It was a real unique seminar. Eighteen students from selected five secondary schools were able to interact with professors, university lecturers, secondary school teachers, curriculum developers, government officials, ICT experts, service providers and dealers. For four days, from morning to late in the evening, the seminar participants were preoccupied in discussions and exchange of ideas on how ICT can be introduced in secondary education as a subject and a learning aid.

The third day of the seminar was the most crucial one for participants. All including the students took part in recommending appropriate inputs towards a strategy for implementation.

The burning issue was whether Tanzania should have a separate policy for ICT training, parallel with the current National ICT Policy of the Ministry of Communication and Transport (MoCT).

Participants were almost divided into two groups on that issue. A good number of them favoured the idea of developing a specific policy for ICT training and application in the education sector. Those who rejected the idea, with a view that the current National ICT Policy is adequate, challenged these participants.

On the other hand were the senior government officials who cautioned that though creating a new policy could look better and simple, its process could take long time before approval by the Cabinet of government ministers.

Engineers August Kowero and Ole Kambaine from MoCT said demand for a new policy on ICT education was unnecessary and may delay implementation of the workshop resolutions. They said the current National ICT Policy is sufficient because it contains a clause that recognizes e-learning and ICT as compulsory ingredients in knowledge sharing and in training at all levels.

Mr. Theophil Mlaki, a director in the national Commission for Science and Technology (COSTECH), Dr. Yonah Zaipuna from Tanzania Telecommunication Company (TTCL) and Mr. Simbo Ntiro, a management consultant agreed with the government officials.

Before, Professor Tolly Mbwette of Open University of Tanzania (OUT) had stressed for a need for specific policy on ICT training on ground that the current National ICT Policy is too narrow and that the issue of ICT being applied in training is mentioned very lightly. A new policy on ICT training is compulsory and would elaborate in detail all necessary ingredients required including curriculum, methodologies and resources, he agued.

Mr. Joris Komen, a Namibia educationalist from *School Net Namibia* had supported Professor Mbwette's argument. He said Namibia and several developing countries already have specific policies on ICT training that are applicable in secondary education. "These policies are working very well," he stressed amid considerable support from a number of teachers and curriculum developers from the Tanzania Institute of Education (TIE).

TIE has earlier last year released a study report that emphasized the need for specific ICT policy for education in Tanzania. The study was conducted by one of senior curriculum developers in TIE.

Nevertheless, the demand for specific policy was finally watered down by a strong argument from Mr. Mlaki from COSTECH. He said the process of formulating a policy up to its approval could be easier in Namibia because of its small population but not in Tanzania a country of more than 30 million people. He said in Tanzania, policies takes long before approval by the cabinet because; in the process of preparation government officials should involve all stakeholders outside the government.

The demand for specific policy came after long deliberations and exchange of ideas amongst participants who realized in the workshop that ICT was too important as a tool and subject to a student.

The importance of ICT was stressed right from the first hours of the workshop in the opening remarks by Mr. Torbjorn Pettersson, the head of development cooperation at the Swedish Embassy in Dar es Salaam. Mr. Pettersson said ICT is important in schools, because ICT is important for Tanzania's development.

"It is important to realize that ICT doesn't represent a computer, an e-mail message or a search on the web (alone),'' said the Swedish Diplomat. He mentioned some examples of links were ICT could play a key role to accelerate sustainable development in Tanzania.

He said ICT represents an instant and economical way of knowing what the market price for cashew nut is in Dar es Salaam for a businessman in Lindi. ICT can also provide a list

of all books that has been published last year on HIV / AIDS for a medical student at Muhimbili University College of Health Sciences (MUCHS), he said.

Narrating more examples, Mr. Pettersson said a telephone call from a father in Tabora to his daughter studying in India would cost less per minute through Internet connection in comparison to conventional telephone links.

There is a possibility of taking a university course while living and working in Bukoba through Distance Learning programmes, he said. Above that Mr. Pettersson said ICT could make the government more transparent and democratic by simplifying access to information regarding Acts, the Parliament Proceedings and resources allocation and use by local authorities.

As far as teaching is concerned, Mr. Pettersson said ICT could enable a secondary school teacher in Kigoma to download important information from the Internet on Tsunamis and use it in a science class in the same day.

He said ICT also could enable a student to collect information from Parliament website for a survey on gender-balance in African parliaments as a project for school.

While the workshop was in motion, the participating students left the main hall and gathered separately in a chamber to design a website. The pupils were from day secondary schools based Dar es Salaam, namely Azania, Jangwani, Zanaki, Kisutu, Tambaza and Benjamin Mkapa High Schools. They are among few students in Tanzanian secondary schools privileged to study ICT is school. So far ICT training is offered a subsidiary computer literacy subject, which is optional. In most schools students who opt for the subject are required to pay extra costs for training.

The students said in their joint statement that ICT is too crucial for learning and hence propose to the government to turn it as a compulsory subject in all schools as soon as possible. They urged the stakeholders in the ICT sector to cooperate with the government and provide free Internet access to all schools with high-speed-link connectivity.

Mr. Joris Komen, Mr. Thomas Matthew and Gabriel Mwakalinga guided the students in various activities during the workshop. Matthew and Mwakalinga are ICT teachers in Dar es Salaam.

Mr. Matthew presented as a gift to all participants a copy of a CD-Rom with a brief story of activities of the Tanzania Education Information Services (TanEdu), which is non-

profit making company that provides ICT training to secondary schools. The CD-R shows students learning ICT in classroom and computer laboratory and substantiates Mr. Matthew's presentation on peer learning.

Ms. Allen Luyima, a Ugandan educationalist in *SchoolNet Uganda* and Esther Wachira, a training and communication manager from Computers for Schools Kenya were among participants. Each presented a paper on ICT training experiences in their countries.

Ms. Sharmilla Bhatt, from Soft-Tech Consultants Limited, presented to each participant a copy of a book titled *ICT4D – Connecting People for a Better World.* The 287-page book has numerous lessons, innovations and ideas on how ICT can be applied to accelerate sustainable development in developing countries. The book was published jointly by the Swiss Agency for Development Cooperation (SDS) of Geneva and the Malaysian based Global Knowledge Partnership (GKP) in 2004. Its publication followed the World Summit on the Information Society (Phase-1) in Geneva December 10-12, 2003. Its major goal was to showcase the human and development dimensions of ICT and thus enrich and complement the political part of the WSIS.

During the discussions, Mr. Marcel Tchaou a science programme specialist from UNESCO offices in Dar es Salaam said application of ICT was increasing in management and administrative areas of education only. He said there are no significant increases of ICT application in engineering in the developing countries particularly in Africa.

Edephonce Nfuka, the deputy director of the Dar es Salaam University Computer Centre (UCC), said ICT application in science and engineering are increasing in Tanzania contrary to Mr. Tchaou's comments. As a consultant and trainer in computer application, Mr. Nfuka said he had been called for consultancy in several institutions applying ICT in technical fields.

To support, Mr. Nfuka, Dr. Frank Tilya, a lecturer in University of Dar es Salaam's Education Department presented to all participants as a gift a copy of CD-R with a technical lessons for engineering students. The CD-R was prepared by the Dar es Salaam Institute of Technology (DIT) in collaboration with *Visual Lab* and *Zakwetu Limited.*

Mr. Gilbert Maeda, a dealer in ICT from Arusha Node (ANM) told the workshop that ICT as a modern technology is changing rapidly and hence the implementation of workshop resolutions should follow immediately or otherwise technological changes would overtake them.

Mr. Peter Lyimo, the headmaster of Majengo Secondary School in Moshi said there is a need to mainstream ICT culture in education by integrating it fully in the secondary school curriculum. His point got approval from most teachers amongst participants. These included Ms. Asha Juma, Bahati Juma and Wilson George, all teaching in Dar es Salaam. Mr. Omar Mzee, an ICT associate from UNDP offices in Dar es Salaam and Mr. Luis Msoffe, a college principal from Mtwara also supported him.

Ms. Elizabeth Mkoba, an ICT manager in Tanzania Education Authority (TEA) suggested wide use of free open software sources (FOSS) and promotion for affordable education materials. Her plead got a wide support from most participants including Mr. David Sawe from the President's Office - Division of Civil Service Management.

Charles Philemon from the Ministry of Education and Culture (MoEC) proposed keen identification, localization and digitalization of suitable education materials that are useful for education. Ms. Sofia Leboke and Mr. Leonard Ngowo from Arusha and Morogoro national libraries (TLS) supported him. Dr. Naomi Katunzi, the Permanent Secretary in MoEC suggested the same but insisted that moral and cultural values should be considered is selection of teaching materials.

In conclusion, the workshop participants agreed on issues of common grounds, pertaining to the future of ICT use in secondary education in Tanzania.

They said a priority should be training of ICT teachers to take the role of facilitators in the implementation of the strategy. Next step should be to make sure that all teachers are ICT literate by offering training for pre and post services teachers.

Additionally all secondary schools should be facilitated with reliable electricity and ICT training resources, both human and materials. Finally the education management information systems (EMIS) should be integrated and coordinated with keen expertise.

The participants concluded that all stakeholders and government should cooperate to integrate values in the process of ICT implementation strategy in education in order that the outcomes are enhanced. The value outputs should be embedded within the implementation strategies that are being developed. These values should co-exist with education values.

Closing the workshop on January 27, the Deputy Minister of Education and Culture Bujiku Sakila, said his ministry has devised a plan to introduce ICT in teachers' colleges.

Mr. Sakila said the objective was to enable tutors in teachers colleges become computer literate as a pre-condition to use ICT as a teaching and learning tool.

He called assistance in the implementation of ICT in both teachers' colleges and secondary schools in order to build a country of knowledgeable society.

He said that increased ICT as teaching and learning tool meant that educational institutions should integrate the technology in the curriculum and educational management in order to cut down overheads.

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