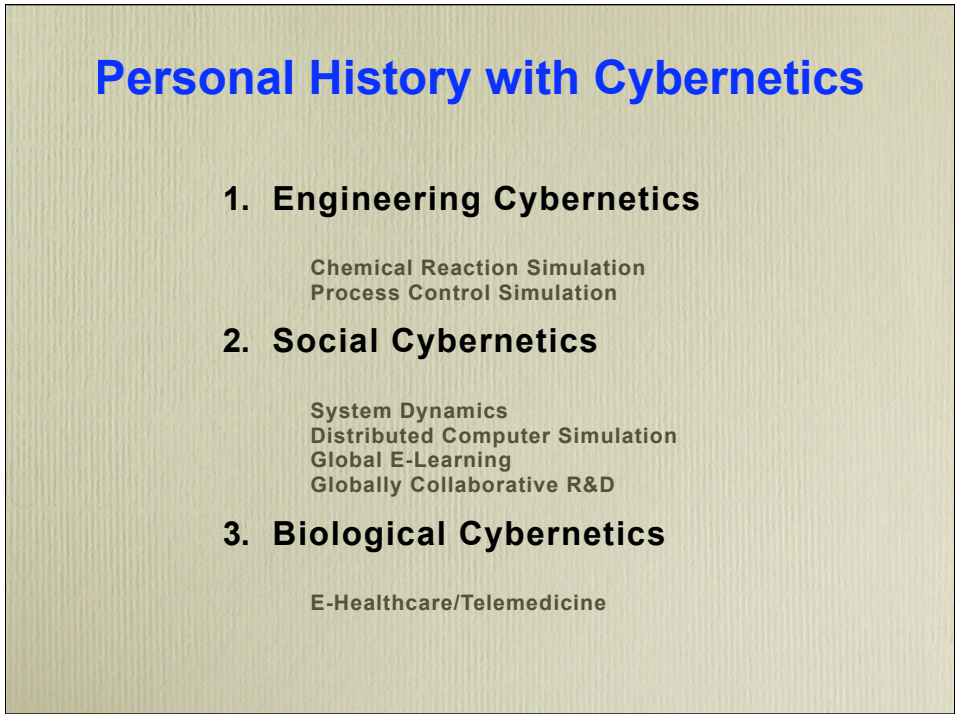


1

Distinguished Delegates, Ladies and Gentlemen.

It is my great honor and privilege to have this opportunity to speak at the most prestigious conference on cybernetics, which theory was originated by the renowned Dr. Norbert Wiener at M.I.T..

Contents

1. Intercultural Understanding for Global Peace
2. Global University System (GUS)
3. Globally Collaborative Environmental Peace Gaming (GCEPG)

    Globally Collaborative Innovation Network (GCIN)

Global Social Transformation

All of us, as a society, are witnessing an extraordinary historical transition between the Industrial Age and the Information -- or Digital Age.

When a society's fundamental technologies change and its economy begins to transform, the political and social institutions inevitably follow.

In this new era, nothing will be as important as education. The current educational systems of the developed world -- suited to the requirements of the masses of the Industrial Age -- is becoming obsolete. We, and our children, need to be prepared.

With multimedia personal computers, learning will become interactive and individualized.

The man-in-the-street and politicians alike are asking the same questions -- where are we and where are we going?

From a flyer of TELECOM Interactivity 97 of ITU

4

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.

Slide rule to digital computer; Circuit switching telephony to packet switching digital telecom -- necessary to have "mind-change," particularly of bureaucrats as Machiavelli once said almost a half millennium ago.

*** Raw material of industrial age was tangible, the raw material of knowledge age in the 21st century is IN-tangible.**
*** There is NO economic theories for the New Economy.**
*** Dr. Kaisa Kautto-Koivula said in her paper in our recent book that "The biggest barrier for new development of Human-Centric Knowledge Society is our Industrial Age mindset!"**
*** Creativity is the province of Homo sapiens. We live for future, not in past. Science and technology open the future. However, the application of new technology often meets with "Creative Destruction" -- the famous words by Joseph Schumpeter.**
*** Here needs good understanding of traditions and culture, and strong belief in scientific and moral principles. This is because the interchange of creativity makes possible an international understanding and mutual appreciation that can lead to global peace.**

“Creative Destruction”?

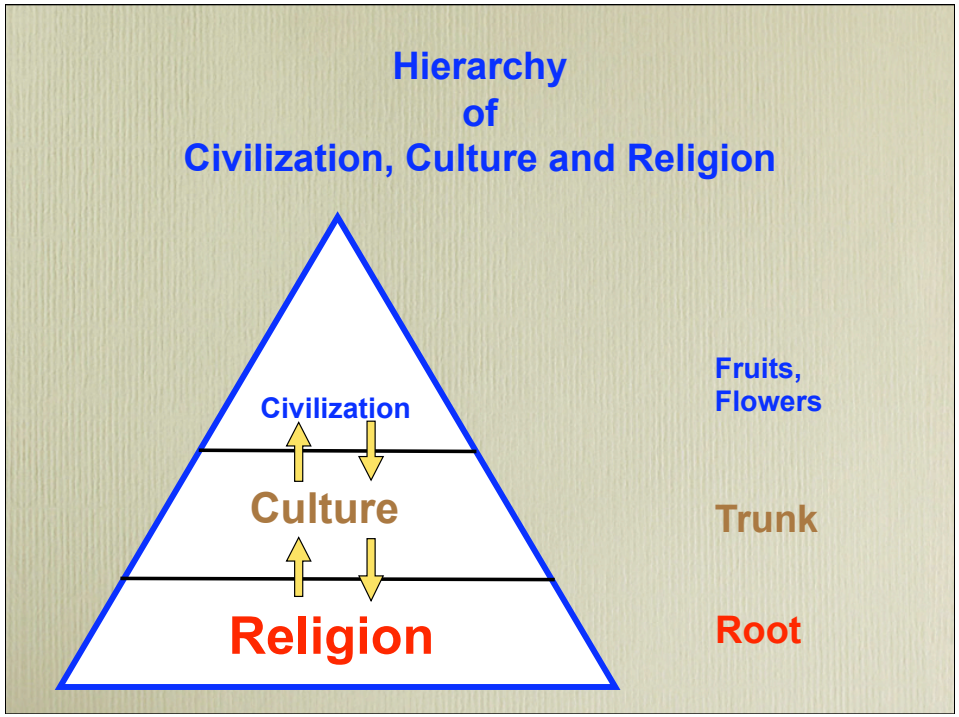
Photo taken at Da Vinci Science and Technology Museum, Milan, Italy (March, 2005)

What is peace through culture?

The word "culture" is deriven from the two words "cult" and "ur." "Cult," of course, means cultivation. "Ur" is an ancient Chaldean term meaning "light" -- the creative aspect of the universe. Hence, culture is literally the cultivation of creativity.

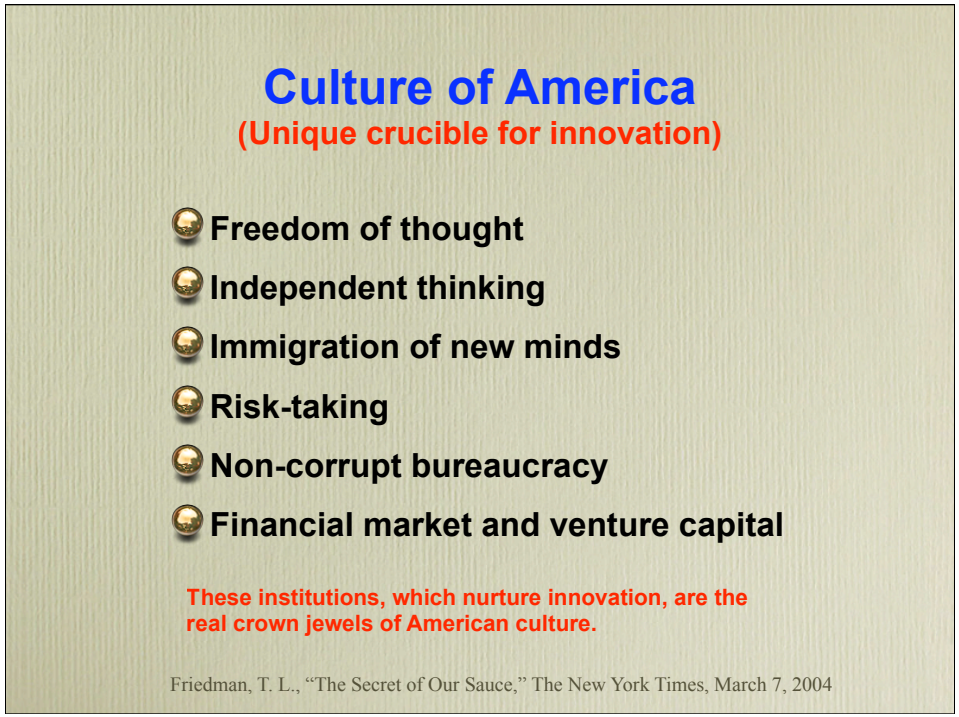
Peace is more than just the absence of war. Just as it takes acts of war to make war, it takes acts of peace to make peace. Peace, then, is a structure of positive acts of creativeness that are carried out in a spirit of high idealism.

> **"Genuine peace must be the product of many nations, the sum of many acts. It must be dynamic, not static, changing to meet the challenge of each new generation. For peace is a process -- a way of solving problems."**
>
> John F. Kennedy



Japan = cherry,
China = peach,
the U.S. = apple, etc.

We need a cross pollination for jointly creating a new global culture and civilization of a global society in the knowledge age of the 21st century by youngsters around the world.



8

America is so much more innovative a place than any other country. America allows you to explore your mind. America is the greatest engine of innovation that has ever existed, and it can't be duplicated anytime soon, because it is the product of a multitude of factors:

* Extreme freedom of thought,
* An emphasis on independent thinking,
* A steady immigration of new minds,
* A risk-taking culture with no stigma attached to trying and failing,
* A non-corrupt bureaucracy, and
* Financial markets and a venture capital system that are unrivaled at taking new ideas and turning them into global products.

These institutions, which nurture innovation, are the real crown jewels of American culture. The whole process where people get an idea and put together a team, raise the capital, create a product and main-stream it -- that can only be done in the U.S.

The U.S. tech workers must keep creating leading edge technologies that make their companies more productive -- especially innovations that spark entirely new markets.

This is America's real edge.

How to Fire Up The Innovation Machine

BusinessWeek, October 11, 2004, Page 240

At a time of intense division, with deep political and religious fault lines splitting the world, innovation stands out as a powerful integrative force.

It ties countries, companies, and consumers together in creating value, solving problems, and generating wealth.

An innovation economy demands that society be open, dynamic, educated, international, and risk-taking. Given a chance, innovation can improve all our lives.

Financial risk-taking is the fuel that powers the process of change.

Worldwide innovation networks are the new keys to R&D vitality -- and competitiveness.

Global University System (GUS) - #I

The Global University System (GUS) is a worldwide initiative to establish broadband Internet infrastructure for enhancing e-learning and e-healthcare across national and cultural boundaries for global peace.

The philosophy of GUS is based on the belief that global peace and prosperity would only be sustainable through education. The prime objective is to achieve "education and healthcare FOR ALL," anywhere, anytime and at any pace.

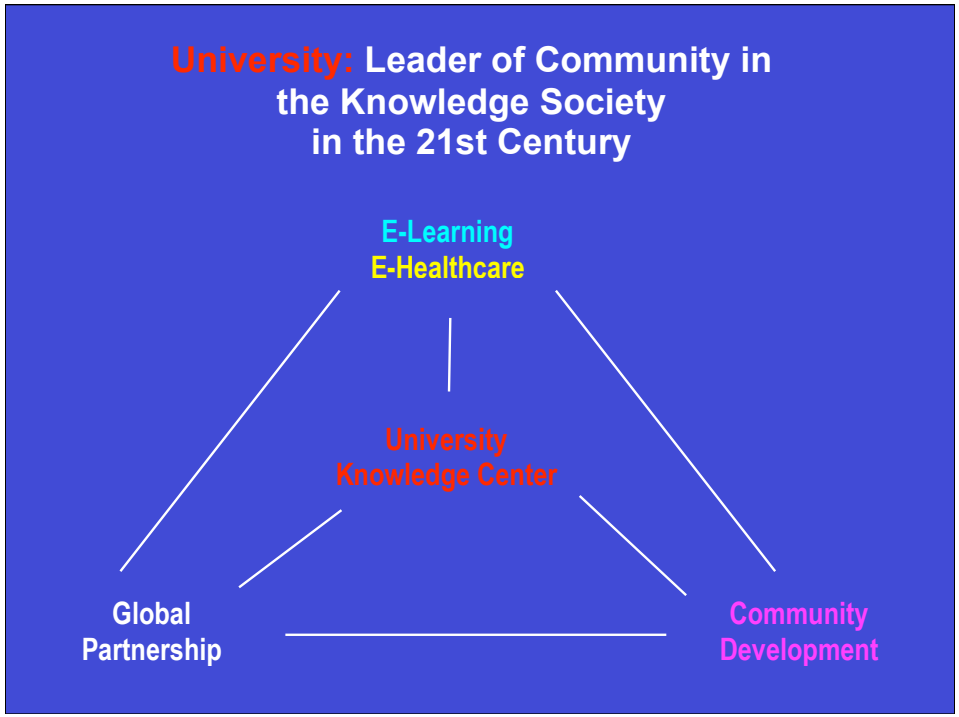
Global University System (GUS) - #2

GUS aims to create a worldwide consortium of educational and healthcare institutions and NGOs, particularly benefiting those in remote/rural areas of developing countries for the eradication of poverty and isolation.

Learners in those countries will be able to take courses, via advanced broadband Internet, from member institutions around the world, and receive a GUS degree.

Both the learning (students or lifelong learners) and teaching (professors) at partner institutions will also form a global forum to exchange ideas and information and to collaborate in research and development with the emerging global GRID computer network technology.

Thus, the higher education institutions will close the digital divide, act as the knowledge center of their community and lead their development.



12

The word “University” has a connotation of “universe.” Hence, the university in remote/rural areas of developing countries ought to act as the knowledge center of their community for the eradication of poverty and isolation through the use of advanced Information and Communication Technologies (ICTs).

The university has to provide not only e-learning and e-healthcare services to their community, but also to lead their community development — as John’s essay describes.

It also ought to be the gateway for globally collaborative research and development as fostering the Global Creative Economy in the borderless Knowledge Society of the 21st century.

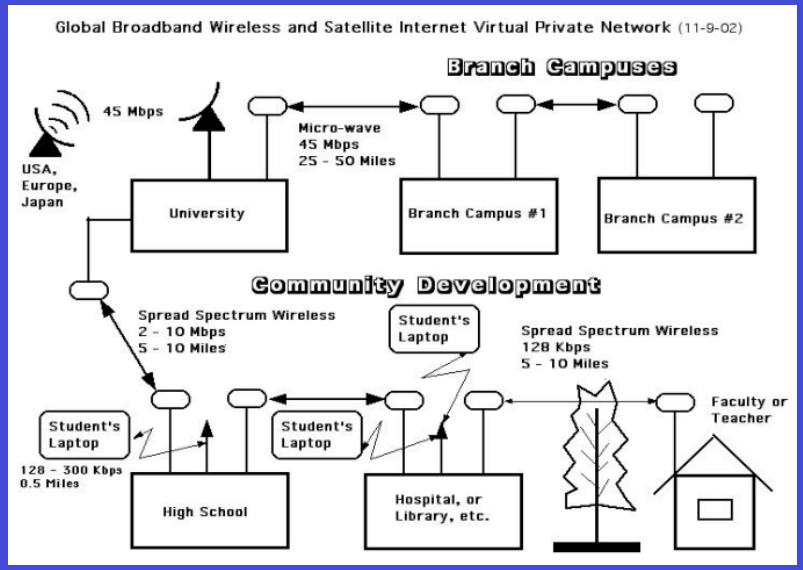
GUS education will promote world prosperity, justice, and peace, based on moral principles rather than political or ideological doctrines.

Education and job skills are the keys in determining a nation's wealth and influence.

Those institutions affiliated with GUS become members of the GUS/UNESCO/UNITWIN Networking Chair Program located at the University of Tampere in Finland.

Global Broadband Internet (GBI)

Virtual Private Network with QoS



13

1. Satellite linkage:
GUS will be based on regional satellite hubs, typically located at a major university, that connect via high-speed satellite (~ 45 Mbps) to educational resource cites in the E.U., U.S., and Japan. (If available, it will be connected with terrestrial optical fiber broadband Internet, as the case of Ethiopian's Multimedia Broadband Internet at 3 Gbps.) In a sense, the regional satellite hub is to be the major Internet Service Provider (ISP) for not-for-profit organizations in the region, and the gateway to the outside world.

2. Microwave linkage:
Regional hubs link to branch campuses or other regional educational institutions via micro-wave (~ 45 Mbps) over relatively short distances (25-50 miles), if optical fiber network is not readily available.

3. Community Development Network:
Communication from the hub and branch campuses to local sites, over distances up to 10 miles, is to be achieved by spread-spectrum wireless (~ 2-10 Mbps) Internet networks, which do not require licenses in most countries.

4. Wi-Fi connection:
The buildings with a broadband Internet connection will then also become relay points for the low-cost "Wi-Fi (wireless fidelity)" networks at 10 Mbps that are now rapidly appearing in Japan, USA and Europe, e.g., Philadelphia, San Francisco, Taipei, etc.

This advanced wireless communication with laptop computer will make e-learning possible for anyone, anywhere, and anytime with capabilities of Internet telephony, fax, voice mail, e-mail, Web access, videoconferencing, etc. This is not only to help local community development, but also to assure close cooperation among higher, middle and lower levels of education.

Expected Benefits

- Consortium member universities will be able to build the network of facilitators for support of e-learners,
- Learners may take one course from a university of different country to get his/her degree from the GUS, thus freeing them from being confined with one philosophy of a university and a country,
- The broadband Internet will enable web-based teaching with more interaction among/between learners and instructors compared with less interaction in replicating class-room teaching via analog broadcasting satellite, -- thus stimulating global dialogues among them to attain global peace, (continue)

Expected Benefits (continued)

- Learners and faculties at the member universities can promote exchange of ideas, information, knowledge and joint research and development of web-based teaching materials, community development, and many others locally, regionally and even in global scale,

- Researchers in even developing countries can perform joint collaborative Hi-Tech research and development with virtual reality and virtual laboratory of various academic and engineering subjects with colleagues in developed countries.

Globally Collaborative Environmental Peace Gaming

Globally Collaborative Environmental Peace Gaming (GCEPG) 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."

With global GRID computer networking technology and Beowulf mini-super computers of cluster computing technology, we plan to develop a socio-economic-environmental simulation system and a climate simulation system in parallel fashion, both of which are to be interconnected in global scale.

Three Necessary Components for Peace Gaming

1. **Telecommunication Infrastructure**
   - Packet-Switching Telecommunication
     - Internet
2. **Communication Means**
   - E-mail
     - Multimedia
3. **Game Players**
   - Global University System

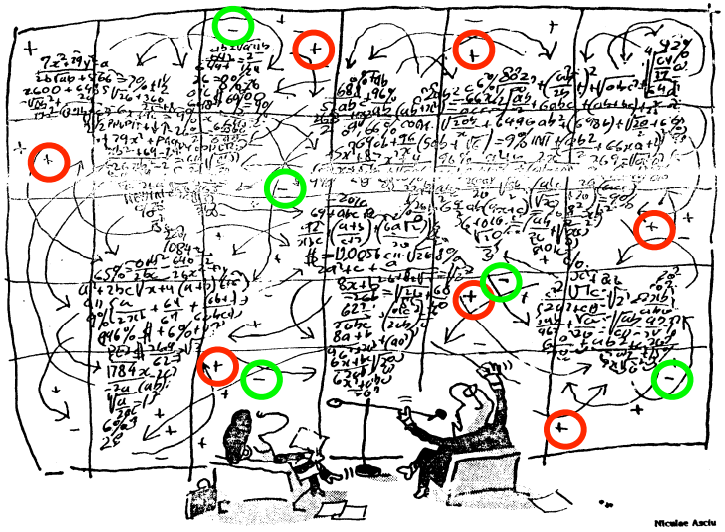
Advantages of Distributed Simulation

1. Increase of Credibility
2. Data Security
3. Flexibility
   a. Use of any language within local simulation
   b. Same for methodology, machine, etc.
4. Participatory Democracy with Bottom-up Decision
5. Cooperation for Better Understanding
6. Suitable for Large-scale, Confrontation-prone, Global problems

System Dynamic Simulation with Cause-and-Effect Analysis and Feedback Loop

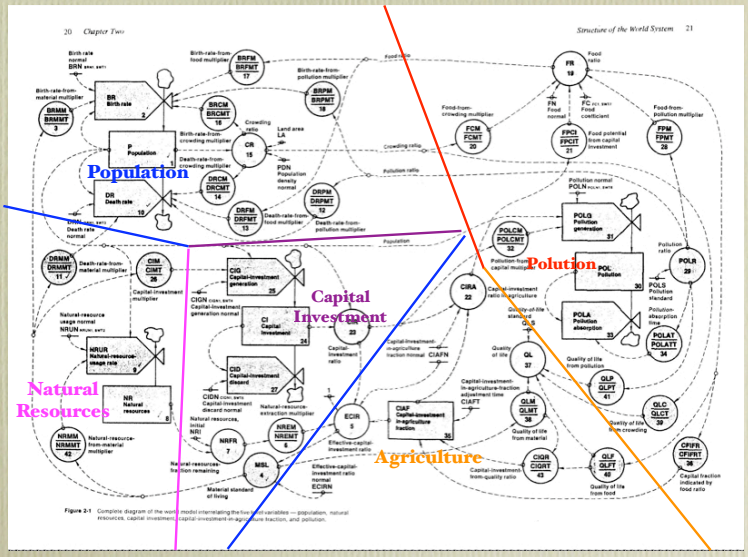
- Non-linear, holistic thinking of the whole system instead of linear, narrow, single issue thinking.
- Counter-intuitive, instead of intuitive.
- Learning the system mechanism and its behavior.
- Rational decision making habit based on FACTS and FIGURES.
- GOOD FOR POLICY ANALYSIS OF SOCIO-ECONOMIC SYSTEMS.

Systems Analysis of the World



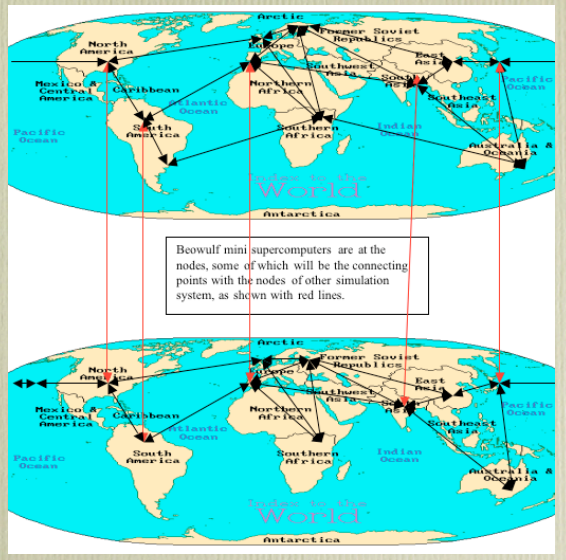
THE NEW YORK TIMES, SUNDAY, APRIL 6, 1986

Cause-and-Effect Diagram of World Dynamics Model



Globally Collaborative Environmental Peace Gaming (GCEPG)

Globally Distributed Climate Simulation System



Globally Distributed Socio-Economic-Environmental Simulation System

The best way to cope with the modeling difficulties stemming on the basic difference between discrete, boundary-oriented socio-economic-environmental simulation and continuous climate simulation would be to accomplish distributed computer simulation networks of both of them with dispersed mini supercomputers in parallel fashion and both networks to be interlinked at appropriate locations (red lines in this diagram).

The network of dispersed mini supercomputers (each of them with socio-economic-environmental model of their localities) will work as a single simulation of global economy. In a similar fashion, another network of dispersed mini supercomputers (each of them with climate model of their region) will work as a single simulation of global climate. Both networks can be linked in such a way that global socio-economic-environmental simulation will work closely together with global climate simulation.

The decision-making parameters can directly be fed into nearby mini supercomputers for its regional socio-economic-environmental simulation model, yet having effects on both global simulation networks. This will be a perfect democratic participatory of global simulation. This will then eliminate the need of such a giant Earth Simulator of Japan (US$350 million and 4 tennis courts size).

Financing

- During the Okinawa Summit in July of 2000, Japanese government pledged US$15 billion to close the digital divide in developing countries and for the eradication of poverty and isolation.
- During the G8 Summit in Canada in June of 2002, and at the Environment Summit in South Africa in September of 2002, they also pledged another US$2 billion to aid education and healthcare in developing countries, respectively.

Financing
(continued)

- GUS projects will combine (1) the Japanese government's Official Development Assistance (ODA) funds and (2) Japanese electronic equipment with
- (a) the Internet technology and (b) content development of North America and Europe,

- to help underserved people in rural and remote areas of developing countries by closing the digital divide.

Conclusions

Our projects are clearly ambitious due to its scope and nature. Any one group, university, or national government cannot achieve it. They requires substantial collaborative contribution of ideas, expertise, technology resources, and funds from multiple sources.

We invite those who value the visions of our Global University System (GUS) project and Globally Collaborative Environmental Peace Gaming (GCEPG) project to join us in this great and noble enterprise for human survival.

GLOSAS Projects

(GLObal Systems Analysis and Simulation Association in the U.S.A.)

Takeshi Utsumi, Ph.D., P.E.

- **Chairman, GLOSAS/USA**
- **Laureate of Lord Perry Award for Excellence in Distance Education**
- **Founder and V.P. for Technology and Coordination of Global University System (GUS)**
- **http://www.friends-partners.org/GLOSAS/**

Click "Current Reference Websites" in the home page listed above.

Muito Obrigado

Arigato

("Thank you" in Japanese)

(not alligator)