

---

---

# PREFACE

---

---

In June 2001, the Asian Development Bank (ADB) published a new information and communications technology (ICT) strategy document entitled, *Toward E-Development in Asia and the Pacific: a Strategic Approach for Information and Communication Technology*. This document emphasizes the importance of information technology as a means to stimulate and foster development in Asia. ADB recognizes that the need to improve the intergenerational and international transfer of knowledge and skills to the more than one billion young people between 5 and 24 years of age in the Asia-Pacific region requires the adoption of the new learning technologies that are already widely used in developed countries.

*Regional economies are rapidly embracing higher technology and provision of services... Globalization demands increased productivity, and the maintenance of international quality standards. The information technology revolution requires changes in the way knowledge is acquired and transmitted. Education can no longer be targeted mainly at children and youth; continuing education and lifelong learning are needed by everyone to acquire new knowledge and skills... ADB recognizes that its role must evolve...to incorporate greater provision of policy advice, technical expertise, and capacity building. Its role in the education sector must evolve simultaneously.*

ADB Policy on Education

The second key document in addressing the issue of information technologies in development is ADB Policy on Education of August 2002.<sup>1</sup> This is a well thought-out and organized policy underpinning which enjoys strong support from the ADB senior management. It is here that ADB recognizes that its role must evolve from that of the traditional financier to incorporate greater involvement in policy

---

<sup>1</sup> See <http://www.adb.org/Documents/Policies/Education/>.

advice, in technical expertise, and in capacity building. Its very nature in the education sector must evolve as well. There is recognition of the growth of ICT and its increasing importance in social and economic development, which has profound implications for education—both in how information technologies can be used to strengthen education, and how education can be more effectively used to promote the growth of ICTs in the region.

Without improved efficiencies in their present education delivery systems, it is unlikely that developing nations will be able to provide the additional human capital required to achieve economic self-sufficiency for all in the context of a highly competitive global economy that is increasingly based on the electronic transfer and manipulation of information. With little access to efficient learning and information systems, communal knowledge will not grow fast enough to counter obsolescence. Absorption of knowledge will be inadequate, as will the individual's means to act upon it for his or her improvement. Moreover, global knowledge is being produced and delivered at an accelerating pace, and in ever-increasing quantities.

ICTs applied to education offer huge potential to stimulate and realize the human capital inherent in the enormous number of young people in Asia and the Pacific. Yet, even in developed countries, it has proven difficult to measure precisely, and in a uniform way, the benefits of introducing ICTs—just as it was when books, radio, and even television were introduced. This is because the results are usually spread far beyond the specialized sector in which the investments are made, and there is normally a long lag between investment and dividends. For example, modernizing a small community banking network by retraining cashiers and officials, introducing computers with specialized software, and interconnecting the branches to headquarters, will shift that institution into a modern financial environment and allow it to interact effectively and efficiently with similar institutions, as well as provide up-to-date services to its clients. Such modernization is not an option for financial institutions; it is a matter of economic survival in a highly competitive world. However, the knowledge and skills gained by newly trained staff often prove far more beneficial for them outside the workplace; they benefit their personal lives—furthering their careers, improving their access to health, government, business, news, and other information, and strengthening their support of their family and their community.

Undertaking significant investments in education to enhance career opportunities, to successfully introduce the marginalized and the disadvantaged into a world that is meaningful for them, and to improve a nation's competitive stance, requires courage and determination from national leaders. The tangible benefits of improved education may not be realized until long after a politician's term of office expires, with the credit for gains most probably claimed by successors. In developed countries, the question is no longer whether ICT should be used to support education; it is more an issue of how much, what, where, and how. An official who is seen as not investing enough in enhancing education to ensure that the children of her or his voting constituency have a competitive edge is quickly turned out of office. An important shift has also taken place in definitions. The education sector now goes far beyond the concept of traditional students in a classroom, as it is still widely interpreted in the developing world. Mature adults in the active labor force are on a constant quest to improve their knowledge, and to try to keep up to date with developments in fields that can affect their way of work and their lifestyle. As discussed later in the vignette on the University of Phoenix,<sup>2</sup> for example, adult education is a very big business in constant expansion.

Many reasons are cited for the slow diffusion of ICT into schools in the less developed countries (LDCs) of Asia and the Pacific, including inadequate government funding, affordability, lack of infrastructure, and scarce qualified human resources. Very frequently, there are many more pressing domestic issues that are of immediate concern to elected officials. Improving access, quality, and delivery of education is not seen as critical in many countries where political instability, racial and religious tension, corruption, poverty, mismanagement, and other more strident and visible problems demand attention. Quite simply, the benefits of investing in quality education are often perceived as being of a very long-term nature, realized only when the learner enters the labor force.

While each of these factors has a varying influence in impeding the more widespread use of ICTs in schools throughout Asia and the Pacific, there are success stories that can guide those who wish to make a difference. This study will examine the current state of affairs

---

<sup>2</sup> See Chapter I, Distance and Mixed Mode Education.

for ICTs in education in Asia and the Pacific, and optimistically help to identify strategies for LDCs in their search for effective technologies to leverage efforts to educate their population.

More often than not, ICT-related activities in LDCs appear as pilot or demonstration projects funded by various donors. Even if projects in a country are frequently very similar to one another, they are usually implemented independently and often without coordination—and without coordination with even with local government initiatives that should be complementary. For most LDCs, even where ICT projects are in place, they are seldom designed to fit in the national ICT policy framework or education strategy, nor do they serve as lessons to enhance future initiatives.

*As related by Plato, Socrates was one of the first great educators to complain about the impact of new technology—his argument with the invention of the alphabet was that writing causes the memory to shrivel through lack of use, and hinders the internalization of information on the path to wisdom.*

A significant proportion of the difficulties encountered in official sponsorship of ICT-related initiatives in developing countries are attitudinal in nature, involving teachers, administrators, officials, and politicians alike. The line of thought of many such people is that, if they were able to do without computers, multimedia materials, or management information systems in their schooldays, so can the current generation. Such resistance to change is not new.

The same arguments have dogged earlier technological advances in the representation of The Word. The printing press, the typewriter, and word processing have all, in their time, been subject to the misgivings of educators and others. Remember when the ballpoint pen was going to ruin writing skills?"<sup>3</sup>

This study examines among other things, current practices and attitudes in the use of ICTs in education in developed countries, and attempts to identify policies, strategies, and applications that could be implemented, with appropriate local adaptation, in ADB Developing Member Countries. Interlinks are provided, but over time may not remain active.

---

<sup>3</sup> Web Tools Newsletter 24 October 2003.

---

---

# ABBREVIATIONS

---

---

ACOT	—	Apple Classrooms of Tomorrow
ADB	—	Asian Development Bank
ADSL	—	Asymmetric Digital Subscriber Line
AiTi	—	Authority for Info-communications Technology Industry
AITT	—	Acadia Institute for Teaching & Technology
AOLAPEC	—	America OnlineAsia-Pacific Economic Cooperation
APDIB	—	Asia-Pacific Development Information Programme
ASEAN	—	Association of Southeast Asian Nations
AT&T	—	American Telephone and Telegraph
BTTB	—	Bangladesh Telegraph and Telephone Board
CAIFA	—	Canadian Association of Insurance & Financial Advisors
CD	—	compact disc
CERNET	—	China Education and Research Network
CET	—	Certificate in Elementary Teaching
CETT	—	Certificate in Elementary Teacher Training
CFS	—	Computer for Schools
CIBT	—	Canadian Institute of Business & Technology Corporation
CIS	—	Commonwealth of Independent States
CLC	—	Community Learning Center (Myanmar)
CLICK	—	Center for Learning, Information, Communication, and Knowledge
CMI	—	College of the Marshall Islands
COL	—	Commonwealth of Learning
COM	—	College of Micronesia
CRC	—	Computer Resource Center
CSILE	—	Computer Supported Intentional Learning Environment
CSO	—	Central Statistics Office

DE	—	Distance Education
DEPP	—	Distance Education Partnership Program
DIT	—	Division of Information Technology
DL	—	Distance Learning
DNA	—	Deoxyribonucleic Acid
DOSDSL	—	Disk operating Systemdigital Subscriber line
EMB	—	Education and Manpower Bureau
EMIS	—	Education Management Information System
ERNET	—	Education and Research Network
FSM	—	Federated States of Micronesia
Gbits	—	Gigabits
GDLN	—	Global Development Learning Network
GDP	—	Gross Domestic Product
GHz	—	Gigahertz
GPA	—	Grade Point Average
GSM	—	Global System for Mobile communication
HRD	—	Human Resource Development
HTML	—	Hypertext Markup Language
IBM	—	International Business Machines Corporation
IATP	—	Internet Access and Training Program
ICT	—	Information and Communications Technology
IDA	—	Infocomm Development Authority of Singapore
IDCIEEE	—	International Data Corporation Institute of Electrical and Electronics Engineers
IL&FS ETS	—	Infrastructure Leasing and Financial Services (India), Education Technology Services
IMMEX	—	Interactive Multimedia Exercises
ISDNISM	—	Integrated Services Digital NetworkIndustrial, Scientific, and Medical
ISP	—	Internet service provider
ISTE	—	International Society for Technology in Education
ITECC	—	Information Technology and Electronic Commerce Council
ITU	—	International Telecommunications Union
ITU-D	—	International Telecommunications Union Development Bureau
JICS	—	Japan International Cooperation System
JTB	—	Jabatan Telekom Brunei

---



---

K-12	—	Kindergarten to Grade 12
LAN	—	Local Area Network
LDC	—	Less Developed Country
LOR Mbps	—	Learning Object Repository megabits per second
MIT	—	Massachusetts Institute of Technology
MoE	—	Ministry of Education
MoEYS	—	Ministry of Education, Youth, and Sports
mp2	—	Master Plan II (Singapore)
MSC	—	Multimedia Super Corridor
NAPITSE	—	national policy on Information Technology in School Education (Sri Lanka)
NTA	—	National Telecommunications Authority
NETS	—	National Educational Technology Standards
NGO	—	nongovernmental organization
NIA	—	Neo Internet Appliance
NICI	—	National Information and Communication Initiative Committee
NITA	—	National Information Technology Agenda
OLA	—	Open Learning Agency
OS	—	operating system
OUSL	—	Open University of Sri Lanka
PBX	—	Private Business eXchange
PC	—	personal computer
PITA	—	Pacific Islands Telecommunications Association
PLDT	—	Philippine Long Distance Telephone
PNG	—	Papua New Guinea
PNGEI	—	Papua New Guinea Education Institute
R&D	—	research and development
RDVA	—	Rural Development Volunteers Association
RM	—	ringgit
ROM	—	Read Only Memory
SAIFA	—	Schoolnet Academy of Insurance and Financial Advisors
SSACTA	—	State Student's Admission Commission technical assistance
TCI	—	Telecom Cook Islands
TEVT	—	Technical Education and Vocational Training
TSKL	—	Telekom Services Kiribati Limited

TTI	—	Teacher training institute
TV	—	television
UNDP	—	United Nations Development Programme
UNESCO	—	United Nations Educational, Scientific, and Cultural Organization
UK	—	United Kingdom
URL	—	universal resource locator
US	—	United States
USIA	—	United States Information Agency
USP	—	University of the South Pacific
VOIP	—	voice over Internet protocol
VSAT	—	very small aperture terminal
WBI	—	World Bank Institute
Wi-Fi	—	wireless fidelity
WiLan	—	wireless local area network
WTO	—	World Trade Organization
www	—	World Wide Web

NOTE

In this report, “\$” refers to US dollars