental organizations (NGOs) that work to monitor the freedoms and opportunities presented by the Internet. These include the Open Net Initiative (ONI)[76], the Electronic Frontier Foundation (EFF)[77], and Reporters Without Borders (RSF).[78] ONI specifically looks at Internet content filtering by Internet Service Providers (ISPs), Member States, and other telecommunications service providers that are in a position to filter or restrict access. By using documented technological tests, the ONI is able to determine both how and to what extent each of these filters a given Internet connection.[79] The EFF is an organization intended to help promote grassroots change and development to encourage a more free and open Internet. The EFF works with citizens and elected officials to highlight issues and present opportunities for both to work together to initiate change. Reporters Without Borders is an organization dedicated to protecting the rights of the press globally. They are concerned with the inability of reporters in Member States that filter content to both publish their own content and to have access to the content of others. These organizations maintain lists of Member States that censor content or restrict access, lists of cases of criminal charges based on statements or other content posted online, and other relevant metrics based on reports from people within those States and their own testing.

In order to fully understand and address this issue, several aspects must be examined, including the technology behind the Internet, the corresponding technology behind the filtering of content, the work of the United Nations and other intergovernmental organizations (IGOs) in addressing these issues, the socio-political aspects of both the Internet and its filtering, and the specific filtering and laws in force in several Member States of varying levels of filtering. Through these, the committee can better work to ensure the Universal right to freedom of expression and to preserve the rights of States.

How the Internet Works

The Internet is a massive communications network of interconnected computer systems. These computer systems are connected via telecommunications links that are usually carried by either copper wire or fiber optic connections. It was originated as a United States Military project under the Defense Advanced Research Projects Agency, with the intent of interconnecting military and government computers to make it easier for the U.S. Military to share information internally.[80] This project, originally called ARPAnet, first came online in December of 1969. It was later split into a civilian network under the original name and a military network (MILNET) in 1983. This network eventually evolved into a research network allowing universities within the United States to connect into the ARPAnet.[81] Finally, from late 1992 into 1993, a large number of commercial entities began to use the network to exchange information, turning the ARPAnet into what is now known as the Internet.[82]

Most connections over the Internet use a method called client/server. In the client/server model, a program on a computer known as the "client" establishes a connection to the "server" and begins to issue requests.[83] Normally, the server will then respond with data corresponding to the client requests, such as delivering email, downloading a file, or displaying a webpage.

When this initial connection is established, the name of the server (such as "google.com") must be translated into an "Internet Protocol Address". This is accomplished through the use of the "Domain Name System" (DNS). In this way, DNS acts like a phonebook for the Internet ; as it allows clients to retrieve an address corresponding to a name

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[76] "About ONI." OpenNet Initiative. http://opennet.net/about

[77] "About EFF." Electronic Frontier Foundation. http://www.eff.org/about

[78] "About us." Reporters Without Borders. http://www.rsf.org/rubrique.php3?id_rubrique=280

[79] "Research." OpenNet Initiative. http://opennet.net/research

[80] "All about the Internet: History of the Internet." Internet Society. http://www.isoc.org/internet/history/brief.shtml

[81] Ibid.

[82] "A brief history of NSF and the Internet." National Science Foundation. http://www.nsf.gov/od/lpa/news/03/fsnsf_internet.htm

[83] "Client/Server Software Architectures – An Overview." Carnegie Mellon Software Engineering Institute. http://www.sei.cmu.edu/str/descriptions/clientserver_body.html

via separate client/server connection.[84,85] Internet DNS servers can be programmed to falsely return an answer that specifies that a given name does not exist, even when it does. In this way, the DNS architecture can be used to filter requests for particular servers.

Every connection across the physical infrastructure of the Internet travels through a series of specialized computers that direct the flow of traffic on the Internet. These computers are called routers and make up what is called the backbone of the Internet.[86] Traffic to or from a given point on the Internet can be filtered out at any intermediate backbone router, thus giving control over Internet filtering to the backbone router owner. In many cases, these backbone routers may be owned or operated by governments, allowing them control over the router's filtering settings. This is another mechanism that may be used by states to filter Internet communications.

Organizations monitoring Internet filtering do so in a number of ways. A common way used by the ONI to test Internet connectivity to a destination site is by placing a test program on several computers within a state. These programs then attempt to establish a connection to the destination site and report back whether they were successful, and if not, where the connection was lost. In this way, they can determine not only whether or not a site is filtered, but also at what level of the connection the site is filtered.[87]

United Nations Work

The 2005 World Summit on the Information Society (WSIS) indirectly considered the issue of Internet censorship. This was particularly poignant as Tunisia, the host of the summit, had recently announced increases in their use of Internet censorship, which in turn directly affected attendees at the conference.[88] In many instances, attendees from NGOs, the corporate sector, and Member States, all experienced trouble gaining access to Internet content from the site of the conference in the capital city of Tunis.[89]

The 2006 Information Economy Report by the United Nations Conference on Trade and Development directly addresses concerns regarding Internet filtering and censorship.[90] Specifically, it recommends that strides are made to avoid censorship entirely or to censor at higher levels than the DNS or router level. This is done in order to reduce the accidental filtering of additional content that may be beneficial to the end user.[91] Additionally, the 2005 WSIS summit requested that ECOSOC "reviews the mandate, agenda and composition of the Commission on Science and Technology for Development (CSTD), including considering the strengthening of the Commission, taking into account the multi-stakeholder approach."[92] In this approach, the WSIS encouraged cooperation amongst technological service and product providers, states, and end users. In this way, a number of additional technical representatives and NGO delegates were encouraged to participate.

The Internet Governance Forum, a United Nations Conference, considered the issue of Internet Openness, including

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[84] "RFC 1034: Domain Names – Concepts and Facilities." Internet Engineering Task Force. http://www.ietf.org/rfc/rfc1034.txt

[85] "RFC 1035: Domain Names – Implementation and Specification." Internet Engineering Task Force. http://www.ietf.org/rfc/rfc1035.txt

[86] "What is the Internet Backbone?" TechFAQ. http://www.tech-faq.com/internet-backbone.shtml

[87] Ronald Deibert, John Palfrey, Rafal Rohozinski, Jonathan Zittrain, eds., Access Denied: The Practice and Policy of Global Internet Filtering, (Cambridge: MIT Press) 2008.

[88] "News from WSIS: Web Censorship in Tunisia." Berkman Center for Internet and Society. http://cyber.law.harvard.edu/node/3049

[89] Ibid.

[90] *Information Economy Report 2006.* United Nations Conference on Trade and Development. 16 November 2006. pp. 275-291.

[91] Ibid, p. 290.

[92] WSIS-05/TUNIS/DOC/6(Rev. 1)-E. *Tunis Agenda for the Information Society.* World Summit on the Information Society. 18 November 2005.

open access, at their session on 14 November 2007.[93] Attendees included delegates from a number of Member States, industry executives and leaders, and representatives of a number of IGOs and NGOs with interests in the issue of Internet Openness.[94] A number of issues were addressed by delegates and attendees with respect to openness, including the rights of individuals to freedom of expression and the balance with law enforcement and security.[95] No conclusion was reached, but most agreed that the situation required further consideration and work towards opening access to freedom of expression and education to all.[96]

To date, the United Nations has not developed any comprehensive plan for addressing the balance between state concerns and sovereignty and the desire for an open and free Internet. However, UNCTAD, CSTD, the WSIS, and other organizations have all expressed concern regarding the issue.

Social and Political Impacts of Internet Content Filtering

The Universal Declaration of Human Rights (UDHR) guarantees the right to freedom of expression in Article 19: "Everyone 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."[97] In this, both the right to express oneself and the right to receive and access information are guaranteed. Internet content filtering by states may be seen as a violation of this document, however many states argue that state sovereignty and security issues supersede the topics addressed by the UDHR.

Internet filtering also has significant impacts on education. Education is clearly a key part of the development of any state and is guaranteed in Article 26 of the Universal Declaration of Human Rights.[98] Education is also is the driving force behind Millennium Development Goal 2: Universal Primary Education.[99] WSIS recognized the link between the availability of telecommunications in regards to the Internet and meeting the Millennium Development Goals. This link was highlighted in their 2003 Plan of Action.[100] The Tunis Commitment, a consensus statement of the 2005 Summit of the WSIS, stated that:

> We recognize that access to information and sharing and creation of knowledge contributes significantly to strengthening economic, social and cultural development, thus helping all countries to reach the internationally agreed development goals and objectives, including the Millennium Development Goals. This process can be enhanced by removing barriers to universal, ubiquitous, equitable and affordable access to information. We underline the importance of removing barriers to bridging the digital divide, particularly those that hinder the full achievement of the economic, social and cultural development of countries and the welfare of their people, in particular, in developing countries.[101]

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[93] "Participants in United Nations Forum on Internet Governance Address Key Themes of Net Openness." United Nations Department of Public Information. 14 November 2007. http://www.un.org/News/Press/docs//2007/pi1814.doc.htm

[94] "Provisional List of Participants." Internet Governance Forum. http://info.intgovforum.org/PLP_2IGF.php

[95] "Transcript of 14 November 2007 Session." Internet Governance Forum. http://www.intgovforum.org/Rio_Meeting/IGF2-Openness-14NOV07.txt

[96] Ibid.

[97] *Universal Declaration of Human Rights*. United Nations General Assembly. 10 December 1948.

[98] Ibid.

[99] "The UN Millenium Development Goals." United Nations General Assembly. http://www.un.org/millenniumgoals/

[100] WSIS-03/GENEVA/DOC/5-E *WSIS: Plan of Action.* World Summit on the Information Society. 12 December 2003.

[101] WSIS-05/TUNIS/DOC/7-E. *Tunis Commitment.*World Summit on the Information Society. 18 November 2005.

Content filtering may, in many cases, interfere with the ability of people to receive information that is important or even critical to their education. The best opportunity for access to many up-to-date resources for people in developing states is through the Internet or other electronic resources. This access to current information is of particular importance to people pursuing a secondary education, where many fields (particularly the sciences) change rapidly and access to the newest information is critical to an understanding of the topic.

The One Laptop Per Child (OLPC)[102] program is affected by Internet content filtering. This program is based on the idea of interconnecting a series of laptops used by students to eventually connect to a central server or to the Internet. In this way, class work, research, and other information can continue to be shared even in areas with little or no telecommunications access. This technology, known as "mesh networking" is specifically designed to be difficult to censor and to provide communications for a great distance without any underlying infrastructure.[103] Notably, due to the varied technological nature of mesh networking, filtering connections between OLPC laptops on the same network becomes all but impossible without software installed on each individual computer. In the mesh network, there is no centralized router, but rather messages are sent in a peer-to-peer arrangement that avoids much of the centralization needed for most filtering methods.[104] This project also helps to meet the Millennium Development Goals as it specifically targets primary education in developing states, but it can only effectively work when open and adequate access has been provided.

Case Studies – Pervasive Filtering

The People's Republic of China (PRC) is classified as a "pervasive" filterer of Internet Content by the Open Net Initiative (ONI),[105] and also appears on the "enemies list" published annually by RSF.[106] In the PRC, the "Ministry of Information Industry" (MII) is charged with maintaining the "Great Firewall of China," the largest single program for Internet content filtering in the world.[107] According to the Human Rights Watch, "China's system of Internet censorship and surveillance is the most advanced in the world."[108] Most Internet filtering in the PRC is performed at the backbone router level[109] and, as such, may inadvertently block additional content, including educational content.[110] This filtering can be circumvented by the use of Internet proxies located outside of the PRC, but these proxies are, of course, banned as soon as the government becomes aware of their existence.[111] It is notable that the PRC has publicly denied censoring or filtering Internet content at the United Nations Internet Governance Forum summit in 2006, despite numerous studies to the contrary.[112] In fact, the PRC's own filtering software displays animated police officers on user's computers to remind them of the government's policies pertaining to use of the

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[102] One Laptop Per Child. http://laptop.org/

[103] "Mesh Network Details." One Laptop Per Child. http://wiki.laptop.org/go/Mesh_Network_Details

[104] Ibid.

[105] "Internet Filtering in China." Open Net Initiative. http://opennet.net/studies/china/

[106] "Internet Enemies." Reporters Wtihout Borders. http://www.rsf.org/article.php3?id_article=26134&Valider=OK

[107] "How Censorship Works in China: A Brief Overview." Human Rights Watch. http://www.hrw.org/reports/2006/china0806/3.htm

[108] "Corporate Complicity in Chinese Internet Censorship." Human Rights Watch. http://www.hrw.org/reports/2006/china0806/2.htm

[109] "Internet Filtering in China." Harvard Law School. http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan011043.pdf

[110] "How Censorship Works in China: A Brief Overview." Human Rights Watch. http://www.hrw.org/reports/2006/china0806/3.htm

[111] Ibid.

[112] "China: We don't censor the Internet. Really." Cnet News. 31 October 2006. http://www.news.com/2100-1028_3-6130970.html

Internet.[113]

Most content filtering in the PRC is focused on suppressing content that expresses politically subversive ideas, capitalist ideas, and other ideas contrary to the official policies of the current government.[114] Content providers are required to register for and maintain licenses and are legally liable for any content appearing on their websites.[115] The PRC has somewhat moderated its restrictions, particularly in allowing access to western Internet Service Provider email accounts and other services that guests may need from home, in response to requests from the International Committee for the 2008 Summer Olympic Games in Beijing.

Like the People's Republic of China, the Islamic Republic of Iran also falls into ONI's "pervasive" category[116] and the RSF Internet Enemy list.[117] According to the ONI, "Iran has adopted one of the world's most substantial Internet censorship regimes. Iran, along with China, is among a small group of states with the most sophisticated state-mandated filtering systems in the world."[118] ISP subscribers in Iran must promise not to visit "Non-Islamic" websites, not to post or publish anti-Iranian or anti-Islam statements, and not to visit sites considered offensive or critical of the government,[119] amongst other regulations.

Unlike China, Iran does not directly filter Internet content at the state level, but rather, Iran delegates this to Internet Service Providers, who operate under a strict set of laws and regulations pertaining to access and content filtering.[120] Most of Iran's regulations for Internet content filtering are derived from the country's Press Law, that requires publications to be in support of Islamic interests, and limits the publication of content that is "against the security, dignity and interests of the Islamic Republic of Iran."[121]

The technology behind Iran's Internet content filtering is primarily based around a commercial product, SmartFilter, from Secure Computing, an American company.[122] This product is largely designed for corporate network filtering, but has been extended by the Iranian government to filter content to the networks within the State. Conversely, the United States government, in conjunction with Anonymizer, Inc., provides a service to Iranian citizens to allow them access to a large portion of blocked content, including websites considered subversive by the Iranian government.[123] This service is provided free of charge through a web-based interface. It does, however, specifically block content considered to be "of little educational or social value," including pornography and most peer-to-peer services. This creates a situation where one government is intentionally helping citizens and residents of another state bypass both technological measures and the legal restrictions on Internet access.

Case Studies – Nominal Filtering

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[113] "Image of Internet Police: JingJing and ChaCha online." China Digital Times. http://chinadigitaltimes.net/2006/01/image-of-internet-police-jingjing-and-chacha-online-hong-yan-o percentc2 percentbaae percentc2 percenta5 percente2 percent84 percenta2aaio percentc2 percentbaa/

[114] "Internet Filtering in China in 2004-2005: A Country Study." Open Net Initiative. http://opennet.net/studies/china/

[115] Ibid.

[116] "Internet Filtering in Iran in 2004-2005: A Country Study." Open Net Initiative. http://opennet.net/studies/iran/

[117] "Internet Enemies." Reporters Wtihout Borders. http://www.rsf.org/article.php3?id_article=26134&Valider=OK

[118] "Internet Filtering in Iran in 2004-2005: A Country Study." Open Net Initiative. http://opennet.net/studies/iran/

[119] Ibid.

[120] "Iran steps up Net Censorship." BBC. 12 May 2003. http://news.bbc.co.uk/1/hi/technology/3019695.stm

[121] "Internet Filtering in Iran in 2004-2005: A Country Study." Open Net Initiative. http://opennet.net/studies/iran/

[122] Ibid.

[123] "US Sponsors Anonymizer – If you live in Iran." The Register UK. 29 August 2003. http://www.theregister.co.uk/2003/08/29/us_sponsors_anonymiser_if_you/

Canada, France, and Germany all maintain a "nominal" level of Internet censorship.[124,125] Most of the censorship in these states is focused on preventing access to harmful information or information that is otherwise classified or restricted under state law. For example, Canada practices censorship of pro-terrorist propaganda and information pertaining to juvenile crime. France and Germany both have strict laws prohibiting the publication of pro-Nazi content. In Germany, their national Supreme Court has ruled that people outside Germany who publish such content targeted at German nationals may be prosecuted under German law.[126]

While the United States maintains a more open Internet policy than many other states, it is still classified as "nominal" by the ONI.[127] The First Amendment to the United States Constitution has prevented many attempts to filter content by the government, but the United and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA Patriot Act)[128] has given sweeping new powers to the government. While filtering is still minimal, logging and monitoring of Internet usage is becoming more widespread.[129] Most content filtering is focused on preventing indecent communication, including pornography and other "offensive" material, via the Communications Decency Act of 1996 (partially overturned by the U.S. Supreme Court in 1997),[130] and content that is patently illegal, including content pertaining to terrorism.

Content filtering reaches higher levels in particular instances, including in public schools and libraries.[131] Many of these actions have come about as a result of the USA Patriot Act, including the recording of data accessed via library computers, books checked out from libraries,[132] and Federal Bureau of Investigation monitoring of digital telecommunications.[133] These actions have been taken by the government in response to terrorist acts against the United States, and as such, national security is the underlying justification for the provisions of the USA Patriot Act that affect access and monitoring of telecommunications services.[134]

Committee Directive

Though the Commission on Science and Technology for Development is a fairly new committee, addressing the concerns between Telecommunications and Internet filtering and Development is clearly within the committee's directive. It is important to consider both the role of the CSTD and the role of UNCTAD in the United Nations system and the scope of this issue.

The committee should carefully weigh all sides of this issue and work to establish guidelines and protocols for

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124 "United States and Canada." OpenNet Initiative. http://opennet.net/research/regions/namerica

125 "Europe." OpenNet Initiative. http://opennet.net/research/regions/europe

126 "Germany Struggles with Neo-Nazi Websites." BBC News. 22 December 2000. http://news.bbc.co.uk/2/hi/europe/1083049.stm

127 "United States and Canada." OpenNet Initiative. http://opennet.net/research/regions/namerica

128 United States Public Law 107-56.

129 "United States and Canada." OpenNet Initiative. http://opennet.net/research/regions/namerica

130 "Communications Decency Act." United States Federal Communications Commission. http://www.fcc.gov/Reports/tcom1996.txt

131 "United States and Canada." OpenNet Initiative. http://opennet.net/research/regions/namerica

132 "The USA Patriot Act & Libraries." American Library Association. http://www.ala.org/ala/washoff/woissues/civilliberties/theusapatriotact/usapatriotact.cfm

133 "Reauthorized Patriot Act Still Unconstitutional." American Civil Liberties Union. http://www.aclu.org/safefree/nationalsecurityletters/26404prs20060807.html

134 "Guide to the Patriot Act." University of California, Santa Barbara Libraries. http://www.library.ucsb.edu/subjects/patriotact.html

determining the balance between state concerns and the desire for an open and free Internet. Delegates should be prepared to balance issues of state sovereignty and security versus telecommunications freedom. Addionally, the impacts of the 2nd Millennium Development Goal and UDHR Articles 19 and 26 on those issues should be considered. Issues such as the legal rights and status of "web bloggers" and other online content creators may also be relevant. Are they considered press, or are their publications simply expressions of individual ideas? Delegates should also consider legislation and policy passed within their Member State and its application and applicability as a role model for other states. Further, issues of penalization for actions related to Internet content filtering should be considered, whether that is in-kind filtering where states filter content in retribution denying access to resources or prohibiting communication amongst the states, public release of information, or formal sanctions. Additionally, the role of the United Nations in establishing a framework for free and open Internet access should be considered. This is a unique opportunity for the United Nations to weigh in on the use of the most revolutionary telecommunications system ever seen by mankind.

Delegates should feel free to address additional issues that they feel are relevant and within the scope of the topic, provided that the issues are also within the scope of the CSTD directive and abilities. In doing so, delegates should be prepared to show how open development through Information and Communication Technologies will come about and how it will benefit both international development and the greater good.

Topic III . Developing Educational Platforms to Promote Energy Conservation Programmes in Developing Countries

"While the Kyoto Protocol is a crucial step forward, that step is far too small. And as we consider how to go further still, there remains a frightening lack of leadership." - Secretary-General Kofi Annan[135]

Introduction

Energy is not only vital to the basic daily functions of any living organism; it is also a critical part of the development of any modern society. As global communication and commerce develop, the different stages of state development become more and more apparent. While the Western World was involved in an Industrial Revolution in the 1700's and 1800's, much of the rest of the world began to develop at very different times for a variety of reasons. Whether because of colonialism, a lack of local resources, internal strife, or a combination of these factors, the time line of development towards the modern classification of a "developed" state has been splintered for many of the UN's Member States.

Recently, developed states such as the Group of Eight (G8) have begun to examine the environmental impact of their industrial practices and energy consumption, and some have offered ambitious global initiatives to curtail actions that may harm the environment in an effort to repair the damage of their present and past industrial programs.[136] However, developing states such as China, India and Mexico have strongly objected to these reform programs because they don't have the resources or knowledge to be successful industrially while sacrificing their current manufacturing methods and energy consumption.[137] Some of these developing states insist they should be given the same amount of time under less stringent energy conservation and pollution control methods as many of the modern developed states enjoyed when their own industrial programs were first developing.

In order to protect the earth and its finite energy reserves from a growing human population's need to strain or even deplete many natural resources, the United Nations, and specifically the Commission on Science Technology for Development (CSTD), must come up with innovative methods of encouraging developing and developed states alike to conserve energy and ensure that their manufacturing and industrial practices are environmentally friendly. While new sources of funding to build cleaner energy gathering methods and more efficient manufacturing facilities are

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[135] Secretary-General Kofi Annan. "Secretary-General Kofi Annan addresses the Nairobi Climate Change Conference." http://www.un.org/News/Press/docs/2006/sgsm10739.doc.htm

[136] "Developing states object to G8 targets to halve greenhouse gases by 2050." The Canadian Press. http://fe1.ca.news.a1.b.yahoo.com/s/capress/080709/world/g8_cda_climate_2

[137] Ibid.

critical to achieving this goal, the UN must go even further to solve this problem by ensuring that the people behind these facilities and energy plants understand their impact on energy consumption and the environment.

Energy Sources and their Environmental Impact

Despite the recent calls by a number of Member States to diversify the world's energy supply, oil is still the most commonly used source of energy throughout the world, accounting for 43.4 percent of the world's energy usage.[138] The percent usage of oil worldwide is roughly equal to the percentage of carbon dioxide (CO2) emissions from the use of oil, 39.5 percent.[139] This balance is in stark contrast to coal fuels. Coal accounts for 8.3 percent of the world's energy usage while creating a staggering 40.5 percent of the world's fuel-based CO2 emissions.[140] Natural gas is responsible for 19.7 percent of global fuel-created CO2 emissions while only supplying 15.6 percent of the world's energy.[141] Each of these major energy sources produce a disturbingly high percentage of the world's CO2 emissions, but little real progress has been made towards real alternative sources of energy. Geothermal, solar, wind, and a number of other alternative sources of energy combined account for only 3.5 percent of the world's total energy usage.[142] These alternatives also account for only 0.3 percent of the world's CO2 emissions.[143]

In order to preserve the world's energy sources, it is imperative that the United Nations immediately work towards a solution to sustain the sinking global energy reserves. An important part of that process is understanding exactly who in the world is using different types of energy, and for what reasons.

Energy Usage Trends

Within the past 40 years, energy usage has shifted dramatically from a small amount of Member States consuming the world's energy to a world in which virtually every Member State consumes a portion of the world's energy reserves. This shift is most noticeable when examining the differences in regional percentage of electricity usage between 1973 and 2005. For example, the Organisation for Economic Co-operation and Development (OECD), which consists of a number of European states and the United States, among others[144], used 72.9 percent of the world's electricity in 1973, but only 56.9 percent in 2005.[145] Conversely, the People's Republic of China increased its percentage electricity usage in the same period from 2.3 percent to 13.9 percent.[146] The remainder of Asia increased its electricity consumption from 2.6 percent of the world's electricity to 8.8 percent.[147] The Middle East increased its consumption by 2.9 percent, and Africa saw a 1.3 percent increase in the same period.[148] These shifts in global percentages reflect the developing world's growth in industry and overall energy consumption. With this dramatic growth comes an increasing reliance on high-pollution fuels such as oil and coal. For example, private car

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[138] "Key World Energy Statistics 2007." International Energy Agency. 2007. http://www.iea.org/Textbase/publications/free_new_Desc.asp?PUBS_ID=1199. p. 28.

[139] Ibid., p. 44.

[140] Ibid., p. 28, p. 44.

[141] Ibid., p. 28, p. 44.

[142] Ibid., p. 28.

[143] Ibid., p. 44.

[144] "Ratification of the Convention of the OECD." 14 December 1960. http://www.oecd.org/document/58/0,3343,en_2649_34483_1889402_1_1_1_1,00.html

[145] "Key World Energy Statistics 2007." International Energy Agency. 2007. http://www.iea.org/Textbase/publications/free_new_Desc.asp?PUBS_ID=1199. p. 26.

[146] Ibid.

[147] Ibid.

[148] Ibid.

ownership in China has gone from almost none in 1995 to near 24 million in 2005.[149] In India, it is estimated that private car ownership will increase from 7 in 1000 owners from 2007 to 11 in 1000 by 2010.[150] These increases throughout the developing world, along with an ever-increasing need for energy in developed states, are leading to a greater strain on global energy resources and pollution tolerances.

Aside from the increased need for energy resources in regions that previously used little or no energy, resources are under enormous pressure from an increasing global population. During the 20th century, the world's population increased from 1.65 billion people to 6 billion people.[151] Over a 200 year period, it is estimated that population has grown by a factor of six.[152] This is in stark contrast of the increase in global energy usage in the same time period: a factor of twenty.[153] If energy consumption continues to increase at this rate compared to the population, the global demand for energy will become virtually impossible to meet.

As the global population's energy demands increase, and more states are making even greater demands on global energy resources, the UN must find new ways to encourage states to conserve energy resources. The UN must also encourage Member States to use energy resources in a sustainable and environmentally-conscious manner to ensure the energy resources are preserved for future generations. Efforts to reach out to developing states are especially important, as their increased use of polluting resources such as coal and oil could, along with the usage already underway by developed states, create an irreversible environmental disaster.

Promoting Sustainable Energy Usage through the United Nations Framework Convention on Climate Change and the Kyoto Protocol

The UN has already taken a number of steps to address the environmental impact of non-sustainable energy sources such as coal and oil through the United Nations Framework Convention on Climate Change (UNFCCC).[154] On 16 February 2005, in Kyoto, Japan, parties to the UNFCCC decided to strengthen the agreement significantly with legally binding regulations to reduce global greenhouse emissions through an addition to the UNFCCC called the Kyoto Protocol.[155] The Kyoto Protocol is based around three mechanisms designed to encourage environmental sustainability and the sharing of technology and information that developing states need in order to develop their states in a sustainable manner.[156]

The first Kyoto mechanism, Emissions Trading, was developed to allow developing states to continue to develop using less sustainable energy sources while still decreasing global greenhouse gas emissions.[157] This mechanism allows states that have developed less environmentally-damaging industries and therefore pollute even less than is allowed to them under the Kyoto Protocol to sell their pollution quota to developing states that need more "dirty" energy sources to grow their economies.[158] This system gives developed states a monetary incentive to sign onto the Protocol, and developing states an opportunity to grow without creating an additional negative environmental

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[149] Quentin Sommerville. "China car firms gear up for booming sales." BBC News. 27 March 2007. http://news.bbc.co.uk/1/hi/business/6364195.stm

[150] John Madslien. "India prepares for automotive boom." BBC News. 3 April 2007. http://news.bbc.co.uk/2/hi/business/6521909.stm

[151] "The World at Six Billion." Population Division – Department of Economic and Social Affairs: United Nations Secretariat. 12 October 1999. http://www.un.org/esa/population/publications/sixbillion/sixbillion.htm. Part 1 Pg 1.

[152] Arnulf Brubler. "Energy transitions." The Encyclopedia of Earth. 3 June 2008. http://www.eoearth.org/article/Energy_transitions#References

[153] Ibid.

[154] "United Nations Framework Convention on Climate Change." UNFCCC. http://unfccc.int/2860.php

[155] "UNFCCC Essential Background." UNFCCC. http://unfccc.int/essential_background/items/2877.php

[156] "Mechanisms under the Kyoto Protocol." UNFCCC. http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php

[157] "Emissions Trading." UNFCCC. http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php

[158] Ibid.

impact.

The second Kyoto Protocol mechanism is called the Clean Development Mechanism (CDM).[159] The CDM allows developed states an alternative to simply lowering their own greenhouse emissions to meet the Kyoto Protocol requirements. Instead, developed states can choose to help build environmentally sustainable infrastructure in developing states, thereby lowering the developing state's emissions without putting a financial strain on the developing state.[160] This system provides one more way to encourage developed states to invest in sustainable technology without negatively impacting their own economies, and ensures that the entire world benefits from the positive environmental impact of reducing the emissions needs of developing states.

Joint Implementation, the third Kyoto Protocol mechanism, allows a state with obligations to reduce greenhouse emissions to instead reduce emissions by the same margin in another state.[161] For example, if state A is required to reduce emissions but is unable to do so without injuring its economy, state A may help state B with technological and educational assistance designed to reduce emissions in state B. This system allows for state A to meet its treaty obligations without injuring its economy, and reduces global emissions by reducing emissions in state B. This system also benefits state B with the introduction of new technology and expertise that will allow state B to reduce emissions over a longer period, instead of a temporary emissions solution.[162]

After the 2005 implementation of the Kyoto Protocol, the Member States of the UNFCCC have continued to work towards solutions to global climate change. On 3 December 2007, the parties of the UNFCCC met once again in Bali, Indonesia, to discuss new policies through the Bali Action Plan.[163] Although many of the specific aspects of the Plan are still undecided, the parties set general goals such as curbing deforestation and improving technology transfer and incentive programs designed to increase sustainable energy usage.[164] The Bali meeting also lead to the further development of the Adaptation Fund, which was created to provide financial assistance to developing states that are unable to secure funding for sustainable resource development from other mechanisms provided for in the Kyoto Protocol.[165] The Member States party to the UNFCCC have pledged to continue to build on their efforts with future meetings to both evaluate the progress of current agreements and to draft new guidelines to reduce greenhouse gas emissions and ensure environmental sustainability.[166]

United Nations Efforts for Energy Conservation and Sustainability

While the UNFCCC is the main focus of the United Nations' effort to address sustainable energy currently, other important efforts are also underway. One of the most notable of these programs is the work of the Commission on Sustainable Development's (CSD) work on sustainable energy.[167] The 9th, 14th, and 15th sessions of the CSD focused specifically on "Energy for Sustainable Development."[168] Much of the CSD's work on this issue focuses on the frameworks for solutions to the problem of education on and implementation of environmentally sustainable energy gathering and use. For example, Decision 9/1 of the CSD focused on a number of "overarching issues" that need to

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[159] "Clean Development Mechanism (CDM)." UNFCCC. http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php

[160] Ibid.

[161] "Joint Implementation." UNFCCC. http://unfccc.int/kyoto_protocol/mechanisms/joint_implementation/items/1674.php

[162] Ibid.

[163] "The United Nations Climate Change Conference in Bali." UNFCCC. http://unfccc.int/meetings/cop_13/items/4049.php

[164] H.E. Rachmat Witoelar. "The Bali Roadmap: Address to Closing Plenary." 15 December 2007. http://unfccc.int/files/meetings/cop_13/application/pdf/close_stat_cop13_president.pdf

[165] "Adaptation Fund." UNFCCC. http://unfccc.int/cooperation_and_support/financial_mechanism/items/3659.php

[166] "Meetings." UNFCCC. http://unfccc.int/meetings/items/2654.php

[167] "CSD Issues focus on Energy." UN Division on Development. http://www.un.org/esa/sustdev/sdissues/energy/enr.htm

[168] Ibid.

be addressed in order to solve the problem, such as "research and development", "capacity-building", "technology transfer", and "information-sharing and dissemination", among others.[169] Another important step the UN has taken towards environmentally sustainable energy is the Johannesburg Plan of Implementation (JPI). This broad document focuses on a number of issues related to sustainable development, including sustainable energy.[170] In particular, the JPI calls for the UN to "improve access to reliable, affordable, economically viable, socially acceptable and environmentally sound energy services", and to "combine a range of energy technologies, including advanced and cleaner fossil fuel technologies, to meet the growing need for energy services."[171] All of these efforts encourage better education and new policies to address the need of all states, and especially developing states, to develop environmentally sustainable energy practices.

The United Nations has also worked at both the state and regional level through the United Nations Development Programme (UNDP) to encourage the development of environmentally-conscious sources of energy. One such initiative by the UNDP is the Rural Energy Development Programme (REDP). The REDP was created to provide a greater quality of life to rural populations in developing states by providing financial assistance for the creation of environmentally sustainable sources of energy, particularly small-scale hydro power.[172] These initiatives all provide a small impact on each area they assist, such as the development of a cable television network powered by hydro power in Dudilabhati, Nepal, but their combined contribution to reducing greenhouse gasses and promoting environmentally friendly energy usage is significant.[173] In addition to direct action plans such as the REDP, the UNDP has also implemented calls for action and offers of financial assistance to individuals and organizations independent of the UN for proposals leading to the creation of sustainable energy sources in Member States such as China and the Phillippines.[174]

Plans of Action to Address Sustainable Energy and Conservation in Developing States

In addition to the broad-reaching programs and calls for action implemented by the UN, a number of organizations and smaller international partnerships have formed to encourage sustainable energy policies and education. These programs range from simple theoretical organizations attempting to create lasting agreements on standards for environmentally sustainable household technologies to specific projects working to address locations or technologies that currently harm the environment.

One such organization is the Renewable Energy & Energy Efficiency Partnership (REEEP).[175] REEEP was established to link regional and international resources with specific local areas that are in need of assistance ensuring their energy practices are sustainable.[176] One project REEEP is currently working on related directly to energy conservation and sustainable use is a cooperative effort with the governments of Russia and Kazakhstan to create standardized legal codes in both states that implement sustainable energy practices.[177] Specifically, REEEP is working with government officials at the local and national level to write energy sustainable legal codes for

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[169] "CSD Report on the 9th Session – Decision 9/1." CSD. http://www.un.org/esa/sustdev/csd/ecn172001-19e.htm#Decision percent209/1

[170] "Johannesburg Plan of Implementation." CSD. http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm

[171] "CSD Issues focus on Energy." UN Division on Development. http://www.un.org/esa/sustdev/sdissues/energy/enr.htm

[172] "Introduction." REDP. http://www.redp.org.np/phase3/introduction.php

[173] "Bringing the World Closer: Micro Hydro Operated Cable TV Network." REDP. http://www.redp.org.np/phase2/success/success1.php

[174] "UNDP Country Offices." UNDP. http://www.undp.org/energy/index.html#cos

[175] "REEEP Homepage." REEEP. http://www.reeep.org/

[176] Ibid.

[177] "REEEP Project – Building Energy Efficiency Codes in Russia and Kazakhstan." REEEP. http://www.reeep.org/index.php?id=31&special=showHotTopic&sHotName=project&iHotId=89

consumer products, homes, and commercial buildings.[178] However, REEEP is taking the project a step further by holding individualized seminars and training sessions designed to teach government inspectors how to detect violations of the energy codes and how to properly enforce any violations.[179] This innovative approach not only provides aid to these two states, but educates their citizens so that they can continue to practice environmentally sustainable practices even when the REEEP officials leave.

Another REEEP project of interest is developing a business model for biogas power generation in China.[180] Biogas is "a biological treatment process to reduce odor, produce energy and improve the storage and handling characteristics of manure."[181] This process would allow Chinese livestock farmers opportunities to not only make money from livestock they already have, but it would allow them to create enough energy to power their farm and nearby buildings without having to use other fuels such as coal.[182] If successful, such a business model and process could be implemented in any state, allowing for a global impact on greenhouse emissions, improving local economies worldwide, and increasing energy education throughout the world.

A second organization working on unique solutions to encourage sustainable energy is the Asia-Pacific Economic Cooperation Energy Standards Information System (APEC-ESIS).[183] APEC-ESIS is a subset of APEC whose goal is to ensure that sustainable energy standards are in place for all APEC Member States, and APEC-ESIS functions as a forum for energy experts in APEC and throughout the world to exchange information and keep themselves abreast of current innovations in sustainable energy technology at both the commercial and consumer levels.[184] One important project the APEC-ESIS is working on is the International Compact Fluorescent Lamp (CFL) Harmonisation Initiative.[185] The CFL initiative is designed to lower greenhouse emissions by encouraging consumers worldwide to replace their traditional incandescent light bulbs with CFLs.[186] CFLs are substantially more efficient than incandescent bulbs as they require about 75 percent less energy and last as much as ten times longer than an incandescent.[187] This substantial energy reduction allows a home with CFLs to operate with much less energy than a house with incandescents, easing energy needs for the home. If enough homeowners adopt this simple lifestyle change, global greenhouse emissions would drop with the lower global energy demand.

Another organization with a strong impact on industrial development in developing states is the Standards for Energy Efficiency of Electric Motor Systems (SEEEMS) International Harmonization Initiative.[188] The objective of the SEEEMS initiative is to create energy-efficient standards for the world's electric motors.[189] This is an important

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[178] Ibid.

[179] Ibid.

[180] "REEEP Project – Business Model Development for Biogas Electric Power Generation at Livestock Farms in China." REEEP. http://www.reeep.org/index.php?id=31&special=showHotTopic&sHotName=project&iHotId=89&sQuiteName=project&iQuiteId=33

[181] "Biogas and Anaerobic Digestion." Penn State University. http://www.biogas.psu.edu/

[182] "REEEP Project – Business Model Development for Biogas Electric Power Generation at Livestock Farms in China." http://www.reeep.org/index.php?id=31&special=showHotTopic&sHotName=project&iHotId=89&sQuiteName=project&iQuiteId=33

[183] "About APEC-ESIS." APEC-ESIS. http://www.apec-esis.org/about.php

[184] Ibid.

[185] "International CFL Harmonization Initiative." http://www.apec-esis.org/www/cfl/

[186] Ibid.

[187] "Compact Fluorescent Light Bulbs." Energy Star. http://www.energystar.gov/index.cfm?c=cfls.pr_cfls

[188] "SEEMS International Harmonization Initiative." SEEEMS. http://www.seeem.org/background.php

[189] Ibid.

goal because industrial motors use 40 percent of electricity worldwide.[190] If these motors can be streamlined with energy efficiency in mind, there is a strong potential for energy savings throughout the world, thereby lowering greenhouse emissions. The SEEEMS initiative works to achieve this goal by creating standards for local and international bodies to test these industrial motors for energy efficiency, and how to correct inefficient engines through upgrade or replacement. The SEEEMS initiative also provides a number of forums each year for different experts in the field of electric motors and state regulators to share technology and new information that could one day lead to even more efficient electric motors.[191] This project is of great interest to developing states due to the importance of large-scale industrial development to these states. This project gives developing states an opportunity to reduce greenhouse emissions and save on state-wide energy costs.

The International Partnership for the Hydrogen Economy (IPHE) is taking a research-oriented approach to sustainable energy solutions.[192] The IPHE believes that energy sustainability can be achieved, in part, by perfecting hydrogen and fuel cell technologies.[193] Fuel cells work by generating electricity via a chemical reaction.[194] In many fuel cells, hydrogen cells are put through a chemical reaction which strips the atoms of their electrons, which create an electric current.[195] These hydrogen cells react with oxygen to create this reaction, which allows energy to be created with virtually no pollution, only harmless water (H_2O).[196] Currently, it is difficult to build fuel cells that produce enough power to run most modern machines, such as cars or industrial equipment.[197] However, with continued research into these fuel cells, it may be possible to eventually create an efficient fuel cell that could power virtually any device. The potential for these cells, for both developed and developing states, is staggering. Such a technology could ensure ample energy sources for an entire population with virtually zero greenhouse emissions.

Conclusion

With the addition of numerous new developing states to the modern industrial society, the entire United Nations faces serious challenges in balancing the need to preserve natural resources with the demands of an expanding human population. In the coming decades, the UN will play a critical role in deciding the fate of the Earth's resources, and at what cost it will protect these resources from over consumption. In order to protect Earth's environment and remaining sustainable resources, the UN must take steps to drastically cut back the use of high-pollution fuels such as oil and coal. However, the UN must also encourage the development of alternative energy sources that can fill the sizable gaps in global energy availability without oil and coal.

In order to achieve these goals, the UN must build upon the work it has already completed through the creation of the Kyoto Protocol and the JPI, among others. One significant step in this regard would be to incorporate the work of many of the independent and regional bodies into the UN's own programs. For example, the REEEP biogas program could become even more successful if it had the resources and information-distribution capabilities of the United Nations. Even programs such as the IPHE fuel cell research project could benefit from UN involvement by allowing for greater international cooperation and collaboration on research, and more funding opportunities.

All of these different approaches can be used to solve the energy problems that will surface in the coming years. However, it is important to remember that the key to a truly sustainable energy plan for the world is to ensure that developing states aren't forced to follow in the steps of their predecessors. Developing states must be given the tools necessary to develop in a sustainable manner from the ground up, instead of having to backtrack and repair the damage in the future, after decades of damage has already been done.

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[190] Ibid.

[191] Ibid.

[192] "International Partnership for the Hydrogen Economy Main Page." IPHE. http://www.iphe.net/default.htm

[193] "IPHE Functions." IPHE. http://www.iphe.net/Functions.htm

[194] "A Basic Overview of Fuel Cell Technology. Smithsonian Institute." http://americanhistory.si.edu/fuelcells/basics.htm

[195] Ibid.

[196] Ibid.

[197] Ibid.

Committee Directive

Delegates to the Commission on Science and Technology for Development should come prepared to discuss all relevant UN treaties and documents on sustainable energy, and particularly the UNFCCC, the Kyoto Protocol, and the sections of the Johannesburg Plan of Implementation relevant to sustainable energy. Additionally, it would be advantageous for delegates to carefully examine the international programs already in place that address the issue of sustainable energy and conservation education for developing states, such as the REEEP, the APEC-ESIS, and the SEEEMS initiative.

When considering what resolutions the CSTD can draft related to this topic, delegates should consider the nature of the work already achieved on the issue of sustainable energy, and ways that delegates can expand upon that work or increase its efficiency. Delegates are also strongly encouraged to come up with their own unique solutions to the issues at hand.

Delegates should also bear in mind that while they are free to approach the topics from any relevant angle, the topic at hand specifically addresses developing states. While it is certainly appropriate to also discuss developed states in debate and any resolutions on the floor, delegates should ensure that these discussions include the myriad of developing states that are at the center of this topic.

Technical Appendix Guide

Topic I. Integrating Technology into Formal Educational Programmes

BBC News. "Factfile: XO Laptop." 23 July 2007. http://news.bbc.co.uk/2/hi/technology/6679431.stm

> This presentation from BBC News provides a strong overview of each of the parts of the XO laptop in a way that is easy to understand. The presentation includes a diagram of the XO laptop, allowing visitors to the presentation to click on each section of the laptop to learn about its function. The overview includes explanations of components ranging from the low-powered screen to the power supply and internal hardware of the laptop.

CSTD Secretariat. "Science, technology and engineering for innovation and capacity-building in education and research." 28 November 2007. http://www.unctad.org/Templates/Download.aspdocid=9491&lang=1&intItemID=2068

> This presentation, the first from the CSTD Secretariat, focuses on the role of science and technology as important tools for the development of any state, its economy, and its population. Specifically, the report presents a detailed analysis of different ways technology can impact state policy, the educational level of the population, and support innovation that can lead to new jobs and a stronger overall economy. There is also a focus on different ways to shape state policy to encourage the development of more technical jobs to bolster a state economy and promote innovation, along with an emphasis on modifying state policies to increase education funding for technology in order to prepare the state's workforce for a new technology-based economy.

"GeSCI: Global e-Schools and Communities Initiative." 2007. http://www.gesci.org/

> The Global e-Schools and Communities Initiative (Gesci) website outlines the basic goals of the Gesci program, and includes status updates on various projects Gesci is currently engaged in. The primary purpose of Gesci is to provide technical and financial assistance to developing states so that these states may take advantage of modern technology in their education systems. Gesci currently has programs in place in Bolivia, Ghana, Rwanda, India, and Namibia.

"Harnessing ICT, Science and Technology for Development in Africa." 28 November 2007. http://www.unctad.org/Templates/Download.asp?docid=9434&lang=1&intItemID=2068

> The UN Economic Commission for Africa (ECA) drafted a report for the CSTD that focuses on ways to

increase the accessibility and productivity of technology throughout Africa. The report focuses on three broad areas of technology development: governmental policy, location of resources useful for technology, and direct research and examples of methods to integrate science and technology into the lives of Africa's population. This report presents a variety of viable methods through which technology can be better used in developing states, and provides a strong basis of understanding needed in order to develop technology education policy in developing states.

Lemon, Sumner. "Hands on with Intel's Classmate PC." 11 June 2007. http://www.infoworld.com/article/07/06/11/Intel-classmate-PC_1.html

This article provides a concise review of the Intel Classmate PC and its specifications. The review covers details such as the laptop's processor speed, amount of Random Access Memory (RAM), and storage space for files. The article also provides links to other resources for both the Classmate PC and the XO laptop. The personal tone used in this article provides delegates a different way to gauge the XO laptop and Classmate PC to determine the strengths and weaknesses of each device for global education programs.

Rajani, Niranjan. "Free as in Education: Significance of the free/libre and open source software for developing countries." 13 May 2003. http://www.itu.int/wsis/docs/background/themes/access/free_as_in_education_niranjan.pdf

This paper, presented at the 2004 World Summit of the Information Society in Geneva, reviews the advantages of implementing free and open source software (FOSS) in developing states. In addition to extensive reviews of popular open source projects, the paper goes into the details of the financial, social, and educational merits and obstacles of FOSS. The author also includes a number of recommendations for implementing FOSS as an alternative to proprietary software in developing states. The material presented by the author can be useful for delegates to gain a stronger understanding of what FOSS is and its potential for developing states. The material may also lead to proposals for implementing FOSS into educational programs in developing states.

"Technology Horizons in Education Journal Online." 2008. http://www.thejournal.com/

Technology Horizons in Education (T.H.E.) Journal is a periodical created to inform educators and school administrators about changing technology and the impact technology has on education. The Journal's website covers reviews of various technologies and policies from an educational perspective, and includes coverage of different educational systems and their policy decisions. T.H.E. Journal can be useful as a mechanism to review practical applications of technological policies, and provides additional examples for delegates of ways to integrate technology into educational programs.

"United Nations Information and Communication Technologies Task Force" 31 May 2006. http://www.unicttaskforce.org/

The United Nations Information and Communication Technologies Task Force was created in 2001 in order to approach pressing world problems such as the digital divide and the lack of Information and Communication Technologies (ICT) throughout the developing world from a global perspective. The Task Force accomplishes this goal through public and private partnerships, and works to solicit donations and technical assistance for states in need of ICT services. The ICT Task Force also addresses technological educational needs through a program called the Global e-schools and communities initiative. The program of action and other materials published by the ICT Task Force provide a background into various ways that the UN is addressing general ICT issues.

WSIS Education, Academia, and Research Taskforce. "Education Priorities for Knowledge Sharing. 11 April 2005. http://www.wsis-edu.org/library/tools/download.php?rec_id=0000000011

This paper outlines basic priorities that should be implemented as part of a global effort to increase education standards through technology. The paper focuses briefly on areas such as ensuring teachers are properly educated in the field of information and communication technologies so that they may pass this knowledge on to students and the need for "open" course materials for schools such as free and

open source textbooks. The paper also covers the need for the world's media sources to be aware of modern technology so they may also educate state populations about technology resources, and the need for more technology research to spark future innovation. The paper concludes with several productive recommendations on how to achieve each of the goals outlined in the paper.

Topic II: The Impact of Content Filtering on Communication Developments

Cheong, Don *Filtering Internet Traffic by Content.* Australian Bureau of Statistics. 13 August 2001. www.unescap.org/stat/meet/dataprot/cheong08.pdf

Delegates with limited knowledge of internet filtering will find this resource especially helpful. The slides provide an overview of filtering and why governments implore content filtering. The slides provide an in-depth and technical guide for the process of internet filtering. Additionally there is a wide-range of definitions useful for understanding the basic vernacular.

Berkman Center for Internet and Society. http://cyber.law.harvard.edu/

The Berkman Center for Internet and Society at Harvard Law School has extensively studied and published a number of papers on network neutrality, internet content filtering, and other concerns directly related to this topic. Particularly of note are several papers on the sociological impact of restricted internet access in educational and social development. The Center has documented the role of International Law with respect to content filtering as well. Most of these papers are peer-reviewed or Ph.D/J.D. theses and thus carry a substantial amount of authority with respect to the content at hand.

Deibert, Ronald, et. al, eds. *Access Denied: The Practice and Policy of Global Internet Filtering.* Cambridge, Mass: MIT Press, 2008.

This book highlights a number of the public policy issues regarding global internet filtering. It examines specific cases worldwide, including some of the case studies in the background guide, and their impact on social development. It also examines alternative mechanisms for achieving goals related to filtering inappropriate content.

Electronic Frontier Foundation. http://www.eff.org

The Electronic Frontier Foundation promotes electronic freedoms on a number of fronts, including internet access. Though the NGO is American based, they have a number of targets outside the United States regarding content filtering and also provide a number of articles for a view at the impact of even less-obtrusive internet content filtering. Additionally, they provide information on some of the technologies used to circumvent internet content filtering.

Hamade, S.N. "Internet Filtering and Censorship." Information Technologies: New Generation, Fifth International Conference on. 7-9 April 2008. pp 1081-1086.

This article provides a detailed view of the use of censorship technologies in use on the Internet. Additionally, the article discusses the difficulty in finding a balance between filtering to reduce objectionable content and filtering that infringes upon civil liberties. Also notable is the issue that perspective may affect whether censorship is perceived as beneficial or overbearing.

"OpenNet Initiative." http://opennet.net/

The OpenNet Initiative (ONI) was created by the University of Toronto, Harvard Law School, the University of Cambridge, and Oxford University in order to discover and catalog Internet filtering and tracking practices throughout the world in an unbiased manner. The ONI also investigates the potential dangers of Internet filtering and works to ensure that governments understand these dangers. The work of the ONI can provide delegates a starting point towards creating policy for the United Nations related to content filtering.

Reporters without Borders and Organization for Security and Cooperation in Europe. "Reporters Without

Borders and the OSCE make six recommendations to ensure freedom of expression on the Internet." 20 June 2005. http://www.rsf.org/article.php3?id_article=14136

This declaration outlines the position of Reporters Without Borders (RSF) and the Organisation for Security and Cooperation in Europe (OSCE) on freedom of expression on the Internet. The declaration makes a case for linking the freedom of the Internet to Article 19 of the Universal Declaration of Human Rights. The declaration also claims that Internet content should be subject to the laws of only the state in which the content originated, and not where it is downloaded. These statements, although controversial, provide delegates with one viewpoint on the validity of global Internet regulation, and delegates are encouraged to investigate the position of their own state and how it contrasts with the position of the RSF and the OSCE.

Villeneuve, Nart. "Human Rights and the Internet." 1 February 2006. http://www.nartv.org/2006/02/01/human-rights-and-the-internet/

Nart Villeneuve is a fellow with the Mun Center for International Studies at the University of Toronto and Director of Technical Research for the Citizen Lab, an NGO concerned with individual rights on the internet. This is the transcript and details of testimony regarding internet content filtering made before the United States Congressional Human Rights Caucus on behalf of the Citizen Lab. In this, he particularly highlights issues in China, including particular issues with respect to the Falun Gong.

WSIS-03/Geneva/Doc/0005. *Geneva Plan of Action.* World Summit on the Information Society. 10-12 December 2003.

The WSIS Geneva Plan of Action discusses the plans of the UN and the WSIS to help promote better access to information technology, along with the reasons and the way it relates to development. This document underscores some of the first consideration by the United Nations of modern telecommunications access and development. This plan is accessible online at http://www.itu.int/wsis/docs/geneva/official/poa.html. Section C best highlights the relationship between ICTs and development and the governmental role in promoting this.

Topic III. Developing Educational Platforms to Promote Energy Conservation Programmes in Developing Countries

International Energy Agency. "Key World Energy Statistics 2007." 2007. http://www.iea.org/Textbase/publications/free_new_Desc.asp?PUBS_ID=1199

The 2007 edition of the IEA's "Key World Energy Statistics" provides a detailed analysis of what types of energy are used throughout the world, and which Member States and regions are using energy. The document also covers what percentage of greenhouse gases are caused by the use of each type of energy, current prices for various types of energy, and projections for energy usage through the year 2030. A working knowledge of these statistics will help delegates prepare to discuss the merits of various energy sources and uses as they contribute towards sustainable development.

Parties to the Kyoto Protocol. "Kyoto Protocol to the United Nations Framework Convention on Climate Change." 11 December 1997. http://unfccc.int/essential_background/kyoto_protocol/items/1678.php

The Kyoto Protocol is a vital component of the efforts of Member States to control greenhouse gas emissions. The Protocol is an extension of the United Nations Framework Convention on Climate Change, and provides a number of new mechanisms to ensure significant reductions in greenhouse gas emissions and promotes sustainable development through a number of programs to assist developing states. Reviewing the various mechanisms through which the Kyoto Protocol plans to reduce emissions, and the enforcement mechanisms for Parties that don't meet these obligations, will help delegates gain a strong understanding of the current debate on climate change within the United Nations.

"Renewable energy and energy efficiency partnership." http://www.reeep.org/31/home.htm

The Renewable energy and energy efficiency partnership (REEEP) was created through private businesses, non-governmental-organizations, and state governments to encourage states to create effective energy policy through statewide laws, and to facilitate and finance the implementation of sustainable energy projects throughout the developing world. REEEP currently supports ongoing projects such as creating laws promoting energy efficiency in the Russian Federation and creating successful business models for power companies in Eastern Asian. Evaluating the success and failures of these programs can provide delegates valuable practical knowledge of the way that various energy policies can help create sustainable energy and resources.

"Rural Energy Development Programme." 2008. http://www.redp.org.np/

The Rural Energy Development Programme (REDP) was created in conjunction with the World Bank, the United Nations Development Programme, and the government of Nepal in order to directly improve the lives of rural residents in Nepal through the use of sustainable energy technology. The REDP has supported a number of programs in Nepal, such as an effort to bring hydro power to a small village in Nepal in order to operate a cable television station. The various REDP programs can serve as a model for global programs designed to increase the use of sustainable energy worldwide.

UN Development Programme. "Energy for Sustainable Development: Overview." http://www.undp.org/energy/

The UNDP website dedicated to energy for sustainable development provides a number of links to resources related to sustainable energy and development. The UNDP also highlights a number of case studies conducted by the UNDP on the success of environmentally friendly energy programs in developing states, and a number of general programs conducted directly by the UNDP and partners that strive to provide more energy worldwide while reducing greenhouse emissions. Aside from programs and case studies, the UNDP energy website also provides information regarding the need for sustainable energy throughout the planet, and its possible beneficial impact on the environment.

UN Division for Sustainable Development. "Energy efficiency standards and labeling programme." 30 April 2000. http://esa.un.org/techcoop/flagship.asp?Code=GLO99095

The energy efficiency standards and labeling program was created in order to ensure that a multitude of consumer devices, such as air conditioners, heat pumps, furnaces, fans, and televisions have easy to read labels that display the amount of energy they use to perform their designed function. The program was also created to help states develop minimum standards for energy efficiency and incorporate them into national laws. The overall goal of the program is to reduce demand for electricity by 10 percent to 20 percent over the next 20 years. The program has already been successful in Thailand, and the work already done on the program is a great starting point towards a UN-wide program for energy efficiency labeling.

UN Economic and Social Commission for Asia and the Pacific. "Compendium on Energy Conservation Legislation in Countries of the Asia and Pacific Region." 9 March 1999. http://www.unescap.org/esd/energy/publications/compend/ceccontents.htm

This website provides English translations of a number of state energy laws in the Asia and Pacific region, including Australia, the People's Republic of China, Japan, the Republic of Korea, the Russian Federation, Thailand, and Uzbekistan, in addition to the energy conservation laws for the United States of America. These laws provide insight into the energy conservation policies of each of these Member States. The website also provides a general overview of national and regional energy conservation laws and programs as well as third party reviews of many state laws and their impact on energy conservation.

United Nations Centre for Human Settlements. "Application of Biomass-Energy Technologies." 1993. http://www.unhabitat.org/pmss/getpage.asp?page=download&alt=1&publicationID=1453

Applications of Biomass-Energy Technologies focuses on the various ways in which biomass may be used as an energy source, and different applications for biomass-energy. The publication also includes case studies that provide a practical test of different ways biomass is used as energy. Specifically, the text covers areas such as improved charcoal production, conversion of biomass into ethanol and electricity, and the use of biogas as an energy source. These unique applications of biomass and their ramifications on the environment can contribute to informed policy-making decisions for delegates to the CSTD.