Network for Capacity Building and Knowledge Exchange in the Telecommunications Sector (NetTel@Africa)

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Third Quarterly Progress Report to Internews Network
1 December 2002 to 28 February 2003

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I. INTRODUCTION

This Third Quarterly Report (1 December 2002- 28 February 2003) provides an update of the four NetTel@Africa project components: training program in telecommunications policy and regulation; peer-to-peer exchanges; community-to-community network component; and research on how ICT policies impact other sectors. These are described in **Section II**.

Unlike the First (1 June 2002-31 August 2002) and the Second (1 September 2002-30 November 2002) Quarterly Reports, this Third Quarterly report presents a summary of prior accomplishments for each of the project's components, followed by an update on the current quarter's activities, to show how each of the parts are linked to the overall NetTel@Africa project.

The Africa-based **Training Program in ICT Policy and Regulation** includes: development of ten modules at the basic level for the post-graduate diploma and ten modules at the advanced level for the master's degree at African universities; training for faculty members and their teams on the use of the Knowledge Environment for Web-based Learning (KEWL); and development of academic programs in telecommunications at the graduate diploma and masters' levels. Pilot testing of the first 10 modules will occur during a two-week NetTel@Africa Safari, which will be structured like the "boot camp" sponsored by the U.S. National Association of Regulatory Utility Commissioners (NARUC) for its members, called "Camp NARUC." The NetTel@Africa Safari will serve as a stand-alone training activity for those participants who chose not to take the long-term training. It is anticipated that the NetTel@Africa Safari will be at least a biennial event.

The **Peer-to-Peer (P2P)** exchanges focus on three types of relationships among and between Africans and the U.S.: academic-to-academic (closely tied to the training program above); regulator-to-academic (linked to the training program); and regulator-to-regulator (fostering reciprocity agreements for training and knowledge sharing between regulatory bodies in Africa and the U.S.)

The **Community-to Community (C2C)** networks demonstrates the relationship between telecommunications policy and regulations with key sectors critical to the economic development process, particularly education. The C2C networks will help policy makers and regulators understand the concrete ICT applications and implications of legislation on universal access policies and funds.

The **Research Program** focuses on monitoring and evaluation concerns. It is anticipated that additional funding will be leveraged to conduct research on two key impact questions: 1) Does policy make a difference in the performance of the telecommunications sector?; 2) How does improved performance of the telecommunications sector translate to benefits at key sectors, especially education, at all levels?

Section III highlights the key management actions completed by Washington State University (WSU) and key coordination tasks undertaken by the University of Dar es Salaam (UDSM).

Section IV restates the principles that govern implementation of the NetTel@Africa project and includes remarks from the Director of the project on key challenges.

II. PROGRESS ON PROJECT COMPONENTS

1. Training Program in Telecommunications Policy and Regulation

A. First and Second Quarter Accomplishments

[Prior to June 2002] Identification of the ten modules topics at the basic level for a post-graduate diploma and ten modules at the advanced level for a master's degree in ICT policy and regulation at African universities. The module titles and responsible lead universities are listed below:

Module 1: *Macro Environment and Implications of Telecommunications* (University of Fort Hare, South Africa)
Module 2: *ICT Technologies* (University of Botswana)
Module 3: *ICT Industry and Markets* (University of Zambia)
Module 4: *Spectrum Management*- previously referred to as *Provider Resource Allocation, Assignment, Registration, and Enforcement* (University of Western Cape, South Africa)
Module 5: *Financial Analysis* (University of Dar es Salaam, Tanzania)
Module 6: *Approaches to Regulation* (University of South Africa)
Module 7: *Universal Access and Quality of Service* (University of Witswaterstrand, South Africa)
Module 8: *Service Pricing* (African Advanced Level Telecommunications Institute-AFRALTI, Kenya)
Module 9: *Policy, Law, and Institutions* (University of South Africa)
Module 10: *ICT Applications* (University of Zambia)

[September 2002] Mr. Tom Wilson from WSU helped AFRALTI develop Module 8 on Service Pricing. AFRALTI serves as an International Telecommunications Union (ITU) Center of Excellence.

[**September 2002]** The NetTel@Africa Working Group met at Cape Town, South Africa to discuss the project's timetable and work plan.

[September 2002] The project website is re-launched following harmonization with African partners, with a new website address:
http://nettafrica.org

[November 2002] Completion of the draft prospectus detailing the outcomes and assessment criteria for each module. An updated prospectus can be downloaded at the following link:
http://cbb./Resource_Files /ProgramProspectus2.doc

[September-November 2002] Collection of relevant on-line resources to help module developers design their syllabi and reading assignments around freely available digital content rather than trying to locate expensive printed materials. A list of these resources can be viewed at: http://nettafrica.org

[September 2002] Program timetable finalized (see Table 1 below)

Table 1: Program Timeline

ACTIVITY	2002 09	10	11	12	2003 01	02	03	04	05	06	07	08	09	10	11	12	2004 01	03	04
Complete Module Development																			
Program Approved by Univ. Authority																			
Workshop for Course Trainers																			
Pilot Test Modules																			
Launch Post-Graduate & Masters Diploma Programs																			
Design Logo																			

B. Third Quarter Accomplishments (1 December-28 February 2003)

i. Module Development

Finalization of the sub-agreements with African and U.S. universities and training institute were completed by the end of the Second Quarter, with all advances dispersed during the Third Quarter. Delays in the sub-agreement and disbursement process slowed the scheduled completion of modules as per Table 1 above. As December is typically a month of vacation in many African countries, the deadline for module completion is now set for the end of March 2003. This revised deadline is in sync with the pilot testing phase projected for April 2003.

ii. Quality Assurance Reviews

During February 2003, a quality assurance review team initiated site visits to assess progress made on the modules focusing on three criteria: content, learning activities, and institutional commitment of the eight African higher education partners. The team was headed by Mr. Dale Hatfield, (University of Colorado-Boulder, Interdisciplinary Telecommunications Department) and included Dr. Mathew Mitchell (WSU) and Dr. Maria Beebe (WSU) who participated as a virtual team member. The team was joined by different colleagues from the NetTel coordinating institution – University of Dar es Salaam. Professor Beda Mutagahywa joined the team at University of Fort Hare and University of Western Cape; Professor Mayunga Nkunya joined the team at the University of Botswana and University of Witswatersrand; and Professor Hashim Twaakyondo joined the team at the University of Zambia and University of South Africa. The review will not be completed until mid-March 2003. A full report by the review team will be sent as a separate report to USAID and will be summarized in the Fourth Quarterly Report (1 March 2003-31 May 2003).

iii. NetTel@Africa Safari

Planning is underway for the first NetTel@Africa Safari (akin to the NARUC boot camp as mention in the Introduction), where the ten modules will be pilot tested. Workshops will be provided on current "hot topics" for participants with the help of U.S. telecommunications commissioners from NARUC and university partner experts. The first NetTel@Africa Safari is scheduled for two weeks in May/June 2003.

iv. KEWL Training for University Partners

On-site training concerning how to use the Knowledge Environment for Web-based Learning (KWEL) was provided by a two-person team from the University of Western Cape (UWC) to all eight higher education institutions during January and February 2003 (a separate report will be submitted during the next quarter, however excerpts on the bandwidth issue are provided in **Annex 1**). Bandwidth is a primary difficulty as the lack of peer-to-peer connections in Africa impedes on-line exchanges. To resolve this issue, whenever possible a mix of information and communication technologies will be used: CD-Rom for material that does not change every year and the Internet for online discussion forums.

NetTel@Africa will also work closely with the New Partnership for Africa's Development (NEPAD) e-Africa program and other donors (such as the Swedish International Development Agency-SIDA, who provided dark-fiber to African higher education institutions) to find intermediate solutions to the bandwidth issue.

[January 2003] WSU-CBDD began building a model KEWL course on Research Methods. If accepted by the NetTel@Africa Steering Committee, this course will be offered to the Masters Degree students as a required module.

[February 2003] Training by UWC has been provided to University of Botswana, University of Zambia, AFRALTI, University of Dar es Salaam, University of Witswatersrand, University of South Africa, and University of Fort Hare. Additional training was provided to Kenya Communications Institute.

v. Post-Graduate Diploma and Masters Program Development at African Partners

The University of Western Cape succeeded in obtaining approval for a post-graduate diploma and masters program from their Faculty Senate. The four South African higher educational institutions have agreed to prepare a joint submission to the Council for Higher Education in South Africa. In East Africa, AFRALTI has initiated discussions with Nairobi University and Jomo Kenyatta University for Agriculture Technology (JKUAT) regarding possible joint degrees. The universities of Botswana, Dar es Salaam, and Zambia have yet to discuss their proposed new programs with their respective faculty senates.

2. Peer-to-Peer (P2P) Exchanges and Network

A. First and Second Quarter Accomplishments

[pre-June 2002] The Maine Public Utilities Commissioner, Mr. Tom Welsh attended the NetTel@Africa launch in Botswana in April 2002 and met with the Botswana Telecommunications Commission (BTC). Using their own funds, staff from BTC followed up by visiting the Maine Public Utilities Commission (PUC) shortly thereafter.

[July 2002] The launch of the NetTel@Africa P2P component in Portland, Oregon was conducted during the biannual NARUC meetings. Productive meetings were held with NARUC staff, and representatives from the Telecommunications Regulators Association of Southern Africa (TRASA), the Common Market for Eastern and Southern Africa (COMESA), and the Nigerian Communications Commission (NCC).

[October 2002] Field visits by Ms. Funlola Akiode (NCC) with the Washington D.C. PUC and the Oregon PUC, including the Canby Telecommunications Cooperative Association.

[November 2002] Individual commissioners, regulators, and staff have identified the module development team they will join and provide expert/peer advice on resources, case studies, and other on-line materials, review modules, and, subject to availability of funding from resource partners, act as co-facilitators of the modules during the NetTel@Africa Safari.

[November 2002] Dr. Bill Gillis, Director of the WSU Center to Bridge the Digital Divide (CBDD) presented the P2P Network design to NARUC at their 2002 annual m Chicago, Ill.

B. Third Quarter Accomplishments (1 December-28 February 2003)

i. NetTel@Africa Relations with NARUC

[December 2002] A sub-agreement with NARUC was signed to continue the P2P activities and finalize a relationship with NetTel@Africa.

[January 2003] Participation in an on-line survey to assess the interest and relevant skills for specific regulatory staff members of NARUC was launched. All U.S. State Commissions were notified by NARUC by email of the opportunity to register as a potential regulatory peer resource. An announcement was also made at the recent NARUC meeting in Washington, D.C. (February 2003). To date, 33 U.S. regulators have completed the on-line survey. A similar survey will be conducted with African regulators and their staff. A working draft of this survey can be viewed at the following link: http://cbdd.wsu.edu/networks/other/p2p_survey_v1.htm

[February 2003] Dr. Gillis met with NARUC staff and Commissioners, Computer Frontiers, Inc., and the USAID Leland Initiative to discuss coordination of P2P activities.

ii. Visits by U.S. Partners to African Peers

[January 2003] Dr. Beebe participated in the launch of the new Association of Regulators of Information and Communication in East Africa (ARICEA) at Addis Ababa, Ethiopia. Dr. Beebe facilitated the first day of the meeting, focusing on capacity building. Discussions included participating in ongoing training opportunities (ITU's Centres of Excellence, African Telecommunications Union, and NEPAD goals and objectives, and NetTel@Africa). The meeting ended with a draft regional approach to capacity building consistent with the ICT Regulatory Harmonization Programme. Excerpts from the draft Regional Approach are in **Annex 2**

[January 2003] Mr. Paul Margie from the Federal Communications Commission (FCC) visited the UWC to help develop Module Four, *Spectrum Management*. He also visited Nairobi University and Africalaw.com, and attended the launching of the new ARICEA in Ethiopia.

[January 2003] Commissioner Fred Butler, New Jersey PUC and NJPUC staff Mr. John DeLucca attended the ARICEA launch. Commissioner Butler discussed NARUC programs and willingness to participate in the P2P program; he also initiated discussions for a P2P relationship with the Uganda Communications Commission. Logistics and funds for his travel were provided by Computer Frontiers, Inc.

iii. Peer-to-Peer Exchange among African Partners and Networks

[January 2003] TRASA is checking with its membership on interest in participating in the peer-to-peer with relations other NetTel@Africa partners.

[February 2003] A donor coordination meeting was held at Johannesburg sponsored by TRASA. The purpose of the meeting was to identify joint activities among NetTel@Africa, the USAID/RCSA funded *Southern African Development Information Policy* project (SIPRS) of Internews Network, and the new ARICEA. Representatives from USAID/RSCA, USAID/REDSO, Commonwealth Telecommunications Organization (CTO)/U.K. Department of Foreign International Development (DFID), ITU, Development Bank of South Africa, African Connections, COMESA, and ARICEA attended the meeting, with Dr. Beebe representing USAID/Leland Initiative. Commitments were made to coordinate work on Key Performance Indicators and Statistics, Consumer Protection, and module post-pilot testing in May 2003 during the NetTel@Africa Safari.

[February 2003] The NCC hosted a stakeholder consultation with the higher education community in identify approaches to capacity building in the telecommunications sector. Mr. Joseph Nwude (Washington DC PUC), Mr. Derek Keats (University of Western Cape Town) and Mr. Toks Oyedemi (University of Fort Hare) were invited by NCC. While Dr. Beebe was unable to attend at the last moment, she provided assistance through several phone conversations with key meeting participants and emailed helpful documents and PowerPoint presentations.

3. Community-to-Community Networks (ICT Applications)

A. First and Second Quarter Accomplishments

[August 2002] Dr. Beebe and Dr. Mitchell presented a three-day e-learning workshop for the Kenya Education Network, and conducted a stakeholder meeting for potential new members to the NetTel@Africa project in Nairobi, Kenya.

[September 2002] Agreements reached to continue funding the five Knowledge Exchanges and Learning Partnerships (KELP) out of South Africa.

[October-November 2002] Dr. Beebe agreed to work with USAID/South Africa and the Department of Education in South Africa to draft an e-education policy framework and White Paper for general and further education within South Africa.

[November 2002] A proposal was submitted by the University of Witwatersrand and CBDD to the U.S. Liaison Office for University Cooperation in Development (ALO).

B. Third Quarter Accomplishments (1 December-28 February 2003)

i. KELPs

[December 2002-January 2003] All sub-agreements with the four KELP South African Universities were completed (University of the North, University of Pretoria, University

of Fort Hare, and University of Zululand). These universities manage the following KELPs:

The four networks based in South Africa, pursue the following goals:

- To establish a Management Sciences Network at the Faculty of Management Sciences, the University of the North (contact Peter Franks <franksp@unin.ac.za>.
- To establish a Public Affairs Network at the Faculty of Economics, School of Public Management and Administration, University of Pretoria (contact Jerry Kuye <kuyej@hakuna.up.ac.za>.
- To establish a Transformed Agricultural Education Network at the University of Fort Hare (contact Gavin Fraser <gfraser@ufh@ac.za>.
- To establish a Recreation and Tourism Network at the University of Zululand (Umlazi) (contact Lindisizwe Magi <llmagi@uz.ac.za>.

Because of the small amount of funding available, a sub-agreement was not concluded with the University of Durban-Westville (contact Dhiru Soni dsoni@udw.ac.za to complete actions related to the Telematics Centre. Instead, the University of Durban Westville will have the opportunity to access more or less $9,000 of goods and services should it be deemed necessary to do so.

ii. Network for Teaching, Learning and Technology

[January 2003] A proposal for a Network for Teaching Learning and Technology submitted to the ALO Program during the Second Quarter 2002 was approved for funding this quarter. This activity is focused on improving teacher training and teacher training colleges and institutes. The Network will improve student achievement by employing the best teaching and learning practices from classrooms in the U.S. and South Africa. The University of Witwatersrand and WSU CBDD will collaborate to share expertise among faculty to create a common knowledge base, work on the training of teacher-trainers, and initiate collaborative activities among students. This Network helps support the NetTel@Africa activities because it deliberately brings teaching and learning through the Internet into teacher training and student learning.

iii. African Virtual Open Initiative Resources

[January 2003] An outcome of Derek Keats' participation in the Policy Round table on strategies for US-developing country collaboration in distance education is the development of a proposal on the African Virtual Open Initiative Resources (AVOIR). AVOIR was approved for funding by USAID/Leland Initiative for US$50,000 of goods and services, provided by Computer Frontiers, Inc. Co-funding will be provided by the Shuttleworth Foundation and the Carnegie Foundation. It is envisaged that AVOIR will consist of four components:

- Open Source software development and advice provision particularly to small businesses and government.

- Open Content education, research and development, including the development and provision of methods and tools for managing the development, versioning and sharing of Open Content.

- Open database development to create freely shared data (e.g. bibliographic data, geospatial data, biodiversity data, oceanographic data, etc.) in a number of areas based on Open Source principles.

iv. 4h T4

[December 2002-February 2003] The WSU CBDD has been discussing with South Africa Technikons concerning the adoption of the successful "4-H T4" (Today's Teens Teaching Technology) program active in Washington State. The program involves 4-H teens learning from other teens and adult partners on how to build computers, troubleshoot computer problems, work with various software, Internet ethics and safety, learn digital applications, and teach other youth and adults about computers, providing a valuable community service. If there is sufficient interest by South African Technikons, then WSU faculty will help adopt the program to an African context.

v. e-Education in South Africa Policy Development

[November-December 2002] Dr. Beebe developed a White Paper on e-education in South Africa for the Department of Education with concurrence from USAID/South Africa. The White Paper focuses on the benefits from e-Education, including learning-for-life, the communication and exchange that are essential to democratic living, and globally competitive human resources. The challenge is to transform exchange of information to a range of learning activities that meet educational objectives, as NetTel@Africa is attempting through the KEWL and ten modules. e-Education is the ability to apply ICT skills to access, manage, integrate, evaluate, and create information that enhances teaching, learning, and the ability to function in an electronically knowledge-based society. A summary of this White Paper is in **Annex 3**.

4. Research Component

A. First and Second Quarter Accomplishments

[August 2002] Dr. Beebe convened a week-long workshop for writers contributing to the forthcoming book Africa.Dot.Edu., to be published by Tata McGraw Hill, India. The book provides baseline studies of the state of ICT in various sectors within selected African countries.

B. Third Quarter Accomplishments (1 December-28 February 2003)

i. Africa.Dot.Edu

[February 2003] Galleys are now ready for review by the editors of the book. The editors will meet in Spokane, Washington during March 2003 to review the galleys and finalize the book for publication. The Table of Contents is in **Annex 4**.

ii. New Telecommunications Research Ventures

[January 2003] Dr. Gillis, WSU CBDD, is lead editor of a book project that is titled "Accessing Universal Service." This book will include case studies from Africa and the U.S. Dr. Gillis is lining up authors and preparing a production schedule.

[January 2003] WSU CBDD submitted a proposal to the National Science Foundation on "Impact of Information Technology Policy and Regulation on Socioeconomic Development," which will draw directly from the NetTel@Africa project activities. This proposal has the support of the NetTel@Africa CTO, Mr. Lane Smith. The research will analyze pro-competition and universal access regulatory issues regarding modern ICT. The objective is to determine how these ICT regulatory actions affect ICT diffusion of and access to infrastructure and services.

III. WSU MANAGEMENT/UDDSM COORDINATION

1. WSU Management

A. First and Second Quarter Accomplishments

[June 2002] Development of a web site and document archive for the NetTel@Africa project.

[June-July 2002] Drafting and issuing of sub-agreements between WSU and seven African universities, two U.S. universities, and one U.S. regulatory association. AFRALTI funding is provided by ITU, therefore there was no sub-agreement executed between WSU and AFRALTI.

[August 2002] In Nairobi, Kenya, Dr. Mitchell presented an overview of the NetTel@Africa project to AFRALTI and the first COMESA meeting addressing telecommunications and ICT policy.

[June-October 2002] Sub-agreements to implement aspects of the Training Program in ICT Policy and Regulation were signed with the following organizations:

University of Botswana: Development of the *ICT Technologies* module(s) and the delivery of NetTel@Africa curriculum.

University of Dar es Salaam, Tanzania: Development of the *Financial Analysis* module(s) and the delivery of the NetTel@Africa curriculum; and coordination of NetTel@Africa activities.

University of Fort Hare, South Africa: Development of the *Macro Environment and Implications of Telecommunications* module(s) and delivery of the NetTel@Africa curriculum

University of South Africa: Development of the *Policy, Law, Regulation, and Institutions* module(s), the *Approaches to Regulation* module(s) and delivery of the NetTel@Africa curriculum.

University of Western Cape, South Africa: Development of the *Provider Resource Allocation, Assignment, Registration, and Enforcement* (later renamed as *Spectrum Management)* module(s) and the delivery of NetTel@Africa curriculum.

University of Witwatersrand, South Africa: Development of the *Universal Access and Quality of Service* module(s) and delivery of NetTel@Africa curriculum.

University of Zambia: Development of the *ICT Industry and Markets* module and the *ICT Applications* module(s), and delivery of NetTel@Africa curriculum.

AFRALTI: Development of the *Service Pricing* Modules and delivery of NetTel@Africa curriculum. (This is a no cost memorandum of understanding as funding for AFRALTI is provided by ITU.)

University of Colorado-Boulder: Providing development support to the universities of Dar es Salaam, Western Cape Town, and Zambia; development of joint Masters Degrees with qualified NetTel@Africa academic partners; and development and implementation of a quality assurance plan for the modules.

University of Florida-Gainesville: Providing development support to the University of South Africa.

B. Third Quarter Accomplishments (1 December-28 February 2003)

i. Peer-to-Peer Network

[January 2003] Sub-agreement to implement aspects of the P2P component signed with NARUC.

ii. KELP

[December 2002-January 2003] Sub-agreements to implement the KELPs signed with South African universities: University of Fort Hare, University of the North, University of Pretoria, and University of Zululand.

iii. Outreach for Geographic Expansion

[January-February 2003] As described in **Section II**, NetTel@Africa participated in the launch of the new ARICEA organization, and participated in the donor coordination meeting for joint activities to be undertaken by TRASA (through the SIPRIS project), ARICEA, and NetTel@Africa.

2. UDSM Coordination

A. Third Quarter Accomplishments (1 December-28 February 2003)

The new NetTel@Africa website has been replaced and the hosting server is at the University of Western Cape.

The template for the online directory for NetTel@Africa partners is completed,. Partner snow need to complete the information requested.

The draft research agenda framework is complete.

Reciprocity agreements are still being negotiated with partner institutions

3. Looking Ahead: Plans for Next Quarter (1 March – 31 May 2003)

During the upcoming Fourth Quarter, the following activities are planned:

- Donor collaboration (ITU, DFID/CTO) regarding the geographic expansion of the NetTel@Africa Training Program in ICT Policy and Regulation, the Peer-to-Peer Network, and the Research Component.
- Planning for and implementation of the NetTel@Africa Safari scheduled for May-June 2003 in Botswana.
- Completion of the Africa.Dot.Edu. book for publication by Tata McGraw-Hill, India.

4. Implementation and Management Challenges

The following factors are constantly being worked on to improve project implementation:

i. ***Slowness of WSU bureaucracy***.

The CBDD is working with the WSU Office of Grants and Research Development and the Special Projects Office to ensure that advances and liquidation of advances are completed on a timely manner.

ii. African Leadership and American Support

NetTel@Africa project management staff works daily to increase African leadership in developing the NetTel@Africa activities, while the American partners play a supportive role. This is a delicate balancing act that is improving over time.

iii. Potential Non-Performance of African University Teams

Early reports from the Quality Assurance Team suggest that one or two universities may not have a clear understanding of how much content, including learning activities should be made explicit in the on-line learning materials. If there is no progress made on these issues during March and April, sub-agreements with these universities will be reviewed. However, the NetTel@Africa management team is making every effort to ensure that these partners have a clear understanding of expectations and the consequences of inaction.

v. Geographic Expansion

DFID is in the final stages of deciding which organization will implement their CATIA program. This program includes expansion of the NetTel@Africa concept in East and West Africa. A challenge will be how to work with this expansion and a new organization, so that the project continues to be integrated as a whole, yet incorporating ideas from new partners. Thus far there has been excellent collaboration among various networks and projects working on telecommunications and ICT capacity building across the African continent. Based on the track record thus far, there is every reason to believe that the WSU management team will succeed at collaboration with the DFID-funded activities.

IV. PROJECT DIRECTOR FINAL NOTES

The successes of NetTel@Africa are due to the daily practice of project implementation according to the following fundamental principles:

- Impetus for activities is African-led.

- Most activities are based on connections with peers-between policy makers and regulators, academics, trainers, public and private sector, and citizens, across national boundaries through a combination of face-to-face meetings and virtual interactions.

- Peer-to-peer network exchanges or community-to-community interactions are based on reciprocal exchanges.

- Each party gains a mutual advantage by participating in the NetTel@Africa activities.

"When the webs of the spider join, they can trap a lion."
--Ethiopian Proverb

Although the NetTel@Africa project has only completed the third quarter of the first year of implementation, much has been achieved in fostering collaboration among network partners to achieve their shared objectives. Given the existing capabilities of the higher education institution partners, a bell-shape curve is emerging, with a few showing excellent work, the majority in the normal range, with a few laggards in their work on content development.

Dr. Maria Beebe, NetTel@Africa Project Director
WSU Center to Bridge the Digital Divide
28 February 2003

ANNEX 1:

Highlights from the Knowledge Environment for Web-based Learning (KEWL) Training Report

NetTel@Africa has adopted an open source learning management system (LMS) called Knowledge Environment for Web-based Learning (KEWL)[1] that was developed at the University of the Western Cape. This allows the LMS to be easily adapted to the requirements of this program, and provides an opportunity to create tools that help in low band-with situations should they be required. Two trainers from the University of the Western Cape travelled to participating sites to teach course developers how to create online courses using KEWL. The plan was to access the NetTel@Africa e-learning server hosted at UWC so that course developers would be using the same site as students in the programme are expected to use. During this exercise, a number of staff of the Teaching and Learning Technologies Unit would also be available to provide remote support, engage in online discussion, and demonstrate features that would be used during the NetTel@Africa courses.

Problems encountered as a result of lack of bandwidth and lack of peering are described. Each of bottlenecks is identified, and discussed in the light of the crucial importance of bandwidth to this kind of collaboration. Possible features for KEWL to help in the short term are discussed, and long term solutions are probed.

The following tools were used to gather data and information for this study:

- VisualRoute from VisualWare http://www.visualware.com/
- The Multi-router traffic graphs maintained by TENET

Observations during KEWL training

UWC bandwidth: In common with all the participating institutions in NetTel@Africa, UWC has problems with bandwidth, even though bandwidth is available at somewhat reduced costs via the tertiary education service provider TENET. Bandwidth purchased through TENET is segmented into International, National, and National higher education, with costs differing markedly among segments.

The total incoming and outgoing traffic during any week is at saturation levels on UWC's Internet connection. However, a Sitara bandwidth management device was placed on the network in 2002 to enable external access to UWC web servers to be prioritized over internal access to external web servers. Therefore, despite the congestion on the UWC Internet connection, this is unlikely to be a major source of bottlenecks experienced during the NetTel@Africa training, and this is backed up by the results of traceroute between University of Zambia and the University of Western Cape (Appendix 1).

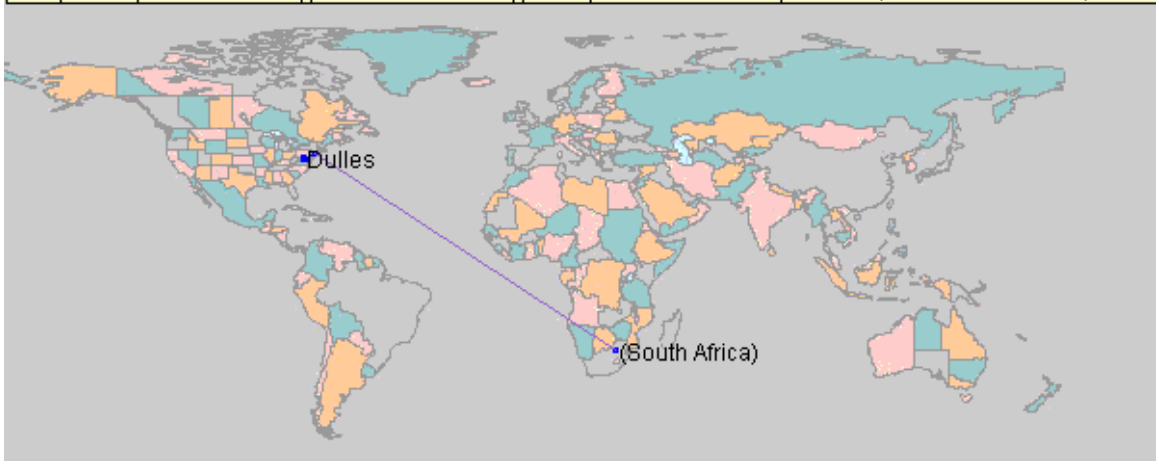
[1] http://kewlforge.uwc.ac.za

APPENDIX 1: Visual traces to and from http://elearn.nettelafrica.org --- from USA

Report for elearn.nettelafrica.org [196.11.235.69]

Analysis: 'elearn.nettelafrica.org' [kewl.uwc.ac.za] was found in 19 hops (TTL=113). But, problems starting at hop 17 in network "UNINET UNINET-ZA" are causing IP packets to be dropped.

Hop	%Loss	IP Address	Location	ms	Graph	Network
0		161.58.180.11	Dulles, VA, USA		0 547	Verio, Inc. VRIO-161-058
1		161.58.176.12	...	0		Verio, Inc. VRIO-161-058
2		161.58.156.14	...	37		Verio, Inc. VRIO-161-058
3		129.250.27.21	Sterling, VA, USA	3		Verio, Inc. VRIO-129-250
4		129.250.5.14	Sterling, VA, USA	0		Verio, Inc. VRIO-129-250
5		129.250.2.75	Ashburn, VA, USA	1		Verio, Inc. VRIO-129-250
6		129.250.2.61	Ashburn, VA, USA	4		Verio, Inc. VRIO-129-250
7		208.173.50.14	-	0		Cable & Wireless CW-10BLK
8		206.24.178.61	Reston, VA, USA	1		Cable & Wireless CW-05BLK
9		206.24.194.10	New York, NY, US/	4		Cable & Wireless CW-05BLK
10		206.24.207.73	New York, NY, US/	7		Cable & Wireless CW-05BLK
11		206.24.207.18	New York, NY, US/	0		Cable & Wireless CW-05BLK
12		206.24.194.13	New York, NY, US/	0		Cable & Wireless CW-05BLK
13		166.63.157.15	New York, NY, US/	0		Cable & Wireless USA CW-NETCS
14		196.25.0.18	(South Africa)	16		SAIX-CORE SAIX-CORE
15		196.25.0.113	(South Africa)	400		SAIX-CORE SAIX-CORE
16		196.25.134.74	-	393		Telkom SA Ltd. SAIX
17	30	155.232.50.61	(South Africa)	509		UNINET UNINET-ZA
18	10	196.11.235.1		524		University of the Western Cape UW
19	10	196.11.235.69		525		University of the Western Cape UW



ANNEX 2:

Excerpts from the ARICEA ICT Regulatory Harmonization Programme

"We hereby declare our commitment to set-up an African Network for Capacity Building in the ICT Sector, with a focus on human resources development on policy and regulation, sustainable development, and knowledge creation and management.
Those of us who are gathered here today declare ourselves as the founding partners in the following categories:

- regulatory bodies that form ARICEA;
- academic/research institutions in the region;
- regional organizations (ARICEA, ATU, COMESA, ECA, ITU), and;
- existing capacity building networks (NetTel@Africa).

Way Forward: African Network for Capacity Building in the ICT Sector
Formation of a Task Team: In order to move forward with an MOU, we recommend the formation of a Task Team with representation from:

- regulatory bodies,
- academic/research institutions,
- regional bodies, and
- networks for capacity building.

Composition of a Task Team: We suggest the following composition for the Task Team:
Academics/research - Makerere University (to act as moderator):

- Regional bodies
- UNECA (to act as secretariat and to set up discussion forum)
- ATU
- ITU
- Capacity building networks – NetTel@Africa
- Regulatory associations - ARICEA

Task team TOR: The key objective of the Task Team is to develop an operational framework for the African Network for Capacity Building in the ICT Sector.

Strategic Framework: In carrying out their responsibilities, the Task Team and founding members will be guided by the following strategic framework:

- Build the relevant capacity of regional institutions to build the relevant capacity of regulators

- Clear definition of the real rather than the traditional training needs so that regulators can respond to development issues through regulation
- Recognise the critical importance of content development as complimentary to the infrastructure deployment
- Build a mutually beneficial and sustainable relationship between network partners
- Exploit the synergies of a regional approach among the network partners without constraining the capacity of each to grow in all aspects.
- Gender mainstreaming must be a key consideration in all the strategies."

ANNEX 3:

Draft Summary: White paper on E-Education for South Africa

The focus of this White Paper is on the role that ICT can play in general and further education and training, and by extension in lifelong learning and the development process. The larger society benefits from e-Education include learning-for-life, the communication and exchange that are essential to democratic living, and globally competitive human resources. However, a digital divide exists between South Africa and the developed countries and within South Africa. With almost 35% of people in developed countries, only 6% of South Africans are online, with fewer than 2% in developing countries. The disparities in South African society also find expression in ICT in education. Only 12.3% of schools had computers for teaching and learning with a learner-computer ratio of 164:1, giving learners at most 13 minutes of computer time per week.

In the South African context, the concept of e-Education revolves around the use of ICT to accelerate the achievement of national education goals. e-Education is further about connecting learners to other learners, teachers and related professional support services. e-Education will connect learners and teachers to better information, ideas and one another via effective combinations of pedagogy and technology. The challenge is to transcend mere exchange of information and to transform it into a range of learning activities that meet educational objectives. e-Education is more than developing computer literacy and the skills necessary to operate various ICT. It is the ability to apply ICT skills to access, manage, integrate, evaluate, and create information in order to enhance teaching and learning and to function in a knowledge society.

The goal of the e-Education Policy is to ensure that:

> **Every South African learner (all 12 million) in general and further education and training will be ICT capable by 2010.**

ICT capable learners are able to access information in the digital era, manage information effectively, interpret and integrate the results of research, evaluate the quality of these results, and create new information by adapting, applying, designing, inventing, or authoring information. ICT capable learners use ICT, invent new ICT applications, and demonstrate improvement in attaining learning outcomes and 21st century skills. Achievement of the e-Education goal will require the attainment of the overall objective of e-School development:

> **All 28,000 schools in general and further education and training must transform into e-Schools by 2010.**

e-Schools will improve the quality of teaching and learning and increase the knowledge level of learners. e-Schools will increase the pool of human resources for more skilled ICT jobs that will enable the development of low-end SMEs, such as computer repair,

data inputting and value added services, along with high-end SMEs, such as software development and direct investments in manufacturing.

The realization of the overall objective will require the gradual integration of ICT into the daily functions at the national, provincial, district, and school levels. Success in integrating technology and pedagogy at the school will depend on meeting five specific objectives prior to 2010. These are:

a) ICT Professional development: Every teacher, manager, and administrator in general and further education and training must have the training and support they need to assist learners to learn through ICT.
b) Digital content resources: The school curriculum in general and further education and training must have effective and engaging software, digital content and online learning resources.
c) IC Technologies: Every teacher and learner in general and further education and training must have access to an ICT basic set, including computers.
d) Internet connectivity: Every teacher and learner in general and further education and training must have access to the Internet.
e) Community Engagement: Communities must support and use e-Schools.

The e-Education Policy will have a systemic approach focusing on the progressive integration of ICT into teaching and learning, along with a research agenda on e-School technology assessment readiness and targets to monitor the impact of e-Education. This will require supporting and enabling conditions that include inter-governmental collaboration. This White Paper has an implementation strategy companion that outlines and elaborates implementation strategies and performance targets. Provincial Education departments must produce provincial roll-out plans to meet the target dates.

Success in the infusion of ICT into teaching and learning will ensure that every learner will be equipped for full participation in the knowledge society before they leave school. Moreover, ICT capable learners are likely to utilize e-Government processes not only to provide more information but also to implement public sector reforms that can enhance transparency in government operations. These learners will use ICTs to enhance interaction between citizens, governmental organisations and public and elected officials. These learners will invent new ways of using ICTs to realize the Department of Education's vision of developing a lifelong learner who is a critical and active citizen and who embodies the fundamental values of the constitution.

ANNEX 4:

Table of Contents: AfricaDotEdu

Edited by
Maria A Beebe, Kouakou Koffi Magloire, Banji Oyeyinka and Madanmohan Rao

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