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Creation of Global University System in Russia (GUS/Southern Russia/Taganrog)

March 8, 2008

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Creation of Global University System in Russia (GUS/Southern Russia/Taganrog)

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Abstract—The Global University System (GUS) is a worldwide initiative to create advanced telecommunications infrastructure for accessing educational resources across national and cultural boundaries for global peace. GUS aims to create a worldwide consortium of universities to provide the underdeveloped world with access to 21st Century education via broadband Internet technologies. The aim is to achieve "education and healthcare for all," anywhere, anytime and at any pace. The GUS works in the major regions of the globe with partnerships of higher education and healthcare institutions. Learners in these regions will be able to take their courses from member institutions around the world to receive a GUS degree. These learners and their professors from partner institutions will also form a global forum for exchange of ideas and information and for conducting collaborative research and development with emerging global GRID computer network technology. Globally Collaborative Environmental Peace Gaming (GCEPG) project (Utsumi, 2003) and Quantitative Policy Analysis of Global Socio-Economic-Energy-Environment Development (GSEEED) project for Siberia/Altai region (Utsumi, 2008) with a globally distributed computer simulation system, focusing on the issue of environment and sustainable development in developing countries, is to train would-be decision-makers in crisis management, conflict resolution, and negotiation techniques basing on "facts and figures." The GUS will supply game players from around the world. Globally Collaborative Innovation Network (GCIN) (Utsumi, 2006-b) will be its powerful consequential extension and foster creativity of youngsters around the world.

I. INTRODUCTION OF GLOBAL UNIVERSITY SYSTEM

ECONOMIC interdependence among nations and cultures is spawning a global economy. Globalization also highlights clashes of divergent cultures and belief systems, both political and religious. If global peace is ever to be achieved, global-scale education, with the use of the modern digital telecommunications, will be needed to create mutual understanding among nations, cultures, ethnic groups, and religions. The Internet is the future of telecommunications and can be a medium for building peace.

Global University System (GUS) (Utsumi, et al, 2003) aims to build a higher level of humanity with mutual understanding across national and cultural boundaries for global peace. GUS is a worldwide initiative to create advanced telecom infrastructure around the world for global e-learning and e-healthcare/telemedicine. GUS aims to create a worldwide consortium of educational and healthcare institutions to provide all world citizens with special emphasis on the underdeveloped world with access to 21st Century education and healthcare via broadband Internet. The philosophy of GUS is based on the belief that global peace and prosperity would only be sustainable through education. Education and job skills are the keys in determining a nation's wealth and influence. The aim is to achieve "education and healthcare for all," anywhere, anytime and at any pace.

GUS helps higher educational and healthcare institutions in remote/rural areas of developing countries to deploy broadband Internet in order for them to close the digital divide. These institutions act as the knowledge center of their community for the eradication of poverty and isolation through the use of advanced Information and Communications Technologies (ICTs). Learners will be able to take their courses from member institutions around the world to receive a GUS degree, thus freeing them from being confined to one academic culture of a single university or country. Learners and their professors from participating institutions will also form a global forum for exchange of ideas and information and for conducting collaborative research and development with the use of emerging GRID networking technology (McLeod, 2000).

GUS has group activities in the major regions of the globe in partnership with higher learning and healthcare institutions. They foster the establishment of GUS in their respective regions, with the use of an advanced global broadband Internet virtual private network. These will then connect the universities with secondary and elementary schools, libraries, hospitals, local government offices and NGOs, etc., by broadband wireless Internet at drastically discounted rates (Fig. 1).

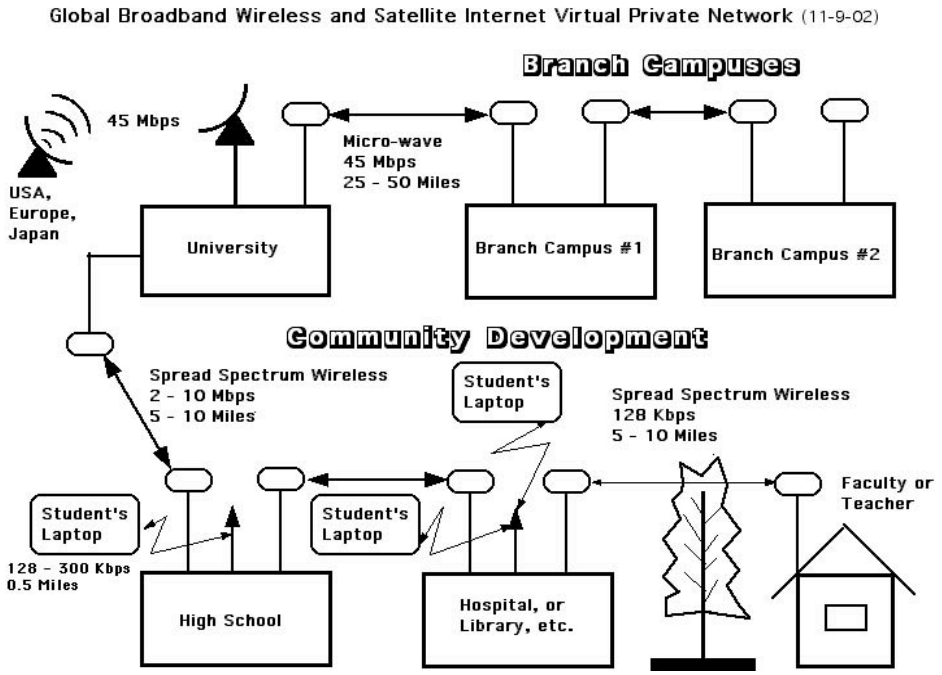

Fig.1: Global Broadband wireless and satellite Internet virtual private network

GUS is headquartered at the Global E-learning Center at the University of Tampere in Finland, under the direction of the UNESCO/UNITWIN Networking Chair, held by Dr. Tapio Varis (Varis, et al, 2003). Those institutions affiliated with GUS become members of the GUS/UNESCO/UNITWIN Networking Chair Program. GUS projects are now starting in many countries of Africa, Asia and Siberia (Utsumi, 2006-a) and have received inquiries from several other countries for review.

II. TAGANROG INSTITUTE OF TECHNOLOGY

Taganrog Radio Engineering Institute (TSURE) was founded in 1952 for training radio engineers to meet the needs of the industry. Today TSURE has the title of Taganrog Institute of Technology (TIT) and is a part of Southern Federal University (SFU), which is ranked number 4 among the higher education institutions in Russian Federation (2006). Attracting the best minds from Russia and abroad, TIT SFU enrolls about 6800 full-time students and employs more than 1000 of highly professional staff members. Institute offers a variety of academic programs including radio engineering training, offered exclusively only by TIT, as well as medical electronic equipment program. The institute has a complex structure of faculties and research and production bureaus. The experimental research of institute bureaus is used in all branches of industry, and graduates of the TIT are highly demanded in the labor market worldwide.

III. CREATION OF GLOBAL UNIVERSITY SYSTEM IN SOUTHERN RUSSIA (GUS/SOUTHERN RUSSIA/TAGANROG)

A. Background

Russia is the biggest country in the world with the population exceeding 141 million (est. July 2007). The literacy level stands at 99.4% according to the World Factbook 2007 and UNDP Human Development Index (Table 1). Russia stands on the place 13 in the world by the amount of the Internet users (25,689 million in 2006) and on the place 6 by the number of mobile phones in use (150 million in 2006).

Table I

Human Development Index (HDI) Report (refers to year 2005)	
HDI value	0.802
Life expectancy at birth (years)	65
Adult literacy rate (% ages 15 and older)	99.4
Combined primary, secondary and tertiary	

gross enrolment ratio %	88.9
GDP per capita (PPP US$)	10,845
www.undp.org	

B. Concept

The Taganrog/Rostov Region-Net and Local Community Development Network (LCDN) will be established in Southern Russia to support the existing and foster the development of future e-learning and e-healthcare/ telemedicine pilot projects using broadband Internet technology in order to enhance teaching and learning capabilities. The project will partner with Global University System (GUS) to facilitate connectivity among current e-learning efforts around the world and provide support and guidance to selected pilot projects serving as models for adoption.

Satellite and fixed wireless broadband technologies will be used to connect universities, hospitals, libraries, local government agencies, elementary and secondary schools. Taganrog Institute of Technology, Southern Federal University will be used as a network regional hub and act as the secretariat of the consortium (GUS/Southern Russia/Taganrog) of those organizations. The network will link up the various project sites across the country using VSAT, microwave radio links and wireless local loops.

- Proposed GUS/Southern Russia/Taganrog (GUS/SR/T) will link rural communities and support distance learning and e-health/telemedicine for:
    - Regional technological infrastructure and
    - Programs and academic content to increase stakeholder capacity.
- Both infrastructure and programs are supported by:
    - Exchanges of educational courses and their credits through broadband Internet,
    - Promotion of community development, and
    - Collaborative research.
- Immediate focus is on community e-health/telemedicine and participatory governance because those programs are foundational and best developed for rapid start-up.
- The e-university brings together resources of an extensive network of universities in Russia as well as specialized programs from many international universities.
- GUS/SR/T will provide tools, systems, partnerships and funding opportunities to strengthen local efforts for remote learning and health system.

C. Objectives

The project aims to achieve the following objectives but not limited to:

- To promote the development of communities (universities, elementary and secondary schools, hospitals and others), with the use of high-speed wireless Internet connections for e-learning and e-healthcare associated with content development.
- To promote the establishment of tele-immersion environment in the country, which emphasizes the critical elements of the people's cultural heritages, history of the people as well as their daily experiences based on their indigenous knowledge systems (IKS) by linking them to centers of learning and promoting ICT to local language development and use in research, recording and retrieval.
- To create GUS/Southern Russia/Taganrog in order to establish technological alternatives to promote the above objectives as well as learning-ware, digital libraries, virtual laboratories and virtual universities with high-speed wireless and satellite technology, which is designed to deliver cost-effective transmission of voice, text, and video content anywhere in Southern Russia.

D. Goals

The goals to be pursued in this project are to establish:

i. Broadband Internet network of universities, research centers and institutions of learning that will enhance interaction among these institutions and, at the same time, link them with their communities for enabling their life-long learning to increase their productivity for poverty eradication, and
ii. Local Community Development Networks (LCDNs), which is to link diverse rural communities for knowledge sharing through exchange of experiences.

IV. PROJECT JUSTIFICATION

GUS/SR/T will affiliate with Global University System (GUS), which headquarters is located at the University of

Tampere, Finland. SFU will act as the secretariat of the GUS/SR/T to provide overall administration and co-ordination of GUS and emerging programs. GUS/SR/T is designed to provide tools to enable the people of the region to participate fully in their own development and to bring their culture forward, thriving with the influx of opportunities, and contributing to new prosperities. The creation of GUS/SR/T will also be emulated in other developing countries.

GUS/SR/T will be a consortium of higher educational and healthcare institutions and other local stakeholders, etc., and will serve as the overall framework for initiatives entailing rural and community-based development activities, especially (not exclusively) those pertaining to Healthcare, Education, Life Sciences, Physical Sciences, Ecology, Communication Sciences, Management Sciences, Humanities, Economic and Social Sciences.

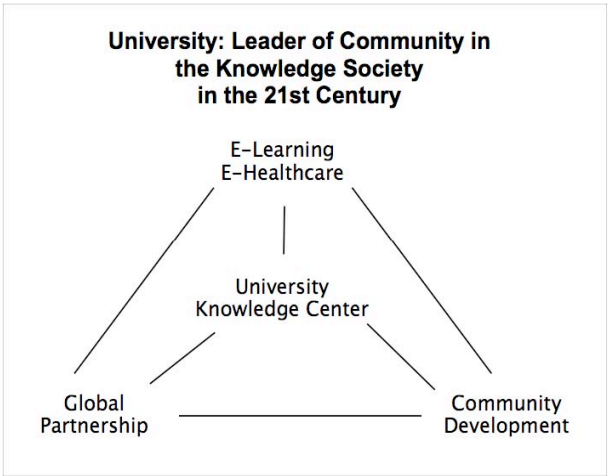

Fig. 2: University as Leader of Community

VIII. EXPECTED OUTPUT

It is expected that GUS will provide the following benefits to students and participating universities:

- Broadband Internet connection, supporting modern distance education via the World Wide Web
- Help member universities build a network of facilitators to support e-Learners
- Learners may take courses from different member universities, obtaining their degree from the GUS, thus freeing them from being confined to one academic culture of a single university or country
- Learners and faculties can promote the exchange of ideas, information, knowledge, and joint research and development of Web-based teaching materials
- Researchers in developing countries can partner with colleagues in more advanced countries, and perform joint collaborative research and development with the use of virtual reality/virtual laboratories for experiential/constructive learning and creation of knowledge through the emerging global GRID computer networking technology
- Learners, faculties, and public policy makers can promote community development and many other advances at a local, regional and even on a global scale.

The expected project output will be in the following:

A. Social Benefits

It is expected that broadband wireless and satellite Internet, available to universities, secondary, primary and elementary schools and hospitals, will promote the interaction among young people from different areas of Southern Russia (Rostov Region) with young people from the rest of the world. Content will be developed and delivered to the network users for education and telemedicine use. The success of this project will be used as a model for replication of the projects in other countries around the world.

B. Technical and Economic Benefits

The main focus of the proposed broadband Internet (see Figure 1) is either or both of satellite and terrestrial (microwave and/or spread-spectrum) wireless approach in viewpoints of the region's geographical constraints and their cost effectiveness. These infrastructures will be used by the participating institutions and their efficiency will be higher than the use of traditional networks. The project will involve the participation of the community and other interested groups. This will not only contribute to the bridging the digital divide, but also create new job opportunities to the graduates of the universities, and the local community.

C. Poverty Reduction Impact

The implementation of a modern communication technology will reduce the risks threatening the country. A faster communication network will increase the ability of people to engage in productive activities in a more satisfying way and thereby contributing to the drive for poverty reduction and improvement in their quality of life. Technological propagation is not an end in itself, but a means to a larger end with clear and compelling community benefit.

XI. CONCLUSIONS

The GUS program is a comprehensive and holistic approach to building smart and creative communities in developing countries for e-learning and e-healthcare/telemedicine. Initiatives are underway to create the necessary infrastructure and educational liaisons, and some near-term educational access is expected. Early efforts have included international teleconference technology workshops that have tested the satellite/wireless technology that will be used in GUS.

GUS and GCEPG are clearly ambitious programs that cannot be achieved by any one group, university, or national government. The programs require substantial collaborative contribution of ideas, expertise, technology resources and funds from multiple sources. Those who value the vision of GUS and GCEPG are invited to join this great and noble enterprise.

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