

**International Conference on Policies and Strategies for Open Access  
to Scientific Information, Beijing, June 22–24, 2005**

**Open Access and the Developing World**

**Subbiah Arunachalam  
M S Swaminathan Research Foundation  
Third Cross Street, Taramani Institutional Area  
CHENNAI 600 113, India**

**We live in an unequal world.**

**Much of the disparities among nations can be traced to the way they have used science and technology.**

**Clearly, to survive in the modern world and to meet the basic needs of its people every country needs to harness the power and potential of science and technology. The argument that poor countries need to concentrate on the basics and need not bother about science is fallacious.**

**It is in the interest of advanced countries as well to promote science in the poorer countries.**

**Epidemics [SARS, Avian Flu] and Disasters [Tsunami of 26 December] need all of us to work together.**

**Bruce Alberts: "As we examine the many problems in developing nations, we see that our prosperity depends on their prosperity in the long run."**

**"The international organizations that deal with development and deal with world politics are beginning to realize that as we get more and more people, and more and more resource conflicts, these things - science and technology - are not only important for feeding people, but they're also important for [world] stability," says Alberts.**

**It would be impossible to achieve the Millennium Development Goals without science and technology playing their roles.**

**Among other things we need to perform science and reap its benefits is access to information.**

# **The transforming power of technology**

**The invention of printing in Europe by Gutenberg led to far-reaching changes.**

**It ushered in the Protestant Revolution.**

**Monks lost their jobs and printers and typographers emerged.**

**Books in fields other than theology and religion, in languages other than latin and in prose.**

**Universities emerged and they taught math, medicine, natural philosophy, law, etc.**

**It gave an impetus to scientific research.**

**A few centuries earlier, Avicenna (Ibn Sina), the great Islamic philosopher and physician (980-1037), had to travel all the way to India crossing mountains and rivers to meet and learn from Indian scholars what they had achieved in mathematics and natural sciences.**

**What can the new technologies, the Internet and the World Wide Web do?**

**One thing is for sure. They can transform the way we do science and the way we share knowledge. For the first time in human history, it is now possible for scientists to share all recorded knowledge with other scientists living and working in far corners of the globe in quick time and at negligible costs as well as collaborate with them through the Grid (cyberspace).**

**Technology breakthroughs, especially lower-orbiting satellites, will soon make interactive global communications among scientists using the World Wide Web a universal possibility. This will pave the way for new international research networks with and for developing countries. – Bruce Alberts**

# **The role of information flow in science**

**Science is essentially a community activity.**

**Scientists build on each other's findings.**

**Knowledge production is a collective enterprise.**

**One can see further standing upon the shoulders of giants.**

**“The shoulders of giants” means the knowledge produced anywhere and recorded across time and space.**

**Communicating their results to peers remains the primary reason for scientists and scholars publishing their work. They publish in order to have an impact on the world. They want as many people as possible to read their papers and quote them.**

## **Print-on-paper vs Internet and the Web – A quantum jump**

**We can ensure free and unhindered flow of information at affordable costs and thus facilitate the rapid growth of knowledge at a pace unheard of till now.**

**Says Dr Abdul Kalam, President of India,  
“Information of value shall be shared freely across the  
world.”**

**Sulston’s work on C. elegans and the public domain  
human genome work benefited through sharing.**

## **Examples of sharing knowledge:**

**World Digital Library – the Billington proposal**

**US-India Million Books DL Project**

**US-China Million Books DL Project**

**Project Gutenberg**

**World Memory Net**

**MIT Courseware**

**US NAS reports**

**Value of such sharing very high for Developing Countries**

**Resource poor libraries unable to subscribe to many journals**

**[IISc ten years ago less than 2,000 journals vs Harvard greater than 30,000]**

**Manpower deployed and other resources invested equally poor.**

**North-South S&T gap can be reduced only through institutional capacity building.**

**Millennium goals cannot be achieved without the local capacity in S&T.**

**S&T capacity cannot be built without improved information flow & collaboration.**

**Both of these are possible with the new ICTs.**

**What do we need to do?**

**HINARI (of WHO) and AGORA (of FAO)  
have harmed the cause of Developing Countries**

**We need to do two things: (1) Promote open access, especially open access archiving, in the developing countries so that the work reported from these countries are noticed, read and quoted by scientists everywhere, and (2) promote open access archiving in the advanced countries where much of the world's scientific research is performed so that developing country scientists can have access to those papers.**

**Nothing useful can be developed without the will and actions of local stakeholders interested in improving approaches to their own access to the information they need. Therefore, it is important to get the local scientists, librarians, and policy makers involved.**

**Scientists should welcome open access for it would help them reach their findings to the widest possible audience, which is what every scientist wants. But in reality though not many institutions in the developing as well as the developed world are setting up the archives; and many institutions which have set up their archives find that they are not getting filled.**

**We should examine why and take remedial action.**

**Inertia**

**Lack of awareness**

**Misplaced emphasis on other initiatives such as consortia subscriptions to expensive journals.**

**We need to strengthen OA advocacy.**

**We need to show good examples of OA archives in the Developing world and the benefits they have brought to the scientists and the institution.**

**We need to help developing country librarians and scientists in setting up and running archives.**

**We need to influence policy makers.**

**Since most research in developing countries is largely supported by the state, the governments could mandate that all accepted research papers be deposited in interoperable institutional archives. In the absence of such clear-cut direction from above, most archives will remain incomplete.**

**Some scientists are not in favour of governments mandating. But I believe the employing institutions and funding agencies have every right to mandate archiving, as the Wellcome Trust is doing now.**

**Powerful groups oppose or at least create obstacles to full open access. For example, in the UK, the Parliamentary Committee was in favour of full open access, but the Department of Trade and Industry (DTI) did not allow it to go through. In the US, PubMed Central wanted instant open access but finally had to settle for delayed open access. When PubChem came along, the American Chemical Society started trying every possible trick to scuttle it. Scientists in developing countries (and the advanced countries) should stand up and be counted; they should come forward in support of instant open access and make their stand known in all possible ways.**

**THANK YOU**

Developing World ENT services are characterised by shortages of medical personnel, poor health infrastructure, outdated equipment, and pathology often not seen in the Developed World such as TB, HIV, advanced cancer, and tropical diseases. ENT is therefore practised differently in Developing World countries e.g. open partial laryngectomy, oncologic surgery without radiation or chemotherapy, open sinus surgery, and hammer-and-gouge mastoid surgery. Opportunities for training are limited, and ENTs often cannot afford textbooks or attend conferences and courses. Digital divide: Improving Internet access in the developing world through affordable services and diverse content. By Darrell M. West. In this paper, I discuss the factors that make it difficult for people in the developing world to obtain Internet access and ways to promote greater connectivity. There are a number of steps that would narrow the current divide between Internet users and non-users, and foster a robust and open Internet. When individuals go online, they need affordable services, diverse content, reasonable costs, reliable infrastructure, uncensored information, and local language translation. Zero rating programs represent effective ways to bring poor people from the developing world into the digital era and pr