UNESCO

I. Strengthening Disaster Risk Reduction Strategies in Order to Protect UNESCO World Heritage Sites

"In today's interconnected world, culture's power to transform societies is clear. Its diverse manifestations – from our cherished historic monuments and museums to traditional practices and contemporary art forms – enrich our everyday lives in countless ways. Heritage constitutes a source of identity and cohesion for communities disrupted by bewildering change and economic instability. Creativity contributes to building open, inclusive and pluralistic societies. Both heritage and creativity lay the foundations for vibrant, innovative and prosperous knowledge societies."130

Introduction

The cultural and natural heritage of the peoples of the world is invaluable – representing our collective progress over generations; capturing important milestones in history; and illustrating the incredible diversity and fragility of our environment. As the world faces increasing challenges ranging from the global economic crisis to climate change, it is crucial to identify, protect and preserve this heritage in order for it to outlast.

The concept of "heritage" is articulated as "our legacy from the past, what we live with today, and what we pass on to future generations." This includes both "cultural" and "natural" heritage, which are "irreplaceable sources of life and inspiration." "Cultural heritage" is created by humans – and can include buildings or artifacts, which exemplify human values or concepts of universal significance. "Natural heritage" includes naturally-occurring natural phenomena, or outstanding examples of biological and ecological processes as well as biological diversity. Examples of sites, which are considered examples of our heritage include the Serengeti in East Africa, the Pyramids in Egypt and the Baroque cathedrals in Latin America.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) aims to assume responsibility for protecting our heritage by establishing "World Heritage Sites," (WHS), which are outstanding examples of either cultural or natural heritage. The creation of the concept of WHS was done in recognition of the unequivocal role that culture plays in fostering a sense of responsibility and how it can provide the essential historical context to ensure growth and development for the good of a state. The World Heritage List was established pursuant to Article 11 of the 1972 *Convention Concerning the Protection of the World Cultural and Natural Heritage*. The sites added to the list are determined by the World Heritage Committee (WHC) to have "outstanding universal value." Further, they provide significant socioeconomic benefit to their host nations, and are an irreplaceable source of educational material.

Created to preserve and protect these sights and the culture they embody, the places on the World Heritage List continue to face new challenges. In particular, these sites face heightened threats due to the increased impact of climate change on global environmental stability and the risk posed by armed conflict. Disaster Risk Reduction (DRR) is the "concept and practice of reducing disaster risks through systematic efforts to analyze and reduce the causal factors of

disasters," DRR includes measures to reduce the impacts of hazards, to strengthen the preparedness and prevention mechanisms and to improve the management of land and environment. Disaster management, disaster mitigation and disaster preparedness are thus all instruments within DRR and contribute to sustainable development.146 In order to ensure heritage is protected in situations of disaster, DRR strategies should be reflective of the need to protect WHS.

International and Regional Framework

There is a range of instruments and international documents that guide this topic and deal with the various aspects of Disaster Risk Reduction (DRR) including disaster relief preparedness and protecting cultural heritage in situations of emergency.

In order to protect and preserve global heritage and its universal importance, the General Conference of UNESCO adopted the *Convention Concerning the Protection of the World Cultural and Natural Heritage* in 1972. The Convention gave an unprecedented priority to recognizing the value of global heritage and the need to preserve it for future generations. Further, it created the World Heritage Committee (WHC), which has developed more extensive and detailed plans for preserving the World Heritage Sites (WHS) and determines the criteria for new WHS to be added to the list.

A number of international treaties and subsequent conventions have increased the efficiency and practicality of disaster relief preparedness. *The Hyogo Framework for Action 2005-2015* was adopted during the 2005 World Conference on Disaster Reduction, held in response to the earthquake and tsunami that struck Southeast Asia. This is the key international framework for disaster risk reduction and reaction. It has facilitated the development of more specified plans, including the *Strategy for Risk Reduction at World Heritage properties* (2006) and the *Revised Strategy for Risk Reduction at World Heritage properties* (2007) prepared by the WHC. These documents outline the plan of WHC and UNESCO to purposefully strengthen the protection of World Heritage and thus support sustainable development by integrating concerns regarding heritage into national disaster reduction policies. They further purposefully and appropriately allocate the use of emergency assistance from the World Heritage Fund. The World Heritage Fund, developed through the Convention, combines compulsory and voluntary donations with private donations to fund emergency disaster relief projects for WHS.

UNESCO offers coordination and advice to governments and organizations in their efforts to establish early warning and risk mitigation systems for natural hazards and also supports strategies for improving education and awareness in this field, especially in regions and communities at risk in least developed countries. In its 34th session the UNESCO General Conference included disaster mitigation in the Organization's *Medium Term Strategy for 2008-2013* and thus made it one of fourteen Strategic Programme Objectives. In this Medium-Term Strategy UNESCO determined to "assist Member States in building capacities to withstand and cope with natural events." Furthermore, it stressed the need for interdisciplinary platforms that could manage disaster risks. UNESCO plays an important role in strengthening local capacities in emergency preparedness as it for example supports Flood Early Warning Systems in Pakistan and Namibia. Furthermore, UNESCO aims at mainstreaming Disaster Risk Reduction

(DRR) in the education sector and has launched various initiatives in this direction.

This topic sits at the nexus between disaster-focused agencies within the UN system and efforts to protect natural heritage. UNESCO works with a variety of partners in this field including the United Nations Office for Disaster Risk Reduction (UNISDR), the United Nations Children's Fund (UNICEF), many regional actors and governments as well as civil society organizations.

Disaster Risk Reduction
The United Nations (UN) work diligently through many of its agencies to both prevent and react to disasters. In the most direct capacity, the United Nations Office for Disaster Risk Reduction (UNISDR) works with Member States to prevent significant instability in the face of disaster by coordinating, campaigning, advocating and informing the public in order to adequately prepare for disaster relief. Their programs to educate civil servants and the general public about disaster risk reduction are separated into global, regional and national levels. The Global Platform for Disaster Risk Reduction is a biennial forum held to improve the implementation of disaster risk reduction by strengthening communication and coordination among all actors. The most recent forum was held in May 2013 in Geneva, Switzerland. This session was regarded as the largest and most manifold to date, which shows that disaster risk reduction outreach has achieved results. The topics discussed included various aspects such as targeting the root causes of risk; recognizing the private sector as partner; strengthening scientific and technical support; or leading at the local level.

Protection of Heritage
The World Heritage Committee (WHC) co-sponsors technical workshops on the international and national level to train civil servants and World Heritage Sites (WHS) staff on responding to and preventing damage from disasters and further encourages these staff members to learn from their heritage sites as a means to mitigate future man -made or natural disasters. The WHC also provides financial assistance for emergencies and preventive care through the aforementioned World Heritage Fund, and aids in Conservation and Management Assistance for endangered sites.

The UN places a conscious effort on the promotion of sustainable development and, as thus, the WHC and UNESCO held a Consultative Expert Meeting on World Heritage and Sustainable Development in Brazil in February 2012 and the theme for the commemoration of the Convention's 40th anniversary in 2012 was "World Heritage and Sustainable Development: the Role of Communities." For WHC, it was important that the essential role that heritage plays in encouraging sustainable development was recognized and that the international community received a better understanding for how sustainable development can protect these sites from degradation through prevention of disaster. Further, UNESCO and the WHC partner with many organizations on an international and national level in order to provide increasingly available information for Member States on protecting cultural and natural heritage sites in their respective States. These partnerships are important in order to develop and implement projects, raise public awareness and share "good practice" and know-how. One example of such a successful joint program is the UNESCO Chair Program on Cultural Heritage and Risk Management held by the Institute of Disaster Mitigation for Urban Cultural Heritage; this program focuses directly on disaster mitigation in urban environments.

Finally, UNESCO provides a multitude of educational materials via the Internet to encourage knowledge of all endangered World Heritage Sites. Beside the World Heritage List, there is also the List of World Heritage in Danger, which was created in order to draw attention to the threats cultural heritage sites often face. Adding World Heritage Sites to this list also leads to the possibility of the WHC to allocate assistance through the World Heritage Fund. Furthermore, the inscription to the list requires the WHC to take measures in accordance with the respective state. Some of the most recent entries to the list are the Rio Platano Biosphere Reserve in Honduras, which was added in 2011 because of various factors such as illegal logging and illegal occupation; the Tomb of Askia, which was added in 2012 due to the violent conflict in the country; or the six World Heritage Sites in Syria, which were added in 2013 because of the turmoil that already led to damage of cultural heritage in Syria.

Types of Disasters and The Effect on World Heritage Sites

It is essential to recognize the importance of protecting World Heritage Sites (WHS) from damage by disasters in order to extend the life and increase the value of their contribution to global culture and heritage, socioeconomic growth and stability, and to solidify their contribution to communities.1 Due to the varying nature of the WHS, it is important to recognize the multitude of situations in which these sites could be disturbed; each type of disaster requires unique prevention and protection measures. A disaster is defined as "a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceeds the ability of the affected community or society to cope using its own resources." The most commonly faced disasters are categorized as hydrological, geological, astrophysical, biological, human -induced and climate change. Within these categories, there can be man-made or natural disasters as well as a combination of both.

Natural Disasters
Natural disasters are the consequences of natural hazards, which are "naturally-occurring physical phenomena caused by either rapid or slow onset events having atmospheric, geologic and hydrologic origins at the global, regional, national or local scale." Among these natural disasters are earthquakes, floods, volcanic lava flows, tsunamis, droughts, and landslides. According to the *Case Studies on Climate Change and World Heritage* report by UNESCO, "the twenty-first century has seen the emergence of 'new' kinds of threats in climate change." The severity of these disasters is increasing due to climate change, and fragile ecosystems are facing unprecedented differences that compromise their value as World Heritage Sites. A pertinent example of this is the Chan Archeological Site in Peru, whose structures are fragile and can quickly be damaged by natural erosion. Climate change and especially the impacts of the El Niño event in 1998 posed a severe risk to the site, thus an emergency assistance fund was allocated to establish protection measures and succeeded in containing the impacts.

Human-made
Disasters caused by humans, such as fires caused by arson, vandalism, or armed conflicts can have irreversible consequences to WHS. UNESCO already has experience with coordinating actions to preserve cultural sites in these situations, for example in Mali, Libya or Iraq during the violent conflicts that took place in those regions. Another example is the old city of Dubrovnik in Croatia, which was damaged by artillery fire during the war in former Yugoslavia in 1991. The

site was then added to the List of World Heritage in Danger, but could fortunately be repaired and rebuild by the Croatian Government with technical and financial assistance from UNESCO. In 1998, the site could be removed from the List of World Heritage in Danger and thus is a good example for a success story. One of the most recent examples of a crisis threatening World Heritage Sites can be observed in Syria. The crisis that has been occurring in that country for several years resulted in the placement of six WHS to the List of World Heritage in Danger in 2013. These issues was viewed as so significant that it was even the topic of discussion within the UN Security Council as an element of the security situation. The Director-General of UNESCO, Irina Bokova averred the aim of UNESCO to protect the Syrian WHS and thus held an expert meeting on the matter at UNESCO's headquarters with the goal to develop an action plan. Furthermore, UNESCO continues its efforts to raise awareness of the threat and provides information on the current status. It also trains Syrian and regional professionals in measures to preserve properties and collections from destruction, looting and illegal trafficking.

Combination of Natural and Human-made Disasters

In many cases it is obvious whether a hazard is natural or human-made, for example when it comes to hurricanes or armed conflicts. However, there are also situations where assumed natural disasters are caused by human activities such as felling trees, building houses in areas prone to floods, or conducting mining. The Doñana National Park in Spain for example was highly affected, when in 1998 a supporting wall of a reservoir containing toxic waste of a mine suddenly burst. The vast quantity of toxic mud and water entered the Agrio River, which also leads to the swamps in the National Park and polluted them. In order to contain this ecological disaster, an International Expert Meeting on the Regeneration of the Doñana Watershed took place in October 1999 and discussed the further actions that should be taken.

Disaster Risk Management to Mitigate the Impact of Disasters

The 2010 *Resource Manual: Managing Disasters Risks for World Heritage* focuses on putting the aforementioned *Strategy for Risk Reduction at World Heritage Properties* into the hands of those working directly with these properties, as well as serving as an invaluable contribution to the work of other stakeholders. Site managers and heritage administrators are provided with a methodological framework to identify, evaluate and reduce risks to World Heritage Sites (WHS). Mitigating the impacts of disasters on WHS and effectively responding to emergencies can be accomplished by preventing hazards from becoming disasters thorough maintenance, adequate training programs, and educational initiatives. This is also important because disasters usually cause immense costs, posing severe burden on the respective states, which can be limited by appropriate preventive risk management.

Historical and Scientific Impacts

World Heritage Sites (WHS) provide us with unparalleled access to our national and international culture and history and they can teach us about how our ancestors and our environment have weathered, recovered or failed to recover from disasters. For example, learning from the foundations of buildings that have withstood tragic storms, or studying the habitation of plants and animals in majestic forests and habitats can teach current populations how to more effectively react to and recover from disasters and their effects on WHS. This knowledge can also help to reduce unknown inherent risks at properties, because scientifically

evaluating the properties and learning more about the ecosystems surrounding them will help property managers and civil servants to reduce risk and implement site - specific policies and procedures to prevent degradation or elimination.

Socioeconomic Impacts
World Heritage Sites hold intrinsic value for their host states in promoting economic development. Primarily, these sites provide value through tourism and employment opportunities for citizens. By properly staffing and providing for these sites, Member States can increase job opportunities for qualified citizens in the field of securing the property against negative impact by disaster. Proper maintenance of these sites can also increase the flow of visitors, thereby providing an increase in revenue for both the site maintenance, but also for the state and regions where these properties are. Also, WHS attract those studying the intricacies of heritage and therefore increase the overall socioeconomic value of communities through increased knowledge of the sites. These economic and social incentives for maintenance by Member States and regions further stabilizes these sites against disaster, and additionally can provide assistance in helping Member States recover economically from unforeseen disasters through economic stability provided by raising employment rates and positive economic growth.

International Assistance
Once a disaster has occurred, may it be due to natural hazards or because of human -induced actions, and a WHS is in danger, the Convention offers different ways of international assistance through the World Heritage Fund. One way is through emergency assistance, which can be requested to address potential dangers that WHS face for example land subsidence, fires, floods or violent conflicts. This assistance is meant for sudden threats and does not concern cases of gradual destruction such as damages by pollution or climate change. Emergency Assistance was for example granted to the Sichuan Giant Panda Sanctuaries in China after the major earthquake in the region in 2008. If there has been a disaster, but the current danger is over, the Conservation and Management Assistance comes into action.

Case Study: Sumatra (Indonesia)

The Tropical Rainforest Heritage in Sumatra was added to the List of World Heritage in 2004, because it holds a great potential to permanently preserve the diverse wildlife of Sumatra including endangered species. The site embraces three Indonesian national parks: Gunug Leuser National Park (GLNP), Kerinci Seblat National Park and Bukit Barisan Selatan National Park. Furthermore, the Tropical Rainforest Heritage provides biogeographic evidence of the evolution of Sumatra and thus is of universal value. In 2004, South-East Asia was hit by a massive tsunami, which although it did not directly affect the ecosystem of the Gunung Leuser National Park, still had a heavy impact on the Park by majorly damaging its infrastructure and concerning human resources. The Nature Conservation Agency Aceh Office in Banda Aceh and several other resort offices were destroyed, which of course affected the ability to protect and manage the property. More than 150 staff members working in the forestry agency were victims of the tsunami. Local and national governments were confronted with a massive destruction of houses and infrastructure and thus were under great pressure to allow logging within the property. Thus, the extreme needs of the surrounding communities lead to a reduced protection of the World Heritage Site and increased deforestation for example caused further risks through flash floods or

landslides. UNESCO and other organizations and governments such as the World Wildlife Fund (WWF) Indonesia, the Directorate General of Forest Protection and Nature Conservation of Indonesia (PHKA) or the Spanish Government became active in this situation by raising awareness of the alarming degree of forest destruction. As a result of these efforts, plans to further exploit the National Park were rejected and alternative solutions for reconstruction were discussed. UNESCO and PHKA worked together on a two-year project to mitigate post-tsunami environmental threats to the National Park and especially the Tropical Rainforest Heritage of Sumatra.

After UNESCO had offered its help to the Indonesian government, the Indonesian Ministry of Forestr y requested emergency assistance from the World Heritage Fund in order to restore necessary capacities in the Gunung Leuser National Park. This was approved by the World Heritage Committee in July 2005 and USD 66,600 were given for a project of the Indonesian authorities in collaboration with the UNESCO Office in Jakarta. Indonesia was asked to prepare an *Emergency Action Plan* that should especially focus on illegal logging, agricultural encroachments and proposed road development. The *Emergency Action Plan* covered a five-year period (2007-2011) and addressed the most pressing issues such as illegal logging, poaching and promotion by providing programmes strategies, timeframes and responsible stakeholders. However, the *Emergency Action Plan* was only slowly implemented and had to be extended for another five years. Among the actions that had been taken were a logging moratorium by the Governor and increased forest patrols by rangers, which resulted in a decrease of illegal logging as well as legal actions against illegal poachers, which helped to improve the situation.

This case shows how crucial it is to find ways to deal with cultural heritage after disasters, as there can be an immense pressure to exploit protected regions during the recovery phase. Therefore, area managers together with international and non-governmental organizations, play a key role in raising awareness in local communities and among politicians and businesses. They need to be prepared for their tasks through education and training in order to be able to take the right decisions in situations of emergency.

Conclusion

World Heritage Sites are contributors to international cultural and natural heritage; yet their value is not limited to the scope of culture and nature, but spans to economic and social benefits to Member States. The international community has found a comfortable consensus on the essential nature of protecting these properties from disasters, and further has worked diligently together to thwart disaster through preventive measures and reactionary measures.

Delegates should challenge themselves to find new ways to educate the general population about the importance of the cultural and natural WHS that are within their states. Further, they should expand upon the concepts put forth in the disaster risk management (DRM) manuals and ask themselves: How can the international community learn from its heritage and continue to increase efforts towards a more sustainable future? How can the damage of cultural heritage in situations of violent conflict be prevented? What actions should be taken once World Heritage Sites are in danger? What measures has your government been taken in order to preserve cultural heritage and how can these cases be role models for other states? World Heritage Sites provide

not only a window to the past to appreciate and remember, but also a way to move forward and prevent disasters and destruction from the lessons of our past.

Annotated Bibliography

Institute of Disaster Mitigation for Urban Cultural Heritage, Ritsumeikan University. (2013). *UNESCO Chair*
Program. Retrieved 3 July 2013 from: http://www.rits-dmuch.jp/en/project/itc_2013.html
The Institute of Disaster Mitigation for Urban Cultural Heritage is working in collaboration with the UNESCO Chair Program to sponsor the International Training Course on Disaster Risk Management of Cultural Heritage. This website specifies the focus on the mitigation of disasters, and specifies the importance of proper management and preparation. It further emphasizes the role of partnerships between institutes working on this issue.

United Nations Educational, Scientific and Cultural Organization. (2010, July 1). *Managing Disaster Risks for*
World Heritage. Retrieved 3 July 2013 from:
http://whc.unesco.org/uploads/activities/documents/activity-630-1.pdf
The "Managing Disaster Risks for World Heritage" Manual is indicative of the direction that the
World Heritage Committee and UNESCO are heading in disaster prevention. It is used to train World Heritage Site staff and governments in Member States on disaster prevention and mitigation. Further, it analyzes disaster response in the context of situation-specific instances, and speaks heavily to the importance of cultural preservation in Member States.

United Nations Educational, Scientific and Cultural Organization. (n.d.). *List of World Heritage in*
Danger [Website]. Retrieved 29 July 2013 from: http://whc.unesco.org/en/danger/
This list of compromised World Heritage Sites is an essential source for delegates. It includes 44 sites that are currently in danger because of various different reasons such as natural hazards or violent conflicts. It specifies the locations of the sight and provides links to individual pages that describe the danger that the sight is under in detail. This source is excellent for delegates as they apply the topic to their specific Member State.

United Nations Educational, Scientific and Cultural Organization, General Conference, seventeenth session. (1972, November 16). *Convention Concerning the Protection of the World Cultural and Natural Heritage (UNTS*
151). Retrieved 29 July 2013 from: http://whc.unesco.org/archive/convention-en.pdf
This Convention is the single most important document concerning World Heritage Sites and their protection. It should be thoroughly reviewed by delegates. It covers the creation of the WHS list, the initial reasons for believing in their protection, and the basics set in place. It also creates the World Heritage Committee, which facilitates and coordinates the WHS and their protection with the help of other organizations.

United Nations Educational, Scientific and Cultural Organization, Media Services. (2013, August 29). *"Stop the destruction!" urges UNESCO Director-General* [Article]. Retrieved 24 October 2013 from: http://www.unesco.org/new/en/media-services/in-focus-articles/stop-the-destruction-urges-unesco-director-general/
This source will give delegates a good overview of the situation in Syria. It will help them to

understand the impact violent conflicts have on cultural heritage and how important it is for UNESCO to take measures in such situations. Therefore, delegates can get ideas on how to address similar situations in the future. United Nations Educational, Scientific and Cultural Organization, World Heritage Centre. (n.d.). *Reducing Disasters Risks at World Heritage Properties* [Website]. Retrieved 29 July 2013 from: http://whc.unesco.org/en/ disaster-risk-reduction/

This website outlines UNESCO and the World Heritage Centre's plan and actions as far as disaster relief is concerned. It address why disaster relief is so important in preserving World Heritage properties, the strategies and implementations of these strategies on the international level, and emergency procedures. Additionally, specific documents are linked that apply to the topic directly. Delegates can use this source to start developing a basic understanding of the topic, and evaluate the existing implementations.

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Thirty-first session. (2007, May 10). *Revised Strategy for Reducing Risks at World Heritage Properties (WHC-07/31.COM/7.2).* Christchurch, New Zealand 23 June – 2 July 2007. Retrieved 3 July 2013 from: http://whc.unesco.org/archive/2007/whc07-31com-72e.pdf

Being a revised version of the Strategy for Reducing Risks at World Heritage properties, this document is UNESCO's working plan for the topic. As a source, it is valuable to see the work that has already been done. It also allows for the framework put in place to be applied to real life situations.

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Thirty-sixth session. (2012, May 11). *World Heritage Convention and Sustainable Development (WHC-12/36.COM/5C).* Saint Petersburg, Russian Federation 24 June – 6 July 2012. Retrieved 3 July 2013 from: http://whc.unesco.org/archive/2012/whc12-36com-5C-en.pdf

The review of the World Heritage Convention and Sustainable Development is an important source for this topic because of the weight placed on the role of sustainable development in both promoting and protecting World Heritage Sites during and before disasters. It also addresses the role of sustainable development in preventing disasters from happening, and the role of climate change before and after disasters.

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Thirty- seventh session. (2013, July 5). *Decisions adopted by the World Heritage Committee at its 37th session (WHC-13/37.COM/20).* Phnom Penh, Cambodia 16-27 June 2013. Retrieved 24 October 2013 from: http://whTc.huinseisscao.soorugr/acrecthhiavte/p2r0o1v3id/weshac1p3e-r3t7inceonmt -u2p0d-aetne.ptdof *the committee that focuses on the management of the WHS. It discusses the challenges that they are facing regarding climate change and its effects on WHS. This is an extremely important resource for delegates to determine what has been done in regards to climate changes' effect on properties.*

United Nations, International Strategy for Disaster Risk Reduction. (n.d.). *World Conference on*

Disaster Reduction.
18-22 January 2005, Kobe, Hyogo, Japan. Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters. Retrieved 3 July 2013 from:
http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf
This document is the key framework for the international community on disaster reduction. It was created at the World Conference on Disaster Reduction in 2005. Essentially, this is what all disaster reduction plans and training develop from. This document is essential in understanding where the international community is starting from, and what has changed since the last comprehensive disaster reduction document has been produced.

Bibliography

Global Platform for Disaster Risk Reduction. (n.d.). *Chair's Summary Fourth Session of the Global Platform for Disaster Risk Reduction Geneva, 21-23 May 2013.* Retrieved 24 October 2013 from:
http://www.preventionweb.net/files/33306_finalchairssummaryoffourthsessionof.pdfInstitute of Disaster Mitigation for Urban Cultural Heritage, Ritsumeikan University. (2013). *UNESCO Chair*
Program. Retrieved 3 July 2013 from: http://www.rits-dmuch.jp/en/project/itc_2013.html

International Council on Monuments and Sites. (2008, June). ICOMOS International Workshop on Impact of Climate Change on Cultural Heritage, New Delhi - 22 May 2007. *16th ICOMOS General Assembly and International Scientific Symposium "Finding the Spirit of Place", 29 September – 4 October 2008,* 17(1): 7-8. Retrieved 24 October 2013 from:
http://www.international.icomos.org/newsicomos/news1991/2008-06-1-EN.pdf

National Geographic. (n.d.). *About the World Heritage Program* [Website]. Retrieved 3 July 2013 from:
http://travel.nationalgeographic.com/travel/world-heritage/about/

United Nations Educational, Scientific and Cultural Organization. (2007). *World Heritage. Challenges for*
the Millennium. Retrieved 24 October 2013 from:
http://whc.unesco.org/documents/publi_millennium_en.pdf

United Nations Educational, Scientific and Cultural Organization. (2007). *Case Studies on Climate Change and*
World Heritage. Retrieved 24 October 2013 from:
http://whc.unesco.org/uploads/activities/documents/activity-473-1.pdf

United Nations Educational, Scientific and Cultural Organization. (2008). *Medium-Term Strategy for 2008-2013 (34 C/4).* Retrieved 27 October 2013 from:
http://unesdoc.unesco.org/images/0014/001499/149999e.pdf

United Nations Educational, Scientific and Cultural Organization. (July 1, 2010). *Managing Disaster Risks for World Heritage.* Retrieved 3 July 2013 from:
http://whc.unesco.org/uploads/activities/documents/activity-630-1.pdf

United Nations Educational, Scientific and Cultural Organization. (n.d.). *List of World Heritage in Danger* [Website]. Retrieved 29 July 2013 from: http://whc.unesco.org/en/danger/

United Nations Educational, Scientific and Cultural Organization. (n.d.). Committee Decisions. *The Committee* [Website]. Retrieved 3 July 2013 from: http://whc.unesco.org/en/decisions/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *Success Stories* [Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/107/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *About World Heritage* [Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/about/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *The Criteria for Selection* [Website]. Retrieved 27 October 2013 from: http://whc.unesco.org/en/criteria/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *The World Heritage Committee* [Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/committee/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *World Heritage Fund* [Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/world-heritage-fund/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *How the World Heritage Convention contributes to sustainable development* [Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/activities/708/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *Protecting Our Heritage and Fostering Creativity* [Website]. Retrieved 27 October 2013 from: http://en.unesco.org/themes/protecting-our-heritage-and- fostering-creativity

United Nations Educational, Scientific and Cultural Organization. (n.d.). *What partners do* [Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/rolepartners/United Nations Educational, Scientific and Cultural Organization. (n.d.). *Partnerships* [Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/partnerships/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *World Heritage in Danger*
[Website]. Retrieved 24 October 2013 from: http://whc.unesco.org/en/158/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *Disaster Preparedness and Mitigation* [Website]. Retrieved 24 October 2013 from:
http://www.unesco.org/new/en/natural-sciences/ special-themes/disaster-preparedness-and-mitigation/natural-hazards/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *Disaster for Doñana – a Spanish World Heritage Site.* Retrieved 24 October 2013 from: http://whc.unesco.org/en/news/144

United Nations Educational, Scientific and Cultural Organization. (n.d.). Tropical Rainforest Heritage of
Sumatra. *World Heritage List* [Website]. Retrieved 27 October 2013 from:
http://whc.unesco.org/en/list/1167

United Nations Educational, Scientific and Cultural Organization. (n.d.). *UNESCO Director-General deplores the escalation of violence and the damage to World Heritage in Syria.*
Retrieved 24 October 2013 from: http://whc.unesco.org/en/news/1055

United Nations Educational, Scientific and Cultural Organization, General Conference, Seventeenth session. (1972, November 16). *Convention Concerning the Protection of the World Cultural and Natural Heritage (UNTS 151).* Retrieved 29 July 2013 from: http://whc.unesco.org/archive/convention-en.pdf

United Nations Educational, Scientific and Cultural Organization, Media Services. (2013, August 29). *"Stop the destruction!" urges UNESCO Director-General* [Article]. Retrieved 24 October 2013 from: http://www.unesco.org/new/en/media-services/in-focus-articles/stop-the-destruction-urges-unesco-director-general/

United Nations Educational, Scientific and Cultural Organization, World Heritage Centre. (n.d.). *Reducing Disasters Risks at World Heritage Properties* [Website]. Retrieved 29 July 2013 from:
http://whc.unesco.org/en/
disaster-risk-reduction/

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Twenty-third session. (1999, November 26). *Report of the twenty-third extraordinary session of the Bureau (WHC-99/ CONF.209/6) relating to the state of conservation of properties inscribed on the World Heritage List.* 29 November
– 4 December 1999, Marrakesh, Morocco. Retrieved 25 October 2013 from:
http://whc.unesco.org/archive/
repcomx99.htm#sc685

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee,

Thirtieth Session. (2006, June 26). *Strategy for reducing Risks from Disasters at World Heritage properties (WHC-06/30.COM/7.2).* Vilnius, Lithuania 8-16 July 2006. Retrieved 24 October 2013 from: http://whc.unesco.org/archive/2006/whc06-30com-07.2e.pdf

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Thirty-first session. (2007, May 10). *Revised Strategy for Reducing Risks at World Heritage Properties (WHC-07/31.COM/7.2).* Christchurch, New Zealand 23 June – 2 July 2007. Retrieved 3 July 2013 from:
http://whc.unesco.org/archive/2007/whc07-31com-72e.pdf

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Thirty-fourth session. (2010, June 1). *State of conservation of World Heritage properties inscribed on the World Heritage List (WHC- 10/34.COM/7B).* Brasilia, Brazil 25 July – 3 August 2010. Retrieved 27 October 2013 from: http://whc.unesco.org/archive/2010/whc10-34com-7Be.pdf

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Thirty-sixth session. (2012, May 11). *World Heritage Convention and Sustainable Development (WHC-12/36.COM/5C).* Saint Petersburg, Russian Federation 24 June – 6 July 2012. Retrieved 3 July 2013 from: http://whc.unesco.org/archive/2012/whc12-36com-5C-en.pdf

United Nations Educational, Scientific and Cultural Organization, World Heritage Committee, Thirty- seventh session. (2013, July 5). *Decisions adopted by the World Heritage Committee at its 37th session (WHC-13/37.COM/20).* Phnom Penh, Cambodia 16-27 June 2013. Retrieved 24 October 2013 from: http://whc.unesco.org/archive/2013/whc13-37com-20-en.pdf

United Nations Environment Programme. (n.d.). International Workshop on the Designation of the Iraqi Marshlands as a UNESCO World Heritage Site. *International Environmental Technology Centre* [Website]. Retrieved 3 July 2013 from: http://www.unep.org/ietc/InformationResources/Events/IraqiMarshlandsWorldHeritagesiteWorkshop/tabid/79564/D efault.aspx

United Nations, International Strategy for Disaster Risk Reduction. (n.d.). *What we do* [Website]. Retrieved 24 October 2013 from: http://www.unisdr.org/we

United Nations, International Strategy for Disaster Risk Reduction. (n.d.). *World Conference on Disaster Reduction. 18-22 January 2005, Kobe, Hyogo, Japan. Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters.* Retrieved 3 July 2013 from: http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf

United Nations, Libraries. (2013). *Disaster Prevention* [Website]. Retrieved 3 July 2013 from:

http://research.un.org/unlibraries/disaster

United Nations, Office for Disaster Risk Reduction. (2013). *Global Assessment Report on Disaster Risk Reduction*
2013. From Shared Risk to Shared Value: The Business Case for Disaster Risk Reduction.
Retrieved 3 July 2013 from:
http://www.preventionweb.net/english/hyogo/gar/2013/en/home/GAR_2013/GAR_2013_2.html

United Nations, Office for Disaster Risk Reduction. (2013). About the Global Platform for Disaster Risk Reduction. *Global Platform for disaster risk reduction* [Website]. Retrieved 3 July 2013 from: http://www.preventionweb.net/globalplatform/2013/about

United Nations, Office for Disaster Risk Reduction. (2013). *Disaster Risk Reduction in the United Nations. Roles, mandates and results of key UN entities.* Retrieved 27 October 2013 from: http://www.unisdr.org/files/32918_drrintheun2013.pdf

United Nations, Office for Disaster Risk Reduction. (2013). *Home* [Website]. Retrieved 3 July 2013 from:
http://www.unisdr.org/

United Nations, Office for Disaster Risk Reduction. (n.d.). *Terminology* [Website]. Retrieved 29 July 2013 from:
http://www.unisdr.org/we/inform/terminology

United Nations, Office for Disaster Risk Reduction. (n.d.). *What is Disaster Risk Reduction?* [Website]. Retrieved
27 October 2013 from: http://www.unisdr.org/who-we-are/what-is-drr

United Nations, Office for Disaster Risk Reduction. (n.d.). *Who we work with* [Website]. Retrieved 24 October 2013 from: http://www.unisdr.org/partners

United Nations, World Conference on Disaster Reduction. (2005, March 16). *Report of the World Conference on Disaster Reduction. Kobe, Hyogo, Japan, 18-22 January 2005 (A/CONF.206/6).* Retrieved 3 July 2013 from:
http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Final-report-conference.pdf

II. Empowering Youth through Access to Information and Communication Technology and Media

Introduction

The connection between information and communication technology (ICT) and youth has been part of the United Nations Educational, Scientific and Cultural Organization's (UNESCO) agenda for many years, and is a core component of its efforts to increase access to education for youth in developing countries. The development of ICT has facilitated the ease of the youth to acquire information and develop self-actualization. The focus by UNESCO is in part due to the technological gap between developing countries, where 31% of the population has access, and developed countries, where 77% of the population has access. Furthermore, research on youth's access to ICT shows that there is a discrepancy between developed and developing countries, and access to ICT between boys and girls in developing countries.

The presence and availability of technology to provide information are fundamental aspects of promoting the Information Society. The Information Society includes tools for accessing information for socioeconomic development and the growth of the information technology industry. While definitions of ICT may vary, UNESCO considers "the combination of informatics technology and applications to access them, with other related technologies, specifically communication technology" as ICT. Additionally, ICT includes developing new applications such as instant messaging, social networks or video-conferencing. Further, with a large part of the world's population between the ages of 15 to 24, increasing access to ICT for youth is also a key element of the *World Programme of Action for Youth* (1995). The presence of ICT in society opens many different areas where it can be used to empower youth. Stakeholder participation and coordination for increasing ability of and access to these technologies is also essential. Therefore, UNESCO has been and will further play an important role in advancing the partnership of ICTs and youth empowerment.

International and Regional Framework

In 1996 the United Nations General Assembly (GA) adopted resolution 50/81 entitled "World Programme of Action for Youth to the Year 2000 and Beyond (WPAY)," highlighting the importance of rights and development programs focused on youth. The Secretary-General submitted a report to the General Assembly and the Economic and Social Council on the implementation of the WPAY; in this report, the Secretary-General reiterated the potential for ICT to further development efforts that directly contribute to the socioeconomic well-being of the youth, especially in the context of expanding access to pedagogic material and business development.

Due to the growing demand for innovation in the development and human rights discussions, the General Assembly expanded the WPAY to 15 key areas in 2008, including a chapter on ICT. While it does not provide implementation directions, the proposals of action highlights the availability of ICT and its role in implementing successful education programs.

In 2003, the General Assembly focused on the benefits of using ICT as a tool to achieve the Millennium Development Goals (MDGs) and entrusted the United Nations International Telecommunication Union (ITU) with the coordination of the World Summit on the Information Society (WSIS). This summit was split into two phases, Geneva in 2003 and Tunis in 2005, and involved Member States as well as relevant UN bodies, intergovernmental organizations (IGOs), and non-governmental organizations (NGOs). In the Declaration of Principles of the Geneva phase, Member States recognized that the youth has a tremendous impact on ICT and vice versa; as the youth tend to be creators and early adopters, they must be empowered by the availability of ICT to develop as contributors to society and entrepreneurs. The 2003 *Geneva Plan of Action* (PoA) includes many aspects focusing on education for all, especially youth. It includes two chapters on media and capacity-building, officially identifying the many uses of ICT for education for the first time. It also includes a chapter on how ICT can provide benefits in several aspects of development including public administration, business, education, health, employment, agriculture and science.

The focus on youth can also be found in the *WSIS Outcome Documents* (2005) of the Tunis WSIS. It includes the commitment to "actively engage youth in innovative ICT-based development programs," highlighting the importance of youth in society and the necessity to pay attention to their needs when advancing the role of ICT in development. WSIS also included the need to "build ICT capacity for all" in the agenda as one aspect towards reaching the goals set by the international community. Further, ITU facilitated a ten-year review of the outcome as part of WSIS+10 High-Level Event in 2014 in order to review the process and develop new strategies for reaching the goals set by the WSIS. UNESCO hosted the first of these review events, with a focus on knowledge societies, peace and sustainable development. The documents adopted during the review process include a *Statement on the Implementation of WSIS,* reaffirming the "vital role of youth." The statement recognizes progress made in implementing the action lines released in 2005, for example increasing access to the Internet and emphasizes challenges to a further realization and the importance of continued efforts in this topic. ITU also was involved in promoting the "International Year of Youth" in 2011, which emphasized the ICT advantages for youth as education and access to information. In addition, it highlights access to ICT in the developing world as a main priority in order for youth to fully benefit.

A commitment to continuing efforts on this topic is also reflected in the *WSIS+10 Vision for WSIS Beyond 2015 Outcome Documents* (2014). This document gives additional aspects for the action points in the Geneva PoA and includes changes due to development in the last 10 years. Further, the documents also emphasize the importance of collaborations between stakeholders to achieve these commitments as an important factor. Multi-stakeholder
partnerships, as already stressed in the Tunis Agenda, between policy authorities, private sector, civil society, NGOs and IGOs, with each one of them playing different roles, is necessary to make progress on advancing access to UN Department of Economic and Social Affairs, *World Programme of Action for Youth*, 2009, ch. L. ICT. These partnerships often involve sharing of knowledge, experiences or resources. An example for a successful multi-stakeholder network is the Kenya ICT Action Network (KICTANet), established to increase the quality of ICT services in Kenya, allowing inclusivity and equity in ICT policy making. The broader view, which gained by bringing multiple parties together, also allows a more comprehensive analysis of the issues at hand, leading to sustainable solutions.

Role of the International System

As directed in the *Tunis Agenda for the Information Society* (2005), the UN System Chief Executives Board for Coordination (UNSCEB) created the United Nations Group on the Information Society (UNGIS), in April 2006. UNGIS includes 30 member organizations, with ITU acting as the chair. UNESCO is also a member and contributes to different aspects of the Information Society. The institution was established in order to track and monitor the implementation of the commitments of WSIS and provide support and coordination to the complex process. Therefore, UNGIS coordinates the implementation of WSIS decisions, works towards the WSIS goals, and coordinates regional efforts towards the implementation of these goals specified in the *Outcome Documents*, such as the improvement of infrastructure, capacity-building, easier access to information and knowledge, and use of ICT in all aspects of development.

The *UNESCO Operational Strategy on Youth 2014-2021*, adopted in early 2014, includes ICT in all three aspects of the strategy. The strategy includes policy formulation and review with the participation of youth; capacity development for the transition to adulthood; and civic engagement, democratic participation and social innovation. The main components of the strategy involve ICT skills, using ICT to involve youth in society and democratic processes, and the use of ICT and media as means to increase communication. UNESCO considers technology an important factor in order to improve youth's transition to adulthood and therefore promotes scientific concepts in the development of formal and social education programs.

To encourage policy makers to collaborate and partner for increasing the accessibility of ICT, UNESCO often hosts forums to discuss different approaches. These forums bring together politicians, industries and educational facilities willing to incorporate ICT into their curricula and programs. A current example is the Asia-Pacific Ministerial Forum on ICT in Education, which has been held as an annual meeting for the past four years and gives policy makers a platform for knowledge exchange and information about new ICT in education implementation models. UNESCO has also developed guidelines on how ICT can be used in education, which have been incorporated into many regional action plans. An example of such a guideline is the connection with ICT and the "Open Educational Resources" (OER). While OER does not demand ICT, it is seen as a supportive tool. ICT allows for much easier transfer of the educational resources provided by OER like curriculum maps, textbooks or multimedia applications and is also able to overcome difficulties such as geographical distance.

Regional initiatives such as the "Model Schools" program under the Asia-Pacific Economic Cooperation (APEC) also incorporate ICT to improve education initiatives. Through this program, APEC promotes sustainable use of ICT in education and provides a platform for shared learning and best practices. UNESCO is also cooperating with several other organizations to advance ICT for youth in rural areas. In Southern and Eastern Africa, the "Empowering local radios with ICTs" project which has been established together with the Swedish International Development Cooperation Agency (SIDA) works to improve the quality of radio broadcasts in seven countries including Kenya, Namibia and South Africa.

Civil society and NGOs also contribute significantly to the advancement of ICT and youth

empowerment, especially through innovative technologies and programs. A good example is the "Talking Book" program by Literacy Bridge, an NGO from Seattle, United States. The Talking Book, targeted at underprivileged and rural populations who are also illiterate, is a low-cost audio computer containing sustainable farming methods and critical health practices to allow ease of access and use; the result of this program is that farming yields improved and health and nutrition improved. Similarly, the UNESCO funded a "One Laptop per Child" (OLPC) program focused on education as well as increasing the availability of ICT. Mainly operating in Latin America and Africa, OLPC provides children with low-cost laptops through coordination with government initiatives and private companies supporting schools.

Another example of partnerships for ICT advancement for social impact is the NGO ASHOKA and private corporation Intel. This program supports social entrepreneurs working to develop technology and training programs on ICT use for youth and young adults. With the existing barriers like centralized infrastructure or the rapidly changing job market, ASHOKA and its social entrepreneurs has developed a wide range of possible solutions to many of these challenges. UNESCO also works closely with local companies like Kenyan mobile service operator Zain to teach mobile application use and development to young people, promoting advancement in literacy and employment opportunities.

Increasing Availability of ICT for Rights and Development

The right to freedom of expression, which is guaranteed by Article 19 of the *Universal Declaration of Human Rights* (1948), can be supported by ICT in different ways. Therefore, it is important to promote ICT as one of the many ways to exercise this right. It is necessary to also use media to allow youth to "understand basic universal principles of freedom of expression" to help them acknowledge their rights and allow them to demand them. In support of this concept, the United Nations Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, Frank La Rue, issued a report on freedom of expression in 2011 (A/HRC/17/27), emphasizing the importance of Internet access in exercising this right. Access to Internet and various forms of social media have increased opportunities for expression and realization of that right more prominent than in any other time in history.

With access in rural areas as a major problem, the World Bank published a guide focusing on ICT in agriculture, emphasizing access to ICT in rural areas in developing countries. An important distinction to make is between universal access and universal service. In the case of developing countries, the first goal responds to universal access, meaning that people are able to use ICT when they need it, but not necessarily in their own house or at any time. Additionally, increasing access to ICTs is a multilayered problem that requires partnerships between different organizations in order to be successful. Further, ICT plays an important role in achieving the MDGs.

While access to ICT is not a defined part of the MDGs, it is a useful tool towards their achievement. While individual goals can obviously benefit from ICT, such as Goal 2 in achieving universal primary education, there are also aspects that might not be as straight forward. For example, the creation of jobs in the ICT sector can in turn lead to the achievement of Goal 1, to eradicate extreme poverty and hunger. Additionally, because ICT innovations

provide providing multiple channels to distribute information including mobile phones and radio, progress towards goal three, gender equality and empowering women is also supported. Information flow and real-time updates are also necessary for goals four, five and six, on public health concerns. For instance, ICT has proven to be successful in tracking and monitoring disease outbreaks or on good health practices to prevent the spread diseases like HIV/AIDS.

Education and Youth Focused Learning Tools
When focusing on ICT and education, it is fundamental to address both ways in which to improve ICT literacy and teaching, as well as how to use ICT to improve access and quality of education. Both areas face challenges and infrastructure requirements. For example, improving ICT literacy requires educational institutions, qualified instructors, and maintenance of hardware. The acquisition of hardware is often restricted due to budget constraints; however, possible solutions can include cost reduction by centralized acquisitions of a large number of devices or the refurbishment of used computers. Increased access to ICT for teachers allows easier transfer of new ideas as well as easier access to knowledge databases and scholarly research for more accurate curricula. Further, using youth focused learning tools does not only bring diversification to education but also provides innovative methods to engage youth in learning. UNESCO has been involved in the development of similar strategies to promote ICT access to as guidance for implementation of programs on local levels.

Importance of ICT Access for Girls
Education is also one of the most important aspects where ICT can be used to empower girls. While the access needs to be improved, the increased prevalence of mobile phones and televisions in rural and underprivileged populations has provided a sound foundation on which to build. Fostering interest in ICT education among girls and giving girls opportunity to receive this education allows them to benefit in various ways. Not only does it give them better job opportunities, but their social and economic advancement also benefits their families and communities. With projects like "Connect to Learn," UNESCO has provided access to education, using ICT, to girls that are restricted from attending secondary schools due to distance and safety. UNESCO has also been applying their "Empowering Local Radios with ICTs" project to address gender discrimination through dialogue and awareness campaigns over radio broadcasts. UNESCO also leads the promotion of "Girls in ICT Day" annual campaign to increase awareness on the importance of women in ICT and to increase the involvement of young girls in ICT development.

Involvement of Youth in Society and Politics
UNESCO emphasizes the need for civic engagement and democratic participation and promotes the use of ICT to engage youth in democratic processes. How much Internet and ICT are able to achieve can be seen at the Research Network on Youth and Participatory Politics (YPP). A report published on the issue on Participatory Politics shows the power youth can exercise if they are able to contribute on an accessible platform. This initiative exemplified young people's interest in politics and the need to create avenues for them to do so, especially in developing countries. Recently, UNESCO held an expert group meeting to work on ways to increase youth civic engagement and promoted increased access to ICT as a major tool to do so. For example, access to ICTs played a significant role in youth participation in the events of during the Arab Spring political protests. Mostly free from censorship and government control in principle, the Internet

and social media platforms were used to raise awareness on human rights violations, voice opinions, and coordinate demonstrations. Social networks also allowed for different opinions to reach the media, and therefore different framings of the topic become accessible.

Increasing Access to Public Services and Health Care

A major limitation in public health, especially in developing countries, is insufficient access to education concerning healthcare. As the outbreak of Ebola in March of 2014 showed, it is very difficult to inform local citizens about the risks and also to isolate infected people because the lack of information among the general society. Previously, UNESCO has used media as a way to communicate important facts about health concerns to youth during the cholera outbreak in Haiti in 2011. Animated films informing about the risks and way to protect oneself against cholera were used to raise awareness about the disease. A similar project is the "Youth Knows" virtual classroom started by UNESCO in Beijing, which is a knowledge-sharing platform to improve HIV prevention and sexual education. Further, initiatives like Afghanistan's "Telemedicine Project," allow international specialists to reach remote audiences and provide general health and medical advice. Different areas where progress can be made are public and social services. The quality of these services can be increased by a larger available knowledge base.

Youth Priorities in the WSIS+10: WSIS and Post-2015

In order to show the vital connection between ICT and youth, it is useful to take another look at the *WSIS+10 Vision for WSIS beyond 2015*. The first clause reaffirms the "vital role of youth" and reiterates the need to focus on youth. The possibility of e-learning as a means towards access to quality education for all needs to be further promoted and expanded. Harnessing the potential of ICT is an important of UNESCO's key point in the post-2015 development agenda. The involvement of youth in the WSIS process is inevitable, and their role needs to be strengthened on all levels. This also includes access to information, which is also part of the post-2015 agenda and of the WSIS outcome documents. A last major point that WSIS and post-2015 agenda share is the further roll-out of ICT infrastructure to reach more people, especially in developing countries, because it serves as the basis for advancing other priorities including education healthcare.

Conclusion

With a myriad of international policy adopted on ICTs and youth, and efforts by international organizations to mainstream youth, it is important to continue this momentum in this direction. The focus of youth and ICT in WSIS+10 and in UNESCO's Operational Strategy underlines the importance of this. The diverse areas in which ICT can be useful for youth and the ways to make progress on this issue are countless. While education and providing information may be the most obvious uses of ICT, there are many more areas where ICT use is advantageous. Not only can ICT be used to improve health care, but also support political participation of young people all over the world. The difference in access between developed and less developed countries is also a major concern. Information and communication technology holds numerous possibilities for youth empowerment; UNESCO should further work with national governments and civil society in developing countries to implement projects and programs for youth, especially for girls and

the rural poor.

Further Questions

For further research and understanding of this topic, it is important to examine a few other areas including; what are the geographical areas where the implementation of ICT is underdeveloped? How can public-private partnerships to increase access to ICT be created or promoted? How can ICT be further integrated within the education system? How can ICT tackle youth unemployment? Which applications of ICT are useful, where? What are some solutions for making ICT cheaper and more accessible? How can Member States work with UNESCO to support innovation and advancement of ICT for youth empowerment? What role can the Office of the Secretary-General's Envoy on Youth on these challenging issues?

Annotated Bibliography

Cohen C. & Kahne, J. (2012). *Participatory Politics: New Media and Youth Political Action*. Retrieved 7 August 2014 from: http://dev-ypp.gotpantheon.com/sites/default/files/publications/Participatory_Politics_Report.pdf *This report provides great examples of how ICT can help youth be more involved in politics. It shows that young people can easily get involved and contribute their opinions and concerns online and reports that those who are involved in participatory politics are also more likely to get involved with politics in different ways. This is an example for delegates to understand what aspects and tools are important when trying to reach young people and to motivate them to participate in politics.*

Commonwealth of Learning. (2011). *A Basic Guide to Open Educational Resources (OER)*. Retrieved 7 August 2014 from: http://www.col.org/PublicationDocuments/Basic-Guide-To-OER.pdf *Open Educational Resources (OER) is a concept promoted by the Commonwealth of Learning is an example where ICT can be advantageous in education. The idea of OER is to make educational resources free and available to the public. While OER can be distributed as printed copies it is much easier and faster to have the resources available via ICT. While there are different concepts for education with ICT, those concepts have basic ideas, strategies and points of focus in common, which are exemplified in OER. This guide is a real example for delegates on a type of ICT tool used for educational purposes.*

United Nations, Department of Economic and Social Affairs. (2005). *World Youth Report 2005*. Retrieved 10 July 2014 from: http://www.un.org/esa/socdev/unyin/documents/wyr05book.pdf *This report gives a comprehensive overview of many aspects concerning youth and ICT. Especially part II considers different aspects of ICT and media. The report shows the opportunities ICT may bring but also touches on some of its limitations. With the report containing a whole chapter dedicated to youth and media, it provides information on the different types of media and how they affect young people. The report also shows how media and socialization have changed in recent years ranging from technology for social to economic purposes. This report gives delegates an understanding of how youth typically use ICT and media, and how ICT and media have been used to influence youth.*

United Nations, Department of Economic and Social Affairs. (2010). *World Programme of Action for Youth.* Retrieved 10 July 2014 from: http://www.un.org/esa/socdev/unyin/documents/wpay2010.pdf *The World Programme of Action for Youth, which was adopted by the General Assembly in 1995, was extended in 2007. While the original ten issues included education and employment, topics that are related with ICT, the new issues include globalization and highlights information and communication technology as its own topic. With this step the UN showed the importance of these aspects for today's youth. The document lays out five proposals for action on ICT and youth empowerment. As a major guideline for the international community on youth, WPAY is an important foundation document for delegates when dealing with this issue.*

United Nations Educational, Scientific and Cultural Organization. (2014). *Operational Strategy on Youth 2014-*
2021. Retrieved 11 July 2014 from:
http://unesdoc.unesco.org/images/0022/002271/227150e.pdf
As one of the most recent publications on youth by UNESCO, this document focuses on UNESCO's current strategy to address youth issues. Thus, it includes various ways to use ICT and media and focuses on their advantages for youth empowerment. The strategy covers a wide range of areas, from how youth should be involved in today's society to specific action, which can be taken to support youth. As a strategy paper concerning UNESCO's work for the next seven years this is a good source for understanding current ideas on participation of youth, capacity-building and civic engagement.

United Nations, General Assembly and Economic Social Council. (2006). *Follow-up to the World Programme of Action for Youth: Report of the Secretary-General (A/62/61-E/2007/7).* Retrieved 10 July 2014 from: http://undocs.org/A/62/61

The report of the Secretary-General, requested to review the WPAY, focuses on youth in the global economy. With globalization increasing youth's access to ICT the report elaborates opportunities and risks associated with this progress. The report also gives an overview on what progress has already been made towards reaching the goals in the WPAY and measures the levels of youth development. This report can give delegates a deeper understanding of these aspects of the WPAY and also show what measure have already and can further be taken.

United Nations, International Telecommunication Union. (2003). *Geneva Declaration of Principles (WSIS-*
03/GENEVA/DOC/0004). Retrieved 9 July 2014 from:
http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1161|0
The Geneva Declaration of Principles was the first major outcome document of the WSIS in Geneva in 2003. The participants felt the need to pass a document not focusing on specific goals but expressing the key principles on which all further goals should be based on. These principles, ranging from the role of governments, over capacity-building, to international cooperation, are
the foundation for the Geneva Plan of Action (PoA). After understanding the principles it becomes clear why the WSIS included these aspects also in the PoA. These principles serve as the basis for UN action on this topic. Similarly, delegates can use these principles as a starting point for proposed action.

United Nations, International Telecommunication Union. (2003). *Geneva Plan of Action (WSIS-03/GENEVA/DOC/0005).* Retrieved 9 July 2014 from:
http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1160|0
The PoA was the second major final document passed at the WSIS. It sets goals to be reached by 2015 and establishes clear action plans. Even though this PoA is not specifically focused on youth it contains a lot of aspects that are important for youth. The chapter specifically on "benefits in all aspects of live" highlights the importance of access to ICT for communities in developing countries. As the WSIS was the first big conference on ICT this outcome has been a

guide for the UN's work concerning ICT in the past years.

United Nations, International Telecommunication Union. (2008). *Use of information and communication technology by the world's children and youth* [Report]. Retrieved 9 July 2014 from: http://www.itu.int/ITU- D/ict/material/Youth_2008.pdf
This compilation of statistics created by the ITU covers several aspects of youth and ICT. Starting with information on distribution of the world's population it offers a wide set of statistics on ICT use by young people. Further, the statistical analysis highlights disparities in access due to geographic, demographic and gender. Despite the difficulties in acquiring data, which are also mentioned in the document, the statistics are able to show different problems and various discrepancies between developed and developing countries. This document is especially important
for delegates to understand large issues the affect access to ICT for youth in developing countries.

United Nations, International Telecommunication Union. (2014). *WSIS+10 Outcome Documents.* Retrieved 9 July
2014 from:
http://www.itu.int/wsis/implementation/2014/forum/inc/doc/outcome/362828V2E.pdf
As the follow-up to the WSIS in Geneva and Tunis the WSIS+10 High-Level Event was held to review the WSIS and to develop new action lines. While many of the points reiterate those adopted in 2003, this document shows a significant emphasis on promoting access for youth. As one of the most recent comprehensive publications on ICT this should be a good starting point for delegates to get a deeper understanding on the current international route ICT advancement. The document also includes the WSIS+10 Vision for WSIS beyond 2015, which includes different action lines
that can be starting points for writing working papers. The action lines include a variety of possible actions to be taken to enhance the progress towards these aspects defined in the Geneva PoA. Additionally, comparing the document with the PoA from 2003 shows how the influence of ICT has changed within 10 years.

Bibliography

ASHOKA (2014). Social Innovation Mapping: Social Entrepreneurs Changing Lives Through ICT. Retrieved 8
November 2014 from: https://www.ashoka.org/files/ICT-Based-Social-Impact_09-2014-report.pdf

Adam L., T. James & Wanjira, A. (2007). *Frequently Asked Questions about Multi-Stakeholder Partnerships in*
ICTs for Development. Retrieved 16 October 2014 from:
http://www.apc.org/en/system/files/catia_ms_guide_EN-1.pdf

Asian Development Bank. (2014). *Public Service Delivery: Role of Information and Communication Technology in Improving Governance and Development Impact.* Retrieved 7

August 2014 from: http://www.adb.org/sites/default/files/pub/2014/ewp-391.pdf

Asia-Pacific Economic Cooperation. (2009). *Progress Report (Self-Funded): APEC Future Education Consortium: Focusing on APEC Network of ICT Model Schools for Future Education*. Retrieved 16 October 2014 from: http://mddb.apec.org/Documents/2009/HRDWG/HRDWG/09_hrdwg31_017.pdf

Beyond Access. (2012). *Empowering Women and Girls Through ICT at Libraries*. Retrieved 17 October 2014 from: http://beyondaccess.net/wp-content/uploads/2013/07/Beyond-Access_GirlsandICT-Issue-Brief.pdf

Ebola: What you need to know. (2014, August 6). CBS Interactive Inc. Retrieved 7 August 2014 from: http://www.cbsnews.com/news/ebola-q-a-what-you-need-to-know-about-the-deadly-virus/

Cohen, C. & Kahne, J. (2012). *Participatory Politics: New Media and Youth Political Action*. Retrieved 7 August from: http://dev-ypp.gotpantheon.com/sites/default/files/publications/Participatory_Politics_Report.pdf

Commonwealth of Learning. (2011). *Guidelines for Open Educational Resources (OER) in Higher Education*.
Retrieved 7 August 2014 from: http://www.col.org/PublicationDocuments/Guidelines_OER_HE.pdf

Commonwealth of Learning. (2011). *A Basic Guide to Open Educational Resources (OER)*. Retrieved 7 August
2014 from: http://www.col.org/PublicationDocuments/Basic-Guide-To-OER.pdf

Dzidonu, C. (2010). *An analysis of the role of ICTs to achieving the MDGs*. Retrieved 7 September 2014 from: http://unpan1.un.org/intradoc/groups/public/documents/un-dpadm/unpan039075.pdf

Connect to Learn is Scaling up Girls Education around the World. (2014, October 10). Ericsson. Retrieved 16
October 2014 from: http://www.ericsson.com/news/1862181

Erikson, M., Franke, U., Granasen, M. & Lindahl, D. (2013). *Social media and ICT during the Arab Spring*. Retrieved 7 September 2014 from: http://www.foi.se/ReportFiles/foir_3702.pdf

Hepp, K., Hinostroza, E., Laval, E. & Rehbein, L. (2004). *Technology in Schools: Education, ICT and the Knowledge Society*. Retrieved 7 September from: http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099079947580/ICT_report_oct04a.pdf

Imagination for People. (n.d.). *Afghanistan's Telemedicine Project* [Website]. Retrieved 7

August 2014 from:
http://imaginationforpeople.org/en/project/afghanistans-telemedicine-project/

Information for Development Program. (2003). *ICT for Development: Contributing to the Millennium Development Goals*. Retrieved 15 October 2014 from: http://www.infodev.org/infodev-files/resource/InfodevDocuments_19.pdf

Literacy Bridge. (n.d.). *Our Work* [Website]. Retrieved 8 September 2014 from: http://www.literacybridge.org/our- mission/

One Laptop per Child Foundation. (n.d.). *About the project* [Website]. Retrieved 15 August 2014 from:
http://one.laptop.org/about/mission

UNESCO, Zain train youth in ICT. (2014, August 22) United Nations Mission in South Sudan [Website]. Retrieved 16 October 2014 from: http://reliefweb.int/report/south-sudan/unesco-zain-train-youth-ict

Research Network on Youth and Participatory Politics. (2014). *Youth & Participatory Politics* [Website]. Retrieved 7 August 2014 from: http://ypp.dmlcentral.net/

Seel, F., Fauth, J., Andjelkovic, M. & Sagun, R. (2005). *World Program of Action for Youth: Draft review of the ICT & Youth Chapter*. Retrieved 10 July 2014 from: http://www.un.org/esa/socdev/unyin/documents/wpaysubmissions/wsis_tig.pdf

United Nations, Department of Economic and Social Affairs. (2005). *World Youth Report 2005*. Retrieved 10 July 2014 from: http://www.un.org/esa/socdev/unyin/documents/wyr05book.pdf

United Nations, Department of Economic and Social Affairs. (2010). *World Programme of Action for Youth.* Retrieved 10 July 2014 from: http://www.un.org/esa/socdev/unyin/documents/wpay2010.pdf

United Nations, Department of Economic and Social Affairs. (2013). *Youth and ICT* [Background Note]. Retrieved 9 July 2014 from: http://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-icts.pdf

United Nations, Economic and Social Council. (2012). *Proposed set of indicators for the World Programme of Action for Youth: Report of the Secretary-General (E/CN.5/2013/8)*. Retrieved 10 July 2014 from: http://www.un.org/ga/search/view_doc.asp?symbol=E/CN.5/2014/5

United Nations, Economic and Social Council. (2013). *Policies and programmes involving youth: Report of the Secretary-General (E/CN.5/2014/5)*. Retrieved 10 July 2014 from:

United Nations Educational, Scientific and Cultural Organization. (2002). *Information and communication technology in education: A Curriculum for Schools and Programme of Teacher Development* [Report]. Retrieved 5
September 2014 from: http://unesdoc.unesco.org/images/0012/001295/129538e.pdf

United Nations Educational, Scientific and Cultural Organization. (1997). *World information report 1997/98*. Retrieved 7 September from:
http://unesdoc.unesco.org/images/0010/001062/106215e.pdf

United Nations Educational, Scientific and Cultural Organization. (2011). *UNESCO ICT Competency Framework for Teachers.* Retrieved 17 October 2014 from:
http://unesdoc.unesco.org/images/0021/002134/213475E.pdf

United Nations Educational, Scientific and Cultural Organization. (2011). *Cholera in Haiti: UNESCO produces animated films to raise young people's awareness* [Website]. Retrieved 7 August 2014 from: http://portal.unesco.org/ci/en/ev.php-URL_ID=31430&URL_DO=DO_TOPIC&URL_SECTION=201.html

United Nations Educational, Scientific and Cultural Organization. (2012). *Empowering youth: for peace and sustainable development: What role for UNESCO in 2014-2021?* [Report]. Retrieved 11 July 2014 from:
http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/BPI/EPA/images/media_services/Director- General/ConceptNoteEmpoweringYouth-for-Peace-and-SustainableDevelopmentEN.pdf

United Nations Educational, Scientific and Cultural Organization. (2014). *Operational Strategy on Youth 2014-2021.* Retrieved 11 July 2014 from:
http://unesdoc.unesco.org/images/0022/002271/227150e.pdf

United Nations Educational, Scientific and Cultural Organization. (2014). *Position Paper on Education Post-2015.* Retrieved 8 September 2014 from:
http://unesdoc.unesco.org/images/0022/002273/227336E.pdf

United Nations Educational, Scientific and Cultural Organization. (2014). *Paris Declaration* [Outcome Document]. Retrieved 8 September 2014 from:

http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/images/WPFD/2014/wpfd_2014_statement_final. pdf

United Nations Educational, Scientific and Cultural Organization. (2014). *UNESCO's Participation in the preparations for a post-2015 development agenda* [Report]. Retrieved 8 September 2014 from: http://unesdoc.unesco.org/images/0022/002273/227355e.pdf

United Nations Educational, Scientific and Cultural Organization. (n.d.). *WSIS+10 Review Event* [Website]. Retrieved 17 October 2014 from: http://www.unesco.org/new/en/communication-

and-information/flagship-project- activities/unesco-and-wsis/wsis-10-review-meeting/

United Nations Educational, Scientific and Cultural Organization. (n.d.). *Infoyouth* [Website]. Retrieved 8
September 2014 from: http://portal.unesco.org/ci/en/ev.php-
URL_ID=5181&URL_DO=DO_TOPIC&URL_SECTION=201.html

United Nations Educational, Scientific and Cultural Organization. (2014). *Empowering Local Radios with ICTs*
[Website]. Retrieved 8 September 2014 from: http://en.unesco.org/radioict/home

United Nations Educational, Scientific and Cultural Organization. (2014). *Expert Group Meeting: "Youth Civic*
Engagement: Enabling Youth Participation in Political, Social and Economic Life" [Report]. Retrieved 17 October
2014 from:
http://www.un.org/esa/socdev/egms/docs/2013/YouthDevelopmentRights/FinalConceptNoteEG
MYouthCivicEngag ement.pdf

United Nations Educational, Scientific and Cultural Organization, Bangkok. (2008). *Strategy Framework for Promoting ICT Literacy in the Asia-Pacific Region*. Retrieved 17 October 2014 from: http://unesdoc.unesco.org/images/0016/001621/162157e.pdf

United Nations Educational, Scientific and Cultural Organization, Bangkok. (2012). *Low-cost audio computer helps NGO in its development work* [Website]. Retrieved 8 September 2014 from: http://www.unescobkk.org/education/ict/online-resources/databases/ict-in-education-
database/item/article/low-cost- audio-computer-helps-ngo-in-its-development-work/

United Nations Educational, Scientific and Cultural Organization, Bangkok. (2013). *Asia Pacific Ministerial Forum on ICT in Education 2013: Outcome Document*. Retrieved 6 September 2014 from:
http://www.unescobkk.org/fileadmin/user_upload/ict/Workshops/amfie2013/report/AMFIE_201
3_Outcome_Docum ent.pdf

United Nations Educational, Scientific and Cultural Organization, Bangkok. (2013). *ITU celebrates global 'Girls in ICT Day'* [Website]. Retrieved 16 October 2014 from:
http://www.unescobkk.org/education/ict/online- resources/databases/ict-in-education-
database/item/article/itu-celebrates-global-girls-in-ict-day/

United Nations Educational, Scientific and Cultural Organization, Bangkok. (2014). *UNESCO launched*
"YouthKnows" virtual classroom to promote HIV and sexuality education in China [Website]. Retrieved 8
September 2014 from: http://www.unescobkk.org/education/ict/online-resources/databases/ict-
in-education- database/item/article/unesco-launched-youthknows-virtual-classroom-to-promote-
hiv-and-sexuality-education-in- china-1/

United Nations Educational, Scientific and Cultural Organization, Bangkok. (n.d.). *Projects: ICT in Education – Policy* [Website]. Retrieved 6 September 2014 from: http://www.unescobkk.org/education/ict/ict-in-education-projects/policy/

United Nations, General Assembly. (1948, December 10). *Universal Declaration of Human Rights (A/RES/217 A (III)).* Retrieved 1 August 2014 from: http://www.un.org/en/documents/udhr/

United Nations, General Assembly, Fiftieth session. (1996). *World Programme of Action for Youth to the Year 2000 and Beyond (A/RES/50/81)* [Resolution]. Retrieved 9 June 2014 from: http://undocs.org/A/RES/50/81

United Nations, General Assembly. (2000, September 8). *United Nations Millennium Declaration (A/RES/55/2).* Retrieved 18 October 2014 from: http://www.un.org/millennium/declaration/ares552e.htm

United Nations, General Assembly, Fifty-sixth session. (2002). *World Summit on the Information Society (A/RES/56/183)* [Resolution]. Adopted on the report of the Second Committee (A/56/558/Add.3). Retrieved 30 July 2014 from http://undocs.org/A/RES/56/183

United Nations, General Assembly, Sixty-second Session. (2008). *Policies and programmes involving youth: youth in the global economy – promoting youth participation in social and economic development (A/RES/62/126)* [Resolution]. Adopted on the report of the Third Committee (A/62/432). Retrieved 10 July 2014 from http://undocs.org/A/RES/62/126

United Nations, General Assembly. (2014). *Policies and programmes involving youth (A/RES/68/130)* [Resolution]. Adopted on the report of the Third Committee (A/68/448). Retrieved 10 July 2014 from: http://www.undocs.org/A/RES/68/448

United Nations, General Assembly & Economic and Social Council. (2006). *Follow-up to the World Programme of Action for Youth: Report of the Secretary-General (A/62/61-E/2007/7).* Retrieved 10 July 2014 from: http://undocs.org/A/62/61

United Nations Group on the Information Society. (n.d.). *About UNGIS.* Retrieved 31 July 2014 from: http://www.ungis.org/Portals/0/documents/public/ungis-flyer-low.pdf

United Nations, Human Rights Council. (2011). *Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, Frank La Rue (A/HRC/17/27).* Retrieved 6 August 2014 from: http://undocs.org/A/HRC/17/27

United Nations, International Telecommunication Union. (2003). *Geneva Declaration of*

Principles (WSIS-03/GENEVA/DOC/0004). Retrieved 9 July 2014 from:
http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1161|0

United Nations, International Telecommunication Union. (2003). *Geneva Plan of Action (WSIS-03/GENEVA/DOC/0005)*. Retrieved 9 July 2014 from:
http://www.itu.int/wsis/documents/doc_multi.asp?lang=en&id=1160|0

United Nations, International Telecommunication Union. (2005). *World Summit on the Information Society: Tunis Agenda for the Information Society (WSIS-05/TUNIS/DOC/6(Rev.1))*. Retrieved 29 July 2014 from: http://www.itu.int/wsis/docs2/tunis/off/6rev1.pdf

United Nations, International Telecommunication Union. (2005). *World Summit on the Information Society: Outcome Documents*. Retrieved 29 July 2014 from:
http://www.itu.int/wsis/outcome/booklet.pdf

United Nations, International Telecommunication Union. (2008). *Use of information and communication technology by the world's children and youth*. Retrieved 9 July 2014 from:
http://www.itu.int/ITU- D/ict/material/Youth_2008.pdf

United Nations, International Telecommunication Union. (2012). *A Bright Future in ICTs, Opportunities for a new Generation of Women* [Report]. Retrieved 17 October 2014 from:
http://www.itu.int/ITU- D/sis/Gender/Documents/ITUBrightFutureforWomeninICT-English.pdf

United Nations, International Telecommunication Union. (2013). *2013 Costa Rica Declaration*. Retrieved 10 July
2014 from: https://www.itu.int/en/bynd2015/Documents/bynd2015-global-youth-declaration-en.pdf

United Nations, International Telecommunication Union. (2013). *ICT Facts and Figures*. Retrieved 7 August 2014 from: http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013-e.pdf

United Nations, International Telecommunication Union. (2014). *WSIS+10 Outcome Documents*. Retrieved 9 July
2014 from:
http://www.itu.int/wsis/implementation/2014/forum/inc/doc/outcome/362828V2E.pdf

United Nations, International Telecommunication Union & United Nations Programme on Youth. (n.d.). *Fact Sheet: Information and Communication Technology*. Retrieved 1 August 2014 from: http://social.un.org/youthyear/docs/IYY_Fact_Sheet_ICT_Final.pdf

United Nations, Partnership on Measuring ICT for Development. (2005). *Core ICT Indicators* [Report]. Retrieved 5
August 2014 from: https://www.itu.int/ITU-D/ict/partnership/material/CoreICTIndicators.pdf

World Bank Group. (2001). *e-Sourcebook: ICT in Agriculture.* Retrieved 6 August 2014 from: http://www.ictinagriculture.org/ictinag/sites/ictinagriculture.org/files/ICT%20in%20Agriculture%20e- Sourcebook_0.pdf