
APPENDIX 1

ADB Projects Reviewed for Information and Communications Technology Components

A. Asia–Pacific Region

Regional: Development of Business Plan for a Center for Learning, Information, Communication, and Knowledge (CLICK) for Asia and the Pacific (REG 36632-01)

The project was approved on 9 December 2002 with the amount of \$180,000. In the knowledge economy, a premium has been added to education and intellectual capital, facilitated through information and communication technology (ICT). Improvement in dissemination and use of information and knowledge for development through ICT, especially in Asia and the Pacific, has become one of the priorities for the Asian Development Bank (ADB) and its developing member countries (DMCs). ADB is committed to supporting ICT for development and bridge the digital divide, the gap between the “information rich” and “information poor”, within and across its DMCs. ADB’s internal knowledge will be supplemented by external networking and greater and more efficient use of ICT, which will enormously increase the reach of ADB, its development impact, and thus its productivity. To disseminate such knowledge and best practices and facilitate access to existing ICT-based systems and experiments for possible replication in the DMCs, a regional center for learning,

information, communication, and knowledge for Asia and the Pacific (CLICK) will be established through ADB. The Japan Fund for Information and Communication Technology (JFICT) will help establish the CLICK that will be initially housed within ADB to implement a program of producing value-added information products and services using ADB's reservoir of information and knowledge for development for dissemination to a wide audience. CLICK will also provide E-advisory services through a specialized web site or "knowledge portal", and promote the use of ICT-based distant learning (E-learning) and communication systems (networks, teleconferencing), whenever possible on cost-sharing basis, to improve institutional and human capacities of DMCs to timely access, use, and sharing of information for development.

B. East and Central Asia Countries

Mongolia: ICT for Innovating Rural Education in Mongolia MON36245-01)

This project was initially listed on 28 January 2003, and estimated at \$1 million to be funded under JFICT. ICT in Mongolian education has largely been viewed in terms of Informatics classes for 8 to 10th graders in secondary schools, which comprise only 324 of 668 primary and secondary schools. Grant-funded, innovative, and highly pro-poor interventions under the IIREM Project will be important in demonstrating the impact of appropriate ICT tools on broader education processes in remote areas, while extending the benefits of ADB's Second Education Development Project, and other relevant initiatives, to reach teachers across subjects and in primary-level instruction, thus improving education for all students via better teaching. The Project will further enhance equity and sustainability by piloting novel school-community partnerships. Finally, the Project will also assess the costs and benefits of a "teacher-focused" (including head teachers) initiative, using low-cost hardware, vis-à-vis "pupil-focused" approaches.

Mongolia: Second Education Development (Loan: MON 31213-01)

The project was initially listed on 2 May 1998. Amount: Estimated at \$68.5 million. The Project will improve access to, quality and sustainability of pre-school, primary, and secondary education in poorer rural and urban communities through (i) rehabilitating and constructing schools to increase capacity and, improve learning and residential environments, including developing sustainable energy systems; (ii) modernizing science education, providing learning materials, training teachers, and integrating information and communications technologies (ICT) and vocational education into secondary education; and (iii) improving education management at provincial, district, and school levels. The Project will also provide implementation support to the Ministry of Science, Technology, Education and Culture.

C. South Asia Countries

Maldives: Information Technology Development (TA: MLD 34276-01)

The Project was approved on 19 December 2000 with the amount of \$150,000. The objective of the proposed TA is to prepare a project to improve efficiency, transparency, and accountability of public sector management, including provision of government services, through the use of advanced information technology. The TA will assess the technical, financial, and economic feasibility of networking government organizations, setting up Web sites for government organizations through which government information is disseminated and government services are delivered, and establishing village Internet centers and Internet kiosks to provide the public with better access to the Internet. The TA will also design a telecoms sector reform package that will include a time-bound action plan for liberalization of the telecoms/Internet services market in Maldives, and a time schedule for establishing a transparent regulatory regime in the telecoms sector. In line with ADB requirements, the TA will conduct

the initial environmental examination and the initial social assessment, including poverty impact analysis.

**Maldives: Information Technology Development
(Loan: MLD 34276-01), (Resulting from the above TA)**

The Project was approved on 17 December 2001, with the amount of \$9.5 million. The Project seeks to improve efficiency, transparency, and accountability of public sector management by networking government agencies and electronically providing information and services for the public. The Project includes: (i) networking of government agencies in Male by installation of a fiber-optic cable, and connecting 20 atolls by carrier service for government agencies to share their information, and for the public to get access to government information electronically; (ii) enabling electronic delivery of public services, including the provision of applications for national citizen identification, public health service, and registration for vessels, vehicles, and aircraft; (iii) establishment of the National Computer Center, which will centrally coordinate IT policies, standards, and practices for government work; (iv) building of Internet kiosks which will provide the public with better access to government information and services; and (v) implementation of the telecoms sector reform which will eventually enable the public to get access to the Internet at an affordable price.

**Nepal: Skills for Employment Project
(TA: NEP 36611-01)**

The Project was approved on 4 December 2002 with the amount of \$400,000. The main objective of the project preparation technical assistance (PPTA) is to assist the government in achieving its goal of poverty reduction. To do this, the TA will assist the government to: (i) improve the quality of its skills development programs through an analysis of the vocational/technical education sub-sector, encompassing policy and existing institutional structures and their mandate and performance, and a needs assessment; and (ii) based on this analysis, and in consultation with government, prepare a project feasibility report with costs, components, proposed

management structures, monitoring systems and implementation arrangements to support specific interventions that will help meet the government objectives and policies agreed upon for the sub-sector. The scope of the TA will extend to the vocational and technical education (including ICT) sub-sector. The TA will conduct an analysis of the vocational and technical education sub-sector. The analysis will take into account the existing capacity within the sub-sector; its strengths and weaknesses; policies pertaining to the sub-sector; participation of women and other disadvantaged groups; geographic dispersion; role of the private sector; and the potential of vocational and technical education to address the skills development needs of the country's youth. The analysis will also include a review of existing labor market studies, if any, and conduct skills demand surveys in areas identified for potential support. The TA will undertake extensive consultations with stakeholders through seminars and workshops. Based upon the review and analysis and consultations, the TA will make recommendations for policy revisions, if necessary, cost-effective strategies, and an implementation framework with costs. For the purpose of the PPTA, technical education includes ICT.

Sri Lanka: School Computerization (TA: SRI 35192-01)

Approved on 5 November 2002 with the amount of \$500,000, the Project aims to improve the quality and efficiency of basic education to meet new labor market requirements. This will be done by improving computer literacy among teachers and students, establishing electronic libraries, and developing multimedia computer courseware to overcome the problems of many unqualified teaching staff and the lack of instructional materials. The project will target especially the poor and disadvantaged youths in rural areas (type 2 and 3 schools). The project will contribute in reducing the digital divide and in preparing for information technology-related jobs. The TA will prepare an investment project with the following outputs in mind: (i) it will establish at least 1,200 school information centers and the same number of electronic libraries; (ii) about 35% of primary and secondary students (1.5 million) will be able to use computers as a medium of instruction; (iii) about 50% of school administrators and teachers (100,000) will be able to use computers in improving the quality and efficiency of basic education; (iv) multimedia

computer courseware will be developed and distributed for all the subjects taught in primary and secondary schools to overcome low quality education; and (v) ways of recovering operation and maintenance costs should be explored to make the project sustainable. The TA will have three components: (i) a comprehensive study and survey for establishing school information centers, (ii) a master plan to develop electronic library and multimedia computer courseware, and (iii) initial capacity building of school administrators and teachers in the use of information technology in education.

**Sri Lanka: Secondary Education Modernization Project
(TA: SRI 33245-01)**

Approved on 12 August 1999 with the amount of \$250,000, the Project aims to modernize secondary education by developing an integrated curriculum, introducing communication and computer skills, and improving testing to measure academic achievement. The TA will assist the government in preparing a feasibility study to develop a consolidated secondary school system throughout the country. This will include preparing an investment proposal to (i) establish a network of grades 10 to 13 schools located throughout the country to ensure equity; (ii) revise the grade 10 to 13 curriculum; and (iii) strengthen National Educational Technology Standards to modernize O and A level examination procedures and administration, including school-based assessment of individual and group activities, computer work, laboratory exercises, and guidance.

**Sri Lanka: Community Information Services for the Poor
(TA: SRI 36511-01)**

The Project was approved on 9 May 2003 with the amount of \$800,000. The objective of the pilot project is to establish a communications network among district offices, schools, health centers, local industries, markets, and villages that will provide vital information to these stakeholders. The communications network, which will target the poor and disabled, will utilize cost-effective and feasible communication modes. Types of information to be provided are commodity and crop prices, job opportunities, education and

training opportunities, health and medical information, weather and disaster warning, public announcements, etc. It will also provide services for online access, computer training, telephone calls, sending of faxes and e-mails, etc., for a fee. The target population of the project is about 2,000 students and 5,000 residents, including 1,000 poor and disabled adults residing in the Gampaha district. The project has three components: (i) establishment of a communications network, (ii) equipping and training in the use of communications equipment; and (iii) information service. The information network will be linked with the Internet, personal computers, personal digital assistances, faxes, standard phones, wireless phones, etc.

Sri Lanka: Post Secondary Education (TA: SRI 33251-01)

Date Approved: December 19, 2000. Amount: \$500,000. By combining the comparative advantage of public and private post-secondary institutes and linking post-secondary institutes to new learning technologies, the project will raise the demand for cost effective post-secondary education. The project will (i) improve the quality and relevance of Open University of Sri Lanka (OUSL) course offerings through links to public-private service institutes (PPSIs), (ii) expand access to post-secondary education by developing additional regional facilities and introducing facilities sharing with PPSIs, (iii) develop a modern ICT system capable of delivering interactive courses throughout the country by linking public and private institutes, (iv) raise the management and administration level of OUSL through cooperation and coordination with PPSIs, (v) develop OUSL's capacity for providing career guidance and job placement, and (vi) integrate fee-paying post-secondary institutes under the umbrella of OUSL.

Sri Lanka: Distance Education Modernization (SRI 33251)

Date Approved: May 2003. Amount: \$60 million. New learning technologies, such as distant learning (DL), can deliver excellent academic programs to a wide audience that is currently excluded from the conventional system. There is no national delivery system for DL,

and the core skills needed to develop materials and to train teachers to operate in a learner-centered environment are still in early infancy, as are the hardware and software for Web-based learning with online tutorial support. The best approach to establish a National Distance Education Network may be to link hardware and specialized software and services to the establishment of a technically competent business enterprise. This business enterprise, labeled Distance Education Partnership Program (DEPP), can offer curriculum and training expertise to create, migrate, and upgrade existing courseware to the Web and to deliver knowledge and learner support to an extensive variety of conduits nationwide. Multimedia learning centers can be located in schools, in Internet cafes, and in many other institutions, depending on the need for access to the DL network around the country. The services should be made available to public and private institutions on a cost-shared basis to engender competition, raise academic standards, and promote linkages among institutions.

This ICT approach to distance education boosts the government's ongoing efforts to develop ICT multimedia university programs on several campuses of leading universities, where course offerings provide curriculum development, training, and marketing skills for online learning. Currently, OUSL has the basic regional infrastructure for distance education outreach, but lacks capacity, materials, and skills to introduce DL. In the context of the government's determination to favor the private sector as a key instrument in education, the DEPP partnership model enlists the private sector to manage and operate a distance education network within a framework of well-defined policies, guidelines, and jointly-agreed-upon outputs of quality and quantity. Given appropriate monitoring mechanisms, this strategy represents a practical approach to professionally develop distance education programs and learning exchanges for new and ongoing courses, including those at OUSL, other public institutions such as Sri Lanka Institute of Advanced Technical Education, and for private post-secondary institutes. In 5 years, when professional staff are readily available in Sri Lanka, and when distance education programs are up and running online for a wide range of post-secondary institutions, it may be possible to either fully privatize the DEPP, or integrate it into OUSL or some other public or private institution. Under the World Bank Tertiary Education Project, support for ICT programs at public universities will be encouraged to provide the foundation for ICT courses that will eventually lead to mixed mode

and multimedia universities. Since the need is great and continues to expand, the government will incubate several sustainable small-scale programs in different regions of the country rather than aim for one, single, large multimedia university. The very nature of a multimedia university implies connectivity that can link campuses easily.

The Project supports the government's policies by increasing access to quality programs at low cost for those excluded from conventional universities. OUSL was constituted in 1980 under the Universities Act No. 16 of 1978 and OUSL Ordinance No. 1 of 1989. OUSL enrolls about 10,000 students annually in mostly certificate, diploma, and degree programs that provide a progressive ladder of educational opportunities through non-traditional teaching methods. OUSL also addresses the need to transfer the knowledge and skills capabilities required in secondary education, teacher training, social services, agricultural extension, and continuous professional development of workers in many fields. OUSL has a wide network of 26 existing and planned campuses nationwide for students who cannot leave their jobs or families to study full-time away from home. The rationale for a public-supported OUSL is that it provides public goods, especially in the social sectors, and contributes to economic growth, human development, and poverty reduction by providing post-secondary education in remote areas. OUSL enrollment peaked in 1998 and slowly fell as the quality and relevance of the programs and facilities declined due to budget cutbacks. To reinvigorate growth, OUSL needs to upgrade existing faculties on regional campuses and to streamline administrative procedures, including student admissions and tracking. OUSL has several key advantages over the conventional education system. Its unit costs are only 20% of conventional university costs on average, and with improvements in procedures and upgrading of facilities, enrollment can double over the next 8 years along with student completion rates. With a larger budget from increased enrollment, OUSL will help increase the pool of educated labor and level of public services provided outside the capital.

Another avenue to help double access to educational opportunities is to encourage public and private schools to share common resources and activities. Government policies to build public-private partnerships include (i) public awareness campaigns to share information on career guidance and job information among students; (ii) transparent accreditation policies that lead to flexible enrollment admission, accountability for monitoring academic

standards, accreditation, and transfer across institutions; (iii) DL technologies to disseminate quality programs and information around the country; (iv) foreign and local institutional twinning arrangements; and (v) public funds for cost-sharing ventures with private institutions to increase enrollment and support the needy through scholarships. Of special interest is the government's provision of matching grants to private post-secondary institutions for ICT and multimedia services that allow private schools to migrate academic programs online. The government is willing to provide matching grants to promote institutions to cover the high costs of borrowing for ICT and multimedia equipment and services to go online. The matching grant also supports stipends for needy students to attend private schools.

**Bangladesh: Teaching Quality Improvement (TQI)
in Secondary Education Project
(PPTA: BAN26061-01)**

Amount: \$600,000. Date of First Listing: 20 January 2004. The Bank has been supporting rationalizing, reform and improvement in the secondary education system in Bangladesh through two projects: Secondary Science Education Sector Project (Loan No. 699-BAN[SF]) in 1984, and Higher Secondary Education Project (Loan No. 1268-BAN[SF]) in 1993. One of the significant changes being made in the secondary education system in Bangladesh is the redefinition of its structure: 5 years (grades 6 to 10) of secondary education to 3 years of lower secondary education (grades 9 to 12). In addition to the need for substantial expansion of the lower secondary education to absorb growing numbers of primary school graduates, qualification requirements and the needs for pre- and in-service training of secondary teachers are changing rapidly. To respond to the situation, the system for secondary teacher training needs to be restructured and developed.

The overall objective of the Project is to improve the quality of teaching in secondary education in Bangladesh. The PPTA will cover grades 6 to 12 and has two components: (i) sub-sector analysis—review and analyze policies and strategies pertinent to teacher training to identify gaps in the existing policy, programs, and finance in teacher development; analyze issues related to quality management at national and regional levels; assess the need for pre-and in-service

teacher training by exploring the potential of both conventional and multimedia and DL methods; provide recommendations for government strategies for improving the quality of teaching at the secondary level. (ii) project preparation—prepare a coordinated secondary teaching education support program that will help prioritize activities in the sub-sector and thereby contribute to a more efficient resource allocation and quality improvement.

**Nepal: Secondary Education Support Project
(Loan: NEP 34022-01)**

Approval Date: 20 September 2002. Amount: \$30 million. The goal of the project is to expand quality education suitable for the needs of national development. The objectives of the project are to: (i) improve the quality of public secondary education; (ii) improve access to public secondary education, particularly for girls and students from poor and disadvantaged groups and districts; and (iii) develop the institutional capacity of central and local governments and local communities to sustain and deepen the school improvement process. The project will have the following components: (i) increased equitable access to an improved learning environment; (ii) an improved and relevant curriculum, improved assessment and accessible instructional materials; and (iii) an improved and sustainable system for the education, development, and management of teachers.

D. Mekong Countries

**Thailand: Secondary Education Development Project
(TA: THA 35253-01)**

Date Approved: December 31, 2002. Amount: \$150,000. The TA will refine the design of the Ministry of Education pilot project underway in 80 secondary schools that provides DL through a multimedia network, including science, language, and computer laboratories. The TA will draw on the previous ADB assistance and government and other donor studies to design a project that helps raise the skill standards of students employing routine access to ICT infrastructure, quality digital learning materials, and professional

instruction. Special emphasis will be given to reducing disparities between rural and urban schools so students everywhere have opportunities to study a full academic curriculum.

E. East and Central Asia Countries

Uzbekistan: Education Sector Development Project (ESDP) (LOAN: UZB 34160-02)

Approval Date: 6 December 2002. Loan Amount: \$38.5 million. Improvements in the relevance and the quality of education are critical to Uzbekistan's democratization and transition to a market economy. Uzbekistan's education system must also be re-oriented in a cost-effective and sustainable manner. The ESDP will support selected policy interventions, adjustment measures, and critical investments that may otherwise be hampered by resistance to change in the education system or adversely affected by budgetary constraints.

The investment Project will support government efforts to improve the quality of basic education (with priority given to poor and remote rural areas) and to modernize sector management. It will comprise three main components with several components.

1. Strengthening sector planning and management capacities will support participatory policy formulation processes and develop national capacities to manage the education reforms. It will involve: (i) an organizational audit of the education administration, with a training needs assessment of administrative personnel; (ii) a nationwide school mapping exercise combined with a community survey; and (iii) policy studies in the areas of (a) staff development, (b) nongovernment provision of education, (c) education finance; and (iii) training of school principals and district administrators.
2. Improving and extending teacher education will principally establish a distance education (DE) capacity to conduct teacher training and retraining activities. Teacher education programs will be developed and delivered in the area of: (i) multi-grade instruction, (ii) primary school teaching, (iii) field-specific teaching methods, and (iv) select junior secondary school subjects.
3. Strengthening community involvement in schooling and improving learning conditions will comprise: (i) rehabilitation of the physical infrastructure

and provision of equipment for the most resource-poor schools of the country; (ii) assistance to communities in establishing autonomous and effective school boards; and (iii) provision of grant funds accessible to schools on a competitive basis through a School Initiatives Fund (SIF).

Uzbekistan: Education Sector Development Program (LOAN: UZB 34160-01)

Approval Date: 6 December 2002. Loan Amount \$70 million. Improvements in the relevance and the quality of education are critical to Uzbekistan's democratization and transition to a market economy. Uzbekistan's education system must also be re-oriented in a cost-effective and sustainable manner. The ESDP will support selected policy interventions, adjustment measures, and critical investments that may otherwise be hampered by resistance to change in the education system or adversely affected by budgetary constraints.

The ESDP will support the implementation of Uzbekistan's medium-term education and training development plan, commonly designated as National Program for Personnel Training (NPPT), by addressing four major sector-wide challenges, namely (i) modernizing the structure, contents, and processes of education; (ii) improving sector sustainability and efficiency; (iii) reforming governance of education; and (iv) providing protection for the poor. The Policy Loan will facilitate the implementation of urgent reform measures affecting the entire sector, while the Project Loan will fund key investments aimed at improving the quality of basic education and sector management practices. The medium-term education policy framework and the associated policy actions of the ESDP collectively address the four major sector challenges. Modernizing the contents and structure of education will involve: (i) pursuing ongoing efforts to streamline and simplify the structure of education, (ii) developing modern curricula and educational quality monitoring mechanisms, and (ii) strengthening the teacher education system, in particular through the introduction of DL. Sustainability and efficiency of the education sector will be enhanced by: (i) redeploying and retraining administrative staff in line with the decentralization process, (iii) reviewing the service conditions of education personnel, paying particular attention to those categories working in difficult conditions,

(iii) and rationalizing the network of schools and institutions. The governance and management systems of education should be reformed with a view to (i) developing national capacities in the area of policy formulation, planning, and financial management, (ii) encouraging community participation in school management, and (iii) supporting the emergence of a nongovernment education sector. Access of the poor to quality education will be protected by (i) an improved targeting of public resources toward deprived areas, and (ii) special assistance schemes for vulnerable population groups.

F. Pacific Countries

Regional: Information and Communication Technology Assessment in the Pacific (TA No. 5990-REG)

Approved July 2001. Amount: \$300,000. The main objectives of the TA are to help the Pacific DMC governments assess their ICT readiness, prepare the framework for future development in the sector, and identify bankable projects for such. Wider and increased use of ICT will contribute to a more effective and equitable economy and society. The TA will provide assistance to the Pacific DMCs in the following areas:

- Assess the ICT readiness in the Pacific. The TA will help the Pacific DMCs self-assess the gap between ICT demand and supply, and identify the most urgent actions needed to fill the gap. The self-assessment will include (i) network availability and affordability; (ii) education, human resources, and computer literacy; (iii) e-commerce and e-government practices; and (iv) political climate and regulatory framework.
- Increase awareness of the importance of ICT, its potential benefits in the Pacific DMCs, and the resources required to bridge the digital divide. Background papers on ICT readiness in terms of physical infrastructure, financial and human resources, and political climate in the individual Pacific DMCs will be prepared, discussed in the ICT readiness workshop, disseminated, and eventually published.

- Discuss the best practices and lessons learned in using ICT. The ICT-readiness workshop will provide a forum for Pacific DMC officials to share their knowledge and experience. Case studies on what has and has not been achieved will be presented, discussed, and disseminated. The workshop will also assist in identifying and creating Pacific DMC champions for ICT development.
- Make the stakeholders aware of the other players and define ADB's role to maximize ICT benefits. With ADB's role in the Pacific and the possible partner in ICT development defined, the TA will seek the active and coordinated involvement of all stakeholders—governments, private sector, local communities, nongovernment organizations, and international organizations. The broader and more effective the partnerships between ADB and these agents, the faster the adjustment will occur.
- Assist the Pacific DMCs in preparing a practical and flexible ICT national policy and strategic framework to eventually be adopted by individual countries. The policy and strategy framework will be based on sustainability, social inclusion, and cooperation among the Pacific DMCs.
- Identify assistance needed to increase ICT effectively and equitability. Possible ADB assistance will include physical infrastructure, social inclusion, as well as services such as distant learning, telemedicine, and e-government.
- The focus countries of the Project will be all 12 Pacific DMCs: Cook Islands, Fiji Islands, Kiribati, and Republic of the Marshall Islands, Federated States of Micronesia, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu.

Samoa: Supporting the Samoa SchoolNet and Community Access Pilot Project (OTA: SAM 36513-02)

TA Amount \$600,000. Date approved: 19 December 2003. The objective of the Project is to enhance an enabling environment for

poverty reduction in the rural communities of Samoa by improving the quality of education outcomes by strengthening teacher competence training/program through providing ICT connection to local schools and creation of community access facilities. This will assist the government in increasing social inclusion and reducing poverty in the rural areas by improving connectivity and—through it—education, governance, health, and access to the Internet.

G. Southeast Asia Countries

Indonesia: Technological & Professional Skills Development (LOAN: INO 31081-01)

Amount: \$180 million. Approved on 29 November 2000. The Project will strengthen the role of higher education to contribute to the country's international competitiveness, and help achieve sustainable economic growth leading to poverty reduction on a gender, social, and geographically equitable basis. This will be achieved through: (i) strengthening the governance, management, accountability, accreditation, and evaluation capabilities of higher education; (ii) developing human resources of higher education; (iii) strengthening existing priority study programs, including curricula contents and delivery systems; (iv) upgrading existing educational infrastructure; (v) establishing new priority study programs; (vi) establishing a targeted student equity scheme to assist disadvantaged students; (vii) strengthening women study centers; (viii) retraining and retooling unemployed and underemployed graduates for gainful employment; (ix) strengthening and establishing student advisory and job placement centers; and (x) strengthening and establishing community and business service centers. In upgrading the quality and relevance of study programs, the Project will focus on developing a multimedia approach, wider application of information technology including the use of the English language, and a meaningful public-private partnership in higher education. The Project is formulated as a sector loan and will cover a 6-year time slice of the government's Long Term Higher Education Development Plan. The Project is expected to support about 75 subprojects prepared by

participating institutions on a competitive basis according to agreed guidelines and procedures.

The manufacturing industry was the principal engine of growth during Indonesia's period of rapid development when annual GDP growth averaged 7%. Recovery, and long-term, sustainable economic growth and the opportunity to achieve prosperity by the poor will require strengthening of exports dependent on high levels of skill, technology, and capital. Technological change has reduced the relative returns to unskilled labor, and countries that rely on unskilled labor and natural resource based goods are likely to face declining living standards. It is therefore imperative to raise workforce skill levels in order to raise living standards in the open, competitive global market. Accordingly, government intervention is required to create and strengthen the capability of the national education system to deliver knowledge and skill development through education and training while at the same time encouraging the development of linkages with industry to support the strengthening of capability formation through specific technology-based experience. In addition to requiring increased numbers of skilled technicians and professionals, renewed economic growth for national prosperity will also require highly skilled managers to support a strengthened business infrastructure and supporting legal framework. As skill requirements are subject to constant change, education systems must constantly upgrade skills taught consistent with emerging needs. Therefore, strong linkages with the employer community are required. Likewise, the delivery of transferable skills by the education system to graduates who can be classified as multi-skilled provides the required base for continuous up-skilling that is essential for business to remain globally competitive. Global competition requires global quality standards uniformly applied and assured throughout the system. Accordingly, the higher education system must provide equal access regionally, socially, and on a gender basis.

APPENDIX 2

Five Phases for Online Community¹

“Online teaching is not for me; I want my students to learn,” said the business teacher. But she does not understand.

A. Introduction

Online or ICT-leveraged learning is a merger of teaching and technology to attain optimum learning, with technology remaining in the background and it enables users to share experiences as a community. These virtual learning communities can be collaborative and supportive, and they can foster teamwork through trust, openness, honesty, and respect among members. As well, some healthy competitive behaviors will emerge. Eager and more knowledgeable peers become very powerful intermediaries to support the learning process, as long as the teachers and tutors know how best to develop and foster this resource. Dr. Nan Chico, of California State University's Graduate School, explains that students thrive by utilizing “a sociological framework to analyze the process of creation...and change in an online community.” A student-centered community derives in five phases, resulting in a constructive and meaningful learning experience.

¹ Published on July 1, 2002 in www.techcommlearning.com by Esther Camm.

B. Phase One

Students sign in to individual accounts, whether from home or the classroom, and obtain access to the course material. Therefore, access to the course appears user-friendly, the program can resume where the learner left last time, and assistance is readily available in familiar links to internal or external resources such as the teacher and the help desk. The teacher or facilitator welcomes each student to the community via Email or Messenger. Because these introductory messages have a cordial and pleasant manner they inspire, encourage, and stimulate the student to participate—individually or as a member of a group that is local or dispersed across the continent—in the learning process. The welcome and feedback messages can be much more tailored than would be possible in a traditional classroom, thus the tutor or resource person can adapt messages to the student's attributes.

C. Phase Two

Learning with ICT support within the formal educational structure, much like in the traditional classroom, is a social experience. Thanks to communications facilities such as synchronous discussions, asynchronous threaded discussions, Emails, informal chat rooms and Web sites, group socialization is stimulated. Personal attributes that can become barriers between learners such as color, race, gender, stuttering or physical challenges are minimized. With electronic tools, the teacher guides the students through introductions and icebreakers to create a welcoming social environment. Hence, students become accustomed to a new format, establish personal identities within groups, acknowledge community rules, embark on a common history, and become aware of conflict resolution. As well, students embark on new and enriching relationships with the teacher/facilitator and peers.

D. Phase Three

The participants discover that technology provides a vast number of resources, such as Web sites and specialized bulletin boards.

Instructors, resource people, and students begin sharing learning materials as well as personal experiences and begin to engage in meaningful discussions and collaborations.

E. Phase Four

As students continue to learn independently or as members of teams whose composition and location can vary according to topic, and share learning experiences and real life experiences with the groups, the facilitator actively facilitates and supports from the sidelines. Within cohesive groups, students develop optimum and committed collaborations which foster learning, creative thinking, and problem solving. At this stage, the teacher intervenes only when necessary to answer questions or re-focus discussions.

F. Phase Five

Finally, within small groups and in the main class group, students work to accomplish personal and common goals. Students fully explore the learning possibilities and, through self-reflection, achieve the learning process. The members of the learning community share, support, and respond to peers. Ideally, all learning and social experiences are enhanced by electronic communication tools, sound education pedagogy, and engaged written group interactions.

G. Summary

Online communities foster authentic social relationships and stimulate students to seek and to apply knowledge, which is applicable in “real life.” Moreover, the teamwork aspect of learning within communities is well established in the corporate world in developing countries, since no one individual can have all the information and expertise to deal with increasingly complex decisions in a timely fashion. The ICT-supported learning process has become active and relevant; it can provide rich experiences to produce engaged learners.