

OKINAWA STATEMENT

* Capacity Building in Science -- The Basis for Sustainable Development *

The Science Council of Japan and the participants of the International Conference on IT-Based Capacity Building in Science convened in Okinawa, Japan January 16-18, 2003

RECOGNIZING THAT

The transition to sustainable development is the central theme of the 21st Century, and the contribution of science and technology is vital for solving a variety of difficulties faced on a global scale, as discussed in the Conference of the World Scientific Academies held in Tokyo in 2000 and in the World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002,

To achieve global sustainability, every nation shall develop to the stage where all people live with dignity, free from poverty and injustice, and the most effective way to develop to such a stage is through human resource development by capacity building, especially in science and technology,

Prime Minister of Japan, Junichiro Koizumi, in his speech at WSSD proposed the United Nations for declaring a “Decade of Education for Sustainable Development”, and offered 250 Billion Yen assistance over the next five years to improve education in low income countries, and UN General Assembly on December 20, 2002 decided to adopt the proposal starting from 2005,

Recent progress in information and communication technology (ICT) has dramatically expanded the horizon of human activities and provided with the tools to overcome distance, thus has become the driving force to change our society, from one's personal life to the way of business and administration,

The potential application of ICT is expected for capacity building in science, starting from education in primary school through higher education up to the training of scientists and engineers, but the effective use of ICT varies depending upon the stage of education and the available infrastructures of a given society,

Today's so-called “digital divide” is not only drawn between the rich and poor but also those educated and not-educated, thus education in ICT and its accessibility and availability have the inherent potential to narrow the imbalance due to the gap in income and infrastructure of the society,

A variety of examples of successful applications of ICT to the capacity building in science have been presented and discussed during the Okinawa Conference, leading to a common understanding of the issues concerned,

HEREBY RECOMMEND THE FOLLOWING:

General

1. Various national and international organizations have been working on the capacity building utilizing ICT. Sharing their experiences is most valuable in the pursuit of our common objectives. It is strongly urged to create various platforms to share such experiences and expertise.
2. Accessibility is a key element of ICT-based education and capacity building. While mobile technology offers a great promise, financial and technical assistance of developed countries, non-governmental organizations (NGOs) and international organizations be provided to build infrastructure with affordable costs to developing countries.
3. Collaborative development of internationally applicable contents, database and teaching practices must be encouraged for resource sharing.
4. Quality of ICT-based education must take into account of languages and contents acceptable and relevant to local needs.
5. Proper monitoring and assessment of the outcomes must be implemented as an important component to secure greater and continuing public support and to guide project modification.
6. Virtual public libraries and laboratories accessible online are highly effective to provide knowledge and practice for all with the least cost. Introduction of such a system is recommended especially for developing countries to assist people to enter knowledge society.

On Primary and Secondary Education

1. Science and mathematics education for all is one of the prime strategic challenges in capacity building. To attain this, the educational reformation is required in curriculum, teacher training, pedagogy and assessment assisted by ICT.
2. To increase the effectiveness of science and mathematics education, the aspiration of motivation by inquiry-based, hands-on and minds-on learning be considered essential. Technology in classrooms may enhance practice for science and mathematics education, but it should be introduced in accordance with the development of students so that learning is not simply replaced by the skill of using but is stimulated to enhance individuals' creative potential.
3. Teacher training is one of the most important reformation factors in primary and secondary education. Distance learning and systematic support by the science community shall be fully exploited for "teaching teachers" in both developed and developing countries.
4. Digital divide persistent in developing countries can be most effectively bridged by training of young generation. Developed countries should step in to help improve both ICT application and facilities of primary and secondary schools of developing countries.

On Higher Education and Lifelong Learning

1. All the institutions for higher education should jointly take initiative in worldwide promotion of the capacity building in science, by applying ICT to create new contents of education, to enlarge access to information, to foster scientific research and to share scientific knowledge and information.
2. Distance learning and open university offer a variety of self-learning

opportunities thus should be utilized to cope with the swelling demand for higher education, especially in developing countries.

3. It is recommended that additional educational opportunities be offered to millions of people who pursue lifelong learning and continuing professional development, in developed as well as in developing countries, on and off campus through ICT.

On International Cooperation

1. Pioneering work was initiated by the former Committee of Science and Technology in Developing Country (COSTED) to establish Open Distance Learning (ODL) Network in developing countries. This initiative is effective for the capacity building of students, teachers and young scientists in developing countries. It is essential that the International Council for Science (ICSU) takes over this initiative without interruption and further promotes capacity building in developing countries with close cooperation of scientific unions and national academies.
2. In developing countries, the application of ICT in education faces great obstacles; limited access to Internet, lack of basic supporting infrastructure, lack of human resources and appropriate contents. Financial and technical supports are urgently needed from various sources such as inter- and multi-national organizations, governments and NGOs.
3. To effectively accelerate human resource development, activities should be coordinated into an integrated agenda, of international NGOs such as ICSU through its Committee on Capacity Building in Science (CCBS), InterAcademy Panel (IAP), Third World Academy of Sciences (TWAS), International Foundation for Science (IFS), donor agencies such as, for Japan, Japan International Cooperation Agency (JICA), Japan Bank for International Cooperation (JBIC), and international organizations such as UNESCO, the United Nations University, the World Bank.
4. An international association of national centers for capacity building should be established timely. This association is the assembly of national centers who are responsible for the implementation of ICT policy, research and development for ICT use and the integration of ICT in teaching and learning, and should be supported financially by national governments and international organizations.

Attaining sustainable development is the common goal of all the countries. The most basic and effective way to meet this difficult challenge is to empower human potential through capacity building, especially in science. All the recommendations mentioned above can be materialized by developing a coordinating network of national, regional and global endeavors. Science Council of Japan, together with organizations of the world sharing the same objectives, is committed to contribute towards establishing such a network.

Knowledge is the common treasure of humankind. The advance in information and communication technology is the most precious gift for us, because it can accelerate the sharing of our common treasure among all the people who happened to live on the same planet at the same moment in the eternal flow of time.