KOREA RESEARCH INSTITUTE FOR VOCATIONAL EDUCATION AND TRAINING

ASIAN DEVELOPMENT BANK INSTITUTE

Workforce Development for a Knowledge Economy: Report of the International Workshop

Seoul, 7 – 13 September 2005

ADB INSTITUTE

Workforce Development for a Knowledge Economy: Report of the International Workshop
Korea Research Institute for Vocational Education and Training, Seoul, 2006

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PREFACE

With the knowledge-based economy emerging as a new paradigm, economic actors are finding it increasingly essential to acquire new knowledge and technology for their continuing growth and development. In the knowledge-based economy, it is not tangible capital but intangible capital and innovations that determine international competitiveness, productivity growth and workers' status in the labor market.

Over the past two decades, the share of high-tech industries within manufacturing has increased by more than 20 per cent in OECD countries, whereas knowledge-intensive sectors such as education, information and telecommunications have experienced even faster growth. High-tech manufacturing and services, such as information and telecommunications and professional services, are leading the way towards a knowledge-based economy.

The knowledge-based economy is based on a paradigm that focuses on intellectual capital as a prime mover. As knowledge replaces physical and natural resources as the key ingredient in economic development, education and human resource development policies require rethinking. With the knowledge-intensive industries playing a larger role in the economy, the demand for high-skilled and educated workers is on the rise. Therefore, investment in human capital is critical in a knowledge-based economy.

During the workshop, national strategies for development and key initiatives to provide all citizens with broad literacy, numeracy, and generic skills for survival in a knowledge-based economy were discussed. Participants of the workshop were expected to gain a better understanding of the social, cultural and economic impact of the knowledge economy and to consider new ways of doing business that would help them achieve and maintain national and international competitiveness.

This report contains the workshop proceedings, lecture presentations, discussions and outcomes of the workshop. I hope the report will contribute to the participating countries in establishing a knowledge-based economy through workforce development. Lastly, I would like to express our appreciation to ADBI for co-hosting the workshop.

Jang-Ho Kim
President
KRIVET

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PART ONE

Proceedings of the Workshop

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I. ORGANIZATION OF THE WORKSHOP

A. Organization

The International Workshop on Workforce Development for Knowledge Economy was organized by the Asian Development Bank Institute (ADBI), the Korea Research Institute for Vocational Education and Training (KRIVET) with the support of Human Resources Development Services of Korea (HRD Korea), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), the Government of Republic of Korea, Colombo Plan Staff College for Technical Education (CPSC), United Nations Education, Scientific and Cultural Organization (UNESCO), the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), Korean International Cooperation Agency (KOICA), IBM, and Microsoft.

B. Objectives of the Workshop

In a knowledge economy, globalization and rapid advances in technological innovation have rendered the production of goods and services more complex, competitive, and increasingly dependent upon information and communication technology (ICT). The social, economic, and cultural impact of these economic trends and of the information society are unprecedented. The emerging knowledge economy requires a highly flexible and increasingly skilled workforce that can be continuously trained and upgraded. Therefore, new and innovative legislation, policy, and planning must be introduced for technical and vocational education and training.

In support of this goal, the objectives of the workshop were to:

- Share experiences of workforce development for knowledge economy
- Draft project proposals to develop workforce needed in knowledge economy
- Examine issues to be faced with the advent of knowledge economy

C. Opening of the Workshop

The conference was opened on 7 September 2005 in Seoul. In his opening remarks, Mr. Jang-Ho Kim, President, KRIVET, welcomed the participants to the workshop in which they were expected to exchange ideas and experiences on human resource development and knowledge economy. The knowledge-based economy is one in which intellectual

capital, not physical assets, will be the key source of competitive advantage. The ability of a workforce to absorb and apply knowledge is now the key factor in the business environment.

The effectiveness of human resource development and training efforts hinges on partnership and shared commitment of employers, employees, and the government. Shared commitment amongst these partners is necessary to put in place a supportive infrastructure to build up a learning culture whereby workers are continuously motivated to train and upgrade themselves even as the labor market evolves to meet new demands. Technology has great potential to support the education and training of the workforce prior to labor market entry and as part of lifelong learning. The Korean government developed a skills development strategy within the context of overall national development. International cooperation in human resource development also needs to be addressed. KRIVET is always endeavoring to develop new and effective initiatives to foster development of human resources in the Asia-Pacific region.

In his opening remarks, Mr. Peter McCawley, Dean, ADBI reiterated the workshop objectives. The first is to consider what national strategies and key initiatives are needed to ensure that people have the literacy, numeracy, and basic computer skills they will need for the knowledge economy. The second objective is to draft project proposals to further efforts toward workforce development and poverty alleviation in each of the participating countries. The knowledge economy marks a significant change in paradigm and emphasis on the way economies work and compete. This dynamic shift truly changes the comparative advantages of countries. The effective use of knowledge, education, and ICT skills is therefore fundamental to the competitiveness of nations in the global economy. Societies must become learning societies or risk being excluded from the benefits of globalization. In closing, Mr. McCawley explained that ADBI is a think tank that conducts research, workshops, and capacity building and outreach activities that promote the use of ICT.

Mr. Jeoung-Keun Lee, Senior Capacity Building Specialist, ADBI, introduced the workshop by outlining a timetable to accomplish the objectives:

Day One:	How to draft project proposals
Day Two:	Employment trends and study tour
Day Three:	Workforce development policies
Day Four:	New technologies for training
Day Five:	Unresolved issues and trends
Day Six:	Presentation of project proposals

Mr. Lee explained that each participant was allocated only five minutes to present the country report with an additional five minutes for questions. Each participant was also expected to produce a feasible project proposal according to the guidelines provided by ADB for drafting a project proposal. The expected outputs of the workshop were project proposals, a CD-ROM of the proceedings, a workshop report, lecture CD-ROMS, and networking with experts.

D. Attendance

Participants from 21 countries in the region attended the conference. Resource persons for the conference included experts from academic institutions, development agencies, government ministries, and the private sector.

E. Election of officers

Ms. Luisa B. Waqanika from Fiji was elected chairperson for the Workshop.

Mr. Joseph Mathew from India was elected vice-chairperson.

II. KNOWLEDGE ECONOMY PRESENTATIONS

A. ICT and National Innovation System: Is ICT an Engine of Growth?

Motoo Kusakabe, Senior Counsellor to the President
European Bank for Reconstruction and Development (EBRD)

This presentation provided the results of Mr. Kusakabe's recent study on the determinants of economic growth for the highest growth countries including OECD countries and low income countries.

In the last 10 to 20 years, a group of countries has shown remarkable growth in per capita GDP while most of the developing countries and those in transition suffered setbacks in economic growth. It is thus worthwhile to determine the common factors among these countries that may explain their high growth.

Substantial debate has focused on the factors responsible for economic growth of the fastest growing nations of the last decade. In the 1950's and 1960's the investment approach was used to explain this growth. In the 1980's and 1990's, however, the structural adjustment programs initiated by international development institutions were presumed to impact economic growth. In the 1990's, human capital was recognized as

a primary source of development. In the last decade, many development experts have been focusing on governance and corruption and rules of law. A new growth theory is emerging that looks at technological innovation and knowledge as the primary causes of growth.

Using data from 168 countries from world development indicators and other statistical datasets, correlation coefficients between major economic indicators and GDP per capita were analyzed. Economic indicators were selected from the following categories: education, infrastructure, finance, science and technology, trade and investment, and governance. Correlation coefficients of the two statistical indicators show the statistical association of the two economic variables, but this association does not indicate which variable is the cause and which is the effect.

First, the study investigated savings and investment as an engine of growth. Economists such as Rostow had thought that investment in physical capital impacted economic growth. However, the analysis indicated that savings have a negative correlation with economic growth until the 1980's and that investment has negligible correlation with growth after the 1970's. Thus, the study suggested that savings and investment are not engines of growth.

Next, the study analyzed macro structural reform as an engine of growth. Bad macro/structural policies had been considered to be the cause of slow economic growth. The study indicates that in OECD countries, inflation rates are strongly correlated to growth in the following decades, but not so in developing countries. Structural adjustment approach also encouraged open trade policy. Many countries promoted export, particularly hi-tech export. The data suggests that export growth has a high correlation with economic/income level. This finding is consistent with many previous studies, indicating that trade, especially export, is the most important determinant of economic growth.

The study also investigated foreign direct investment as an engine of growth. In the 1970's and 1980's, foreign direct investment was an important determinant of growth in higher-income countries. In the 1990's, it became an important factor for growth in lower income countries.

Education had been considered as the most important determinant of growth. However, many studies, including this analysis, show negligible correlations. Primary education was important for lower and higher income countries in the 1980's, but recently the analysis indicates that the correlation is weak. In OECD countries, secondary education was a key determinant of growth during the 1970's. For lower income countries, secondary education became a key factor for growth during the 1990's.

As for governance, empirical evidence reveals a high correlation between it and growth rate within the last 23 years. However, in the lower income countries, the governance level in the 1990's is negatively correlated with growth in the 2000's.

Is finance a determinant of growth? Three indicators represent the volume of the financial sector in the economy: quasi money (M2), which represents liquid obligation of the banking sector such as cash and demand deposits; domestic credit to the private sector by the banking sector; and stock traded (all relative to GDP). There are strong correlations between these indicators and economic growth. Both the banking sector indicators and capital market-related indicators have a strong correlation with growth.

Is ICT an engine of growth? In the late 1990's, the US bolstered economic growth through ICT development, followed by Taiwan, Korea, Singapore, Ireland, India, and China. The study indicates that the usage rates of ICT, such as number of Internet users, number of PCs, and Internet servers per 1000 people, have a strong correlation for OECD countries but an insignificant one for developing countries. Meanwhile, the correlation between ICT usage and income level is extremely high. Why are there such small correlations between ICT usage and economic growth? One hypothesis is that although ICT is an important ingredient for growth, it effectively stimulates economic growth only if some other factors are available or some conditions are met. Without such other factors or conditions, ICT cannot ignite growth. Another hypothesis is that ICT is a luxury good highly correlated to income level. It is more likely that ICT itself is not an engine of growth, but that it needs other factors or conditions to effectively stimulate growth. However, there is a strong correlation between telephone mainlines and growth for lower income and OECD countries. Road and electric power in lower income countries also has a significant correlation with their growth.

Innovation and scientific knowledge are thought to be the essential factors for growth, particularly in the world of information and knowledge-based economy. Research and development expenditures and the numbers of researchers and technicians have a strong correlation with growth in OECD and lower-income countries. Patent and science articles are also strongly correlated with growth in both sets of countries. The implication is that growth factors have changed from physical capital to knowledge capital, even for lower income countries.

In summation, the factors that have strong correlation with economic growth in low-income countries are export growth, primary education, financial markets, governance (particularly quality of regulation), and

telecom infrastructure and its management. The factors that have little correlation with economic growth are higher education, ICT usage, innovation related indicators, and level of infrastructure.

The factors relevant to higher income levels are export and foreign direct investment in the 1970's, secondary education, finance, and foreign borrowing. For OECD countries, to maintain a high income level in the competitive global market, innovation is the most important engine of growth. Investment in physical capital is not so relevant for relative income levels. Secondary education used to be important in the 1970's, but in recent decades education cannot explain income level. Human capital to support R&D and innovation is most relevant for maintaining a high income level. Governance is still the most important determinant of income levels in OECD countries.

Therefore, it can be said that three stages to create a knowledge economy are:

1. Basic economic governance including governance, basic education, financial sector, and export promotion,
2. Borrowed technology-led growth including importing technologies, investment in physical capital, existence of educated workforce, and efficient banking sector to finance investment, and
3. Innovative technology-led growth using innovation, R&D, technological progress, and increasing rate of return.

Knowledge does not automatically translate into growth. We need a combination of policy and regulation, infrastructure, education and research, institutions to support entrepreneurs, governance, social capital, and city amenities.

B. Developing ICT Strategy for Economic Growth

Motoo Kusakabe, Senior Counsellor to the President
European Bank for Reconstruction and Development (EBRD)

This presentation focused on the need to develop national policies and strategies that promote development of ICT.

Economic growth is closely related to ITC. However, the relationship is not simple. The creation of telephone lines, PCs, and Internet does not necessarily lead to growth because numerous factors must also be accounted for, such as policies, institutions, infrastructure, human capacity, and ICT content businesses. The most important factor is a strong and committed leadership by a top political leader.

Purposes of a national ICT strategy:

- As a consensus-making process for change
- As a tool to upgrade policies and business environment
- As a chance to create ICT coordination mechanisms at cabinet level to implement strategy

Success factors for an ICT strategy:

- Leadership should come from top
- Strategy process should be inclusive
- Focus on crucial bottlenecks
- Promote as much private participation as possible
- Scale up by systematic capacity building of domestic institutions

Critical components of an ICT strategy:

- Supportive regulatory framework
- Achieving universal access
- Starting from e-Government
- Creating jobs through ICT-enabled businesses
- Capacity building for innovative technologies and entrepreneurship
- Supporting social applications

Recent successes in launching ICT strategies:

- E-Sri Lanka program: comprehensive strategy assisted by the WB
- Bangladesh: ICT Taskforce 2001 Grameen village phone model
- Uganda: Communication Act of 1997 Rural Communication Development Fund
- Kyrgyz Republic: ICT strategy 2002, ICT Conference system to prioritise action plan

C. Knowledge Worker Development: Technology Neutrality and Growth of the IT Industry

Michael Mudd, Director of Public Policy, Computing Technology Industry Association (CompTIA)

The Computing Technology Industry Association (CompTIA) is the world's largest IT trade group. It is a nonprofit, industry owned organization that incorporates approximately 20,000 corporate members in 102

countries, with over 4,000 institutional members and 8,000 IT professional (individual) members. Approximately 85 per cent of members are small and medium-sized enterprises (SMEs). CompTIA is trying to promote a set of global standards and provide training certifications that are vendor neutral.

Information technology is the driving force behind the world economy. More than 90 per cent of all workers in the IT field do not work for IT industry companies. Rather, they fulfill IT functions in other industries. IT is the backbone that powers the global economy in financial services, government, agriculture, healthcare, transportation, manufacturing, education, and scores of other industries.

A model for workforce development

The training and certification model that functions as part of the National IT Apprenticeship System in the US is based on three primary components: education, certification, and skills validation. Education delivers foundational knowledge and concepts. Certification validates content knowledge. Skills validation links job to education, creates lifelong learning, and ties employment to the education process.

For a private/public IT training initiative, the essential components of the model are:

- Industry skills based on vendor neutral standards
- Classroom instruction
- Structured on-the-job learning
- Competency validation on the job
- Documented experience
- Industry certification
- Appropriate government incentives for private sector

The National IT Apprenticeship System is a partnership between the U.S. Department of Labor and CompTIA. The benefits of this model to the employee are:

- Preparation aligned to industry technology standards
- Emphasis on knowledge and experience
- Validation of competencies
- Institutionalization of lifelong learning
- Adaptation to changing technical standards

The benefits to the employer are:

- Early access to the next generation of IT professional
- "Try before you buy" approach to employee development
- Confidence that employee education meets employer needs and can be validated
- All stakeholders playing with same game book
- Government assistance (e.g., tax benefits)

The employer can be sure that not only has the employee learned how to implement an IT security system, but that he or she has physically done the work under the supervision of a subject matter expert.

National benefits of the NITAS program are:

- Ability to move up the 'value chain'
- Increased productivity per person
- Higher GDP
- Increased tax base
- Lower environmental costs
- Ability to 'leapfrog' ahead to a knowledge economy

Technology neutrality and open standards

Technology neutrality is also important for the growth of a knowledge economy. The key to technology neutrality is interoperability, which is the integration catalyst of a networked society and e-government.

Global standards are adaptable to various business models and benefit most SMEs. On an IT level the most critical component is software. Interoperability is not static; rather it is a continually evolving dynamic linkage driven by rapid changes in technology (innovation), customer requirements, and business processes. Open standards are promoted by government organizations and private public partnerships and are market driven.

Recent trends in Latin American-based IT companies provide a practical example of technical neutrality and standards working together. Research on development of SMEs' IT businesses showed that most are creating a blended or hybrid model to create an indigenous software industry. Only 5 per cent of companies use the open source model exclusively. The rest of the companies use a mix of proprietary/commercial and open source models.

In order to promote workforce development and generate a knowledge economy, investment and a sustainable revenue model are necessary. So how should governments promote a sustainable software industry?

Governments can initiate the following measures:

- Promote diverse ICT training options
- Ensure IP laws are enforced
- Recognize and promote international certification
- To move from an industrial society to a knowledge society, technology neutral standards are vital. Technology neutral educational processes prepare the knowledge worker for a flexible career.

In the discussion session, Mr. Mudd explained that the certification system administers exams that are renewed and changed every six months. Some exams and certification requirements are changed more frequently in accordance with the ever-changing technical standards.

D. Policy Implications of a Knowledge Economy

Daan Boom, Principal Knowledge Management Specialist, ADB

What is knowledge? It is about data organization and information. Knowledge is the understanding of the why, where, what, and when relative to taking action. It is the product of an organization and reasoning applied to new data. Implicit knowledge is personal, contact specific, and difficult to formalize, while explicit knowledge is the component that can be codified and distributed. Therefore knowledge in itself is very hard to manage.

Knowledge workers are "people who get paid for putting to work what one learns in school, such as their ability to acquire and to apply theoretical and analytical knowledge, rather than for their physical strength or manual skill". Knowledge workers will never become a majority, but they will give the emerging knowledge society its character, its leadership, its social profile.

According to Peter Drucker, about 80 per cent of workers will be routine workers, doing the same repetitive volume-based work better and faster. The remaining 20 per cent will be innovators, developing new activities, applications, and business processes, striving for effectiveness. Knowledge workers must continue lifelong learning and must be challenged in their work. Knowledge embodied in people is human capital. Knowledge embedded in processes is structured capital.

A knowledge-based economy is one directly based on the production, distribution, and use of knowledge and information. It is an economy focused on research, innovation, or other focused forms of knowledge creation. In this economy, knowledge is widely distributed and utilized. The production, distribution, and use of knowledge is the main driver of growth, wealth creation, and employment across all industries. An information economy one is where the productivity and competitiveness of units or agents in the economy (be they firms, regions, or nations) depends mainly on their capacity to generate, process, and efficiently apply knowledge-based information.

In a knowledge economy communication and globalization increase the pace of change, but create distances between those who can and cannot adapt. The knowledge economy, however, has the potential to increase the standards of living, provide job opportunities, and stimulate creativity and the expansion of SMEs.

The four pillars of the knowledge-based economy are an economic and institutional framework, education, technology, and innovation. The institutional framework consists of a network of institutions in the public and private sector whose activities initiate, import, modify, and diffuse new technologies and practices. Education and training are high-standard, widespread, and continue throughout a person's life. An education-oriented culture is most favorable to the progress of a knowledge-based economy.

Strengthening legal and regulatory framework, promoting competition, improving the financial system, encouraging the participation of SMEs, creating labor market flexibility, and generating diaspora are all conducive to the development and sustaining of a knowledge-based economy. Countries need to build on existing capacities and national expertise strengths and provide incentives for various parties to take part in capacity building.

Foreign investment is a very important mechanism for building domestic capacity. A regulatory framework should include/foster taxation and incentives, financial systems, international trade, intellectual property rights, foreign direct investments, and advisory bodies. Infrastructure indicators are telephone landlines, IS providers, mobile density, computers, Internet, and e-commerce activities. Moving forward in a knowledge-based economy requires investment in and proper utilization of ICT.

Education indicators are entrepreneurial activities, science and technology parks, partnerships with private sector, exchange programs with international universities, and diaspora. Innovation depends on a country's ability to use and diffuse science and technology.

E. Developing ICT Strategies Using Open Technology

Samuel Lo, Director, Education and Research, Asian Pacific, Sun Microsystems, Inc.

Today's unprecedented trends in education present us with new challenges as well as opportunities. The current megatrends in education are:

- Streamlining administration and cutting costs
- Implementing portals and SSO (secure single sign-on)
- E-Learning
- Digitizing libraries, courses, and other information assets
- Wireless campuses
- E-Business
- Enabling large-scale collaborative research

At the same time are ICT challenges and opportunities which include security, Web service and application development, "Open Architectures" and "Open Source", resource provisioning, Java development, identity management, wireless infrastructure and applications, mobility with security, and application integration.

The challenges for institutions are security breaches and business disruptions, while the solution requirements are centralized identity management, policy and auditing, and mobility with security. A second challenge is operating budgets, which requires self-service portals, pre-integrated solutions tested and released, and predictable and affordable software costs. A third challenge is data protection and privacy and the need for identity management and role-based access control. Institutions need to develop and manage an efficient infrastructure. The solutions needed are shared services that reduce time and cost, built in security, and predictable releases.

ICT strategies checklist:

- What is your country's education and research strategy and how is it linked to ICT skills and capacity building and ultimately economic development?
- How do you build a sustainable ICT-based workforce?
- How can your country achieve a competitive advantage by leveraging ICT?
- How can your country inject ICT-induced productivity gains into industry?
- How do you achieve "real" results from leveraging ICT in the education process?

F. Knowledge Workforce Development for Computer Supported Collaborative Work Environments

Man-Gon Park, Director General, Colombo Plan Staff College for Technician Education

The current economy is facing new environmental changes. We have moved from real space or physical space to cyber space and are currently experiencing ubiquitous space. The speed of communication has greatly increased along with media, which has gone from analog to digital and then to hybrid. Our computer systems have moved from being centralized to distributed and more integrated. Therefore ICT has initiated unprecedented changes in our modes of thinking, communicating, and working. ICT evolution has enabled us to move from an industrial society to an information one and we are currently entering a ubiquitous society. We are creating and pursuing regional trends with technology evolution, such as digital cocooning and web identity. We are also pursuing new ways of working and creating new workforce and work environments. Examples include the increasing number of freelancers and telecommuters and the mobilization of the workforce across borders.

The knowledge workers in this new environment are the new capitalists. Collaborative work and multicultural environments in digital workplaces set new dimensions for the workers. Toffler (1990) observed that typical knowledge workers in the age of the knowledge economy must have some system to create, process, and enhance their own technological knowledge and in some cases also manage those of other co-workers.

The workers in the information era can work anywhere with electronic connectivity and can work under flexible time schedules. They are required to be innovative, learn quickly and continuously, work collaboratively, and be comfortable with experimentation and risk taking. The three main components of the collaborated work environment in the IT-oriented work place are digital work, digital workplaces, and digital workforce.

Computer-supported cooperative work (CSCW) holds great promise for organizations in today's knowledge economy through infusion of teamwork, effective networking, and creating multilateral work environments. Groupware supports the efforts of teams and other paradigms that require people to work together, even though they may not actually be together, in either time or space in a computer network environment. Groupware includes e-mail, electronic meeting systems (EMS), and audio-video conferencing as well as systems for workflow and business process re-engineering (BPR).

The digital workplace is mainly a web-based workspace where ideas are unleashed and communication and collaboration take place. It is where corporations bring together cross-functional, cross-enterprise teams to build and manage relationships with customers, partners, and suppliers to innovate in the design, development, and delivery of products and services. As a technology platform, the digital workplace complements the way companies already work, providing flexibility in adapting to unique business processes, interoperability with existing technology infrastructures, and the simplicity and intuitiveness required to facilitate widespread adoption.

CSCW holds great importance and promise for the new workplace and for society. Organizations will need to improve the ability of teams to work together through networks of computers. People who work together in cross-functional or cross-enterprise teams must quickly establish a work plan, divide up tasks, and determine means of coordination and self-regulation. Often team members work asynchronously, but their work must still be coordinated effectively.

Key issues of CSCW:

- Group awareness
- Multi-user interfaces – hard to design
- Concurrency control
- Function of pointing or specifying
- Latency problem
- Security and privacy of shared resources

Types of cooperation generated through CSCW:

- Focused partnerships
- Online teaching/training
- Conference
- Structured work process
- Tele-democracy

In summation, technologies that are used to facilitate, augment, and support interactions among members of community are called computer-supported collaborative work systems. Despite the clear need for these, we lack the knowledge of how to build a model of collaborative work across distance that will work best in a given situation. Organizations will need to improve the ability of teams to work together through networks of computers.

G. Trends and Developments in Cyber Crime in the Information Age

Steven Martinez, Deputy Assistant Director, Cyber Division, Federal Bureau of Investigations, USA

Globalization and the transition to a knowledge-based economy will present many exciting new opportunities for citizens, but this transformation will also present challenges and obstacles, such as cyber security.

From the Federal Bureau of Investigation (FBI) perspective, a number of traditional crimes have migrated online. These cyber crimes include consumer fraud, identity theft, copyright infringement, child pornography, and child exploitation. A related problem is the evolution of a new category of crime: crime that goes beyond the migration of traditional frauds to the Internet. These new threats include computer intrusions, denial-of-service attacks, and the destructive proliferation of malicious code. We are seeing a convergence of these two threats, with sophisticated hackers and organized criminals working together hacking, cracking, spamming, and phishing for the huge profits that can be made from these illicit activities. FBI projections indicate that the number of Internet-enabled crimes will increase dramatically over the next several years, with the potential for driving down consumer confidence in Internet security and stunting the growth of e-commerce. Our countries and our economies cannot afford and should not tolerate either of these outcomes.

In response to these challenges, the FBI has recognized the danger that cyber threats pose to the US and made cyber crimes and intrusion matters the bureau's number three priority. To emphasize this new priority, in early 2003 Director Mueller approved the establishment of the cyber division, with a mission to detect, prevent, and investigate cyber-based attacks and high technology crimes. The establishment of the cyber division is to play an important role and an integral part in protecting the technological infrastructure of the United States from threats and attacks, as well as assisting our law enforcement partners from other countries throughout the world in doing the same within their jurisdictions.

The FBI recognizes that as technology continues to evolve and change, it must have the necessary expertise to address cyber-attacks on our nation's infrastructure and to address cyber crime in all of its forms. In doing so, we have sought to aggregate the investigative and technical expertise necessary to meet the challenges in the cyber domain. Thus we must invest in a new kind of human capital to succeed in the cyber arena. To enhance the bureau's cyber capabilities, we have significantly changed our hiring philosophy. In the past, we looked for aptitudes suitable for conducting general and mostly criminal investigative work, but with chang-

ing priorities, we are looking for individuals with more specific and focused skill sets who possess degrees and real life experience in computer sciences, information systems, or related disciplines. We are in the process of developing a distinct cyber career path for our special agents. The establishment of a specific career path for cyber agents will ensure that the FBI's cyber capabilities keep pace with rapidly changing and newly emerging technologies.

We are working closely and cooperatively with our domestic law enforcement partners at the local, state, and federal levels, as well as with a growing number of law enforcement agencies abroad. The FBI also recognizes, however, the enormous importance of working closely with the private sector and academia in addressing these threats. The FBI receives only about one-third of the reports that we would like to in computer intrusion matters. If we as an agency are to become more predictive and pro-active in the future and prevent cyber attacks from occurring, we need a more comprehensive intelligence base that will enable us to record and examine all of the tools and techniques hackers are using to attack the cyber infrastructure. The anchor required in this effort is for law enforcement to be notified of all attacks, thus the successful future of cyber cases lies not in merely protecting your own systems.

The FBI is also working hard to address the international dimensions of these attacks. We have enhanced our international capabilities, because many of the most damaging DDOS and hacking attacks are often initiated from outside our borders. Through our 45 legal attaché offices overseas we have established the contacts and are building the relationships that will enable us to address cyber threats to the United States that originate overseas and we are developing the means to better assist our international partners in the global fight against cyber crime. The ability to rely on secure, stable, and reliable information technology and communications networks will continue to be a critical success factor for any country or region striving to establish centers of technical excellence as cornerstones of their knowledge-based economy.

H. Emerging Technical Skills Requirements for 21st Century Knowledge Workers

James LeValley, Education Programs Director, Microsoft Corporation

The economy of the 21st century is largely driven by information technology, which is constantly evolving. A knowledge economy is built around contribution economies, affiliate economies, and knowledge process outsourcing. Rapidly emerging technologies, new standards and regulatory requirements, and complex new issues such as security and privacy are changing the nature of global commerce.

Contribution economies occur where community members, customers, partners, and others engage to generate added value to products and services. For example at amazon.com, millions of people contribute voluntarily to the website by putting up reviews. Their contribution generates significant revenue for amazon.com and the economy. Affiliate programs are the fastest growing form of e-commerce on the Internet. Over 75,000 international affiliate programs are available on the Internet today. These programs only require basic digital literacy skills and result in large profits. Knowledge process outsourcing is used, in which data analysis is conducted in countries were the labor is cheaper and the adequate infrastructure is in place.

Therefore, in today's economy, the barrier to economic development is lack of basic digital literacy. Core basic IT skills are indispensable for income generating opportunities and participation in the global economy. ICT skills are increasingly needed across all industry sectors. Digital literacy provides a sound basis for development of a contribution economy around technology. Digital literacy may help prevent income inequality sometimes associated with technology growth.

Skills of the 21st century knowledge worker are

- Business process modeling, including knowledge capture, process models, and quality assurance process
- Communication, including diversity skills, interpersonal communications skills, and technical communications
- Connectivity and collaboration – workflow tools, online communications, Web use, information literacy, and information standards
- Security and privacy – maintaining security of data, understanding regulation of data, and respecting privacy
- Project management skills – managing complexity, managing disperse projects, and loosely coupled systems

So, where do we start?

- How do we train to assure relevance to emerging industries and growth?
- How do you demonstrate the quality of your workforce across international borders?
- How do you show the value of your workforce to potential investors?
- How do we assure a positive ROI on investments in TVET?

The goal is have certification and demonstrable outcomes. We need a dynamic system of training linked to industry-recognized certifications with accountable, demonstrable outcomes linked to international standards and the local technology ecosystem.

A workforce development program should consist of three stages:

Stage 1: Readiness

- Create awareness of ICT as a career
- Provide IT-related foundational education
- Prepare citizens to participate in knowledge economy
- Set career goals around IT-related careers

Stage 2: Competency

- Train individuals to identified competencies for job roles
- Certify individuals to demonstrate job readiness
- Credential individuals to compete in the global economy

Stage 3: Application and placement

- Job placement
- Ongoing professional development
- Bridge school and training to workplace opportunities
- Apprenticeship programs

Microsoft Digital Literacy Program

The Microsoft Digital Literacy Program is a tool kit that provides free, online e-learning and training in a self study or classroom environment. The curriculum provides basic digital literacy skills supported by assessment, e-learning, and a certificate of completion. The curriculum covers a broad range of critical ICT literacy skills and may be adapted locally to specific situational needs or programs. The curriculum and assessments will be made available online for free and may be provided on CD for those with limited or no Internet access.

Digital literacy requires industry-recognized credentials. Guidelines for adoption of such credentials follow.

Government:

- Endorse industry-recognized certifications & standards to link education and workplace needs

- Promote certification systems across all industries (not just ICT)
- Consider certification as a requirement for graduation from TVET programs
- Use certification as a selection criteria for IT service and training providers
- Conduct industry executive forums around credentials and certification
- Use certification standards as a pre-requisite for funding projects
- Provide public education on the value of certification

Employers:

- Adopt certification in HR policies around hiring
- Insist on certified employees
- Provide financial incentives to employees seeking certification
- Represent industry needs to government and educators

I. Needs Analysis of ICT Workers in Asia and the Pacific

Ja-Kyung Yoo, Chief, ICT Applications Section, UNESCAP

Today's economies are challenged by two significant trends: globalization and technological innovation. Globalization is a process of economic integration through free movement of capital, goods, services, knowledge, and information. ICT is driven by and an enabler of globalization. In a globalized world, the search for new markets and resources creates competition that is increasingly international and global. In order to compete, knowledge and information have become essential.

Technological innovation and the growth of the ICT sector affect almost all aspects of life – communication, business, education, research, trade, entertainment. ICT is the leading growth sector and is recognized as the engine for economic growth. In almost every country in Asia and the Pacific, national plans and government mission statements stress the role of ICT in achieving economic and social development in a global economy. Thus, there is a great demand for ICT workers of various skills and job classifications, including software developers, system engineers, communication and network engineers, data managers, data supervisors, computer teachers, computer operators, technical support, database development and administration, programming/SW engineers, web development and administration, network design and administration, technical writing, enterprise systems, and other digital media.

The development of ICT, particularly the Internet, created a wide range of new jobs such as webpage designer, e-business solutions, digital production, and software architect. These jobs are not considered in many classification systems as ICT occupations. While many people are using ICT skills as a major component of their job, they are not classified as having an ICT occupation.

The OECD estimates that there are 600,000 vacancies worldwide requiring ICT skills. The demand is estimated to grow. India requires 760,000 IT graduates over the coming years to meet the ICT workforce requirement of 2.2 million by 2008. In China, the gap of software specialists was widening by 20 per cent a year. In Thailand, the annual gap of IT manpower is estimated to reach 26,000 by 2006. In the Philippines, only 80 per cent of demand is met. The US, Australia, Canada, Japan, the Republic of Korea, Malaysia and Singapore all have a shortage of skilled ICT workers. The provision of ICT skills in the non-ICT sectors, the economy as a whole, is a great challenge.

Solutions to fill the ICT skill gap:

- Outsourcing
- Migration
- Human resource development (education, training)
- Policy incentives

Many countries have integrated ICT into their education systems by providing ICT facilities and connectivity and integrating ICT into their curricula at different levels of formal education through policy. Access to the Internet in secondary schools is becoming universal in OECD countries. In Asia, Malaysia and Thailand are making good progress in connecting their schools to the Internet. As ICT is becoming an integral part of many jobs that do not involve programming, ICT education is more and more integrated into other academic disciplines. Even computer science students are encouraged to take more courses outside their major. It is hard to know how workers obtain ICT skills – particularly in some of those most recent applications of networking or software development. Employers of cutting-edge ICT companies provide employees training to keep them up-to-date with new skills. Donor organizations (World Bank, ADB, GTZ, JICA, KOICA) provide funds for capacity building in ICT. International organizations (UNDP, APT, ITU, UNESCAP) organize ICT-related training courses.

A UNESCAP study on ICT training needs assessment shows:

- Member countries feel the gap between demand and supply of ICT human resources

- Priority areas for training needs are ICT applications (e.g., e-learning, e-government, e-business) and Internet issues (e.g., Internet security, Internet governance)
- Training should target management group in government
- Governments prefer traditional face-to-face training course combined with site visits of good practices

Policies to promote ICT and ICT-based service industries should include IT park (provision of high quality infrastructure, subsidized rent, low tax rate), ICT training centers, subsidized Internet phone service, and tax incentives to software firms. Policies to promote ICT HRD should take into account education policy, overall ICT literacy, and upgrading of ICT infrastructure.

In sum, there exists a gap between demand and supply of ICT workforce in Asia and the Pacific. For countries in Asia-Pacific to participate actively in the competitive global knowledge economy, they must:

- Introduce a conducive policy environment to promote ICT and ICT-related service industries
- Concentrate on HRD, quality control measures, an international ICT skills standard, and curricular standardization
- Promote ICT industries and R&D
- Provide IT training for women, older employees, and the unemployed
- Pursue regional cooperation
- Emphasize private-public partnerships

J. Preparing Project Proposals Using Logical Framework Approach

Ja-Kyung Yoo, Chief, ICT Applications Section, UNESCAP

A project proposal is a document proposing activities to achieve certain objectives. It seeks resources, thus it should be logical and persuasive to find the right donors.

A good project proposal is based on a logical framework. This framework provides a systematic approach for project planning, monitoring, and evaluation; it is an analytical tool to transform ideas into a plan for actions.

Phases and steps of the logical framework approach:

- Situation analysis
  - Stakeholders (needs, interests, potentials, weaknesses), target group

- Problem identification and analysis
- Identification of potential objectives

- Planning
  - Goal, outcome, outputs, activities
  - Risks
  - Indicators

- Monitoring

The project cycle consists of six steps:

1. Identification
2. Preparation
3. Appraisal
4. Approval
5. Implementation
6. Evaluation

The project goal is the achievement of, or benefit for, the target group as a consequence of the project (e.g., farmers are able to compete in the global market). The outcome is the change in behaviour or positive result of the project (e.g., application of knowledge and skills, adoption of practices, utilization of technology, adoption of e-business as a tool). The output is the production potential relevant to the beneficiaries. Outputs can include human resource potential (knowledge and skills that can be used to achieve something, e.g., farmers having enhanced skill in using e-business applications) as well as technical potential (e.g., schoolrooms being readily equipped, enhanced rural ICT infrastructure). Activities are specific measures necessary to achieve outputs.

The performance indicators specify (in measurable terms) how the achievement of an objective can be verified or demonstrated. They define performance standards (minimum requirements) for each objective and provide a basis for project monitoring and evaluation. Monitoring mechanisms are the source of data for measurement of achievement of each indicator/target. Monitoring mechanisms are not the means of recording or reporting the data.

Assumptions describe conditions (external factors) that must exist if the project is to succeed, but beyond the control of the project management. Assumptions allow planners and project management to assess risks, which can jeopardize the success of the project. Assumptions are assessed according to their relevance and probability.

The project proposal format:

- Introduction
- Issues
- The Proposed Project
  a. Goal, Outcome and Output
  b. Methodology and Key Activities
  c. Project Logical Framework
  d. Cost Estimates
  e. Implementation Arrangement
  f. Benefits of the Project

III. TECHNICAL EDUCATION AND VOCATIONAL TRAINING PRESENTATIONS

A. Employment Trends and Workforce Development Policies for the Republic of Korea

Young-Hyun Lee, KRIVET, Visiting Scholar, Max Planck Institute for the Study of Societies, Germany

This presentation indicated that governments must adapt to the dynamic labor market and changing work environment as is indicated by recent employment and educational trends in Korea.

Economy and labor market as relating to education and vocational education and training

In the last three decades in Korea, there has been a steady decline in vocational high school enrollment while university enrollment has increased significantly. As of 2004, more than 81 per cent of the population pursues a higher education. More than 62 per cent of vocational high school graduates advance to college. As a result of these trends, a large generation gap exists between middle aged adults and young adults in educational attainment. Middle aged adults aged 45-54 lack the educational credentials and necessary skills for today's market, hence the need for adult education.

In Korea, the Ministry of Education and Human Resources Development (MOEHRD) administers education and national human resource development policies. It is responsible for vocational education and adult education at schools and colleges. The Ministry has established lifelong education centers and local education offices. The Ministry of Labor administers vocational training policies, in-company training, and training for the unemployed. Within the Ministry of Labor, HRD Korea oversees training institutes and polytechnic colleges. The 1976 Basic Vocational Training Act

established a compulsory training system. Private firms in certain industries with 300 or more employees were required to provide in-plant training to a certain proportion of their employees. Employers could either provide the in-plant training or pay levy to the vocational training promotion fund. However, these policies do not meet the needs of the current labor market and the advent of the knowledge economy, globalization, and technological development

Reforms need to address the challenges of the lack of relevancy of education and training and the centralized supply-oriented principle. In the education sector, students' learning techniques are inefficient while the cost of education is too high for parents of children. For the industry, the education is irrelevant and of low quality. In the vocation education and training sector, vocational education is dead-end, state-run, supply-led, and compulsory. Thus, it is outdated and provides no incentives for participation. Overall, the link between education, training, and work is lacking and there is a shortage of skilled workers.

In order to address these problems, the government has introduced various measures to link school and industry and encourage lifelong education. In the early 1990's a demand-driven system was introduced, with lifelong learning in the credit bank system, cyber colleges, Korea Open University, and lifelong education centers, strengthening school-industry cooperation and establishment of KRIVET.

As a result of these reforms, attendance of vocational school graduates in higher education has increased, junior college programs have diversified, the number of workers trained has increased, most in-house training schemes include advanced courses, and private vocational training institutions have increased.

However, several issues remain:

- Skills mismatch – shortage of skilled workers, youth unemployment
- Low involvement of stakeholders in VET
- Few learning opportunities for disadvantaged groups
- Focused on employers' needs – neglecting workers' needs

In addition to these issues, we must focus on the following trends and challenges of the Korean economy/market:

- Increase of the proportion of service workers
- Increasing demands for skilled workers
- Growing bipolarization in the labor market

- Ageing workforce
- Youth unemployment
- Long schooling, low adult learning
- Rapid changing skill demands

Thus, future policy tasks are:

- Developing key skills
- Fine-tuning VET systems, including greater investment in VET, enhancing VET relevancy, and elevating the quality of VET teachers and trainers
- Developing a career guidance system
- Promoting lifelong learning by strengthening linkages between informal learning and formal education, transforming credential- and seniority-based compensation system to competency-based one, and providing more incentives for disadvantaged groups to participate in education and training
- Enhancing involvement of stakeholders by changing roles of government and encouraging other stakeholders to participate in HRD

In the plenary session, participants discussed ways in which Korea is dealing with the ageing society and the increase in the demand for labor. It was noted that the Korean Government is envisioning augmenting female labor because the proportion of women working is quite low. In addition, the government is developing a program to use elderly workers and is discussing the possibility of extending the retirement age. Further, it was explained that in Korea lifelong learning includes lifelong education and non-formal learning. According to Korean law, lifelong education centers are set up in each province for a total of 16 centers in the country. The education provided at these centers is subsidized by the government. In addition to these centers, the government has designated lifelong learning cities.

B. KOICA's Official Development Assistance and Human Resource Development

Dr. Hyun-sik Chang, Managing Director, KOICA

Korea can serve as an example for developing countries because of its rapid transformation from extreme poverty to an OECD member and donor country in one generation. In the 1950's, a weak economic structure and very limited resources characterized the country. Between the 1960's and 1970's, large amounts of foreign aid, a successful five-year economic plan, and active political leadership accelerated its transformation to a donor country.

The objectives of Korea's ODA policy are:

- Contributing to international peace and prosperity as a responsible member of the international community with the goal of taking on a more active role through international organizations and to return the favor it received in the past
- Providing assistance in economic development and social progress of developing countries, committed to narrowing the disparity by sharing its development experience and expertise
- Promoting friendly and cooperative relations and exchanges with developing countries through invitational training, volunteer programs, and Korean companies' participation in ODA projects
- Providing humanitarian assistance to countries in crisis, as global poverty can be a breeding ground for conflict and instability

The Korean International Cooperation Agency (KOICA) operates under the Ministry of Foreign Affairs and Trade and is responsible for disbursing grant aid and technical cooperation that are part of the bilateral aid initiatives of the Korean Government. The agency was officially founded on April 1, 1991. The head office comprises one president, an auditor, 3 executive directors, 7 departments, 4 offices, and 26 teams. There are 22 overseas offices located primarily in the Asia-Pacific region. The volume of ODA assistance has risen sharply in a decade with US$ 111.56 million in 1993 to US$ 365.9 million in 2003 and US$ 400.00 million in 2004.

KOICA's ODA activities:

- Training program – To help partner countries develop human capacity required for national development
- Dispatch of experts – To heighten the social and technical potentials of partner countries through such means as field-based education, seminars, and policy consultation
- Korea Overseas Volunteers (KOVs) – To provide the opportunity to contribute to the economic, social, and cultural progress of partner countries, based on the spirit of "share and respect"
- Development study – To identify project areas such as power and roads for efficient implementation of ongoing or planned governmental projects
- Provision of equipment – To provide goods requested by partner countries and support recovery in countries suffering from emergencies or disasters

- Project-type cooperation program – Extensive multi-year project combining all the assistance covering the entire cycle of project identification, planning, execution, and assessment
- Promoting NGO activities – To support overseas aid activities conducted by NGOs, mainly for poverty reduction and public welfare increase in developing countries
- Recovery assistance to tsunami disaster – Recovery assistance to Indonesia, Sri Lanka, Thailand, Maldives, Myanmar, and Somalia
- Post-war recovery assistance to Iraq and Afghanistan – Joining the reconstruction efforts alongside the international community with the common goal of peace building to improve the social infrastructure and living conditions in Iraq and Afghanistan

KOICA recognizes the importance of human resources as a tool for poverty reduction and economic development. To that end, it pursues capacity building and sustainable human resource development for self-sufficiency among developing countries.

Future strategies of Korea's ODA are:

1. Gradual increase of aid volume
2. Improvement of ODA quality
3. Development of Korean aid model
4. Promotion of public support
5. Reinforcing networks with NGOs

The home page for KOICA is koica.go.kr/.

In the plenary session the strategy of KOICA was explained in terms of cooperation with other donor agencies and country bilateral agencies. The agency is focused on cooperation with Asia-Pacific countries and would like to strengthen the harmonization initiatives set out in the Paris and Rome declaration. KOICA would like to strengthen the joint financing program especially in vocational training programs.

C. Human Resource Development Policy in Korea

Moon Hee Kim, Deputy Director, Policy Supervision Division, Ministry of Education and Human Resource Development, Korea

The Korean economy had grown 5.9 per cent per annum for the last 40 years but has been stagnant for the last 10 years. The source of growth during the industrial era was physical capital and labor, while the engines of growth in a knowledge-based economy are knowledge, human capital,

and social capital. Thus, Korea now requires a more educated workforce. With the advent of economic growth came an increase in higher education enrollment. New jobs require a workforce with enhanced skills and competence. Basic skills needed are reading, writing, and computation. Core skills are analytical, problem-solving skills, creative thinking, and self-management. Technical skills required are computer skills. Education and training is part of a positive cycle of benefits for both employers and workers. Workers' productivity increases, increasing the companies' competitiveness and the employers' bottom lines. The challenge is that as enrollment in higher education is rapidly increasing, enrollment in vocational training is rapidly decreasing. A second issue is how to cater to the aging population.

As a result of these trends and challenges, the issue of human resource development, which used to be confined to private organizations or companies, has now become a matter of great importance at a national level. Human resources is defined as mean competencies and attributes, i.e., knowledge, skill, and attitudes, required for the development of individuals, society, and nation. Human resource development refers to the formation, allocation, and utilization of human resources along with related activities to formulate social norms and networks rendered by state, local government, educational institutions, research institutes, private companies, and others.

Korea's human resource development goals are:

- Strengthening the capacity of individuals by nurturing lifelong learning and creative thinking.
- Building social trust and cohesion that is on a par with the social capital of the advanced countries.
- Creating a new engine for economic growth by securing a high-quality workforce.

The strategies undertaken to achieve these goals are:

- Open system and networking
- Adapting to the information age
- Deregulation and greater autonomy
- Maximizing the national human resource potential
- Promoting participation of related government agencies and private sector

In support of these strategies, the government administration system has been reorganized. Before 2001, the Ministry of Education (MOE) and Human Resource Development (HRD) were separate entities. Now, the

Ministry and Human Resource Development have been combined and are supported by 20 line ministries to implement their policies. Together the MOE and HRD are responsible for overall education and national policies including vocational education in high schools, colleges, and universities. Vocational training, however, is under the responsibility of the Ministry of Labor.

Future issues in human resource development:

1. Innovate vocational high schools (HS)
   Expand 'specialized HS' by providing customized VET programs
   Reform vocational HS curriculum by emphasizing core competencies
   Introduce 'comprehensive HS' by providing both general and vocational programs
2. Work-to-school
   Reorganize colleges and universities as 'LLL centers' for the community
   Innovate higher education system to help workers learn anytime and anywhere
3. School-to-work
   Enhance career guidance in HS
   Help students be ready-to-work through apprenticeship and internship
4. Deregulation
   Input control and performance control
5. Decentralization
   Government-driven school-based management
6. Dissemination
   Choice with information
7. Quality assurance
   Set up quality assurance system with school
   Improvement planning and performance evaluation
8. Reshape Ministerial Committee on HRD
   Role as a "prosumer" in HRD policies
   Enhance efficiency of HRD programs through evaluation

Sun Microsystems offers strategic programs for educational development such as EduSOFT Academic, training and certification, Sun Academic Initiative, self study with software such as java studio creator, Solaris express, books, training events such as a java master's contest, and online discussions and forums to build up communities.

D. Developing Learning Portal for Workforce Development

Kyosuke Yoshimura, Learning Solution Executive, IBM Global Services

Workforce development drives and supports economic development and employment programs. There are many talented, qualified, and experienced people focused on various portions of workforce development. It is not unusual to find many high quality programs in place to address workforce development issues. Workforce development, by nature, does not have a single owner but is a shared responsibility among five major stakeholders: employers, the education community, the government, local communities, and citizens. Within these five major groups, workforce development issues span seventeen different subject categories. These five stakeholders have different opinions and different needs regarding workforce development. Therefore, governments encounter significant pressures and issues from various groups within society. Governments must deal with funding pressures and show results to donor organizations regarding the rate of change, transparency, sustainability, interagency cooperation, poverty reduction, and national security.

Governments must attempt to deliver end-to-end, world-class, cost-effective education and training to address unemployment, underemployment, and accelerating industry development. Challenges to workforce development programs are:

- Inadequate level of IT competency
- Lack of skills required for e-government initiatives
- Shortage of e-business and knowledge economy leadership skills
- Limited proficiency in the English language
- Need to create or enhance performance of traditional industries
- Need for worldwide certification recognition

The IBM structured skills development model aims to account for these challenges. It consists of three key areas: core skills, functional skills, and advanced skills. A workforce development program should adopt definitions for professional positions and a skills standard because a common language and criteria are needed in human resource development in the training industry and academia.

A learning portal is another means of conducting self-training and development. A portal integrates learning information and acts as a personalized, effective learning support system. On-demand learning for knowledge workers requires dynamic on the job training and fusing appropriate learning technology with ICT. Many enterprises, such as automotive companies, are developing and using learning portals as ways to train their workers and facilitate communication.

As an example of an e-training program, Mr. Yoshimura discussed the e-training program administered by the Venezuela Ministry of Science and Technology. The Ministry established and developed a software workforce program to improve its global competitiveness and encourage productivity with the use of e-business. The achievement of this IT training program was the short turn around time of only six months for the trainees. Participants or students in this program quickly acquired the IT skills needed to develop the software industry and generate revenue.

The second example is the Japan Institute of Worker's Evolution (JIWE). The objective was to support citizen reemployment and provide a job-finding support network. The challenge was providing support services to women who could not visit the training location because of childcare. Therefore, JIWE needed to make employment information and e-learning services easily accessible. The solution was to provide an e-learning curriculum design consultation and a website accessible instantly and at any time. The user-friendly Web-based e-training content enabled mothers at home to develop IT skills.

A good workforce development plan includes:

1. E-Training center policy development
    - Vision, mission, goal, leadership
    - Integrate learning portal (e-Learning) in e-Government project
    - Create the governance framework for a WFD corporation to interact with stakeholders
2. Learning project scope
    - Rural development leaders, university, school, workforce
    - Time span, funding, business model
    - Motivation: certification, job opportunity, work improvement
    - Milestone, measurement, change management
3. Project plan
    - Proposal: work with learning strategy planning partner
    - Feasibility study: experienced learning consultant, target skills
    - Resource planning: leader, instructor, IT specialist, university
    - Funding: initial investment, operation/maintenance cost

4. Project implementation

   Project management office – operation and maintenance management

E. Closing the Gap in Education and Training

Utak Chung, Head, Education Team, Korean National Commission, UNESCO

A knowledge gap exists between developed and developing countries; the knowledge is unevenly distributed among these regions. The high-income countries have advanced research and development while developing countries are experiencing a brain drain. So the question is: how do we reduce the knowledge gap?

The gap can be reduced through education and training by global and national strategies. Most importantly, to maintain knowledge we need to pursue lifelong learning.

One approach toward reducing the knowledge gap is the Education for All (EFA) program of UNESCO. Since 1946, this campaign has aimed to combat illiteracy. In 1960, the Karachi plan set out a goal of attaining compulsory education in all Asian countries by 1990. In 1990 the World Conference on Education mobilized political support for the literacy problem and a worldwide EFA movement was born.

So far, the UNESCO EFA program has significantly increased enrollment in primary school. However, illiteracy and the quality of education remain problems. In 2000, UNESCO held the World Education Forum in Dakar. The objectives of the forum were compulsory education for all by 2015 and elimination of gender disparities in primary and secondary education by 2005, achieving gender equality in education by 2015. These objectives were incorporated into the UN Millennium Development Goals. To implement the goals of EFA, UNESCO formed an international task force on EFA while the role of UNESCO in EFA is to provide technical assistance to national EFA plans and capacity building.

UNITWIN/UNESCO is a higher education initiative launched in 1992. UNITWIN was launched with the aim of developing interuniversity cooperation while emphasizing the transfer of knowledge between universities and the promotion of academic solidarity across the world.

National Strategies

Education and training should be a top priority for national policy. Such policies should include a special fund for education and training,

administering teacher training, encouraging life skills and technical and vocational education and training, fostering science and engineering education, and ICT use.

Korea serves as a good case study for the development of national education strategies aimed at reducing the knowledge gap. Korea focused on the development of the ICT industry to bolster educational opportunities and advancement. Currently, 87 per cent of schools are Internet-equipped and 89.9 per cent of the population uses the Internet at home. However, Korea must deal with the increasing cost of private tutoring and the low quality of public education.

As one of its solutions, the Korean Government has proposed the use of e-learning because it can reduce the cost of education and enable anytime, anywhere, quality learning. The e-learning strategy is being implemented in three stages:

1. Initial infrastructure building stage (1996-2000)
    - 1 PC for each teacher
    - Teacher training
    - Internet-connected PC for each classroom (214,000)
    - Korea Education and Research Information Service (1999)
    - Teaching-Learning Center (EDUNET) – 5.5 m subscribers
2. Applying ICT in education (2001-2003)
    - 6,917 multimedia content items developed
3. E-Learning integration & development (2004-present)
    - EBS e-Learning Program
    - Cyber Home Learning System

The main factors that account for the success of Korea's e-learning strategy are:

1. Enacted as central government policy
2. Systematic implementation and effective delegation of responsibilities
3. Appropriate budgeting
4. Legal framework
5. Teachers and students actively use the system

Korea is also supporting and initiating efforts to develop and promote education and e-learning throughout the world. Currently Korea is administering numerous programs:

- UNESCO and Korea Funds-in-Trust Cooperation – includes training workshops on education planning and EMIS development in Uzbekistan, Mongolia, Armenia
- Samsung-KNCU Educational Fund Project – activities include building school facilities, providing equipment, and operating shelters and daycare centers for high-risk youth
- Cooperative projects for ICT use

F. Cyber Crime Risks and Educating the Public on Internet Safety

Scott Warren, Senior Attorney and Director of Internet Safety Enforcement, North Asia Region Microsoft, Law and Corporate Affairs

The presentation highlighted the importance of educating knowledge workers on cyber crime and measures to prevent it.

Cyber crime is an important topic because

- Information workers need to and will connect to the Internet
- E-Commerce offers a huge opportunity for economic growth
- Online resources greatly advance educational and research opportunities
- By connecting to the Internet, the public is exposed to cyber crime

Cyber crime includes

- Viruses and worms – malicious code that infects files and operating systems
- Spam – unwanted e-mail
- Phishing
- Spyware
- Botnets – viruses that enable a series of computers to control a string of other computers
- Child pornography

In order to prevent and control Internet crime, a partnership among public sectors, governments, and industry is critical. Microsoft has two programs designed specifically to stop the spread of cyber crime. The

Trustworthy Computing Initiative aims to ensure security, privacy, reliability, and business integrity. This program establishes a programming code to create secure code by design, default, deployment, and communications.

The second program is the Digital Integrity Team, which involves public and private cooperation in responding to Internet threats. The mission is to protect intellectual property, digital commerce, and network/online security by building effective partnerships with industry, governments, and law enforcement. This program focuses on all aspects and types of Internet crimes through enforcement, external outreach, and internal coordination. Enforcement activities include investigations, criminal referrals, consumer protection referrals, and civil litigation. External outreach entails support and training, criminal compliance, outreach to policymakers, industry coalitions, model business practices, communications, policy initiatives, and communications to customers, consumers, and business partners.

Currently, the Asia Pacific Regional Digital Integrity team consists of five former law enforcement officers all supported by in-country legal staff. The team has successfully assisted with the arrest of the Sasser virus author, caught the author of the Zotob worm, worked with Korean Police to catch a major international porn spammer, formed the International Botnet task force, and trained over 1,000 officers in child safety investigations and forensics.

The key messages to communicate to the public about Internet safety are (1) use an Internet firewall, (2) update your computer, and (3) use up-to-date antivirus software.

G. Vocational Education and Training Finance in Korea

Sung-Joon Paik, Vice-President, KRIVET

The presentation gave an overview of the main features of the vocational education and training finance in Korea in terms of funding sources and distribution mechanisms.

Vocational education finance comes from the Ministry of Education and Human Resource Development. Private sources provide 60 per cent of the budget. There are four funding sources: central government, local education authorities, including 16 municipal and provincial offices, parents and students, and school foundations. The highest proportion is received from students as most vocational educational institutes are private. The budget is distributed in the form of a general grant or a special grant through the local education authorities to the schools. In the past, the vocational training finance system was based on a training levy system. Training was compulsory, government-controlled, and supply-oriented.

Current problems and challenges with the finance system are:

- Structural vulnerability of VE funding
- High proportion of private institutes
- Lack of school-industry partnership
- Little incentive for industry
- Lack of autonomy in vocational high schools
- Low discretion in curriculum design and implementation
- No systematic evaluation on investment
- Only audit for budget management

In 1995, the government decided to introduce a vocational competence development program. It included an incentive system to encourage employers and employees to actively participate in lifelong vocational training through financial support from the EIF. At the same time the government enacted the 'Worker Vocational Training Promotion Act'. Thus, the system shifted from government-controlled to demand-oriented and the compulsory training and levy system was abolished.

In 2004, the Worker Vocational Training Promotion Act was replaced by the Worker Vocational Competency Development Act in order to provide more equitable vocational training opportunities for SMEs and disadvantaged people and to promote labor union-initiated training.

Currently, funding for vocational training comes from public sources, including the central government, the Ministry of Labor and other ministries, and local governments. Second are private sources, including employment insurance funds and students/trainees. The leading characteristic of the new financing system is demand-side finance. This means that employees a greater choice over which type of training they wish to receive. The subsidies provided to employers are support cost for administering vocational training, support cost for paid-leave training, and loans for facilities and equipment. Subsidies provided to employees are scholarships for training and tuition loans for college education. Subsidies for the unemployed are training costs to vocational training institutes and allowance to trainees for transportation, child care, and food.

The new system has positive results. The number of trainees in upgraded training increased from 679,000 in 1998 to 1.725 million in 2003, while the number of trainees in initial training dropped significantly. In addition, the number of trainees in programs for the unemployed decreased. However, there are also several negative results. Small firms lack financial and human resources. The distribution mechanism is inefficient because it

is based on training volume rather than performance results. Additionally, vocational training is not necessarily relevant to skills demands in the market.

Leading issues and challenges:

1. Funding
    - Diversify funding sources
    - Prevent adverse equity effect
    - Linkage between VE and VT finance
2. Distribution
    - More direct subsidies to individuals
    - Performance-based, output-related finance
    - Empowerment of VET institutes

In the plenary session, the participants asked what measures were being taken to resolve the issue of vocational training that is irrelevant to the needs of the market. The Government of Korea is developing new standards that meet the demands of the industries; schools and the industry are cooperating in developing curriculums and operating training costs.

H. Educational Policy Making in Asia

Philip Kwok-Fai Hui, President of Living Knowledge Communities, Hong Kong

This presentation provided an overview of approaches to educational policy making in the Asia-Pacific region.

In an industrialized society, organizations operate in the Fordian mode, where a massive number of task-specific laborers at the frontline work according to a master plan handed down from the top. Workers are coordinated through layers of middle management and separate departments, hence the pyramidal structure, or bureaucracy. People were classified in the industrial era into specialist occupations and given occupational identities. In such a classification, they are also ranked according to their roles in the organizational hierarchy and have expectations of changing their ranks by climbing the ladder. They are engaged in long-term employment in return for long-term loyalty. They work with people mostly in a superior-subordinate relationship (Cheng 2004).

Education plays a socialization role that supports the social fabric. Classification and ranking in an industrial society are largely facilitated by education. Most education systems have been designed in the form

of a pyramid to match the pyramid in the workplace. People's occupational identity often comes as a consequence of their educational qualifications.

In a knowledge economy, however, the workforce and professionals have transformed into knowledge workers. As more and more companies and organizations are becoming knowledge organizations the demand is increasing for knowledge workers. In this new economy, human creativity, intellect, and innovation are the most important inputs. Workers that are engaged in contemporary business operate with fluid and client-specific task forces.

This new knowledge economy presents a challenge to our educational institutions. The question is: does our current educational system prepare our young people for today's knowledge economy? A sharp decrease in labor market youth participation rates in Asian countries was found: Korea, 20.8 per cent; Philippines, 17.9 per cent Indonesia, 15.7 per cent and Thailand, 11.2 per cent for males in 1998. In 1999, the unemployment rates in Korea were 9.1 per cent for high-school level workers and 6.4 per cent for college-level workers. In Malaysia, young people (20-24 year-olds) constituted the first group of unemployed workers, representing 44 per cent of job-seekers. The pattern continued and high school and college graduates displayed an unemployment rate higher than the overall rate (Atchoarena & Mujanganja 2003).

There has also been significant increase in enrollment in tertiary education. In 1997, 35 million students were enrolled in higher education institutions in Asia. Therefore the question is: does the role of the state explain the expansion in tertiary education? Three policy making approaches are possible. First is demand-driven planning and policy making: rely on individual and social demand. Second, decentralization and devolution of planning and policy making: devolution of responsibilities, particularly in the ways resources are deployed. Third, output and outcome-based policies and monitoring: clear specification of the results desired.

Case studies of Japan and Korea

Tertiary education provision in Japan has long followed demand. Students pay a substantial share of the costs (40 per cent and 80 per cent, respectively, in public and private institutions), and private education in universities, two-year colleges, technology, and training colleges account for more than three-fourths of overall enrollment. Recently, planning and new policies aim for a harder edge toward reforms in the form of even greater reliance on market mechanisms. The Ministry sought to strengthen quality monitoring through the National Institution for Academic Degrees in establishing an approach quality assurance.

In Korea, tuition and fees paid by students and their families account for 50 per cent of revenue at public institutions; the comparable share for private institutions is 80 per cent. The Presidential Commission on Education Reform influenced institutions' autonomy through administrative control, policy initiatives, and financial support programs. Targeted funding provided through contracts with the Ministry is being used to promote qualitative improvements in research and international competitiveness, both of which are new directions in the "Brain Korea 21" project.

Research and data indicates that a mixture of steering policies is applied in the Asia-Pacific region. These are

- Systems operating under self-regulation with a broad framework of accountability with greater use of free market incentives. Found in Australia, Malaysia, and the Philippines.
- Systems in transition from centralized planning to self-regulation. Found in China, Mongolia, and Thailand.
- Systems operating under self-regulation but experiencing difficulties, e.g., Cambodia, Lao PDR, Vietnam, and the Central Asian countries.
- Systems under direct centralized planning and control, as seen in the Southern Asian countries and Japan.

In the plenary session, participants commented that some of the countries in the Asia-Pacific region do not fit in any of the system classifications. The discrepancy in quality of vocational education between Europe and Asia was also discussed.

I. Use of Information and Communications Technology in Technical Education and Vocational Training

Chris Chinien, Director, UNEVOC-Canada,
National Center for Workforce Development, Canada

New economy and its effects on skills and jobs

The new economy is a knowledge-based economy in which human capital has become the most important ingredient for production of goods and services. The new measure of competitiveness today has been redefined as the ability to produce higher quality products and services in greater variety, more conveniently, in a timely manner, and at cheaper prices. Knowledge embodied in a product is the master key for innovation. In this economy, education is the key to development. Countries that will succeed in this will be those that can access information and knowledge and quickly adapt it. It is estimated that a one-year increase in average educational attainment of the population can yield a 5 per cent increase in short-term growth and an additional increase of 2.5 per cent in the long term.

The effects of this economic restructuring on jobs are dislocation and unemployment. The new economy has also created part-time, low paid, low skilled jobs and has polarized the job market even further. As a consequence this has widened the inequalities between the rich and poor. In fact, the poor are becoming poorer and more people are dying from the lack of basic human needs such as food, water, and sanitation.

The challenge for technical and vocational education and training (TVET), given the scope and the scale of the training needs in developing countries, is daunting. The traditional TVET delivery system will not be able to meet these training needs. Thus there is high expectation on ICT to address these massive training needs. However, developing countries are lagging behind regarding integration of ICT-mediated learning mostly due to lack of financial resources and lack of qualified staff. ICT-mediated learning holds great promises for narrowing the disparity between North and South, provided more developed countries are willing to assist with infrastructure development and capacity building.

In TVET the issues are access, quality, and costs. We should abandon the mind frame that quality education is associated with exclusiveness. Online learning and distance learning has been shown to reduce costs and maintain quality and access; improve quality and maintain costs and access; and increase access and maintain costs and quality. Three types of applications of ICT for TVET are:

- As a delivery mechanism
- As a complement to instruction
- As an instructional tool

Technology as a delivery mechanism in the form of open and distance learning has the potential to address the skills divide between developed regions and poorer underdeveloped regions. Strategies to overcome the challenges of learning practical skills by distance are home study kits, video, mobile workshops, learning centers, and workplace training. In order for learners to become superior knowledge workers they must be kept happy so that they will work to optimal ability. We have learned from experience that physical access without intellectual access is useless. Therefore in bridging the digital divide we must also bridge the cognitive divide that prevents many people from benefiting from an ICT-mediated learning environment.

In the plenary session, the workshop participants discussed the various tools than can be used for e-learning, such as the radio. The need to develop ICT tools and computers that are specifically tailored to the needs of developing countries was also discussed.

J. Contribution of Technical Education and Vocational Training to Sustainable Development

Hans Kronner, Former Staff of UNESCO-UNEVOC

Knowledge can be defined as "a body of information relevant to job performance" (CCHRA) and "meaningful links people make in their minds between information and its application in action in a specific setting" (Dixon 2000, p. 13). Drucker defined a knowledge worker as "a worker whose achievement lies in doing the right things through exercising his expertise, rather than doing things right as in mechanical production line work. Knowledge workers need to be autonomous. They learn and find better ways of doing things and make educated judgments".

Western societies have only recently rediscovered the concept of sustainable development. The first step toward the human and social aspects of sustainable development was taken in 1986 when the UN recognized that the human is at the center of the development process. The second step was the report by Bruntlan, which defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Thus sustainable development encompasses three principle dimensions: economy, ecology, and society.

Technical and vocational education and training (TVET) impact on sustainable development

The approach to orient TVET toward sustainable development is not new. In 1989, UNESCO stated that "technical and vocational education programs should meet the technical requirements of the occupational sectors concerned and also provide the general education necessary for the personal and cultural development of the individual and include, inter alia, social, economic and environmental concepts relevant to the occupation concerned" (UNESCO Convention on TVE (1989) Article 3.3).

TVET comprises education from secondary to post-secondary level. Responsibility for administering TVET lies within government, the private sector, or a combination of these two. The learners are young persons during initial training or skilled workers acquiring additional qualifications. The educational objective also varies; it could be development of work-related knowledge and skills or individual development and active citizenship. TVET can be delivered at the workplace. Work serves economic purposes, uses resources, and impacts nature and ecology. Therefore it can be said that TVET is closely related to the three dimensions of sustainable development. Vocational activities and work have ecological dimensions, such as water and soil pollution, waste management, and livestock produc-

tion. TVET has human and social dimensions, such as housing, food standards, and health. TVET affects all three dimensions, such as transport systems, tourism, and rural development.

The UN Decade of Education for Sustainable Development is a plan for administering TVET for sustainable development. Strategies of TVET for sustainable development are:

1. Advocacy and vision building
2. Review and development of national TVET policies
3. Guidelines for planning and implementation
4. Capacity building and training programs
5. Learning support materials, resources, and equipment
6. Networking and partnerships in TVET
7. Ongoing monitoring, evaluation, and research

In the plenary session, it was noted that a program by UNEVOC provides small grants for vocational teachers to integrate sustainable development in their TVET curriculum. It was mentioned that TVET curriculums should be developed differently from other areas of education and training; the curriculum should adapt to the needs and circumstances of the workplace and the production process.

K. Creating and Re-engineering Knowledge Workers in Developing Economies

K. Subramanian, Deputy Director General, National Informatics Center, Government of India

A knowledge economy requires convergence into a digital unit. It is the transformation of government's internal and external relationships through net-enabled operations, information technology, and communications to optimize government service delivery, constituency participation, and governance.

Knowledge management requires more than just technology. Businesses must support knowledge management in the way they run their organizations and processes and look to technology to support these business changes. In organizations, people must have the incentive to share their expertise. Processes must support critical aspects of knowledge management. Technology can help improve communications between people to facilitate sharing of expertise, bring separate systems (and the information within them) together, and open the vast amount of recorded knowledge in an organization to the people who need it.

There are three type of knowledge. The first is tacit knowledge, which is people-to-people knowledge communicated through collaborative arrangements. This concept of connection, then, requires us to better understand the types of knowledge we are dealing with. To do this, businesses need a technology platform that supports rich collaboration between people. In most businesses, there is already a vast amount of knowledge captured in documents and web sites. Connecting people to this explicit knowledge, the second type of knowledge, requires a platform than offers rich content management services. The raw data in the databases of an organization represents not knowledge, but potential knowledge, the third type of knowledge, which can be unlocked by powerful analysis tools applied by knowledge workers to these databases of information.

Any knowledge management platform needs three basic components:

- Scalable system that handles devices from portables to data center servers
- Set of comprehensive, interoperable knowledge services that can manage, track, and deliver information and experts
- Integrated desktop that makes working with people and information seamless

A knowledge-powered society needs strong institutional linkages for enhancing prosperity. These include creation of technologies, diffusion of recent innovations, diffusion of old innovations, and diffusion of human skills. Numerous changes impact the fundamental way that organizations compete in the digital information age. Control of knowledge becomes a competitive advantage; the business environment is open and competitive. Process-related work is outsourced, decision making becomes more collaborative rather than hierarchical, and key assets are human resource information and technical infrastructure rather then physical resources.

Educational technology (ET) is a significant supplement but does not replace the human element and qualitative role of the teacher. Education is not simply enlargement of GNP, but should also produce greater peace and compassion. Nations and individuals use technology to remove the disparity between rich and poor, developed and less developed. ICT-enabled learning systems will witness more private sector participation. Learning is characterized by learner autonomy, mobility for people and jobs, interdependency, and universalisation. Resource sharing and open learning and virtual or digital universities that facilitate anytime anywhere learning are needed.

Recommendations for survival of knowledge workers:

- Manage knowledge
- Make decisions
- Be customer-centric
- Manage talents
- Manage collaboration
- Build the right structure
- Manage communications
- Set and adapt global standards
- Localize content and multi-language support
- Develop leadership (to create wealth legally and ethically)

L. Implications of Ubiquitous Computing for Education

Philip Kwok-fai Hui, President, Living Knowledge Communities

Ubiquitous computing is roughly the opposite of virtual reality. Where virtual reality puts people inside a computer-generated world, ubiquitous computing forces the computer to live out here in the world with people (Toporkoff, 2005). Ubiquitous computing integrates computation into the environment rather than having computers as distinct objects. Technological change and mobile communications are making ubiquitous society more of a reality. Wireless LANs, Bluetooth, and mobile phones can connect us to a network anywhere and at any time.

The evolution in education and training at a distance can be characterized as a move from d-learning (distance learning) to e-learning (electronic learning) to m-learning (mobile learning). According to UNESCO (2002), governments have traditionally introduced distance education provisions in order to

- Increase access to learning and training opportunities
- Provide increased opportunities for updating, retraining, and personal enrichment
- Improve cost-effectiveness of educational resources
- Support the quality and variety of existing educational structures
- Enhance and consolidate capacity

Korea has experienced open distance learning with the Korea National Open University (KNOU). KNOU's success shows the potential of technology to meet the diverse educational and training needs of the

Korean people through the comparatively inexpensive means of distance education. The Korean Government amended the law to permit the private sector to establish degree-granting virtual universities to compete with foreign educational providers. A total of 65 universities and 5 companies participated in the 2-year trial project in 1998, resulting in the creation of 15 virtual entities and 6 platforms. The cost effectiveness of virtual education makes this and other programs involving advanced technologies more attractive. Korean policy makers recognized the need to further open learning opportunities to its citizens. They responded with reforms in tertiary education, lifelong learning followed by financial support, and development of virtual education. Synergies across government ministries and with the private sector were nurtured, especially in the area of the national information infrastructure.

E-Learning means that the Web and Internet have been integrated into classroom teaching. Many universities use mass communication technology, such as broadcasting, to provide distance education programs. Distributed learning may encompass on-line learning and face to face teaching. It will become the dominant paradigm for higher education.

Reasons for the growth of e-learning:

- Access to educational resources from outside on a global and instant basis
- Increased and flexible interaction with students through e-mail and discussion fora
- Course notes and other materials available to students at any time
- Ability to combine text and multimedia for educational application
- Opportunities for international, cross-cultural, and collaborative learning
- Students need to learn how to use technology to seek, organize, analyze, and apply information appropriately
- KBE requires a highly flexible and adaptable workforce who are constantly learning.
- Lifelong learning market at least as great as the market for students leaving high school for university and college

Countries that are not yet ready for the knowledge-based economy are probably not yet ready for e-learning. Countries such as China, India, Malaysia, and Thailand, with an e-commerce business sector, a growing indigenous high-tech sector, a fast-developing middle class, and a rapidly developing Internet infrastructure, will need to move more and more into e-

learning. For countries with large numbers of students unable to access the later years of secondary or higher education, the open university model is likely to be the most appropriate, particularly for developing a mass skilled workforce able to work in traditional industries or services.

Ubiquitous computing provides new educational possibilities. Mobile learning (m-learning) is one term to describe a learning format via portable technology (especially a laptop) and wireless connection in the context of ubiquitous computing. The infrastructure of m-learning comprises 1) a backbone network that feeds multimedia content to a local server computer, 2) one or more local wireless access points with connectivity to local content server(s) (the wireless access points create a wireless LAN that distributes content locally), and 3) Pocket PCs or other client devices. M-learning may be considered as an extreme form of flexible learning. Students may establish a connection to an information network at their own convenience. It is particularly important to allow students to define their own learning and guidance needs.

A ubiquitous learning environment is an electronic global repository that has the potential to be accessed by anyone at any place and any time. Ubiquitous computing leads to ubiquitous learning, and technology provides abundant opportunities for sharing information, constructing knowledge, and simulating personal growth. Ubiquitous learning is not constrained by schedules and physical spaces; rather, it is pervasive and ongoing, prevalent in many interactions among students, faculty, parents, administration, staff, and a wide variety of community stakeholders.

In response to technology development and changes in society, learning can be classified as d-learning, e-learning, m-learning, and u-learning. No country can afford to ignore the impact of e-learning, m-learning, or u-learning. That sooner that a nation develops e-learning capacity, the better that nation will be prepared for citizens to live in a knowledge-based society. In light of our relative ignorance about ubiquitous computing and ubiquitous learning, there is a need for more research. The findings will help guide both policy and practice.

M. Open Education System in India

K. Subramanian, Deputy Director General, National Informatics Center, Government of India

There are four types of education: formal, informal, vocational, professional or technical, and open education. Today's knowledge economy puts forth new goals for education:

- Preserve traditional value system of education
- Increase student coverage

- Improve affordability of education
- Reduce costs for the learner and the institution

Today's learners are diverse. They are separated by time and space and possess different skills and backgrounds. Therefore, new methods for teaching and vocational training are needed. The infrastructure required to support this new distance, a learner-centered education system, must be flexible, global, interactive, and affordable. A virtual educational environment will be established through educational reforms, universalisation of education, adapting of appropriate technology, breaking the language and other physical barriers, and enabling knowledge acquisition and transformation.

Open education institutions in India

The Indira Gandhi National Open University (IGNOU) was founded in 1985. Currently there are 1,187,100 students with extremely varied profiles, spread throughout the length and breadth of the country. The University has an efficient and effective networking of 48 Regional Centers, 6 Sub-Regional Centers and over 1030 study centers all over India. The University is guided by the following principles:

- Reach unreached and quality and equity
- Impart education and knowledge through various means suited to open and distance education
- Provide not only higher education to large sections of the population, but particularly to disadvantaged segments of society
- Encourage, coordinate, and assist open universities and distance education systems while determining standards in such systems in the country
- Provide national integration and strengthen the natural and human resources of the country through education

IGNOU offers various academic programs that lead to certificates, diplomas, and degrees. It develops and produces courses for delivery through open learning and distance education. IGNOU is also actively involved in research, training, and extension education activities. In its capacity as an Apex Body, it co-ordinates and monitors the distance education system throughout the country. IGNOU has also constituted the Distance Education Council and has provided expertise and assistance to other open and distance learning institutions in the country.

IGNOU provides considerable flexibility in entry qualification, place, pace, and duration of study to students. Different programs have different credit requirements. Students have the right to collect credits at their own

pace and convenience, in line with their own capability. Continuous evaluations through practical assignments, project work, and term-end exams are mandatory. Subject-specific academic counseling by part-time academic counselors is available. The University is set up with facilities for audio and video viewing, a library, and teleconferencing.

The National Institute of Open Schooling (NIOS) was established in 1989 as an autonomous organization in pursuance of the National Policy on Education, 1986 by the Ministry of Human Resource Development, Government of India. Keeping in view the needs of target groups, NIOS is also providing a number of vocational and community-oriented courses besides general and academic courses. NIOS is also gearing up for making a significant contribution in India's efforts for Universal Elementary Education by linking up with the non-formal education and alternative schooling system. It uses new technologies for training and teaching mainly to increase access and ensure quality.

N. Core Sustainable Development Skills for the Workforce

Chris Chinien, Director, UNEVOC-Canada, National Center for Workforce Development, Canada

Kofi Annan said that our unsustainable approach to development is causing major ecological disasters, contaminating the air that we breathe and the water that we drink, and causing several other irreversible damages to the environment. Environmental protection cannot be achieved without due consideration to economic and social development meeting the needs of the present without compromising the ability of future generations to meet their needs through a balancing act of environmental, social, and economic considerations. Education is a key element in the advancement and implementation of sustainable development.

Technical and vocational education and training (TVET) has contributed to this mess because it has failed to include sustainable development literacy as an integral part of its curriculum. A sustainability-literate person understands the need to change to a sustainable way of doing things, individually and collectively, has sufficient knowledge and skills to decide and act in a way that favors sustainable development, and is able to recognize and reward other people's decisions and actions that favor sustainable development. The implementation of workforce education and training for sustainable development pre-supposes that the sustainable development-related knowledge, skills, and attitudes are known.

In response, the Government of Canada, Human Resources Development funded UNEVOC-Canada to develop a sustainable development skills profile for the workforce. The research objective of the study was to identify

sustainable development-related knowledge, skills, and attitudes that the workforce needs in order to contribute to the goals of sustainable development. The study was conducted through review of literature and research. From this review sustainable human performance enablers were determined to be knowledge, skills, and attitudes. The components of sustainable development identified were environment, society, and economy. Further research identified specific sustainable development-related knowledge, skills, and attitudes (KSAs) that were of relevance to the workforce. These KSAs were then validated and assessed by a group of experts. A total of 588 KSAs were identified in the literature review and classified as they pertained mostly to environment (161), society (258), or economy (169).

To consolidate the knowledge, skills, and attitudes into a more manageable set, common themes were developed and similar ideas and concepts were consolidated.

The following six major categories emerged from that analysis:

- Ethics and values
- Integrated decision making
- Responsible use of resources
- Valuing diversity
- Healthy lifestyle
- Continuous improvement

The knowledge, skills, and attitudes that the workforce needs in order to contribute to the goals of sustainable development are:

- Ethics and values
  - Respect human dignity
  - Demonstrate integrity and trustworthiness
  - Accommodate different values/interests
  - Use ethical principles in making decisions
  - Consider multiple perspectives
  - Deal with others fairly/with transparency
  - Appreciate the dignity of work and fair pay
- Integrated decision making
  - Develop and maintain cognitive literacy skills
  - Develop and maintain integrative skills
  - Develop and maintain essential skills
  - Develop and maintain ICT literacy skills

  - Reflect critically on issues
  - Learn to learn
  - Recognize the importance of involving stakeholders in decision making
  - Evaluate impacts/consequences of actions
  - Use a systematic approach for thinking
  - Realize that today's decisions must be balanced with tomorrow's effects
  - Think imaginatively and creatively
  - Practice cross-functional and multi-criterial thinking
- Responsible use of resources
  - Acknowledge the limits of an area's carrying capacity
  - Understand shared responsibility for using resources
  - Recognize the need to use renewable resources
  - Demonstrate basic economic literacy
  - Minimize waste and view waste as a potential resource
  - Act as caretaker to environmental, social, and economic systems
  - Apply precautionary principles
  - Understand the need for equitable distribution of resources
- Valuing diversity
  - Understand the importance of biodiversity
  - Understand and respect the need to maintain cultural and linguistic diversity
  - Recognize traditional knowledge
  - Understand that the social fabric is strengthened when the workforce reflects the diversity of a population
  - Encourage and facilitate diversity in the workforce
- Healthy lifestyle
  - Understand that a healthy ecosystem benefits human health now and in the future
  - Recognize the effects of environmental degradation to health and safety
  - Select environmentally-friendly materials, products, and processes
  - Handle hazardous materials safely
  - Practice a healthy lifestyle

  - Recognize the consequences of alcohol and substance abuse
  - Recognize the economic impact of accidents and unhealthy lifestyles
  - Practice accident prevention
  - Think and act safely
- Continual improvement
  - Understand that status quo is not an option
  - Understand the principles of continual improvement
  - Understand the need for using more efficient means for distributing environmental resource and economic growth
  - Adapt to changing requirements
  - Upgrade skills to cope with changes

O. International Standards in Technical and Vocational Training

Hans Kronner, Former Staff of UNESCO-UNEVOC

In order to generate ideas, the knowledge worker needs to have information concerning existing international standards, and make the appropriate judgments about their application.

International standards that relate to TVET are also referred to as "normative instruments" that typically occur under titles such as Convention, Recommendation, Declaration, Charter, Code, or Principles. These standards have been agreed upon by the international community and have been developed jointly with the objective in mind that member states are expected to apply and implement them in their national policies and legislations.

Such standards may be developed by governments in intergovernmental organizations, such as United Nations Educational, Scientific and Cultural Organization (UNESCO), by organizations that have both public and private constituencies, such as the International Labour Organization (ILO), but also in international public-private partnerships such as the Global Compact initiated by the Secretary-General of the United Nations.

The standards that we want to deal with may cover a broad range of issues, such as:

- Access to education and training
- Education and training objectives
- Relationship of education, training, and work
- Safety and health at the workplace

- Labor standards
- Economical, ecological, and social dimensions of work
- Ethical aspects
- Human rights

In 1948, the General Assembly of the United Nations adopted the Universal Declaration of Human Rights as a "common standard of achievement for all peoples and all nations" (UN 1948, Preamble). Its Article 26 refers to education: "Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit" (UN 1948, Article 26,1). The UN Declaration stipulates that everybody who wants to receive technical and professional education should be given the opportunity.

Two United Nations Specialized Agencies have major mandates in technical and vocational education and training: The United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Labour Organization (ILO). They have adopted a range of international standards – mainly conventions and recommendations – that relate to TVET and to the workplace.

In UNESCO 2001, technical and vocational education is further understood to be

- An integral part of general education
- A means of preparing for occupational fields and for effective participation in the world of work
- An aspect of lifelong learning and a preparation for responsible citizenship
- An instrument for promoting environmentally sound sustainable development
- A method of facilitating poverty alleviation

In ILO 2004 members should identify policies that

- Facilitate lifelong learning and employability as part of a range of policy measures designed to create decent jobs, as well as to achieve sustainable economic and social development
- Give equal consideration to economic and social objectives … as well as the development of competencies, promotion of decent work, job retention, social development, social inclusion, and poverty reduction

The World Tourism Organization (WTO/OMT), a specialized agency of the United Nations, serves as a global forum for tourism policy issues and as a source of tourism know-how. In 1999, the WTO approved the "Global Code of Ethics for Tourism" (WTO 1999), which has subsequently been endorsed officially by the General Assembly of the United Nations (United Nations 2001).

This is but one example of one particular branch of economy. Knowledge workers will certainly find conventions, recommendations, codes, and similar documents that relate to their particular area of professional activity.

Suggested use of conventions and recommendations:

- As checklists that can help you cover all essential elements in the context of TVET legislation, policy, and planning
- As reference documents to convince ministers and key officials, since these documents represent internationally agreed-upon standards that can be referred to as legitimate guidelines or benchmarks for national development
- As legally binding documents to the extent to which they have been ratified in your country through parliaments or otherwise, or to the extent to which your government has spelled out its unequivocal political support
- As curriculum content in technical and vocational education and training. Since TVET is a preparation for work, principles and standards of working life need to be incorporated in the learning process. You might therefore agree that the future workforce should be well informed about existing international standards, including labor standards.

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PART TWO

Summary of Country Reports and Project Proposals

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A. BANGLADESH

Bangladesh is a low-income country with substantial underemployment and high unemployment, particularly among the educated youth. For Bangladesh to compete in the global marketplace, it will require massive investment in human capital and technological development. Appropriate and efficient technologies must be developed and used in sectors like manufacturing industries, communication, and office automation.

As a result of the World Summit on Information Technology 2003, the Honorable Prime Minister of Bangladesh has decided to build an information society by 2015 in accordance with the UN Millennium Development Goals. The following goals have been set out:

- Creating access to ICT for every village
- Networking ICT at every university, college, secondary, and primary school
- Networking ICT at every science and research laboratory
- Networking ICT at every library, cultural center, museum, and post office
- Networking ICT for hospitals
- Networking ICT at every local and central office of the country
- Integrating ICT into the curriculum of primary and secondary schools

The study on strategy formulation for the software industry of Bangladesh, conducted by the Bangladesh Computer Council under the supervision of UNDP, indicates extensive markets for export of software. Bangladesh has given emphasis to the program for establishment of information and communication technology institutes in the country.

A National Policy on ICT was declared in 2002. A National Information and Communication Technology Taskforce has been established. The vision of the policy is to have a knowledge-based society within the year 2006.

Title: **Establishment of Technical Training Centers at Jhenaidah and Keraniganj**

Proposer: **Nasreen Akhter Chowdhury**

Country: **Bangladesh**

Date: **September 2005**

I. INTRODUCTION

The Ministry of Labour and Employment (MOLE) has started a number of projects for human resource development, poverty elimination, labor welfare, gender development, and eradication of the worst forms of child labor working in the formal and informal sectors. The Ministry intends to take up more projects on these issues.

The Skill Development Programme is one of the important functions of the Ministry of Labour and Employment. Bureau of Manpower, Employment and Training (BMET) under the Ministry of Labour and Employment has been playing a role in human resource development by providing vocational skill training through 16 technical training centers (TTC) located in different districts that provide skill training in different 23 trades. Another 22 TTCs are in the implementation stage. Moreover, this Ministry plans to expand the skill training system up to the Upazila level.

The Department is organized on a countrywide basis with headquarters in Dhaka for divisional offices and 10 regional offices located in Tongi, Narayangonj, Narsindhi, Sylhet, Comilla, Chanpur, Kushtia, Mongla, Bogra, and Rangpur.

II. ISSUES

The educational structure consists mainly of primary, secondary, higher secondary, and first-degree levels. Formal education at the undergraduate level in such areas as engineering, medicine, and agriculture starts after the higher secondary certificate and is a parallel stream of general university education. Mid-level technical education commences after the secondary school certificate (SSC) and the polytechnic sub-system offers well-organized 3-year courses in engineering technologies leading to a diploma. A number of agriculture, textile, and commercial institutes and other specialized monotechnic institutes offer diploma-level courses in their respective fields. There are also good numbers of universities, including engineering universities and colleges, agricultural universities and colleges, medical colleges, and postgraduate medical institutes.

The Bureau of Manpower, Employment and Training (BMET) under the Ministry of Labour and Employment has been playing an ever-growing role in human resource development by providing vocational skill training through its institutional capacities. Eleven TTCs located in different old districts of the country and the Bangladesh Institute of Marine Technology (BIMT) at Narayangonj are now in operation under BMET. Two-year (SSC vocational) regular courses in 21 different basic engineering trades, including a three-year diploma in marine engineering, are now being offered in these TTCs and at BIMT. Besides regular courses, many other irregular short-term skill upgrading courses, at the request of employers, are also conducted at these TTCs in their evening programs.

The two years of the trade courses offered in the TTCs and vocational training institutes are divided into two separate independent parts, so each part consists of nine months' institutional training and three months' involvement with industry, which is considered an integral part of the training program in exposing the trainees to the industrial environment and also to improve their practical skill levels.

III. PROPOSED PROJECT

The main objective of the project is to establish two new technical training centers, one at Jhenaidah and another at Keraniganj of Dhaka District to provide vocational training in nine trades. These TTCs should bring the following benefits.

- Providing employment opportunities for unemployed youths through skill development training in line with the requirements of the growing industries
- Developing job skill competency for overseas employment
- Providing production-oriented training for self-employment
- Converting the huge untrained population into trained manpower at the minimum cost

Project Framework

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Goals Improve industrial productivity by augmenting supply of skilled manpower	Improvement of knowledge of vocational training	Assess licensure examination results of vocational training	Trainees will go to the industries for which they have prepared

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Outcomes Increased number of people with diplomas from training center	Approval of trainers who completed course/diploma	Evaluate qualifications of trainers	Trainers of vocational training will be teaching courses in their specializations Trainers may still teach courses not in their specializations
Outputs Development of up-to-date course curriculum to meet present/future job market demands	Approval of trainers who completed course/diploma	Evaluate qualifications of faculty members	
Activities Select brilliant students Identify institution and courses			

Cost Estimates and Financing Plan

(US$ thousand)

No.	Component	Physical Quality	Estimated cost	Remarks
1.	Consultants (a) International (b) Local	L.S.	 60.00 30.00	
2.	Equipment and software Equipment Software	L.S.	 0.00 0.00	
3.	Training, seminars, conferences	L.S.	225.00	
4.	Experts	L.S.	513.00	
5.	Teaching materials	L.S.	285.00	
6.	Contingency	L.S.	172.00	
	Total		**2995.00**	**US$5.00 million**

Financing by Input
(US$ thousand)

Input (Item)	Number	Amount
Foreign consultants	6 people, 36 mm	100.00
Local consultants	6 people, 36 mm	50.00
Equipment	L.S.	2850.00
Training	1200 people, 1200 mm	375.00
Others: Administrative cost, teaching materials, contingency	L.S.	770.00
Total		**2000.00**

Implementation Arrangement

The project will be handled by the Ministry of Labour and Employment. The Bureau of Manpower, Employment and Training (BMET) will help the Ministry of Labour and Employment.

IV. BENEFITS OF THE PROJECT

Students admitted to the institutes, after getting proper training and skills in the ICT field, will be immensely helped in getting jobs both at home and abroad. At the same time, teachers related with the training program will also get training from this project, so they will be able to train students effectively.

As the students will be educated in better educational facilities, they will also acquire standard knowledge in ICT that will help them in getting jobs both at home and abroad. In addition, they will be able to engage themselves in self-employment and will contribute to socio-economic development and poverty alleviation.

Project Title: **Modular Training Program in ICT in Bangladesh**

Proposer: **Bikash Chandra Saha**

Country: **Bangladesh**

Date: **September 2005**

I. INTRODUCTION

Information and communications technology (ICT) is a very fast-growing new technological area. It is entering Bangladesh quickly both in education and in the job market. However, this area is still in its infancy.

Development and data processing services exist all over the world, and Bangladesh can get a significant share of these through open competition. In addition, the Government of Bangladesh has also put emphasis on the program for establishment of ICT institutes in the country.

Though initiated later than in South Asia, Sri Lanka, India, and Pakistan, ICT is a sector in Bangladesh; the government has declared ICT as a thrust sector. The National Policy on ICT was declared in 2002. The National Information and Communication Technology Task-force has been organized under the leadership of the Honorable PM to achieve the declared goals as a separate SICT Ministry re-organized. The national ICT policy is determined to build a knowledge-based society within the year 2006.

II. PROPOSED PROJECT

Objectives of the project to establish a modular training program on ICT in different TIVE & TTC institutions in Bangladesh include:

1. To prepare skilled and employable human resources in ICT
2. To create provisions for ICT training of 40 students per institute for 3 to 6 month durations in computer hardware and software
3. To develop up-to-date course curricula to meet present and future job market demands
4. To provide quality education and training in hardware maintenance and software development to face challenges of job market demands at home and abroad
5. To promote expansion of ICT education and its application
6. To create necessary physical facilities for training program

7. To procure equipment, furniture, books, and so on for smooth functioning of proposed training program

A. Project Cost and Duration

Total cost: 5,000,000 US$

GOB: 0,000,000 US$

AID: 5,000,000 US$

Location of project: 38 polytechnic institutes of Bangladesh

Responsible ministry: Ministry of Education

Implementation organization: Directorate of Technical Education

Sector of the project: Information, Communications, and Technology (ICT)

B. Targets of ICT Training

The project aims at imparting education and training in the ICT field to transform the unemployed and employed people in different fields into a knowledgeable, skilled, and productive workforce in the ICT field to meet the changing and increasing demand of the present and future job market at home and abroad and also for creation of capabilities for self employment. The project will help in poverty alleviation and economic development in a greater national perspective.

C. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(US$ thousand)

No.	Components	Physical Quality	Estimated Cost	Remarks
1.	Consultants (a) International (b) Local	L.S.	 60.00 30.00	
2.	Equipment and software (a) Equipment (b) Software	L.S.	 38X2E5E3=1140.00 38X1X5X3=570.00	
3.	Training, seminars, and conferences	L.S.	225.00	
4.	Experts	L.S.	513.00	
5.	Teaching materials	L.S.	285.00	
6.	Contingency	L.S.	172.00	
	Total		**2995.00**	**US$ 5.00 million**

Financing Scheme

(US$ thousand)

	Total	1st year	2nd year	3rd year	4th year	5th year
Domestic Funds	00	00	00	00	00	00
Foreign funds (Korea)	5000.00	1000.00	1000.00	1000.00	1000.00	1000.00
Total	**5000.00**	**1000.00**	**1000.00**	**1000.00**	**1000.00**	**1000.00**

Logical Framework

Objective and Activities	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Impact Students admitted in VTE under Ministry of Education get proper training in ICT field	Overall employable human resources in ICT field increase by 6,000 within 5 years of project start	Assess whether IT educated students are getting jobs at home and abroad Evaluate profile of employed person through questionnaire	All IT trained students will be employed in jobs for which they have prepared
Outcomes Students in VTE are ICT trained and getting jobs both at home and abroad	Transformation of unemployed/ employed people of different fields to knowledgeable, skilled, productive work force to meet changing and increasing demand of job market at home and abroad and gain capability for self-employment	Assess IT trained facility profile of VTE institutes Assess teaching load of faculties	IT trained teachers will be teaching courses in their specialization field
Outputs Students in VTE are trained in ICT and ICT applications	Creation of quality education and training in hardware maintenance and software development to face challenges of job market	Evaluate qualification of faculty of VTE institutes Evaluate teaching load of IT trained teachers	Some IT trained students will start teaching courses in which were trained

Objective and Activities	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Activities Find experts in networking software and hardware development TOT training Mobilize teaching and supporting staffs Mobilize equipment Develop up-to-date course curricula	Local 6 IT consultants and 134 IT trained teachers Environment of IT education prevailing in 38 VTE institutes	Monitor IT trained students Assess job placement of IT graduates of VTE institutions	Govt. politics and interference in selection of teaching personal and students will not influence project Implementing organization can keep schedule and maximize number of IT trainees Unemployed graduates from other institutes will get IT training from VTE institutes

D. Beneficiary Groups

The students admitted in the institutes, after getting proper training and skills in the ICT field, will be immensely helped in getting jobs both at home and abroad. At the same time, teachers related with the training program will also get training from this project, so they will be able to train students effectively.

As students will be educated in better educational facilities, they will acquire standard knowledge in ICT, which will help them in getting jobs both at home and abroad. In addition, they will be able to engage themselves in self-employment and will contribute to socio-economic development and poverty alleviation as well. Ultimately, the poorer section of society will derive benefits from the proposed project.

IV. BENEFITS OF THE PROJECT

- Employment generation and alleviation of poverty through income generation
- Production of skilled manpower in ICT field
- No adverse effects on society and environment

B. BHUTAN

Information and communications technology (ICT) has the potential to assist Bhutan in overcoming its geographical challenges. The traditional geographic barriers that confront Bhutan – a dispersed population divided internally by high mountain passes and being landlocked – can be lessened by the application of ICT. Additionally, ICT can be used to create business and jobs, tap into international markets, preserve and promote cultural heritage, and support good governance. Overall, ICT can help create a knowledge-based society.

Information technology (IT) has been recognized by the Royal Government as an unmatched developmental tool as well as an area of new business and opportunities for all Bhutanese people. Although computers were introduced in the early 1990s, and computer applications have been used, the real emphasis on IT gained momentum in the late 1990s with the introduction of the Internet in the country and the establishment of the Department of Information Technology under the Ministry of Communications to guide the development and application of IT in the country. Currently, there are about 7500 computers in the country, excluding those owned by private individuals. Bhutan does not have adequate ICT and knowledge workers. It is estimated that there are less than 400 ICT professionals in Bhutan. There are two main tertiary institutions providing ICT training: RIM and Sherubtse College. Some vocational training institutes and about 18 private institutes do provide basic ICT training programs.

The objectives of introducing ICT in Bhutan are (i) use ICT for good governance, (ii) create a Bhutanese info-culture, and (iii) create a "High-Tech Habitat". Balanced sustainable development is the cornerstone of Bhutan's policy. Information and communications technology has now been recognized as one of the most important tools to achieve our development goals in line with our development philosophy 'Gross National Happiness' (GNH). The vision therefore is that "with people at the center of development, Bhutan will harness the benefits of ICT, both as an enabler and as an industry, to realize the Millennium Development Goals and to enhance GNH".

Bhutan is putting in place a regulatory environment to encourage the use and development of ICT. A Telecommunication Act was passed in 1999, a Copyright Act in 2000, and a draft Information, Communications and Media Act is ready for presentation to the National Assembly. Bhutan is building its institutional capacity to regulate and support ICT activity through its agencies and the establishment of ICT units in Ministries. The Ministry of Education is implementing the 'Information Technology in

Education' and 'IT in Education Implementation Strategy', which has greatly eased the learning process for students all around the country. It follows a top-down approach in implementing IT in education. A structured literacy guideline to raise awareness of ICT was sent to the schools in 2000 and was found to be very useful.

Challenging issues are national commitment, donor support, human capacity, lack of response from users, and awareness of benefits of ICT.

Project Title: **Expanding Employment Opportunity for Rural Job Seekers Through Expansion of Employment Services**

Proposer: **Kesang Choden Phuntsho**

Country: **Bhutan**

Date: **September 2005**

I. INTRODUCTION

A. Background

Bhutan is a landlocked country, situated in the Himalayas between India and China. The country has a total area of about 38,394 square kilometers. Bhutan's population is estimated at 700,000, out of which 79 per cent is rural population. The total labor force of the country as per the 2004 Labour Force Survey conducted by the Ministry of Labour and Human Resources amounts to 216,500. The current unemployment rate is 2.5 per cent, mostly falling between the ages 15-24, so the unemployment problem in Bhutan really is one of the educated youth, mostly young school leavers. Female unemployment exceeds male unemployment and rural unemployment exceeds urban unemployment. The rural unemployment rate is 2.6 per cent as per the 2004 Labour Force Survey.

With a major restructuring of the government ministries, the Department of Employment (DOE) under the Ministry of Labour and Human Resources was created in 2003. The DOE's mandate is to promote employment and to facilitate employment creation. The Department must ensure that all Bhutanese citizens get opportunities for gainful employment at all times to come. Although the DOE is fairly young, it has a huge responsibility and must therefore strive to provide enough jobs for the Bhutanese youth.

B. Current Status

Currently, the Department of Employment has just one service center, which is located in Thimphu (the capital), catering to the needs of the entire population. Thimphu has witnessed an increasing number of job seekers in the last few years, which has resulted in increasing rural-urban migration. Rural job seekers have to come all the way to Thimphu to avail the services offered by the Department, mainly to register themselves and to look for job opportunities in and around Thimphu.

In its effort to expand employment opportunities, an online job portal was developed by the Ministry of Labour and Human Resources. This job portal is intended to serve all citizens by providing access to the

services offered by the DOE. Job seekers can register online with the Department and can also access information on job vacancies and other relevant information.

The department also plans to set up regional employment service centers across the nation but needs to have enough trained staff and physical infrastructure in place before it becomes fully operational.

II. ISSUES

Although the online job portal has been established, the Department of Employment has not seen a decrease in the number of job seekers visiting the department. Job seekers still prefer to come physically to register themselves or to gather some information on the labor market. The job seekers, therefore, do not use the job portal to find suitable jobs for themselves. The majority of job seekers, as mentioned earlier, are young school leavers.

In many youth forums, the following issues were raised: poor ICT infrastructure in rural areas and low accessibility and affordability of ICT. These are of concern to the department and have in a way led to the development of this proposal.

Although telecommunications and radio have reached some of the rural areas, other ICT facilities like Internet, television, and mobile cellular services have not touched the majority of the population. The Ministry of Information and Communications' Annual ICT Report 2004-2005 reveals an estimate of 8000 computers in the country.

Thus, as a result, many rural job seekers are unable to access information and find jobs for themselves, which in turn increases the number of unemployed youth in the country. Further, these youths have also pointed out the high cost incurred in having to travel all the way to Thimphu, which includes the costs of transportation, accommodation, and food.

This proposal is being prepared by the Department of Employment toward fulfilling its mandate to promote gainful employment for all.

III. THE PROPOSED PROJECT

A. Purpose and Output

The goal of the project is that rural job seekers are able to find employment through expansion of service centers of the Department of Employment. The ultimate outcome of this project will be rural job seekers using the online job portal as a means of finding employment and information.

There will be two employment service centers set up, one each in Gelephu (covering the central region) and Samdrupjongkhar (covering the eastern region). These service centers will provide many facilities, such as free Internet access to gather information or to register themselves with the department, counseling services, job placement services, job interview skills, and resume writing.

The project will be divided into two phases. Phase 1 will be the construction of buildings alongside training of staff. Phase 2 will be implementation of the project by making the service centers fully operational.

B. Methodology and Key Activities

Project Logical Framework

Objectives and Activities	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Goal Enable rural job seekers to find jobs	Decreased rural unemployment rate Decreased rural-urban migration	Labor force survey reports National Statistical Bureau	
Outcome Rural job seekers use online job portal to find jobs	Increased number of rural job seekers using online job portal to find jobs	Survey questionnaire Employment Division monthly report	Job seekers are mostly educated youth with basic computer skills
Output Increased number of rural job seekers find employment using online job portal	Increased number of rural job seekers visiting employment service centers Increased number of rural job seekers placed by DoE	Visitor log Employment Division monthly report	All rural job seekers do not migrate to capital
Activities *Phase 1* Establish employment service centers (ESCs) Procure and install equipment Build capacity of DOE staff			Political stability exists in two areas identified for setting up ESCs

Objectives and Activities	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Phase 2 Fully implement project Make ESCs fully operational			Job seekers make optimum use of facilities provided by ESCs

C. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(Ngultrums million)

SL. # Item	Government	Donors	Total Cost
1. Building and furniture	–	–	–
1.1 Building	7	3	10
1.2 Furniture	0	1	1
2. Equipment	–	–	–
2.1 Computers	0	1.32	1.32
2.2 Printers	0	0.36	0.36
2.3 Photocopiers	0	0.24	0.24
3. Training, seminars, conferences	0	8.2	8.2
4. Research, development, surveys	0.5	2	0
5. Miscellaneous administration & support costs	1	0	0
6. Contingencies	1	2.5	3.5
Total	**9.5**	**18.62**	**24.62**

Note: Cost estimates are in million Ngultrums (Nu) with exchange rate at 44 Nu. per US$. (Approximately US$ 641,000)

D. Implementation Arrangement

The Employment Division of the Department of Employment, Ministry of Labour and Human Resources will be the principal agency involved implementing the project. The construction phase will, however, be carried out by the Project Implementation Unit of the Ministry.

IV. BENEFITS OF THE PROJECT

Institution	Benefits
1. Country (Bhutan)	• Decreased rural unemployment rate • Decreased overall unemployment rate • Decreased rural-urban migration
2. Department of Employment/ Ministry of Labour & Human Resources	• Ability to reach out to job seekers all around country • Ability to provide quality services with trained staff/professionals
3. Job seekers	• Greater opportunity of finding suitable jobs for themselves • Access to employment services • Access to Internet facilities • Increased choices of jobs • Ability to make informed choices • Decreased expenditure

C. CAMBODIA

Over the last decade, Cambodia has continued its integration into the global economy. As a result, the industrial work force of the country has sustained rapid growth, particularly in the garment and tourism-related sector. An astounding increase in employment has occurred over the last ten years. In 1995, there were fewer than 20,000 workers in the garment sector, compared with more than 265,000 today. Small-scale enterprises dominate economic activity and account for a substantial part of employment. In 2002, the Ministry of Industry, Mines, and Energy determined that there were 26,920 small industrial establishments with fewer than 50 employees. This high growth rate brings major challenges for the institutions responsible for developing labor policy.

Currently, 65.5 per cent of the population is economically active. Cambodia has 340,000 youths aged from 17 to 18 in 2004, but only 1 per cent of them are employed. The others go to higher education, the Royal Administrative School, and other technical and vocational training centers/

institutes. Moreover, the job creation is too small to absorb the youth growth rate. In the future, the government should generate at least 140,000 job placements annually.

Cambodia needs a labor force skilled in manual farm work, as well as improvements in enterprise establishment, workshops, and companies, in order to rebuild the national economy. It is essential that technical and vocational education and training (TVET) and apprenticeship become more flexible and responsive to changing needs and emerging market conditions.

In particular, the TVET apprenticeship program will respond to social demand for vocational education and training that leads to work, skill requirements from the labor market, need for innovative application of appropriate technologies, the national resource base and environmental conditions, the need to meet international standards, and the demands of external and internal buyers/orders. The TVET system will integrate formal institution-based TVET, different modes of non-formal TVET, workplace-based training and skill upgrading, TVET for occupation in the subsistence economy, and an apprenticeship program based on new technologies and skill demands of enterprises, establishments, and companies.

The public training institutions are mostly funded by the government and additional funds are provided by donors. However, all training institutions have problems with deficit financing. Therefore, it is imperative that the training institutions explore other financing sources as well as generate income.

Project Title: **Short-term Income Generation**

Proposer: **Choeun Tauch**

Country: **Cambodia**

Date: **September 2005**

I. INTRODUCTION

The needs are immense. Approximately 36 per cent of Cambodia's people live below the poverty line, the vast majority of whom are illiterate. Poverty rates are highest in rural areas where roughly 90.5 per cent of the poor live. The remainder of the poor is located in other urban areas (7.2 per cent) and Phnom Penh (2.3 per cent). The average annual per capita income in rural areas totals only $280. There are an estimated 6.8 million economically active adults with an official unemployment rate of 7.1 per cent (approximately 475,000 persons). However, this figure does not include farmers (approximately 5.4 million – 80 per cent of the workforce) who are normally only productive six months of the year. This means a huge additional "under-employed rate".

Demographic pressures reinforce the urgent need for employment generation. It is projected that the labor force will grow by an estimated 200,000 per annum by 2010. Agricultural productivity remains lower than Cambodia's neighbors because of an increase in the agricultural labor force with no corresponding increase in the efficiency of farming. The tourism sector is showing promising growth, but export-oriented manufacturing (such as the garment industry) is still very fragile and also has some cases of labor exploitation. The uncertain and changing labor market (agricultural, manufacturing, and services) requires great flexibility on the part of the labor force in terms of learning new skills that respond to market demand, increased productivity, and entrepreneurial initiative. Currently, many excellent income-generation programs are being implemented by non-governmental agencies in rural areas and urban slums, but the total number of participants is very low when compared to the needs.

II. RATIONALE

Youth and adults with limited life and income-generating skills, especially women and other vulnerable groups, are at high risk from poverty. New knowledge, skills, and attitudes are required to work in the evolving Cambodian economy, which is increasingly part of the interdependent global economy. Functional literacy provides a base of literacy,

numeracy, and life skills, but that alone is not sufficient to ensure increased income. Functional literacy provides the skills to access learning new income-generation and entrepreneurial skills, which are critical to breaking the "poverty cycle".

With increasing literacy and corresponding access to information, people's aspirations to improve their living conditions and quality of life and the urge for higher levels of income are constantly on the rise. This provides the motivation for learning new skills that can earn income. Also, parents want a better life for their children and, through increased income, are better able to support their children's schooling. Another critical factor to consider is the ongoing rural migration to urban areas where increasing numbers of manufacturing and service industries will be established. Also, due to rapid changes taking place in technological, industrial, and service spheres, the world of work is undergoing rapid and ongoing transformation. Some jobs and businesses are becoming obsolete, giving way to new ones. The scope for wage employment may not be keeping up with the growing demand, but self-employment and co-employment are on an unstoppable rise.

III. PROPOSED PROJECT

A. Long-term Objective

By 2008, the goal is to ensure that the employment needs of 10,000 unemployed and under-employed youth and adults, in the priority 15 to 24 year age range, are met through equitable access to relevant short-term income generation skill training and to eliminate all gender disparities.

B. Short-term Objectives

In partnership between all relevant ministries and NGOs, the short-term objectives are:

- To expand annual instructional capacity to 4,000 persons by 2006, with priority on critical 15 to 24 year old age group
- To ensure at least 70 per cent of those trained from 2006 to 2007 are women
- To achieve high-quality development of 200 new instructional materials by end of 2006
- To achieve high-quality revision/development of trainer/instructor selection and training systems
- To ensure at least 50 per cent of instructors are female by end of 2007

C. Program Modalities

Above all else, short-term income-generation training must be relevant to the situation of the learners. They can focus on skills for improving daily life, improving a current career, finding wage employment, and establishing a business. There must be a direct "market" for the skills being learned, either in terms of increased agricultural efficiency or access to cash income (improved pest management, new land use, fish farming, eco-tourism services, skills for export-oriented industries, etc.). Associated entrepreneurial and business skills will also necessary when learning is likely to lead to self-employment.

All income-generation activities must be closely linked with adult functional literacy, post-literacy, and early childhood care activities, usually at a community learning center, as well as other development programs near the community. In general, programs should focus their priorities on the critical 15 to 24 year old group, especially its women and other vulnerable groups. Over time, the critical age group will expand to those 25 years of age and above. It is also important that the program be linked to small-scale credit schemes for those skills that require a small capital investment in order to generate income. In some areas with widely dispersed population centers, mobile training teams may be the most effective way to deliver income-generation activities. Revolving credit funds should be established to support entrepreneurial initiatives.

D. Key Activities

Build partnerships between provincial authorities and non-governmental agencies to:

1. Develop decentralized planning and implementation: train provincial, district, and commune authorities to plan and facilitate relevant, marketable income-generation skills activities, usually implemented in cooperation with non-governmental agencies.
2. Train communities in participant selection priorities (poverty, age, gender, ethnicity, social group).
3. Develop materials: develop and adapt income-generation instructional materials, including use of adult learning methodology. Skills and materials must be relevant to needs of learners. Materials must be "modular" for flexibility of delivery in line with learner needs and be highly visual (not dense written text). A series of simple descriptive "pamphlets" can be useful as a resource base for communities to select and plan activities.

4. Select and train facilitators: develop guidelines and training materials for selecting and training (provincial/district) facilitators who will facilitate development of income-generation activities including selection of instructors and monitoring. They should be increasingly be female (50 per cent by 2007).
5. Train local instructors: in a similar manner, develop guidelines and training materials for selecting and training local income-generation instructors, who should increasingly be female. Adult learning methodologies must be used and emphasized. Local instructors should be exposed to the full range of NFE and development-training programs should be available or planned for their community.
6. Conduction training: local instructors conduct training courses as planned.
7. Monitor income-generation activities: with local authorities and community representatives, undertake selective on-site case studies to determine precisely who is being reached and how much income is being earned by "graduates". Also develop systems for monitoring performance of trainers and instructors. Short-term objectives will be revised each year depending upon progress.

Indicators:

- Increased net enrollment in income generation activities, by gender
- Increased number of income-generation "graduates", by gender
- Increased number of facilitators and trained income-generation skills instructors
- Income-generation instructional/learning materials tested and revised for pro-poor relevance and adult learning methodology
- Increased number of governmental and non-governmental partnered income-generation activities
- Increased participation of selected poverty/vulnerable groups, especially women
- Increased demand for, and participation in, income-generation activities by most disadvantaged and women
- Evidence of income-generation "graduates" actually employed or running small businesses which generate income
- Increased numbers of women from poverty areas and ethnic minorities trained and deployed as facilitators and instructors

E. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(unit: $ million)

Item	Government			Donors			Total Cost
	'06	'07	'08	'06	'07	'08	
1. Consultants							
1.1 International	0.00	0.00	0.00	0.12	0.12	0.12	0.36
1.2 Domestic	0.01	0.01	0.01	0.01	0.01	0.01	0.6
2. Equipment & Training Materials							
2.1 Equipment	0.3	0.2	0.2	0.4	0.3	0.4	1.8
2.2 Training materials							
3. Building and Furniture							
3.1 Buildings	0.01	0.01	0.01	0.05	0.05		0.10
3.2 Furniture	0.01	0.01		0.02	0.02		0.06
4. Training, seminars	0.06	0.06		0.09	0.09		0.3
5. Research, development and surveys	0.12	0.12		0.18	0.18		0.6
6. Miscellaneous Administration and Support Costs	0.03	0.03	0.03	0.05	0.05	0.05	0.24
7. Contingencies	0.01	0.01	0.01	0.02	0.02	0.02	0.06
Total							**4.12**

Note: Cost estimates are in million dollars.

Project Framework

Project Goals	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Provide short-term income generation skills for people from poor families who live in rural and sub-urban areas	Expansion of annual instructional capacity to 4,000 persons by 2007 Expansion of annual instructional capacity to 10,000 persons by 2008	Regular supervision Administrative report Training records	Trained skill may not be relevant
Outcome Target group use trained skills to earn more	Gradual increase of trained target group's income	Interview Questionnaire	Local economy may not generate more earnings
Output Target group has been trained in local skills for generation of income	Conducting of a number of training courses	Training record List of trainees	Cost may be higher than planned
Activities Develop decentralized planning and implementation Develop materials Select and train facilitators Conduct training courses Monitor income-generation activities	Training of provincial, district, and community authorities to plan needed training programs Income-generation instructional materials Development of guidelines for selecting and training facilitators Conducting or planning of a number of training courses Case study for income generation	Interview Training record Report and records Interview, questionnaires Supervision, training, trainees' records Interview, checklist	Local people may face difficulty in planning Content may not be relevant Difficulty in finding suitable local instructor Trainees' numbers are not real Not many ex-trainees earning as expected

Project Title: **Setting Up Labor Market Information Management System and Promoting e-Learning**

Proposer: **Sophon Hoeung**

Country: **Cambodia**

Date: **September 2005**

I. INTRODUCTION

The Cambodian Government is becoming increasingly aware of the important role of labor market information in planning economic and social development, particularly of labor and labor market policies.

Labor market information affects social, fiscal, technological, and economic policies. This information impacts the way people choose careers and find jobs as well as the way employers hire employees and make business decisions. Governments at the central and provincial levels also depend on labor market information to determine new policies, make economic decisions, and pass legislation reallocating resources. Cambodia currently does not have appropriate sources of labor market information that will serve for the interest of the nation. To be at such a level, it needs to set up the infrastructures, improve the human resources, and upgrade the hardware capacity. Information and communications technology (ICT) is considered by the Royal Government of Cambodia as the most important factor for developing the country's economy. Just several years ago, ICT began to be promoted by the public and private sector, but it is growing only in the economically active cities where most of the industries and services are concentrated. Compared with other ASEAN countries, Cambodia has a very low rate of computers per person and access to the Internet. To prepare the workforce for the current situation the government needs to respond with serious action to decrease this gap.

II. ISSUES

The Ministry of Labor and Vocational Training is the overseeing organization of labor market information and it needs to work cooperatively with other public and private institutions in producing most of the nation's labor market information and also preparing the workforce with new skills and knowledge. However, the activities of collecting the labor market information and establishing IT infrastructures have encountered many difficulties. The following problems and issues have been raised:

- Facilities – Insufficient hardware, which is urgently needed, and lack of suitable capacity for the huge tasks required
- ITC infrastructures – The infrastructures of public institutions are mostly insufficient and inefficient in operation

- Human resources – Concerned staff and senior level employees who look after and operate tasks are limited in capacity in dealing with management and also with technical issues on a daily basis
- Cooperation – Working closely and efficiently with various institutions, individuals, and local and foreign organizations requires their full understanding, so meetings, seminars, and workshops will be considered as the meeting point for discussing all the concerned issues

III. PROPOSED PROJECT

The goals of this project are to set up labor market information management and promotion of e-learning where government institutions, the private sector, employers, employees, and local and foreign investors can benefit. The overall goals of this project are to (1) set up a countrywide labor market information management system and (2) promote e-learning for workforce preparation.

A. Objectives

Short-term objectives:

- Upgrade capacity of needed hardware (e.g., computers, servers, LAN devices) and software for selected training institutions and department of labor market management at central and provincial level
- Train concerned staff and senior level in dealing with equipment and in collecting information and data
- Design tools for collection of data and information and e-learning approach
- Establish network with some public and private institutions such as ministries, organizations, companies, industries
- Implement information and data collection

Long-term objectives:

- Establish country-wide management system
- Offer e-learning to all Cambodians
- Update labor market information every 6 months
- Set up labor market information bank

The labor market information center will benefit the government institutions, private sector, employers, employees, workers, NGOs, IOs, students, fresh graduates, job seekers, training providers, local and foreign investors, and communities. In addition, this center will serve as the training center for labor market information management and other related fields.

B. Implementation Arrangements

The project will be implemented for a period of three years (2006-2008) by the Ministry of Labor and Vocational Training. Key activities will be:

- Procure necessary resources
- Organize national workshop and meetings
- Provide training courses
- Promote public awareness on labor market information
- Set up software for analysis of information Publish and disseminate labor market information
- Develop creative ways to collect and analyze local labor market information
- Serve as source of information on training and adjustment programs

C. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(unit: $ million)

Item	Government			Donors			Total Cost
	'06	'07	'08	'06	'07	'08	
1. Consultants							
1.1 International	0.00	0.00	0.00	0.12	0.12	0.12	0.36
1.2 Domestic	0.01	0.01	0.01	0.01	0.01	0.01	0.6
2. Equipment & Training Materials							
2.1 Equipment	0.3	0.2	0.2	0.4	0.3	0.4	1.8
2.2 Training materials							
3. Building and Furniture							
3.1 Buildings	0.01	0.01	0.01	0.05	0.05		0.10
3.2 Furniture	0.01	0.01		0.02	0.02		0.06
4. Training, seminars	0.06	0.06		0.09	0.09		0.3
5. Research, development and surveys	0.12	0.12		0.18	0.18		0.6
6. Miscellaneous Administration and Support Costs	0.03	0.03	0.03	0.05	0.05	0.05	0.24
7. Contingencies	0.01	0.01	0.01	0.02	0.02	0.02	0.06
Total							**4.12**

Note: Cost estimates are in million dollars.

Project Goals	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Set up labor market information management Promote e-learning	E-Source of labor market information available & published regularly 20,000 learners register for e-learning by end of 2007, increasing 10 per cent per month	Supervise regularly Administrative report and learner profile	The cooperation of all related stakeholders may not go well as expected Cost may exceed available budget
Outcome All stakeholders can access sources of labor market information through Internet and regular publication Learners register for e-learning	Number of information users increases by 10 per cent every month Learners get understanding	Electronically record all access to server	Due to possibility of access to Internet in some provincial cities, people may not aware of using e-source
Output People in provincial cities may be offered a free training in how to use Internet that will be organized	A number of training courses have been conducted	Training record and list of trainees	The cost may exceed our capacity
Activities Train staff and senior level employees Organize meetings, workshops Upgrade hardware capacity Set up network Design tools for collection	Government's staff and senior level implement project Records Procurements of hardware 06 active cities linked by end of 2006 Development of several tools Data entered and analyzed in database	Regularly report and supervise Report Documents and records E-Sources available for 06 cities	Number of trainees may be insufficient Number of planned meetings may not be reached Cost may exceed available planned budget Infrastructure may not be as efficient as expected Limited capacity of local experts

D. CHINA

In China, although the economy still depends heavily upon labor and capital, the past two decades have witnessed the increasing importance of knowledge in the national economy. With the industrial adjustment of state enterprises and the increasing enrollment in universities, a large number of surplus workers have been laid off and many graduates cannot find satisfactory jobs. According to New Growth economics, a country's capacity to take advantage of the knowledge economy depends on how quickly it can become a "learning economy". Taking China's current situation into account, vocational education, which focuses on helping people to meet the demand of a knowledge economy and get employed or reemployed, is growing in importance.

China's economy is heading toward becoming a knowledge economy. Some sectors based on knowledge, information, and capital are booming and have created numerous employment vacancies. These jobs, together with the rapid increase of software product, demand a large amount of employees with sound vocational education backgrounds.

The Government has attached great importance to vocational education. In 2002, the State Council held the National Conference on Vocational Education. The conference analyzed the current situation and existing problems and further clarified the objectives and strategies of enhancing vocational education. China will strengthen vocational education to further implement the State Training Program. In order to confront the challenge of high-tech production systems, the former training pattern, which endows the trainees with a single vocational skill, will be shifted to a new plan that aims to provide more comprehensive and flexible skills.

Technical schools are the main providers of skilled workers, while employment training centers are the main means of providing training for unemployed workers. Both of types of organization focus on practical skills and use flexible training methods. In addition, enterprise-sponsored training centers and training providers, run by various organizations or individuals, deliver on-the-job training and other training programs. By the end of 2000, there were 3,792 technical schools. Among them, 332 were national key technical schools and 165 were senior technical schools. The total students attending technical schools numbered 1.4 million. In addition, there were 3,751 employment training centers and another 15,000 training providers.

To encourage workers to improve their vocational skills, all industries nationwide hold skill competitions in their sectors. Skill competitions in China include national, provincial, and municipal levels. Since the establishment of the national vocational qualification certification system in 1994, China has developed a working system and a legal framework for vocational qualification certification.

Challenges in vocational education in the next five years include

- Emergence of knowledge economy demands new skills
- Employment-oriented vocational education mechanism needs to be established
- Vocational education needs to be improved
- People are reluctant to select vocational education
- People with high-tech skills are unwilling to work in medium-sized and small cities
- Teaching facilities are inadequate

Project Title: **Distance Learning for Chinese Vocational Education**

Proposer: **Zhou Juan**

Country: **China**

Date: **September 2005**

I. INTRODUCTION

At the end of 2000, China's total population had reached 1.295 billion, of which 36.1 per cent were urban and 63.9 per cent were rural dwellers. Of China's 711.50 million actively employed workforce, 212.74 million were urban employees. Among of them, there are about 78.78 million worked in state-owned enterprises (SOEs), 14.47 million in collectively owned enterprises, and 19.35 million in enterprises with various types of ownership.

At the end of the 20th, century, many people were not willing to participate in vocational training or become workers because of industrial adjustment of SOEs, the large number of laid-off workers, and the increasing enrollment in universities. To meet the demand for skilled workers in the knowledge economy, the MOLSS put forward the adjustment and reform guidelines on vocational training in 2000. The MOLSS also took measures to strengthen vocational training to improve workers' skills.

The Government has attached great importance to vocational training and education, in particular on the reform of the learning mode. Since the 1990's, with the development of ICT, China has inducted some vocational training and education institutes or schools to develop distance learning. However, there are large populations in small cities and distant counties with more workers eager to get skills to save their livelihoods. The Government expects to make use of ICT to set up a learning system to meet this demand.

Thus, distance learning for vocational education (DLVE) in small cities and distant counties is very important and urgent for China. DLVE is considered as a real-time and composite system and its application will create an open and convenient learning mode.

II. ISSUES

Building a distant system on vocational education is a large project. Furthermore, huge funds are needed to build the hardware environment. The following problems exist:

1. **Lack of funds.** This is the biggest problem in setting up the project. Distance training is more necessary to those who live far from cities. Although the State has enhanced the application of ICT, in many Chinese counties that are very poor, a large number of laborers want to be employed in urban area but have no skills. Such laborers are thus are eager to receive some vocational training. Because there are no enough funds to purchase facilities, they cannot enjoy convenience from the development of ICT.
2. **Some students cannot adapt to the new learning mode.** Although the teachers and students who are involved in the e-learning environment were encouraging, many students are used to the traditional learning mode and they cannot give feedback to teachers. Unfortunately, if the students are unable to provide feedback to teachers, the training will be less meaningful.
3. **Lack of excellent teachers.** Most of the teachers are from conventional universities and need time to adjust to the new learning pattern. With the development of the voluntary training centers, more and more excellent teachers leave the training institutions to go to the training centers because of the high salary available there. Thus, many institutions now face the problem of not having an adequate number of excellent teachers.

III. THE PROPOSED PROJECT

A. Purpose and Output

The goal of the project is to reform the vocational education structure to an open vocational education and training network. The project will try to provide a chance to gain acceptance of vocational education or training in some small cities and out-of-the-way counties.

The output of the project includes two aspects.

1. Through the implementation of the project, the facilities of vocational education and training all over the country will be improved greatly
2. A large number of laborers with high skills will be provided to companies that need all kinds of technical workers

The project will be divided into three phases in its implementation.

Phase 1:

a. Build distance learning centers in small cities
b. Implement network of learning centers among cities

Phase 2:

a. Build distance learning centers in counties
b. Implement network of learning centers between cities and their counties

Phase 3:

a. Develop application system for distance learning and implement in network
b. Full implementation of distance learning

A finished DLVE includes seven aspects:

1. Hardware and facilities – network facilities, host computers, and other facilities
2. Application system – support software and system software
3. Connecting learning sites into network
4. Connecting to Internet
5. Designing courseware – very important to learning quality
6. Two-way interaction system – will provide realistic environment of communion between teachers and students
7. Security facilities

B. Methodology and Key Activities

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Impact Structure and improve open vocational education and training network	Improvement of worker performance	Assess students on two aspects: 1. Theoretical knowledge 2. More importantly, practical knowledge Improve practical examination	All graduates will be employed in jobs for which they have prepared
	Development of vocational education	Assess annual reports of labor and statistics offices Evaluate profile of employed by companies	

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Outcomes and Output I Large number of laborers with high skills provided to companies that need all kinds of technical workers Project divided into three phrases to implement	Increased percentage of employed high-skill workers		
Outcomes and Output II Facilities cross country greatly improved	Increased number of computers and percentage connected to training network	Assess numbers and percentage	
Activities **Phase 1** Build distance learning centers in small cities Implement network of the learning centers among cities			Quality of centers and faculties is guaranteed
Phase 2 Build distance learning centers in counties Implement network of learning centers between cities and their counties			Quality of centers and faculties is guaranteed
Phase 3 Develop application system for distance learning and implement in network Fully implement distance learning		Conduct regular dialogue on how to improve full implementation of project	Implementing organization can keep schedule to maintain synchronization of all project activities and to maximize number of students in training centers
Inputs Support for building distance vocational centers	Provide training for local labor Improve facilities all over country	Conduct monitoring/ interview/survey Assess job placement of graduates	Keeping track of laborers from centers is possible

C. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(US$ million)

Item	Government			Donors			Total Cost
	'05	'06	'07	'05	'06	'07	
1. Consultants							
1.1 International	0.65	0.65	0.65	1.21	1.20	1.20	5.56
1.2 Domestic	0.40	0.40	0.40	0.62	0.62	0.62	3.06
2. Equipment & software							
2.1 Equipment	6.5	6.5	6.5	6.5	10.9		36.9
2.2 Software							
3. Building and furniture							
3.1 Buildings	5.5	5.5		1.65	1.65		14.3
3.2 Furniture	3.2	3.2	3.2	4.5	4.5		18.6
4. Training, seminars	0.5	0.5		0.5	0.5		2.0
5. Research, development, surveys	0.6	0.6		0.7	0.7		2.6
6. Administration and support costs	0.2	0.2	0.2	0.5	0.5	0.5	2.1
7. Contingencies	0.95	0.95	0.95	1.0	1.0	1.0	5.85
Total							**90.97**

D. Implementation Arrangement

The project will be guided by the Ministry of Labor and Social and Security. A team will be formed by experts from the institutes of different levels. The experts will include technical experts, operation experts, and some vocational training teachers.

IV. BENEFITS OF THE PROJECT

Institution	Benefits
1. Country (China)	• Improve foundation facilities for distance vocational learning • Improve employability of subject • Upgraded qualification of training teachers • Greater opportunity for local employment
2. Education institutes supporting project	• Improve comprehensive capacity • Increased enrollment => increased learning • Increased opportunity to market own programs with government support
3. Teachers included in project	• Opportunity to improve capacity => enhance own competitiveness • A better salary
4. Students included in project	• Assured employment • Opportunity to be promoted (if possible)

E. FIJI

The Government of Fiji has taken major steps toward reforming its public sector to improve its effectiveness through better management, greater productivity, and efficient services. In addition, changes in demographics, lifestyle, citizen expectations, and economics are resulting in a need to rethink and reshape the delivery of public services. Technology, along with appropriate strategies for its use, is used to facilitate this transition and enable more efficient use of state resources.

The public sector reforms by the Fiji Government were undertaken with a firm belief that economic growth is now driven by the accumulation of knowledge. It was also noted that technology could raise the return of investment. The Fiji Government's Strategic Development Plan 2003-2005 sets out several policies and strategies in support of its core aim to rebuild national and international confidence for stability and growth. The Government enacted three major policies: (1) universal access to internationally competitive information and communication technology services, (2) fullest and most productive utilization of human resources, and (3) promote quality education and training for all that is responsive to changing needs.

In 2004, the Compulsory Education Act was enacted and is applicable to children under 10 years of age. Adult education courses were also introduced. The Lautoka Teachers College was upgraded in 2003 and teacher-training curricula were reviewed to incorporate more computer and information technology-related courses. A system called EASYTEL now facilitates access to telephone services in rural areas.

Various methods are used to educate and train workers in Fiji, including skill-based training, participatory and problem-solving training, assimilation training, visual aids, and on-the job training. It is a requirement under the Training Act to provide certification of any training undertaken. These certificates are checked by the Training and Productivity Authority Board, verifying the credentials of training providers. The reimbursement of training grants to employers at the end of a year are made on the basis of recognized and sanctioned training.

Many issues arose during the implementation stages of government policies.

- Funding is the main issue in implementation of government policies for education and training
- Upgrading of curricula in schools must be in line with needs of labor market, yet labor market information is insufficient to facilitate process

- National qualification standard to standardize courses offered by various technical and vocational institutions; monitoring aspect lacking due to insufficient manpower for monitoring
- Rural schools, generally supported by low-income communities, cannot provide adequate level of resources and facilities in their schools. Lack of trained and qualified local experts to support government's policies and strategies in areas such as IT due to high migration (brain-drain)

Project Title: **Merge Scholarship Providers in Fiji**

Proposer: **Luisa B. Waqanika**

Country: **Fiji**

Date: **September 2005**

I. INTRODUCTION

The Fiji Islands is situated in the Pacific Ocean midway between the equator and the South Pole. It is made up of approximately 330 islands, about one-third of which are inhabited. It covers about 1.3 million square kilometers. There are two major islands: Vikti Levu, which is about 10,429 square kilometers, and Vanua Levu, which is 5.556 square kilometers. Eighty-three per cent of the land is owned by indigenous Fijians while nine percent is state land and eight per cent is freehold land. Its main economic sectors are agriculture, fisheries, forestry, mineral resources, and tourism. Fiji plays a major role in regional affairs and is recognized as the focal point of the South Pacific.

The population of the Fiji Islands is estimated to be 775,077, of which 60 per cent live in rural areas. Youths are defined as persons aged between 15 and 24 years. They make up 25 per cent of the total population. Fiji's population is well educated with over 98 per cent of children between 6 and 14 years of age attending schools. The literacy rate stands at 93 per cent.

English is the main national language, but Fijian and Hindi are also taught in schools as part of the school curriculum. Indigenous Fijians have their own dialects, which allow recognition of where they come from. Indians have their own dialect and mostly speak a Fiji-Hindi dialect that is different from the one spoken in India.

II. CURRENT STATUS

E-Learning in the Fiji Islands is in the infancy stage. The education budget allocation is insufficient to cater to the demands for education in the rural areas and the surrounding islands. The school curriculum is regularly reviewed to enhance its relevance to meet the changing needs of the society, and more so the changing demands of the labor market.

Computer education in schools is one area that greatly needs improvement. Unless computer education is improved, e-learning education will be a far-fetched vision for Fiji.

Many organizations in Fiji are computerized and in-house training on computers is in high demand. However, the use of computers is largely

confined to data processing and data storage. E-Learning is basically unheard of, with the exception of overseas-based companies who may have imported resources and expertise to embark on e-learning schemes.

The University of the South Pacific (USP) is a regional university that belongs to 12 Pacific Island countries: Fiji, the Cook Islands, Tonga, Western Samoa, Tuvalu, Vanuatu, the Solomon Islands, Tokelau, the Marshall Islands, Nauru, Niue, and Kiribati. The university has grown enormously since 1968 when it was established. It has its main campus in Suva, Fiji, another campus for agricultural studies in Western Samoa, a third campus in Vanuatu for law studies, and various centers in the other ten member countries.

The number of external students studying by distance education and through university extension is over 5,000. The total roll of students studying in USP is about 9,208. The university has delivered distance education by a blend of mail and audio tutorials using HF wave.

With the growing student body at USP and the geographical distance between the regional members, the university has embarked on a pilot project aimed at improving the quality of its education service delivery to its regional members all over the Pacific.

III. ISSUES

Since e-learning education is relatively new in the Fiji education system, the discussion on issues will be on the basis of the practical difficulties in introducing an e-learning education program in general.

IV. PILOT PROJECT

A. Purpose

The University of the South Pacific will be enhanced as a center of educational excellence for human resource development through the qualitatively and quantitatively improved education service. More students will receive an improved educational experience through USP's enhanced IT capacity.

The project consists of three components: computing science (CS), distance and flexible learning (DFL), and research and training for IT (IT R&T).

The CS component aims to improve the quantity and quality of CS lecturers from member countries, to create a variety of courses both in distance and face-to-face mode, to strengthen USP-Net, and to maintain CS laboratories.

The DFL component will conduct training for USP personnel in developing multimedia teaching materials for DFL, e-learning model courses, and database of learning materials.

The IT R&T component will develop an academic research mechanism on ICT research for socio-economic development and will utilize the research results for endeavors such as education or policy making.

B. Outputs

1. Computing science (CS) component – More students will take various up-to-date CS courses under the guidance and instruction of capable academics, both in distance and face-to-face mode.
2. Distance and flexible learning (DFL) component – More external students will take better DFL courses, particularly using IT.
3. IT research and training (R&T) component – Short-term model training courses will be implemented based on research on IT utilization and needs in the South Pacific region.

C. Methodology and Key Activities

Objectives/Output	Performance Indicators	Target	Comments
Impact Improve quality of USP e-learning long distance education to member countries	Improvement of performance of students in USP e-learning long distance education program	Increase in pass rate for e-learning students Improvement of student assessment grades	It is assumed that all USP centers in the Pacific region will have right infrastructure, resources, and expertise to teach through e-learning
Output 1 Computing science through e-learning	Improvement of quantity and quality of CS lecturer (Quantity = number of lecturers from member countries)	Increase of CS lecturers to 2 lecturers, 3 assistant lecturers, and 8 tutors Quality target: academic background of lecturers = Msc & PhD qualification	Focus on CS department lecturers and tutors

Objectives/Output	Performance Indicators	Target	Comments
	Improvement of quantity and quality of CS courses at Fiji main campus	Increase in CS courses offered in a semester	Third-year students' courses and post-graduate (for fourth year students) courses, including two satellite courses per year and collaboration with University of Electro-Communications (UEC)
	Increase of enrollments in CS courses	4,400 to enroll for CS courses in a year	
	Improvement of quantity and quality of CS courses in distance mode	3 CS courses in distance mode	More blended e-learning courses to be developed and offered
	Increase of enrollments in distance mode	Higher pass rate in distance education	
	Improvement of computer laboratory (accessibility) and USP-Net	Extend operation hours using the latest software	
	Increase of number of engineers who operate fully IP-based USP-Net	8 qualified & skilled engineers in a year	
Output 2 Distance and flexible learning component More external students can take better DFL courses, particularly using IT	Creation of course development model for e-learning course	Course development procedures for e-learning course documented within 6 months	
	Improvement of quantity and quality of DFL model course development (Quantity = number of model courses; quality = evaluation by students and staff)	Increase to 3 DFL model courses in each campus Increase student satisfaction with quality of DFL model course	More blended e-learning courses Conduct a survey to assess student satisfaction

Objectives/Output	Performance Indicators	Target	Comments
	Completion rate of participants of examination per enrollment	99 per cent enrolled to attend classes and take exam 90 per cent pass rate	
Output 3 Component of IT research and training component Short-term model training courses implemented based on research on IT utilization and digital divide in South Pacific region	Establishment of mechanism of R&T within 6 months	Implement during first round ended within 6 months Design mechanism of ICT R & T (proposal collection, screening, monitoring, peer reviewing, supporting, editing, publishing, and circulating)	
	Implementation of first two short-term model training courses to start by end of 6 months	Conduct 2 training courses on time	
	Evaluation by participants of model training courses	Implement an evaluation at each model course Complete report making	Needs further effort to achieve by end of project
	Achievement of project purpose: "More students can receive improved education service through the enhanced IT capacity of USP (e-learning)"	Increase in number of qualified graduates who have up-to-date and practical IT knowledge and skills	
		Development of capacity of distance and flexible learning course development utilizing multimedia technology (procedure of DFL development will be established and courses will be developed just by staff)	
		Development of capacity of IT research and training (many qualified research proposals examining IT utilization for socio-economic development will be collected at USP and the result research will be publicized successfully and utilized for short-term model training courses and generating awareness)	

D. Cost Estimate and Financing Plan

Cost Estimate and Financing Plan
(US$ million)

Item	Government			Donors			Total
	2005	2006	2007	2005	2006	2007	Cost
1. Consultants							
a. Expatriates	0.2	0.2	0.2	0.1	0.1	0.1	0.90
b. Locals	0.05	0.05	0.05	0.08	0.08	0.08	0.39
2. Equipment	1.5	1.5	–	1.8	1.8	–	6.60
Software							
3. Rent	1.0	1.0	1.0	1.0	1.0	1.0	6.00
Furniture	0.5	0.5	–	0.5	0.5	–	2.00
4. Training	0.08	0.08		0.08	0.08		0.32
5. R&D	0.15	0.15		0.15	0.15		0.60
6. Admin. cost	0.6	0.6	0.6	0.3	0.3	0.3	0.27
7. Contingencies	0.3	0.3	0.3	0.5	0.5	0.5	0.24
Total	**4.38**	**4.38**	**2.15**	**4.51**	**4.51**	**1.98**	**17.32**

E. Implementation Arrangement

The project will be carried out by the Management Information Systems Unit (MIS) within the University of the South Pacific. It will be guided by user-friendly manuals, visual aids, and a technical team of highly qualified and skilled workers.

V. BENEFITS OF PROJECT

E-learning provides benefits over traditional classroom training such as flexibility and the cost savings from not having to travel or spend excess time away from work. Additional benefits are:

It is less expensive to produce – Using Trainersoft's authoring software to produce your own asynchronous training programs, e-training is virtually free once you reach the break-even point. Synchronous programs will have continued costs associated with the instructor managing the class, but will still be cheaper than traditional courses.

It is self-paced – Most e-learning programs can be taken when needed. The "books" that you set up using Trainersoft create a module-based design allowing the learner to go through smaller chunks of training that can be used and absorbed for a while before moving on.

It moves faster – E-Learning courses progress up to 50 percent faster than traditional courses. This is partly because the individualized approach allows learners to skip material they already know and understand and move onto the issues they need training on.

It provides a consistent message – E-Learning eliminates the problems associated with different instructors teaching slightly different material on the same subject. For company-based training, this is often critical.

It can work from any location and at any time – E-Learners can go through training sessions from anywhere, usually at any time. This just-in-time (JIT) benefit can make learning possible for people who never would have been able to work it into their schedules prior to the development of e-learning. (If you manage a corporate learning program, however, be careful about requesting that workers learn on their own time from home.) This is very useful for member countries of USP. They can use e-learning-integrated training via the long distance and flexible education program, computer courses, and research and training for IT.

It can be updated easily and quickly – Online e-learning sessions are especially easy to keep up-to-date because the updated materials are simply uploaded to a server. CD-ROM-based programs may be slightly more expensive to update and distribute, but still come out cheaper than reprinting manuals and retraining instructors.

It can lead to increased retention and a stronger grasp on the subject – This is because of the many elements that are combined in e-learning to reinforce the message, such as video, audio, quizzes, and interaction. There is also the ability to revisit or replay sections of the training that might not have been clear the first time around.

It can be easily managed for large groups of students – Trainer software manager allows corporate training for directors, HR managers, and others to keep track of the course offerings, schedule or assign training for employees, and track their progress and results. Managers can review a student's scores and identify any areas that need additional training.

F. INDIA

India has made tremendous strides in its economic and social development with an annual growth rate of 8.2 per cent in 2003-2004 and is poised to achieve faster growth in years to come. The steepness of the growth curve will depend on the speed and extent to which India can adapt to the needs of the emerging global knowledge economy.

The distinct characteristics of the emerging knowledge economy of India have been spelt out by the task force set up by the Planning Commission for "India's development as a knowledge society". They are (1) using knowledge through all its constituents and endeavoring to empower and enrich its people, (2) using knowledge as a powerful tool to drive societal transformation, (3) a learning society committed to innovation, (4) a society with the capacity to generate, absorb, disseminate, and protect knowledge and also use it to create economic wealth and social good for all its constituents, and (5) enlightening its people to take an integrated view of life as a fusion of mind, body, and spirit.

India has the critical ingredients for making the transition to a knowledge society. Large numbers of skilled, English speaking knowledge workers and a very large domestic market, along with a large diaspora, creating valuable knowledge linkages and networks, should facilitate a quicker transition of India to a knowledge society. According to a World Bank study, a well functioning democracy, macroeconomic stability, a dynamic private sector, institutions of free market economy, a well-developed financial sector, and broad and diversified science and technology infrastructure place India in an advantageous position (World Bank: 2005).

The Tenth Five Year Plan (2002-2007), recognizing education as a critical input in human resource development, has laid down three important targets for elementary education and literacy: (1) all children to be in school by 2003 and all children to complete five years of schooling by 2007, (2) reduction in the gender gap in literacy by at least 50 per cent by 2007, and (3) increase in literacy rates to 75 per cent within the plan period.

Tertiary education is critical to the construction of knowledge economies. India currently produces a solid core of manpower in tertiary and scientific and technical education. India has more than 250 universities (over 900 colleges) and engineering colleges providing computer education at the degree/diploma level and a number of world-class centers like Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs). One of the remarkable initiatives taken by the Government in the area of development of the information technology workforce was the setting up of the Indian Institutes of Information Technology (IIIT). These have been set up as a joint initiative between the Government and Industry.

India's vast, high quality, cost effective, skilled workforce has made it an attractive location for global knowledge industries and service providers. The growth of IT professionals in India in the last decade was phenomenal. From a base of 68,000 IT professionals in 1985-1986, the

number increased to 522,000 software and service professionals by the end of 2001-2002. The IT industry is expected to grow at a compounded annual rate of 38 per cent to reach $77 billion by 2008, contributing 20 per cent of India's anticipated GDP growth in this period.

The key constraints and emerging solutions for India in some critical areas of the knowledge economy are strengthening the economic and institutional regime, developing educated and skilled workers, creating an efficient innovation system, and building a dynamic information and telecommunication infrastructure.

Project Title: **Networking for Universalisation of Primary Education in Rural Areas**

Proposer: **Joseph Mathew**

Country: **India**

Date: **September 2005**

I. INTRODUCTION

India is the first country to dedicate a satellite exclusively for education called Edusat. This satellite was built in the Indian Space Research Organisation (ISRO) and launched by the Indian launch vehicle called Geo-Synchronous Launch Vehicle (GSLV). Edusat, with its state of the art communications capability and coverage spread over the entire country, is designed to be used in wide-ranging areas encompassing higher technical education as well as primary school education and teacher training. The proposal is to operationalise a network to connect all the primary schools in the rural areas. The present proposal is to cover 1,000 schools each in 26 states (excluding the state of Kerala where 100 per cent literacy has already been achieved) and 1,000 schools in 5 Union Territories in the first phase over the next three years. Ultimately the network will cover all the primary schools in the rural areas of the country.

Indian Space Research Organisation (ISRO) has already developed and operationalised a pilot project using EDUSAT to connect 880 primary schools in Chamarajnagar district, a predominantly tribal district of Karnataka. The installation and commissioning of the network has been completed and the program transmission started from June 2005.

High incidence of illiteracy in rural areas – a major problem for India

The growth of educational institutions in India since independence in 1947 has been commendable. It started with 209,671 primary, 13,596 upper primary, 7,416 secondary/higher secondary schools, 578 colleges, and 27 universities at the time of the First Five-Year Plan (1950-1951). At present there are 638,738 primary schools, 10,152 colleges, and more than 250 universities, including 'deemed universities' and institutions of national importance.

The number of students attending various levels of education has also increased exponentially. There are about 113.8 million students enrolled in primary, 42.8 million in upper primary, and 37.6 million in secondary/higher secondary schools.

The literacy level has also increased from 16.67 per cent in 1951 to 65.38 per cent in 2001. Of these, 75.85 per cent are male and 54.16 per cent are female members of the population.

Despite concerted efforts through 10 five-year plans covering almost 50 years, India faces high levels of illiteracy, especially in rural areas, due to poor enrollment of children in primary schools and high drop out levels from the schools. Major reasons for this state of affairs include heavy teacher absenteeism and irrelevant and uninteresting pedagogic content. Teachers are absent themselves from school very regularly due to transportation and other logistical problems, as the rural schools are largely situated in villages far away from towns and cities. Most of the teachers stay in adjoining towns and cities, as the villages where schools are situated do not have proper accommodation or adequate higher educational facilities for their children and lack the required infrastructure facilities and services. Frequent absence of teachers makes teaching disoriented and uninteresting, resulting in children dropping out and taking up other livelihood avenues. The teaching contents also remain outdated and the teachers generally do not commit their time proactively to improving the content of education.

The net effect of this state of affairs is incomplete primary education and high incidence of illiteracy among children in rural areas. A focused government action is therefore necessary in this area as primary education for all is a central responsibility of the government.

II. PROPOSED PROJECT

The objective of the proposed project is to provide effective primary education in rural areas to allow all children in the rural areas to complete primary education and become literate.

A. Key Activities

The network will have two principal components: a space segment and a ground segment. The space segment essentially is the satellite connectivity, while the ground segment consists of the uplinking facility, the teaching end, the receiving end (or classroom), content generation, and overall program management.

The space segment (satellite connectivity) will be provided by the EDUSAT satellite launched by India on 20th September 2004. The high-power Ku band and extended C band transponders in the EDUSAT satellite will be used for the connectivity. The capacity of a transponder is characterized by its bandwidth. The standard bandwidth of a transponder is 36 Mhz. Considering this, for transmission of one educational program, 2-Mhz bandwidth is normally sufficient.

B. Ground Segment

The ground segment has four major components:

- Uplinking hub
- Teaching end studio/virtual classroom
- Receiving equipment in classroom
- Content generation

The uplinking hub facilitates transmission of programs from the ground to the satellite. It consists of an antenna, modulators, up converters, power amplifiers, and few other electronic pieces of equipment. These can be housed in an air-conditioned room of 5 by 5 meters. The antenna, called as VSAT (very small aperture terminal) is generally erected either on the roof or in an open space outside.

The teaching end is of two types: a teaching end studio and a virtual classroom. In the first type, the teachings of the lecturer are captured in an equipped studio in which the teacher can also interact with students (audio mode) and answer questions. In the second type, the studio equipment is taken to a classroom and the real classroom is transmitted to other places. Both cases involve little equipment like a camera, DVD player, video mixer, microphone (choler phones and cordless phones), PC server, learning management software, and voltage stabilizers/UPS.

The receiving end is the classroom. The receiving ends are also of two types: receive-only terminal (ROT) and satellite interactive terminal (SIT). In ROTs, the students will only receive the lessons transmitted but cannot interact with the speaker. However, ROTs are supplemented by presence of teachers in the classroom for clarification. In SIT, students will be able to interact with the speaker through audio. ROT is well suited for primary and middle school education, while SIT will be required for high school and college education. A program transmitted can be received by any number of ROTs, but the usability is limited by language. In respect of SITs, from practical considerations, one cannot connect more than 200 or 300 SITs for one program as it involves interaction with speakers. ROT includes a small VSAT (about 1.2 meter in diameter), low noise amplifier, down converter, demodulator, 29” TV or a PC and projector, screen, and speaker. In SITs, additionally, cameras, microphones, and multimedia projectors will also be needed.

Content generation is the process of preparing study materials. It is the content generation that adds value to the educational program. Not only must the teacher be an expert in the subject, but he or she also has to be familiar with the potential of multi-media for explaining concepts that are otherwise difficult in a normal classroom. Two most important things for

making effective use of EDUSAT are (a) achieving good audio and video quality, which depends more on the quality/standard of equipment used and (b) content quality, which depends on the teacher and his or her multi-media skills.

As the EDUSAT network is already operational, no international consultation would be necessary to implement a network. The domestic consultation would be in the form of network configuration and specification of the equipment.

In respect of primary education using ROTs, the teachers in most of the cases will be able to operate the system. Two or three days' workshop may be required. For maintenance of the equipment, one has to have an annual maintenance contract, which are normally offered at 8 to 10 per cent of the equipment cost.

C. Assumptions of the Project Proposal

1. Networking is envisaged in the existing schools
2. All children in rural areas will be enrolled
3. The State Education Department will provide space for up-linking hub and a roof or space for erecting antenna
4. Existing furniture in school will be used
5. State government will provide a recurring grant for maintenance of system

Cost Estimate for One School
(Rs. in lakhs)

Sl. No.	Item	Cost
I.	**Space Segment** Cost of connectivity (use of transponders at Rs.2 lakhs/Mhz)	4.00
II.	**Ground Segment** a) Uplinking hub b) Teaching end c) Receiving end d) Solar panels	 60.00 6.00 1.25 0.75
III.	Content generation Consultants (domestic)	1.50 0.50
	Total	**73.95**
IV	Maintenance Cost	7.00
	Grand Total	**80.95 (US$ 0.19 million)**

The total cost estimate for 27,000 schools will be Rs. 21856.5 crore (US$ 4967.4 million). The government will make a budget provision of Rs. 7285.5 crore (US$ 1655.73 million at US$ = Rs. 44) every year for three years at 2005-2006 prices. The government will explore soliciting concessional funding from multilateral or bilateral sources, in which case government will service the debt and final repayment from the general revenues.

D. Implementation Arrangement

The program will be implemented by the agency responsible for primary education in the respective states. Every year 9,000 schools will be identified based on the preparedness of the State agency in providing the required up-linking facility. In case more than 9,000 schools satisfy the condition in any one year, prioritization will be done on the basis of the prevailing literacy levels; the lower literate areas will receive higher priority.

E. Outcome of the Project

All the children in the rural areas (project area) will complete primary education and will become literate in three years.

III. BENEFITS OF THE PROJECT

The direct benefits of the project are

- Children will have regular schools with adequate teaching
- Updated teaching content will make primary education more relevant
- Rural schools will get the benefit of expertise of outside experts
- Familiarization with computers will make the children digital literates

Some indirect but significant benefits to the society will come from the implementation of this project. Firstly, the country is in the process of setting up Village Knowledge Centers (VKC) all over to help Provision of Urban Facilities in Rural Areas (PURA), a rural area-focused scheme under implementation. Digitally literate children will help individual households in effectively taking advantage of the VKCs, especially in families where older members are illiterate. Secondly, the project will create considerable demand for hardware and other physical inputs required for setting up the network. This will help industry and will generate substantial employment in the electronic and other sectors.

Monitoring Mechanism

Annual data on primary school enrollment generated by the education department and the data on literacy also published by the department of education will be used to monitor school drop out and literacy. This data is available in the Economic Survey published annually by the Ministry of Finance. An independent assessment of the project will be commissioned through structured questionnaire at the end of the third year of implementation to study the impact on primary education and rural literacy. Data published by the Industries Department and Ministry of Labour will provide details of industrial performance and employment generated in the respective sectors during the period.

G. INDONESIA

Prior to the development of the On-Line Labor Exchange (OLLE) system, the activity of labor exchange was undertaken manually. Both employers and job seekers filled out forms and submitted them to the Employment Service Officers. The Employment Service Officers communicated with both parties via telephone, facsimile, letters, or in person.

The concept of OLLE was initiated by the Ministry of Manpower and Transmigration. The vision of OLLE is reaching a 10:9:8 ratio between the registered job seeker, the registered job vacancies, and job-seekers. OLLE mediates demand and supply for labor. It assists the job seeker and the employer. The information obtained from the system will be useful for education and training, development planning, and manpower planning. It is a fully electronic program, accessible 24 hours a day. The operational costs are high: each district OLLE amounts to sixty million rupiah and forty million rupiah for annual maintenance. The system had been implemented in 20 district areas in 2004 and 16 more locations are planned. OLLE systems are usually located in large cities like Jakarta, Medan, Surabaya, Semarang, Bandung, Yogyakarta, and Makassar.

OLLE is based on the following principles: (i) placement in the job or position that best suits the qualification, skill, trade, talent, capability, interest, and ability by observing the dignity and rights of human beings as well as legal protection, (ii) equal opportunity and distribution of the available manpower in accordance with the needs of the national and regional development programs, and (iii) labor protection covering welfare, safety, and health.

The Government of Indonesia will develop 300 OLLE centers throughout Indonesia by 2009. However, leading constraints need to be overcome, such as lack of access to computers, limited OLLE locations, lack of confidence in e-learning, and resistance to new methods of recruitment.

Project Title: **Expanding Employment Opportunity for Youth Through Establishment of Volunteer Development Center**

Proposer: **Nurmia Sinaga**

Country: **Indonesia**

Date: **September 2005**

I. INTRODUCTION

Indonesia has a high-density population, about 241.974 million people in 2005, where 42.74 per cent or about 103,973 million of them make up the labor force. Of this labor force, about 10,250 million (9.86 per cent) are open-unemployed and about 27,946 million (26.88 per cent) are underemployed.

In addition, Indonesia's physical shape makes it difficult to provide a development program that can touch all of the regions and populations throughout the country. The Indonesian archipelago is located in Southeastern Asia, consists of 17,508 islands (6,000 inhabited) straddling the equator, a strategic location astride or along major sea lanes from the Indian Ocean to the Pacific Ocean, with a coastline measuring 54,716 km from west (Sumatra) to east (Papua), covering 33 provinces and 415 regencies/municipalities.

II. CURRENT STATUS

The demographic situation puts the Indonesian government in the difficult position of having to implement and develop programs in all of the regions properly; many regions have not yet been touched by the optimum development program.

To overcome this problem, and learning from other countries' experiences, Indonesia demonstrated the third sector. One of the steps has been done is the establishment of the Volunteer Development Center (VDC) in 2003 with the cooperation of United Nations Volunteer (UNV). The objectives of its establishment are

1. Enhancing information and knowledge to develop the capacity and capability of practicioners and policy makers in the development of volunteer activities
2. Providing input and output data on volunteer activities
3. Improving awareness of volunteerism's contribution in social and economic areas through information and public events at region, national, and international levels

4. Developing and improving network among local, regional, national, and international levels
5. Supporting and assisting social activities and volunteerism-based organizations
6. Supporting coordinating and cooperating with relevant parties (donor, government, society, national/international organizations, observers, practitioners, business persons, and media) to participate in the social-economic development of the society via volunteering

III. ISSUES

To achieve the above objectives, VDC has conducted several programs:

1. Developed and maintained website www.volunteer.or.id
2. Implemented pilot project on volunteer service development in Central Java (Cilacap and Sragen) and East Java
3. Developed database of voluntary activities, voluntary organizations, and volunteers
4. Conducted mapping exercises on the voluntary organizations and volunteers activities that offer employment for youth
5. Analyzed employment opportunities that can be created and expanded through volunteer activities
6. Designing the standards of operational procedure to establish the regional VDC
7. Disseminated information on volunteering activities by publishing results of project implementation in some areas
8. Organized volunteerism poster, slogan and logo competition, and volunteerism convention on contribution to millennium development goal achievement
9. Publishing directory of volunteer-based organizations in Indonesia
10. Establishing cooperation and networking with national and international voluntary-based organizations in Indonesia

Based on the field evaluation, problems were raised for the achievement of VDC's objectives, such as

1. Limited infrastructure in headquarters such as secretariat's space to display products of organizations and volunteers, gallery panel location, publishing, separate meeting room, scanner, and audio visual (handy camera, camera, etc.)

2. Insufficient staff to manage the headquarters
3. Lack of management skill of regional officers to develop regional VDCs
4. Lack of awareness of youth to engage with volunteer development for own capacity building through transfer of knowledge and skills

IV. THE PROPOSED PROJECT

A. Purpose and Output

The main objective of this pilot is to increase the effort on volunteering development as one positive path in creating jobs and fostering entrepreneurship for youth in Indonesia, as more than 70 per cent of the total of unemployed is youth labor force in Indonesia.

Those unemployed are facing high competition in getting jobs in the formal sector, which is very limited. This is also related to their low education and lack of access to employment information as most of them reside in rural areas. This project will be implemented gradually in three phases.

Phase 1

a. Complete the facilities and add the secretariat staff headquarters VDC
b. Design the SOP of the establishment of regional VDCs

Phase 2

a. Socialize the SOP of the regional VDC establishment
b. Conduct training for the regional VDC establishment

Phase 3

a. Implement pilot project on regional VDC establishment in East Java
b. Establish regional VDC throughout Indonesia
c. Circulate the Minister of Manpower and Transmigration of the Republic of Indonesia's letter, concerning the volunteer contribution in social-economy and the essential VDC in regions, addressed to Head Local Government in 415 districts/towns

B. Methodology and Key Activities

The methodology of the pilot project implementation is covered in the framework chart below.

Proposed Project Framework

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Impact Reduce youth unemployment growth in Indonesia	Government gets support for employment creation Decrease of youth unemployed from total of unemployment	Analyze level of employment program achievement, implemented by government Analyze structure of unemployed and change by age, working together with Statistics Bureau (BPS)	Unemployment reduction program managed by government will work better and work constantly
Outcomes Increased number of youth get job/become entrepreneurs	Increase in numbers of youth workers Increase in numbers of youth entrepreneurs	Analyze manpower statistics working together with regional manpower office	Youth unemployed will be reduced
Outputs More jobs/ entrepreneurial opportunities for youth	Job creation for youth Entrepreneurial creation for youth	Analyze manpower statistics working together with regional statistics office and regional manpower offices	Youth will improve their skills to get jobs or be entrepreneur (self-employed)
Activities **Phase 1.a** Provide adequate infrastructure and staff for headquarters VDC	Provision of adequate infrastructure Employment of adequate staff	Consult with Financial and Human Resource Development Bureaus	Capacity and function of VDC will be optimal
Phase 1.b Publish the SOP of regional VDC establishment	Quantity of SOP published Quality of SOP published	Pre-test first draft of SOP Conduct seminar on final draft	Regions will understand need for establishment of regional VDC
Phase 2.a Conduct socialization of SOP of regional VDC establishment	Number of regions that can be visited for socialization Response of region toward socialization	Organize regular meeting with regional manpower offices	Regions will better understand need for establishment of VDC

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Phase 2.b Conduct training on establishment of regional VDCs	Number of regions that participate in training Capability of participants for training material	Establish cooperation with regional government Hold evaluation at the end of training session	Regions will better understand how to establish VDCs in each region
Phase 3.a Implement pilot project on establishment of regional VDC in East Java	Numbers of parties involved in VDC pilot project Provision of adequate facilities and staffs to manage VDC	Monitor and coordinate with East Java manpower office	Example VDC will be available for replication in other regions
Phase 3.b Establish regional VDCs in all provinces	Numbers of regions ready to establish regional VDCs	Coordinate with local/regional government offices	VDCs will develop in all regions of Indonesia
Inputs Support of Ministry of Manpower and Transmigration Support for youth unemployed	Ministry of Manpower and Transmigration is able to manage development and employment expansion program Youth can get jobs and entrepreneurial opportunities	Interview decision maker in manpower office at local and national levels Interview youth in region	Ministry of Manpower and Transmigration and VDC have capacity and capability to develop employment widely for youth

C. Cost Estimates and Financing Plan

This project will need the budget of Rp. 7056 million (equivalent US$705,600 with currency rate 1 US$ = Rp. 10.0).

Cost Estimates and Financing Plan
(Million Rp)

No.	Item	Government			Donors			Total
		2006	2007	2008	2006	2007	2008	Cost
1.	Consultants							
	1.1 International (1 Org)	0	0	0	120	120	0	240
	1.2 Domestics (2 Orgs)	0	0	0	144	144	72	350

No.	Item	Government			Donors			Total
		2006	2007	2008	2006	2007	2008	Cost
2.	Equipment and software 2.1 Equipment 2.2 Software	 150 75	 150 75	 0 0	 300 150	 300 150	 0 0	 900 450
3.	Research and development	50	25	0	200	100	0	375
4.	Design SOP of establishment of regional VDCs	75	0	0	200	0	0	275
5.	Socialization of SOP	0	100	0	300	0	0	400
6.	Training establishment of regional VDCs	0	150	150	0	300	300	900
7.	Pilot project in East Java	50	50	0	0	75	75	250
8.	Advocacy of establishment of regional VDCs	0	200	200	0	350	350	1100
9.	Miscellaneous administration and support costs	85	85	100	200	200	200	900
10.	Contingencies	79	131	68	250	268	150	944
	Total	**564**	**966**	**518**	**1864**	**2007**	**1147**	**7056**

D. Implementation Arrangement

This project will be implemented by the headquarters VDC through the program Productive Employment Creation, Directorate Development and Employment Expansion, assisted by experts of VDC to develop SOP and training curriculum. The output of the project implementation will be replicated by relevant parties at national and regional levels. Furthermore, in order to get the feedback on whether the outcomes of this project can be achieved appropriately, a regular evaluation will be conducted at the year-ends of 2006 and 2007.

IV. BENEFIT OF THE PROJECT

This project is expected to provide benefits to many parties.

Benefit of the Project by Participant

Participant	Benefit
Country (Indonesia)	1) Provide support for national unemployment reduction program 2) Increase motivation in doing volunteering at national level
Ministry of Manpower and Transmigration	1) Provide support for development and employment expansion program 2) Provide support for implementation of volunteer development program

Participant	Benefit
Region	1) Provide support for local unemployment reduction 2) Increase motivation in volunteering in local areas
Volunteer organization	1) Provide full support for their volunteer activities 2) Existence will be recognized by communities
Youth	Open job and entrepreneurial opportunities, capacity building through transfer of knowledge and skills, channeling and networking expansion with many relevant stakeholders at national and regional levels
Community	Transfer knowledge, improvement of social economy development
Volunteer	Self-reliance, capacity building through transfer of knowledge and skill amongst stakeholders, channeling and networking to generate future career options

H. KAZAKHSTAN

In 2003, Kazakhstan enacted the new strategy of industrial and innovation development. The overall goal of this proposal is the creation of conditions for development of a competitive, highly technological, and export-oriented economy. An integral pre-condition for success of this strategy will be availability of high-quality human capital.

Kazakhstan inherited a well-developed education system from the former Soviet Union, which boasted comparatively high enrollment rates and impressive education indicators. However, due to the economic decline of the last decade and a lack of connections with social partners, Kazakhstan's vocational education and training system has not kept up with the developments of the market economy and with social developments. It is heavily under-funded and lacks relevance. Many school leavers are unable to find employment as they lack a specialty or specific vocational skills that are needed on the labor market.

The Kazakh authorities have acknowledged these problems by defining the priority goals for the long-term development of education in Kazakhstan. The main objective is the adaptation of the educational system to market economy conditions through a reform process. Other priorities include creating a flexible system for education funding and credit by increasing the role of employers in financing education and training and developing a network of private general and vocational educational establishments.

In September 2000, the National Program for Education was adopted, focusing on the need to develop curricula in line with labor market requirements. Key policy aims include reforming the organization of schools, redefining the roles of school directors and teachers, and modern-

izing teaching, learning, and management methods. The Ministry of Education and Science is also determined to reverse the downward trend in the numbers of students going on to vocational training. It aims to achieve a ratio of 70 per cent of pupils enrolling in vocational education and training schools at the age of 17 in order to increase the number of sufficiently trained middle-level workers needed to support small and medium-sized enterprise development and foster employment growth.

In addition, two national programs on poverty alleviation were adopted. The first program for poverty reduction and unemployment for the period 2000-2002 includes an active employment policy and the provision of targeted assistance for vulnerable citizens, primarily the handicapped. The second program for 2003-2005 aims to reduce poverty through productive employment, increase income and access to health and education services, and improve social protection and efficiency of public management through the involvement of civil society organizations in the decision making process.

Project Title: **Strengthening of the Methodological Base for Macroeconomic Forecasting**

Proposer: **Adlet K. Zhamanov**

Country: **Kazakhstan**

Date: **September 2005**

I. INTRODUCTION

The purpose of the project is strengthening the methodological base for macroeconomic forecasting in order to promote precision of the forecast data used in designing the state budget as well as short-term and middle-term development plans for the Republic of Kazakhstan.

The main beneficiary of the project will be the Ministry of Economy and Budget Planning of the Republic of Kazakhstan.

II. SITUATION ANALYSIS

The experience of the developed industrial countries indicates that nowadays governments more widely apply forecasting, programming, and planning on the macroeconomic level and for budgetary planning. Governmental forecasting is the system of scientifically justified concepts about different directions of the socio-economic development of the country.

For sustainable development of the manufacturing complex today, it is necessary to conduct a scientifically justified innovational policy that is directed to attract investments, increase competitiveness at the local and foreign markets, and develop a basis for modern technologies and structural reforms. In the current economic situation, the role of forecasts, which facilitate making scientifically justified managerial decisions, is increased.

Today, the absence of an efficient and scientifically justified methodological base for forecasting the macroeconomic indicators in the Republic of Kazakhstan is a very important issue that requires a well-directed resolution.

The main causes of this situation are:

- There is no appropriate legislative or other normative base that would determine methodology for forecasting
- There are no experts in forecasting in the country;
- National educational system is weakly oriented to preparing specialists in forecasting

As a result, it is hard, if possible, to forecast macroeconomic indicators for middle-term and long-term perspectives. This in turn adversely affects the ability of government officers to develop an adequate economic policy.

Precision of the forecasts should comply with high standards; we need to create some methodological documents that define the algorithm of forecasting the socio-economic development as well as detailed mechanisms to estimate the most important forecast indicators.

A company as a prospective executor of the project is broadly known in the country thanks to its research on national economy and budgetary planning. In addition, the company fulfills projects for the national large-scale business representatives. The company possesses the necessary scientific and material base for executing projects of importance to the Government and this project is one of that kind.

III. PROPOSED PROJECT

A. Goal, Outcome, and Output

Goal: Government officials achieve advanced ability to do short-term, middle-term, and long-term forecasting.

Outcome: Strengthening of the methodological base for macroeconomic forecasting in order to promote precision of the forecast data used in designing the state budget as well as short-term and middle-term development plans for the Republic of Kazakhstan (RK).

Outputs:

- Improved methodologies in forecasting indicators for short-term and middle-term development plans of the RK can now be applied by the Government of the RK
- Conducting of training seminars at the national level, as well as with the participation of experts from Europe, Russia, and other countries of the CIS
- Publishing of methodology of modeling and forecasting

a. Methodology and Key Activities

- Develop applied forecasting models of macroeconomic indicators
- Conduct training seminars on forecasting methods for staff of Economic Research Institute and the MEBP with the use of the particular software, as well as development of models for these goals

- Develop forecast methodology for short-term and long-term development plans of the economy of the RK. Statistical data processing, establish and conduct time-series data on a monthly, quarterly, and annual basis.

b. Cost Estimates: approx. USD 114,000

Cost Estimate and Financing Plan
(US$)

Item	Government	Donors	Total cost
1. Consultants			
a. International	3000	15600	18600
b. Domestic	–	52900	52900
2. Equipment and software			
a. Equipment	–	10000	10000
b. Software	–	5000	5000
3. Buildings and furniture			
a. Buildings	2000	2000	2000
b. Furniture	–	1000	1000
4. Seminars and conferences	–	20000	20000
5. Other costs, services			
a. Publications	–	1500	1500
b. Translation, interpreters	–	1000	1000
Total	**5000**	**109000**	**114000**

B. Implementation Arrangement

The project will be executed by a company that is experienced in forecasting. The project will be financed by the donor and co-financed by the Government of the Republic of Kazakhstan.

IV. BENEFITS OF THE PROJECT

As a result of the execution of the project, the specialists of the MEBP will obtain skills of more efficient short-term, middle-term, and long-term forecasting of the country's macroeconomic indicators. This will have a positive effect on their ability to develop an adequate macroeconomic policy for the corresponding time spans.

I. KOREA

Title of the Project: **Research and Training Center of ICT in Vietnam**

Proposer: **Gyu-Hee Hwang, Research Fellow, KRIVET**

Country: **Korea**

Date: **September 2005**

I. INTRODUCTION

In the 1960's, Korea initiated development of technological competencies with support from the USA, provided in return for participation in the Vietnam-US War. Now, it is time for Korea to assist Vietnam in developing technological competencies. As a start, Korea and Vietnam should prepare a Research and Training Center of ICT in Vietnam.

The ethnic characteristics and attitudes are very similar between Vietnamese and Korean people in terms of sincerity and industriousness to work. Applying Korea's experiences and technological competencies can accelerate the development of ICT and economic growth in Vietnam. Korea will also benefit from the Vietnamese engineers and researchers, who are likely to work with Korean companies in Vietnam as well as in Korea.

II. ISSUES

In Vietnam, after a period of high economic growth since opening its economy in 1989, the economy was confronted with limitations to achieving further development. This can be attributed to the lack of strategy in cultivating technological competences. The past development has depended on low cost of production, but this can no longer be sustained without further technological development.

In the case of Korea, the lack of human resources in sci-tech (HRST) and the labor shortage are the key issues in workforce development. Through workforce development, Korea plans to expand international collaboration in technological development and utilize the foreign workforce. The issues are

1. Is there any possibility of mutual benefit from solving the current problems in Vietnam and Korea?
2. If mutual benefit is possible, how can it be effectively delivered?
3. Could mutually benefiting cooperation be sustained?
4. Could cooperation between the two countries diffuse the benefits to other developing countries?

III. PROPOSED PROJECT

A. Goal, Output, and Outcome

1. Goal: Preparation of a Research and Training Center of ICT in Vietnam that effectively and persistently contributes to technological competencies of Vietnam and other countries, including Korea and other East Asian countries.

2. Output:

- Development of Vietnamese technological competencies
- Collaboration of technological development between Vietnam and Korea

3. Outcome:

- Diffusion of collaboration in technological development to other countries
- Contribution to economic growth in Indochinese peninsula

B. Methodology and Key Activities

After one year of feasibility study including benchmarking and the first year of training, the third component of the project, construction and preparing equipment, will be launched. This is really another project (a loan project) to the other components (benchmarking and training)

1. Benchmarking Korean experiences

- Aims to provide better planning in initial stage.
- Study tour (ETRI, KIST, etc.): 15 days x 5 field experts and planners
- Consulting by expert in Korea: 12 man-months

Q1) "How has the KIST, which is the first government-funded research institute for sci-tech and engineering, been planned and constructed?"

Q2) "How has the ETRI, which is in charge of technological development in ICT, been constructed and implemented?"

2. Training in Korea (ETRI, KIST, etc.)

- Aims to provide better planning and to reduce trial and error in executing.
- Short-term training in Korea: 1 month x 5 persons x 3 times = total 1 month x 15 persons
- Medium-term training in Korea: 12 month x 5 persons x 3 times = total 12 months x 15 persons

Q3) "How did R&D activities in Korea bring up new researchers and engineers?"

Q4) "How can the participation in Korean R&D activities foster Vietnamese R&D activities as well as cultivate researchers and engineers?"

Q5) "What will be the most effective way of undertaking R&D activities to bring up researchers and engineers?"

3. Construction: This should be another project (a 5-year loan project). Here we merely show different components of the whole project.

C. Cost Estimates

Cost Estimates and Financing Plan
(US$ thousand)

Item	Duration and Explanation	Vietnamese Gov.	Korean Gov.	ADB	Total Cost
1. Benchmarking Korean experiences	1 year to plan and design institute for research and training				
(1) Study tour to learn experience of IT development in Korea	5 persons x 15 days	0	0	75	75
(2) Korean consultant(s) for feasibility study & preparation	12 man-months	50	0	200	250
(3) Cost for preparation of center establishment (seminars, admin.)	1 year	20	0	100	120
2. Training in Korea (ETRI, KIST, etc.)	3 years to prepare an institute for research and training				
(1) Short-term training in Korea (total of 15 persons)	5 persons x 1 month x 3 times	0	30	150	180
(2) Medium-term training in Korea (total of 15 persons)	5 researchers/year x 3 times	0	120	300	420
3. Constructing with preparing facilities (loan project)	–	–	–	–	–
(1) Land use rights	–	100	0	0	100
(2) Building premises	5 yrs	0	0	500 (loan)	500
(3) Equipment procurement and installation	5 yrs	0	0	500 (loan)	500
4. Contingencies	–	20	15	200	235
Total	**–**	**190**	**165**	**2025**	**2380**

D. Implementation Arrangement

On behalf of the Vietnamese Government, a Joint Steering Committee from the Ministry of Science and Technology of Vietnam and the Ministry of Education and Training is set up and is in charge of the preparation and implementation of the project.

IV. BENEFITS OF THE PROJECT

Country	Benefit	Measurement
Vietnam	Development of technological capabilities	Participant ratio at ETRI or KIST, Korea
	Training of engineers	
	Long term: contribution to economic growth	Productivity growth Output growth
Korea	Collaboration with Vietnamese researchers and engineers in technological development	Participant ratio in project at ETRI, Korea
	Long term: collaboration of Vietnamese researchers and engineers at Korean FDI in Vietnam	Productivity growth Output growth
	Long term: collaboration of Vietnam researchers and engineers in Korean Industry	Productivity growth Output growth
Other countries in Indochinese peninsula	Long term: diffusion of collaboration in technological development to other countries	Participant ratio in Vietnamese research project
	Long term: contribution to economic growth in Indochinese peninsula	Productivity growth Output growth

Title of the Project: **Reducing the Gap in Knowledge Economy**

Proposer: **Young-Real Choi**

Country: **Korea**

Date: **September 2005**

I. INTRODUCTION

With the advance of globalization and the knowledge economy, inequality between the haves and have-nots of knowledge will be more rapidly widened than ever. Reducing the gap among countries or within a country is becoming a more and more critical issue. International organizations such as the World Bank, OECD, ILO, ADB, UNICEF, and UNESCO have made every effort to reduce the gap through education and training in and among nations. In its national human resource development (HRD) policy, strategies, and implementation process, a government thus has to take into account the inequality issue to achieve economic development. The knowledge gap will hinder social inclusion and equity in an economy as well as among economies, both developed and developing.

Many developing countries in the Asia-Pacific region have achieved progress in universal primary education and are facing expansion of post-primary programs. The programs provide general education and vocational education and training (VET), since primary education is a necessary but not a sufficient factor to achieve employment, economic development, and social equity in a knowledge society. Based on the country reports presented during the seminar, economies give some clue what has to be done currently.

In Vietnam, due to the differences in economic development between the urban and rural regions, agricultural labor accounts for 60 per cent of the total workforce, but 88 per cent of the rural labor force is unskilled. Only a small part of rural laborers, those engaged in off-farm production, possess technical and professional skills.

In Cambodia, a skilled labor force in both genders able to undertake manual labor on farms, of building sites in enterprise establishment, workshops, and companies, in order to rebuild the national economy is needed.

In India, though the number of highly educated and vocationally qualified people is large, it accounts for only a small fraction of the total population. The need to develop a more relevant education system to create a cadre of knowledge workers is becoming more important because total literacy and an education system are crucial to equipping the workforce for the knowledge economy.

In the Lao PDR, the government faces special challenges in the transition from agricultural-dominated to an agro-industrial-oriented society. Geographical features are barriers to access and to cost-efficient service delivery. Many rural areas in the country remain marginalized, lacking access to roads, markets, schools, and health facilities. As far as education is concerned, poverty is strongly correlated with fewer schools, fewer school inputs, and lower school attendance.

In Korea, the 1st national HRD strategy for Korea (2001-2005) set a goal to build social trust and cohesion through development of the key work competencies for all Koreans. One of the policies is to support ability development of socially marginalized groups.

Social inclusion and cohesion to reduce the knowledge gap is an indispensable element to achieve economic development in the knowledge society. Many developing countries show various spectra in education attainment from uneducated to university-educated as well as in the skill level of workforce. Some economies include this issue in their national policy, while others do not. The needed categories of VET are not uniform, but mostly likely are the low-income group, rural residents, uneducated youth, the handicapped, the aged, and women because these groups face difficulties to access training facilities, programs, and technologies to acquire essential learning tools and basic learning content to survive.

II. ISSUES

The emerging issue is how to reduce the knowledge gap between those who take advantage of knowledge and those who are disadvantaged in terms of knowledge in the developing countries including, but not limited to, the Lao PDR, Cambodia, Myanmar, Vietnam, and the Philippines. Reducing disparity is important because inequality to the access and utilization of data, information, facilities, and technologies will inevitably hinder economic growth and social cohesion. Issues to be considered are

- Lack of access to knowledge and lack of required ability due to low number of facilities and low penetration rate of ICT
  - Main groups affected are poor families, widows, disabled, retrenched soldiers, orphans, poor young people who left school
  - Increase necessary in accessibility to technical and vocational training establishments and ICT
  - Need to address lack of training trainers and teachers due to lack of trained experts

  - Need to develop management officials and teachers of technical and vocational training sector responding to actual demand

- Lack of curricula standard, content, and teaching method because many countries are facing urgent need to expand and to reinforce VET
  - Must conduct research and analysis of national policies and consultation for policy reform

- Lack of policies and systems from inexperience
  - Share good practices from improved countries and include equality in education and training policy and strategies

III. THE PROPOSED PROJECT

A. Purpose and Output

The goal of the project is to reduce the gap between haves and have-nots in the knowledge economy in developing countries. The targeted groups of people are marginal groups such as the low-income group, rural areas, uneducated youth, the handicapped, the aged, and women. The way to achieve this objective is to provide an opportunity of VET to acquire essential learning tools and basic learning content to survive. The outputs of the project will include an increased number of government officials, experts, and teachers trained to implement the project and an increase in the number of facilities providing the program, a higher penetration rate of ICT, an increased number of participants in VET, and development of national policy. The outputs will be different for each selected economy due to differences in the current situation in each country. The target rate or number will be set in Phases 1 and 2.

The project will be divided into three phases, from addressing the immediate concerns of the gap to, in the long run, increasing the number of people participating in the VET program and providing more training opportunities.

Phase 1: Identification of knowledge gap among target groups in selected economies (4-5 economies).

Phase 2: Develop programs and policies to conduct pilot implementation for target groups.

Phase 3: Full implementation of the programs.

B. Methodology and Key Activities

Project Framework

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Impact Reduce knowledge gap for social cohesion and economic development	Increased number of government officials, experts, or teachers trained to implement this project	Assess participants in training Evaluate profile of participants	Working in other areas for which participants are not trained
	Increased number of facilities providing program	Assess annual reports of statistics offices Evaluate programs of facilities	Update of programs and facilities possible
	Increase of penetration rate of ICT	Assess annual reports of statistics offices Evaluate programs and delivery of ICT	Personal information kept private
	Increased number of participants in VET	Assess annual reports of statistics offices	Stable economic growth
	Analysis of national policies and strategies	Policy brief published	
Outcomes Increase in number of indicators in target groups	Increased number of indicators in target groups	Assess annual reports of statistics offices	
Outputs Increased number of indicators in target groups	Increased number of indicators in target groups	Evaluate indicators of indicators	
Activities Phase 1 Identify knowledge gap among target groups in selected economies	Analysis of national policies and strategies Number and scale of research and seminars conducted	Evaluation of research papers Seminars of related exerts	

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Phase 2 Develop programs and conduct pilot implementation for selected target groups	Policy and strategies of pilot test with inclusive VET Policy briefs on pilot test published Guideline of test for inclusion Good practice documented Increased number of indicators	Conduct regular monitoring/close coordination with expert on program status Assess annual reports of statistics offices Conduct survey of target group on improvement	
Phase 3 Fully implement the programs	Increased number of government officials, experts, or teachers trained to implement project	Assess participants in training Evaluate profile of participants	Working in other areas for which participants are not trained
	Increased number of facilities providing enrollment in programs	Assess annual reports of statistics offices Evaluate programs of facilities	
	Increase of penetration rate of ICT	Access annual reports of statistics offices Evaluate programs and delivery of ICT	Personal information will be kept private
	Increased number of participants in VET	Assess annual reports of statistics offices	
	Analysis of national policies and strategies for inclusion Good practice documented Guideline of test for inclusion	Policy brief published	
Inputs Support for training centers and proliferation of ICT for target group	Increased number of VET facilities and ICT participation rate	Assess annual reports of statistics offices Evaluate programs of facilities	

C. Cost Estimate and Financing Plan

Cost Estimate and Financing Plan
(US$ million)

Item	Government			Donors			Total Cost
	'06	'07	'08	'06	'07	'08	
1. Consultants							
1.1 International	0	0	0	0.25	0.25	0.25	0.75
1.2 Domestic	0.05	0.05	0.05	0	0	0	0.15
2. Equipment & software							
2.1 Equipment		1.00	1.00		2.00	2.00	6.00
2.2 Software		0	0		1.00	1.00	2.00
3. Building and furniture							
3.1 Buildings							
3.2 Furniture							
4. Training, seminars	0.04	0.04	0.04	0.20	0.20	0.20	0.72
5. Research, development, surveys	0.12	0.12	0.12	0.20	0.20	0.20	0.96
6. Miscellaneous administration and support costs	0.04	0.04	0.04	0.2	0.2	0.2	0.72
7. Contingencies	0.1	0.1	0.1	0.3	0.3	0.3	1.2
Total							**12.5**

* Building & furniture are not included

D. Implementation Arrangement

The project will be handled by KRIVET and relevant ministries of the country such as the Ministries of Education, Labor, or Health. The project will be guided by a pool of experts, which will form the Technical Working Groups (TWG) from ADBI, KRIVET, and participating countries. Countries will be advised on policy development, building of facilities, and programs of the VET during the project period by consultants who have expertise in the area.

IV. BENEFITS OF THE PROJECT

Institutions	Benefits
1. Country (4-5 countries)	Reduce gap between advantaged and marginalized Increase facilities and ICT for VET Increase number of skilled workforce

Institutions	Benefits
2. ADBI	Reduce knowledge gap between developed and developing countries Acquire information and experience regarding VET in the countries Increase opportunity to market own programs with government support Acquire information and experience regarding VET in the countries to share
3. KRIVET	Opportunities to deliver good practice and to consult the countries in developing programs and policies Build networks with experts for further exchange of information and project development in VET Acquire information and experience regarding VET in the countries to share Increased opportunity to market joint programs with government support

J. KYRGYZ REPUBLIC

The newly established socio-economic situation in the Kyrgyz Republic has significantly influenced the provision of professional education. The Republic was for the first time confronted with problems of unemployment and the lack of demand for graduate specialists. Professional education has to undertake radical changes in preparation of specialists and the re-orientation of students to new forms and methods of education.

Currently, there are 46 higher educational institutions in the country including their branches (32 state institutions and 14 private institutions) and 32 vocational institutions. More than 199,000 students are training in 206 fields of specialization, including 29,658 students in economics and 7,687 in management. The network of higher educational institutions has increased by almost three and a half times since 1991. The education level of the population, namely the number of students per 10,000 persons, has also increased.

Significant reforms are needed to train and prepare the workforce and resolve growing unemployment. The problem is that educational institutions do not address the requirements of the labor market, but instead continue to prepare specialists whose specializations are not in demand on the market. Mechanisms of accreditation in the higher educational institutions have still not been introduced and current market demand for knowledge of foreign languages and computer skills are inadequately provided.

Furthermore, there is a lack of primary school teachers of Kyrgyz and English languages and mathematics. One more cause of youth unemployment is the increase in employer qualification requirements and the lack of the level of education in these areas. Even in the most prestigious educational institutions of the country, education is too theoretical and does not meet the real demands of employers

In 2004, implementation of the TACIS project, "Training, re-training of the unemployed and poor people by creating a Training Fund," supported by IMC, a British consulting company, established local services for employment and re-training of unemployed citizens.

The policy of the Department of Vocational Training is built on flexible reaction to economic needs and acknowledgement of the labor market situation. It will pursue new relations with employment centers and social partnership institutions.

Project Title: **ICT Education for Regions of the Kyrygyz Republic**

Proposer: **Asely M. Madybaeva**

Country: **Kyrgyz Republic**

Date: **September 2005**

I. INTRODUCTION

The transition period required the promotion of professional education to a qualitatively high level, thus ensuring high qualification, mobility, social protection, and competitiveness of graduates in the labor market.

The newly established socio-economic situation in the country significantly influenced the provision of professional education. The Republic was, for the first time, confronted with problems of unemployment and the lack of demand for ICT specialists. Professional education was required to undertake radical changes in preparation of specialists and the re-orientation of students to the new forms and methods of education.

The preliminary analyses of the current situation on regional education in the Kyrgyz Republic revealed a number of problems. Among them, lack of highly qualified experts and teachers in the regions, lack of a training system, and lack of special curriculums, especially on ICT.

II. ISSUES

The basic purpose of the project is creating technological, sociopolitical, economic, and cultural preconditions and conditions for transition of the Kyrgyz Republic to an information society and solving problems of poverty by essential increase of a system effectiveness of remote IT-education for regions of the Kyrgyz Republic.

The population in the regions has no opportunity to develop skills adequate to modern realities. The modern socio-economic situation and the education system is that traditional forms of education and models of training cannot satisfy requirements for the educational services, usually concentrated in the big cities.

There are 6 main regions in the country with higher education institutions to create ICT leaning centers based on the following.

III. PROPOSED PROJECT

A. Target Group

- Youth, which needs to improve professional skills

- Persons of all ages living in removed and remote regions of the country
- Persons in the valid urgent service of the armed forces
- R&D scientists
- Experts already having education and wishing to acquire new knowledge, ICT, or to receive second education
- Managers of various levels working at the enterprises – private sector
- Teachers of various educational establishments, other categories of the population

B. Primary Outputs and Goals

- Develop and duplicate new educational and e-leaning materials
- Have about 24 (4 per university) well-trained teachers and instructors in ICT field
- Establish 6 ICT infrastructure-equipped educational and leaning centers in each region
- Create effective telecommunication network system (e-library)
- Increase ICT knowledge workers in regions of Republic

C. Activities

- Develop innovative educational programs and curricula, such as principles and requirements to electronic training, e-training-methodical manuals, information materials, cases, and other teaching materials
- Provide training program technical assistance for improvement of professional skill and retraining of teaching and administrative staff in regions of Republic
- Create infrastructure recourses to each leaning center on base of regional higher educational institutions
- Create educational network system: interuniversity faculty based on Academy of Management, Website for e-leaning to access educational resources, e-libraries

D. Project implementation and monitoring

The implementing agency of the project is the Academy of Management under the President of the Kyrgyz Republic. The general management of the project will be done by donors. Direct management of the project

will be done by the coordinator of the project from the Academy of Management. The coordinator will evaluate the project and implement necessary changes. All of the reports will be given to the donors. Project activities will be illustrated in mass media. Before final decision making, all dates and the duration of activities are conditional and will be specified during implementation. Also, project activities will be put in the official sites of the Academy of Management.

IV. EXPECTED RESULTS AND BENEFITS

- Increase quality of vocational education in regions due to effective utilization of ICT education
- Create conditions for all citizens to receive ICT education and improvement of professional skills
- Develop and duplicate modern electronic training programs and integrate them with traditional training
- Create conditions for effective further development of technology for interactive remote training
- Prepare well-educated teachers in ICT field
- Create regional leaning centers for ICT education

K. LAO PEOPLE'S DEMOCRATIC REPUBLIC

The Lao economy faces the special challenges of a country in transition with the focus of shifting the country from agriculture-dominated to an agro-industrially -oriented society. In addition, geographical features are barriers to access and to cost-efficient service delivery. Many rural areas in Lao PDR stay marginalized, lacking access to roads, markets, schools, and health facilities. As far as education is concerned, poverty is strongly correlated with fewer schools, fewer school inputs, and lower school attendance.

The Government of Lao PDR (GOL) approved the National Growth and Poverty Eradication Strategy (NGPES) in 2004, laying out a medium-term path to triple the present level of per capita income. This requires a high and sustained level of investment and well-balanced HRD strategy. One strategic priority is on human resource development through education, particularly basic education including the formal and informal sectors as well as technical and vocational training.

In accordance with these objectives and based on substantial changes achieved in the field of technical and vocational education and training (TVET), the Ministry of Education (MOE) prioritized the development of

the Integrated Vocational Education and Training System as a joint obligation of the state and the business sector. The goal is to supply an adequately trained workforce for the labor market.

The National Training Council, supervised by the MOE, is a body for the coordination of public and private sector activities, and is responsible for the elaboration of rules and concepts regarding policy, coordination, financing, and implementation of TVET. In addition, the NTC has the right to appoint Trade Working Groups (TWG), which are responsible for developing occupational standards, test items, certification standards, and sector research for the respective trades. Altogether, 67 institutions (schools, centers, institutions, colleges, and universities) serve the TVET sector. Of these, 28 belong to the non-public/private sector and 39 to the public sector. There are 2 Parastates (1 college of the Bank of Laos, and 1 school run by Post & Telecommunication) and 26 non-public (run by NGOs) and private training schools and colleges, most of them in the business, ICT, and language skill areas.

To maintain the official unemployment rate of 5 per cent, from 2003 to 2005 the Ministry has been tackling a number of activities, including center-based and mobile training. All activities implemented focus on upgrading skills of the workforce, training for self-employment, eliminating the use of child labor, utilizing food for work, reducing rural and urban labor mobility, and improving employment administration through such means as introduction of a labor market information system (LMIS). The target group for skills training is mainly out-of-school-youth in the informal economy. The annual enrollment is less than 600.

It can be estimated that about 8 per cent and a maximum of 10-11 per cent of the 192,000 school leavers in 2004 will be able to find a training place in the recognized school-based TVET system. It is assumed that at least the same number of persons is trained by companies and operators of the formal and informal sector. While official statistics would leave about 170,000 school leavers annually without a recognized training opportunity, such an assumption would reduce the number of persons demanding training to approximately 150,000. Nevertheless, this assumption is based on the fact that company-based training and informal learning have not yet been officially recognized and integrated in TVET.

The mission is to create and maintain a diversified, yet integrated, flexible and labor demand-oriented Vocational Education System that will ensure the supply of the quantitative and qualitative workforce demanded by the labor market and to make available nation-wide access to vocational education for all concerned individuals.

Project Title: **Developing a Vocational Education and Training System through Infrastructure Development and Capacity Building of Labor Market-oriented and Integrated Vocational Education and Training Schools (IVETS)**

Proposer: **Dr. Kongsy Sengmany**

Country: **LAO PDR**

Date: **September 2005**

I. INTRODUCTION

The Lao PDR is a small land-locked country, with an area of 236,800 square kilometers. The country extends over 1,700 km in the north-south direction, with the widest part of the country from east to west, reaching 500 km and the narrowest part, only 150 km wide. It consists of 17 provinces and the capital city, 141 districts, and about 11.690 villages, with a total population of over 5.8 million (National Statistics Bureau, 2005). It is located in the heart of Southeast Asia and borders Vietnam in the east, Thailand and Myanmar in the west, China in the north, and Cambodia in the south. A large part of the country's land is mountainous; mountains and plateaus cover approximately 80 per cent of the country.

With a gross domestic product per capita of 331 USD (2001), the Lao PDR occupies the last position of all Southeast Asian countries and poverty is wide spread. According to the latest survey (2002), the poverty rate is 30 per cent. Ranking at position 131 in the UNDP-HRD index, the Lao PDR is one of the least developed countries in the world.

The Government of Lao PDR (GOL) approved the National Growth and Poverty Eradication Strategy (NGPES) in 2004, laying out a medium-term path to triple the present level of per capita income and thereby exiting LDC status by 2020. This will require a high and sustained level of investment and well-balanced HRD strategy to achieve the targeted economic growth as well as the social objectives.

In accordance with these objectives and based on substantial changes achieved in the field of technical and vocational education and training (TVET), especially through intensive cooperation with the private sector in the National Training Council (NTC), the Ministry of Education prioritized the development of the Integrated Vocational Education and Training System (IVETS) in the Lao PDR as a joint obligation of the state and the business sector to supply an adequately trained workforce for the labor market and the intended growth of the country.

With support by German Technical Cooperation (GTZ), the National Vocational Education and Training Policy and Strategy has been elaborated and approved and an NTC was established, with representatives of the public and private sectors as members on equal terms to achieve an employment and labor market-oriented VET system.

The National Development Plan to Establish Integrated Technical and Vocational Education and Training Schools will be implemented in all provinces of the country by 2010.

II. ISSUES

Since 1986, the Lao PDR has been in a transition period from a central economic into a market economic system. Reforms so far have contributed to economic growth and hence poverty reduction, but since the Asian crisis, reforms and economic growth have been slowing down.

A. Lack of Qualified Personnel

A lack of qualified personnel hampers economic growth. The main reason for the lack is insufficient vocational education training (VET) capacities and ICT-based training to establish the required workforce. Due to a comparatively high growth in population (2.5 per cent per annum), 44 per cent of the population is below 15 years of age. Without significant investments in VET, this age group has very limited chances for adequate training and employment. The same problem appears from the entrepreneur's point of view as a lack of qualified personnel. Therefore, qualified positions are occupied by highly qualified personnel who come from other countries in the region. The HRD commission forecast a training demand in industrial/commercial and technical professions of more than 50,000 training opportunities in 2010 (compared to 7000-8000 existing training opportunities in 2004/2005).[1]

B. Lack of Vocational Training Capacities and ICT-based Training

Only 8 of the country's 18 provinces have vocational training schools to offer training for school leavers aged between 14 and 24. They can only provide training for a maximum of 10 per cent of school leavers from secondary and higher secondary schools. In consequence, the migration rate of the youth is high and is still increasing.

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[1] Government's HRD Strategy: Development trends and development expectations until 2020, VTE 10-12/12/2001.

C. Lack of Teachers and Trainers

The teaching staff working in the technical and vocational schools has a variety of educational backgrounds. Most of the teachers are graduates from institutions in the country. About 20 per cent of them are graduates from overseas.

The skills of TVET teachers, especially those who trained within the country, are not satisfied quantitatively and qualitatively with the new requirements in the technical and vocational schools due to lack of qualification and experience. A survey done in 2000 revealed that about 5 per cent have a university degree in a professional field (technical and vocational subjects), 15 per cent in basic science teaching such as mathematics, physics, and language, and 80 per cent have completed the technician diploma level. This means that the majority, about 80 per cent of the teachers, has the same qualification level as they are teaching. The survey reported that about 1500 additional vocational teachers will be needed by 2010.

D. Insufficient Frame Conditions

Apart from the insufficient quantity of training opportunities the VET system is not sufficiently considering the needs of the labor market and lacks quality as well as a vertical and horizontal opening between various courses and training. Examination and certification standards are not yet sufficiently developed and are frequently not in accordance with the interests of the business sector.

III. PROPOSED PROJECT

A. Project goal, Outcome, and Output

Goal

The goal of the project is to implement the National Strategy Plan for Integrated Technical and Vocational Education and Training Schools and successfully and sustainably provide e-learning capacities.

Outcomes

- Enabling of access to vocational education and training in all provinces
- Possible implementation of several training models, e.g., traditional training approach, blended learning, ICT-based training
- Establishment of well-trained workforces for business and industry

Output

- Availability of urgently needed school buildings, facilities, and equipment for integrated vocational education and training schools
- Successful and sustainable implementation of concept of integrated vocational school system, which also means vocational education and training for all
- Enabling of access to vocational education and further training for youths and school leavers including dropouts

B. Methodology and Key Activities

Create and maintain diversified, yet integrated, flexible, and labor-demand-oriented vocational education and training capacities that will ensure the supply of the quantitative and qualitative workforce demanded by the labor market and make available nation-wide access to vocational education for all concerned individuals. The vocational education will be based on the principles of the Integrated Vocational Education and Training System (IVETS) applying the criteria of recognition of prior learning, equity, and flexible progression between vocational educational levels.

1. New Vocational Training Institutions according to priority:
   - Oudomxay, Luangnamtha, Phongsali, Attapeu (2005-2007)
   - Houaphan, Salavan, Xekong (2007-2010)
2. Upgrading and extension of existing training institutions according to priority:

Xienghouang, Bokeo, Borikhamxay, Xayaboury, Vientiane Province, Vientiane Capital, Champassak, and Savannakhet

The **key activities** are

1. Set up a priority plan for improvement and construction of existing and new training facilities
2. Set up specific agreement on implementation of project including shared responsibilities between donor agency and recipient ministry
3. Set up a National Project Coordination Committee (NPCC) and a Project Implementation Unit (PIU)
4. Plan and implement constructing work
   - Tender and award planning consultant

- Develop building plans
- Tender construction firms
- Building activities
- Approval of buildings
- Specification of equipment
- Purchase equipment
- Install equipment

5. Prepare teaching staff and management personnel (from 2004 onward).
6. Monitor and evaluate

C. Cost Estimation and Financing Plan

Part A: Financing new vocational training institutions according to priority

New Vocational Training Institutions: Cost Calculation for One IVET School
(US$ thousand)

No.	Description	Grant/Loan	Government contribution	Total
1.	Construction work	1005.000	150.000	1155.000
2.	Equipment (including transport and delivery)	495.000	20.000	515.000
3.	Consulting service project	100.000		100.000
4.	Administration	30.000	20.000	50.000
5.	Contingency	100.000	20.000	120.000
6.	Training of teachers, school managers	250.000	10.000	260.000
7.	Advisory service	50.000		50.000
8.	Monitoring	50.000	10.000	60.000
	Total	**2050.000**	**230.000**	**2280.000**

Part B: Financing and upgrading ICT of existing training institutions in order of priority:

The cost calculation below covers one school. The overall costs for financing and upgrading ICT in existing training institutions (10 TEVT schools) is up to **3.1 million USD**.

Financing and Upgrading ICT of Existing Institutions:
Cost Calculation for One School
(US$ thousand)

No.	Description	Grant/Loan	Government contribution	Total
1.	Reconstruction work (including air- conditioning)	40.000	10.000	30.000
2.	ICT equipment (including transport and delivery)	150.000		150.000
3.	Consulting and advisory service	30.000		30.000
4.	Administration	10.000	5.000	15.000
5.	Contingency	20.000	5.000	25.000
6.	Training of teachers and school managers	20.000	5.000	25.000
7.	Monitoring	10.000	5.000	15.000
	Total	**290.000**	**30.000**	**310.000**

D. Implementation Arrangement

The **National Project Coordination Committee (NPCC)** under the guidance of MOE will be established and be responsible for the overall supervision of the project.

The **Project Coordination Unit (PCU)** will be installed under the guidance of HTVED in which the recipient schools and the Laotian Program Director for the HRD-ME (Component 2) will be presented.

The **Project Implementation Unit (PIU)** will be installed in the provinces. It will be assisted by an international consultant to facilitate the preparation of the tender documents, to provide support during the tender procedure and selection of supplier. This unit will supervise the installation and handover of the training facilities. Following public competitive bidding, the contract will be awarded to an independent international qualified consultant in association with local consultants in Laos. Details will be determined in a separate agency contract.

The Financing and Separate Agreements with MoF and MOE will probably be signed in the third quarter of 2005, the implementation consultant should be contracted by the end of 2005, and the work should be implemented from mid-2006 onward.

E. Operation

The later operation and maintenance of the newly installed equipment will be the responsibility of the VET school and the provincial government (PES). Prior to the inclusion of the pre-selected VET-schools in the project, each school will have to elaborate a School Development and Financing Plan to provide evidence of their ability to cover the operation and maintenance costs. This plan will be elaborated and submitted to the National Project Coordination Committee prior to the first disbursement from the Grant/Loan Fund as a precondition for financing. This will serve as one selection criterion for the supported IVET schools.

To secure the sustainability of investments in the field of vocational education and training, close cooperation with others donors, e.g., the Lao-German Programme on Development of Human Resources for the Development of the Market Economy, UNESCO, UNIDO, NGOs, and the German Bank for Reconstruction is required.

IV. BENEFITS OF THE PROJECT

The project will provide the following benefits:

- Contribution to objectives of National Growth and Poverty Eradication Strategy (relevance)
- Contribution to establishment of a diversified and employment-oriented and integrated vocational education and training system (IVETS) is the most significant external contribution the Lao PDR will receive in this area (significance)
- Support of economic growth and development of country, especially target and neighbouring provinces by providing qualified personnel for regional labor market
- Provision of access to lower and upper secondary school leavers and out of schools youths of target and neighbouring provinces
- Supply of training needs of local as well as disadvantages people, who are interested in short term and advanced training in form of non-formal vocational training

Project Title: **Labor Statistics System Improvement**

Proposer: **Vaigna Souvannachak**

Country: **LAO PDR**

Date: **September 2005**

I. INTRODUCTION

In the next 5-year plan of the Ministry of Labor and Social Welfare, we have the goal of reducing the unemployment rate to 3 per cent. To provide job opportunities and necessary skills to the workforce in the Lao PDR, realistic and consistent labor policies based on reliable labor statistics as well as clear analysis of data are needed.

Labor statistics describe and analyze the size and structure of the labor market and how these facets change over time. This includes statistics on the situation of participants and non-participants in economies activities and the results of their participation both as workers and as employers. Labor statistics also forms a part of a wider set of official statistics and has much to do with the statistics of other areas such as health, education, and training. Future trends necessary for labor policy formulation can be estimated based on these statistics.

Although the Department of Labour has been using its labor statistics collection and reporting manual, this manual has not been used successfully. The labor staff at the provincial and district levels have not regularly reported the labor data to the central level. Through analysis by the staff of the Department with long-term JICA expert advice in the Ministry of Labour and Social Welfare, five important problems were found. For this analysis the PCM method was used. The problems tree and objective tree analysis are attached. These problems include

1. Lack of nation-wide, standard means of collecting and reporting labor data
2. Lack of continuous training for labor staff in each level
3. Lack of focal point in each level
4. Lack of encouraging resources
5. Lack of regulation of labor statistics

Furthermore, the responsibility of employers and employees and government staff in collecting and reporting the data is not clear.

II. PROJECT OUTLINE

A. Overall Goal

To improve the labor statistics collection and reporting system to get reliable, nation-wide, regularly updated data and ensure reporting.

B. Purposes of Project

- To update data collection and reporting manual to be get reliable nation-wide data
- To train government staff at provincial level to be trainers on labor data collection and reporting so they can continuously conduct training at local level
- To set up focal point at each level
- To formulate labor statistics regulation

C. Outputs

- Manual and system will be updated to ensure reliable, nation-wide, standardized means of labor statistics collection and reporting
- Trainers, government staff at provincial level, will be trained well enough to continuously conduct training at local level

D. Project Activities

a) Labor statistics collection and reporting manual update

The manual on labor collection and reporting should be updated, requiring the following steps:

1. Review existing manual
2. Train government staff to identify necessary and appropriate items on labor statistics for Lao PDR
3. National workshop
4. Draft new manual
5. Test draft manual at central level, evaluate and improve draft to create final manual
6. Second national workshop for endorsing manual

b) Training

After the manual is updated, the next step is training. There are two types of training courses. The first is training to become a trainer, which will be conducted at the central level with participation of two labor

officers from each province. The second is implementing training, which will be conducted at the provincial level by trainers who have been trained at the central level. Thus, there are three activities in the training course:

1. Training for trainers
2. Training at local level by trained staff
3. Testing and evaluating on collection and reporting of labor data in two provinces

c) Focal point and necessary equipment setup

We must set up the central and three regional labor statistics focal points in

1. Luangprabang Province for northern part
2. Borrikhamxay Province for middle part
3. Champasack Province for southern part

The focal points have the responsibilities of collecting and receiving the labor data from other provinces in their own parts and reporting the data to the central level.

Each center or focal point will be set up with the necessary equipment, such as computers with some programs.

d) Labor statistics regulation formulation

Labor statistics regulations will describe the responsibilities of government staff as well as employers and employees in collecting and reporting labor data.

E. Input from Laos government

a) Project consultants
b) Team counterpart
c) Project office
d) Utility cost
e) Focal point setup
f) Labor statistics regulation formulation

F. Donor Input

a) Long term expert: Chief adviser (At least 5 years' experience in labor statistics)
b) Administrative staff to work as full-time secretary and translator. The secretary's salary and office cost, including communication and photocopying, should be covered by this project.

c) 8 PCs for three focal point centers and central office, two notebook PCs for counterpart team

d) One vehicle (four-door car) to supervise, monitor, and work with local level as well as for expert use

e) Provision of counterpart training

f) Project cost:

- Cost of two national workshops, one training of trainer, three trainings at provincial level, including translation, per diem, and transportation of all participants as well as consultant and counterpart
- Cost of project result testing and evaluation
- Necessary equipment or instrument for workshop and training courses

G. Implementation schedule

From 1/10/2006 – 30/9/2008 (2-year plan)

H. Implementing Agency

Labour Policy and Planning Division, Department of Labour, Ministry of Labour and Social Welfare

I. Related Activities

- 1994 – Lao urban labor force survey supported by ADB
- 1995 – Lao population census
- 2005 – Lao population census

J. Beneficiaries

This project will contribute to realistic and consistent labor policies to provide job opportunities as well as necessary labor skills. Thus, a wide range of people including job seekers, employees, and employers will benefit from this project.

K. Security Conditions

Security conditions to travel from central area to provinces or from provinces to district (if necessary) are stable and guaranteed.

L. MALDIVES

Primary education is universal and compulsory in Maldives. However, due to the lack of infrastructure and limited human resources, secondary and tertiary education is limited to a few islands in the country. With the increase in the number of students, Maldives in is great need to find new training avenues. At present, more than 80 per cent of them go into the working population without any specialized skills, saturating the working population with unskilled labor. Although the training needs of the country have been identified, the training cannot be provided, as the individual islands are isolated and span a vast area and human resources are scarce. The best method of reaching these islands is through distance education.

The responsibility for administering the distance education program lies with the Ministry of Education under the Non-Formal Education Unit. Audio-visual materials in support of the program are produced by the Educational Media Services Unit (EMSU). As part of the Ministry's Educational Development Centre, EMSU is responsible for designing, producing, and distributing a variety of educational materials both for face-to face teaching and for delivering distance education.

A number of programs have been undertaken to deliver distance education to the people. The Non-Formal Education Centre has offered English courses through distance education for more than ten years for adults living on the atolls. The Tertiary Institute for Open Learning, part of the Maldives College of Higher Education, provides distance education programs at the foundation and post-secondary levels. It also administers a Bachelor of Business degree and a National Diploma in Architectural Technology from the Open Polytechnic of New Zealand. Other courses include mathematics, physics, and chemistry from the Indira Gandhi National Open University.

The Tertiary Institute for Open Learning (TIOL) was formed by Presidential decree on 1 October 1998. It operates under the Maldives College of Higher Education, which was formed at the same time as TIOL, and under which all the government institutes provide tertiary level education in the Maldives. The Maldivian government has signed an MOU with the government of Sri Lanka regarding post-secondary education and will sign a tripartite agreement with the government of India and the Indira Gandhi National Open University. Through these two agreements, TIOL stands to benefit from the valuable experience of the two most eminent universities in South Asia that deal with open and distance education.

Project Title: **Delivering Employment-oriented Skills Through ICT**

Proposer: **Mariyam Nazima**

Country: **Maldives**

Date: **September 2005**

I. INTRODUCTION

Maldives is an island nation of a chain of 1190 islands scattered across the Indian Ocean. The nation is 80-120 km wide and stretches to 860 km in length. Only 200 of the islands are inhabited. Because almost 99 per cent of the country is ocean, the main form of transport between the islands is by sea, but no regular ferry services exist between islands. Primary education is universal and compulsory in Maldives. However, due to lack of infrastructure and limited human resources, secondary and tertiary education is limited to a few islands. More than 8,000 students come out of the secondary schools each year, while 800 are only able to proceed to higher secondary education (London A-level) due to limited seats.

The Maldives is highly dependent on skilled expatriate labor. Employers, including the Government, hire expatriate workers in the absence of properly trained and qualified Maldivians. The expatriate labor force currently amounts to 30,000. Meanwhile, the country has untapped domestic human resources, which include the large number of youths who are not in the labor force, who have completed primary education but could not continue on to further education and who are capable but have limited access to skills training programs. Although there is great demand for acquiring technical and skilled training, the training cannot be provided because the individual islands are isolated and span a vast area and human resources are scarce. The best method for reaching them would be through distance education. Hence, deliver skills-based training with the help of ICT is proposed.

II. CURRENT STATUS

Integration of ICT use in education is stated in the policy, but very little has been done. The country is in its infancy in terms of ICT use and applications. The Ministry of Communication Science and Technology (MCST), in cooperation with the Ministry of Education and UNESCO, has embarked on a program to foster basic science concepts among the country's primary and secondary school children. Under this program, MCST has procured a wide range of science and technology programs and materials designed and produced by professional organizations and institutions. The resource materials include video and audiotapes, interactive software, and books. Priority will be given to atoll schools in the distribution of these resource materials.

III. ISSUES

Internet access is very expensive and access to telephones is not widespread. Few households have access to telephone services even if they can afford it, so people depend heavily on pay phones and mobile phones. There is a distinct lack of awareness of the potential of either broadcast- or computer-based technologies.

IV. THE PROPOSED PROJECT

A. Purpose and Output

The goal of the project is to increase the number of Maldivians actively participating in the labor force by putting them into the technical and skilled jobs occupied by expatriates.

The proposed project will be tested in some selected islands in the southern and northern region of the country.

B. Methodology and Key Activities

Design Summary	Performance Targets	Monitoring Mechanism	Assumptions And Risks
Goal Increase number of Maldivians actively participating in labor force by taking up technical and skilled jobs occupied by expatriates	Labor force participation rate to increase from 54.6 per cent (2000) to 60 per cent by 2010	MPND census statistics	Economically active population will actively seek training and employment. Employers are going to give priority in hiring Maldivians.
Purpose Develop and deliver employment-oriented skills training in various occupations	Increased access to a greater number of employment-oriented skills training programs in selected regions of the country. Greater capacity to develop and deliver a range of skills training programs. Maldivians are better informed of the employment situation and opportunities in the country. Maldivians are better informed of Computer-based training methods.	Project monitoring and evaluation reports Project progress reports	National Human Resource Needs are readily available. The tele-centers proposed in the national ICT policy is up and running in the identified locations of the country.

Design Summary	Performance Targets	Monitoring Mechanism	Assumptions and Risks
Outputs 1. Identify employment-oriented skills training Identify national human resource (HRD) needs Liaise with existing sector councils in identifying HR needs	Implementing agency meets with sector councils monthly Identify and compile public sector HRD needs by 2006 November	Project progress reports ESC meeting minutes Review missions Consultant reports	Government and private sector are committed to partnership for implementing relevant skills training for Maldivians Productive cooperation among ESC members
2. Strengthen capacity to develop skills training programs Capacity for skills development program design and instructional materials development is strengthened at MCHE and private training providers	Capacity building commences within 6 months of project commencement Instructional material development commences after appropriate training is completed	Project progress reports	Private training providers participate in capacity development programs Appropriate personnel available for training
3. Increase access to skills training programs Establish telecenters to facilitate skills training program delivery Capacity of telecenters are strengthened as facilitators in design, development, and provision of programs Establish telecenter sites Develop and deliver skills training programs Develop skills standards for various occupations Conduct a policy dialogue on sustainable funding of training	Establish telecenters within one year of project commencement Strengthen capacity of telecenters as facilitator in design, development, and provision of skills training Establish telecenters by end of 2006 in regions Develop and deliver skills programs for 5000 men and women by end of project Develop and adopt skills standards for those occupations identified in national HR needs Establish mechanism of sustainable funding within first year of project	Project progress reports Project monitoring and evaluation	MCST, MCHE, and other training providers can provide more training with additional resources Skilled and experienced instructors and staff are available

Design Summary	Performance Targets	Monitoring Mechanism	Assumptions and Risks
Inputs Equipment, furniture, software Instructional materials Staff development Consultancy services			

C. Cost Estimates and Financing Plan

Financing Plan and Allocation
(US$ thousand)

Category	Total Cost			Donor Financing			Government Financing		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Equipment, furniture, software									
1. Equipment	200	15	**215**	200	0	200	0	15	15
2. Furniture	30	45	**75**	32	0	32	0	45	45
3. Software	600	400	**1,000**	600	0	600	0	400	400
B. Instructional materials	200	160	**360**	200	0	200	0	160	160
C. Staff development	0	200	**200**	0	200	200	0	0	0
D. Consultancy services									
1. International	740	0	**740**	740	0	740	0	0	0
2. Local	0	100	**100**	0	100	100	0	0	0
E. Studies	20	80	**100**	20	80	100	0	0	0
F. Incremental recurrent cost	0	650	**650**	0	0	0	0	650	650
G. Contingencies	185	750	**935**	185	400	585	0	350	350
H. Interest Charges	140	0	**140**	140	0	140	0	0	0
Grand Total	**2,115**	**2,400**	**4,515**	**2,117**	**780**	**2,897**	**0**	**1,620**	**1,620**

D. Implementation Arrangement

1. The implementing agency will be Ministry of Higher Education, Employment and Social Security.

2. A Project Steering Committee (PSC) will be established to facilitate policy dialogue, advise the project manager (PM) of concerns and issues related to all aspects of project implementation, and facilitate coordination between ministries and agencies.

3. A Project Implementation Unit (PIU) will be established. The PIU will be responsible for the day-to-day implementation of the project and procurement matters.

V. IMPLEMENTATION SCHEDULE

The project will be implemented over a period of 4 years beginning in July 2006 and ending in July 2009.

VI. BENEFITS OF THE PROJECT

Institutions	Benefits
1. Country (Maldives)	• Increase labor force participation rate • More productive citizens • More informed citizens
2. Department of Higher Education	• Develop capacity to design and develop skills training program • Training programs developed for a number of occupations
3. Community	• More attractive to employers • More opportunity for employment • Availability of training opportunities

M. MONGOLIA

Prior to 1990, Mongolia was among the countries with the highest literacy rates. However, at the beginning of 1990, the country began its transformation to a market economy and the school enrollment rate sharply declined. The leading cause of this decline was that young males of herder families living in the remote areas dropped out of school to help the family manage the newly privatized livestock.

In recent years, migration to the capital city and urban centers has resulted in an increase in the number of students. However, it has also resulted in a decrease in the number of students in technical training in rural areas. The number of students enrolled in technical and vocational schools was 31,900 in 1989. In 1994 the number of technical and vocational students decreased to 7,600. Currently, 19,000 students are studying in technical and vocational training schools.

Plans for the educational sector are to:

- Improve training quality, curriculum and facilities
- Renew technical and vocational schools' organizational structure, patterns, training content, and technology in line with market demand
- Renew training content, forms, and methodology

Project Title: **Online Distance Education Project**

Proposer: **Oyun Darikhuu**

Country: **Mongolia**

Date: **September 2005**

I. INTRODUCTION

Mongolia is a landlocked country with 2.5 million people and 1.56 million square kilometers of land. The country has been conducting an open economic policy and economic reforms since it started its transition to the market economy in 1990. Mongolia is a parliamentary republic that also has the President directly elected by the people.

II. ISSUES

There is a greater need to enhance knowledge, provide new knowledge, and train civil servants to new approaches of management due to the faster development of society and technology. A new training program for local civil servants will be based on distance learning using the latest technology and systems of communication. Currently about 5800 civil servants are working at the 331 *soum* administrative units of 21 *aimags*. Mongolia has a wide territory and retraining civil servants takes lots of time and needs a high cost. Until now, no systematic training has been created to enhance civil servants' knowledge.

III. THE PROPOSED PROJECT

The objective of the new training program is to enhance civil servants by making them knowledge-based through distance learning using an online network. Umnugobi Aimag is the target area for this training. Near 300 civil servants are working in this aimag.

Training will be conducted online using 15 computers of the Umnugobi Aimag Governors' Office.

Expected outcomes:

1. Local government service to public will be increased
2. Management skills of civil servants will be increased
3. Quality of work of local civil servants will be increased
4. Breaking the law and legislation will be eliminated

A. Implementation Arrangement

Program duration is 6 months and training will be conducted 6 times. One hundred-twenty civil servants will attend and be trained in the following:

- Training in using computers (internal network, Internet, programs)
- Training in law and justice (new laws, legislation will be studied online)
- Training in economic knowledge (budgeting, finance, tax, etc.)

B. Cost Estimates and Financing Plan

The project will be handled by Korea Research Institute For Vocational Education and Training (KRIVET).

Total cost: US$ 56,080

1. Install 20 computers	20.0
2. Purchase training items	12.0
3. Communication fees	2.5
4. Trainers' fees (2 X 150,0 X 12)	3.6
5. Teachers' fees (5 teachers X 6 months X 150.0 tug)	4.5
6. Meal cost of participants (120 X 14 X 5.0)	8.4
7. Internet fee	0.6
8. Accommodation cost for teachers (7 X 180 days X 6.0)	7.5
9. Accommodation cost for participants (120 X 6.0 X 14)	10.0

Total: 70.1 tug (1 USD = 1250 tugrics X 70.1= 56,080 USD)

N. MYANMAR

In 1988, the economy of Myanmar underwent a change from a centralized economic system to a market-oriented one. The country opened up to a great number of foreign investors. The large influx of modern technology shifted emphasis from domestic production to export-oriented production. However, recent sanctions and other forms of restrictions imposed on Myanmar have greatly stifled the development of the economy as well as the development of a knowledge-based workforce.

Although the human resources of Myanmar are not yet fully developed, there exists a great potential for development. The size of the population and labor force is large enough to support further expansion of

industrial activity. A strong foundation for the development of education, technology, and health of the population is already in place.

After signing the e-ASEAN agreement as an ASEAN member, systematic efforts have been made for the development of information technology to enable Myanmar not only to cooperate with the ASEAN and dialogue partners in this ICT Program, but also to be able to operate on the same level with others. Multimedia teaching centers have been installed in most of the basic education high schools and e-education and electronic data broadcasting are being introduced. Computer literacy has become a basic requirement in schools.

The Government of the Union of Myanmar, to be in line with the e-ASEAN Framework Agreement, has enacted the Myanmar Computer Science Development Law in 1996 and set up key ICT organizations.

The country has recognized that human resource development is one of the means for economic development. In support of that goal, the National Centre for Human Resource Development was established and will operate parallel to universities, colleges, and institutes. The Centre will conduct courses in many fields of conventional arts and sciences as well as job-oriented application focused studies and trainings. The Centre will work toward increasing the relevancy of education to meet the demands and requirements of the labor market.

Although Myanmar is only beginning to develop ICT applications and infrastructure, many businesses and organizations have computers, while all middle schools, high schools, and colleges and universities have computer labs. The University of Computer Studies (Yangon) is offering undergraduate and postgraduate diplomas. Twenty-four Government Computer Colleges (GCC) have been established. There are also numerous private computer-training institutions throughout the country. The Ministry of Education has introduced data broadcasting for distance education and over 200 learning centers can receive on-line training. Most university and college libraries have been digitalized.

Changes in labor demand and supply in the process of the transition to a knowledge-based economy bring about changes in the paradigm of education and training. Accordingly, the education and training system must go through significant changes in terms of contents and methodology. Myanmar envisages the following changes:

- An environment that nurtures ability to absorb knowledge must be created to facilitate knowledge integration of human resources

- Education and training must play a stronger role to narrow knowledge gaps
- Acquisition of knowledge must be promoted by establishing a social recognition and reward system
- Government, local autonomies, business entities and workers, and education and training institutions must together set up a participating, cooperating network

Project Title: **Restructuring the Workforce by Enhancing the Training Potentials of Trainers at the Skill Development Centre by IT Applications**

Proposer: **Khin Maung Lay**

Country: **Myanmar**

Date: **September 2005**

I. INTRODUCTION

Myanmar borders China on the north and east and Laos and Thailand on the east; the Andaman Sea is on the south, and the Bay of Bengal, Bangladesh, and India are on the west. The total area of the country is 677,000 square kilometers and the total population is about 52 million.

With the introduction of the market-oriented economic system in the 1990's, there has been an upsurge in private sector investments both by local and foreign entrepreneurs. As a result, many new private industries have been and are being established. Many state-owned industries have also formed joint ventures with local and foreign companies. The Government formed the Myanmar Industrial Development Committee (MIDC) to promote rapid industrialization. The industries lead to a need for skilled workers. Old and inappropriate buildings and equipment and trainers lacking the expertise to impart new technologies to the workforce characterize the current skills development center of the Department of Labour.

II. ISSUES

Within Myanmar, there is a great need for additional skilled workers to support the expanding industrialization of the country. While vocational training is available in the country, the facilities at the institutions are old and lack the equipment necessary to undertake modern training. On the other end, the trainers are also not equipped with the expertise to train skilled workers needed for the industries. These insufficiencies are due to lack of exposure to new technologies and IT applications.

If the country is to produce the workers needed for future economic development, it is essential that the infrastructure to train them is expanded and modernized. The training programs conducted at the center do not conform to the labor demands of the industries.

This leads to several problems.

1. Trainers lack knowledge, skills, and attitude to make them more compatible to industry needs
2. Infrastructures do not correspond with industry requirements
3. Internet accessibility needs to be integrated into facilities

III. THE PROPOSED PROJECT

The goal of the project is to determine the training needs of the industries and upgrade the quality of the trainers' training abilities accordingly. In determining the training needs of the infrastructure, readjustment will also take place. Teaching and training aid most suited for the training of the skilled workforce required by the industries will be put into place.

To keep up with the advancements that are taking place, Internet accessibility to the trainers can be an asset in self-learning and knowledge upgrading. However, due to the constraints set in place by the social, economic, and political environments, it is felt that re-skilling the industrial workers for a new environment on a very modest scale will be a feasible plan without reference to any FDI. This project is drawn up for a very limited infrastructure structuring and training. The project duration will be one year with a repetition for another year. If possible, the project will be extended for another two years. This project will cover only one segment of the industry: the machinist segment.

The project will be carried out in four phases.

Phase I: Requirement study (2 X 2) = 4 man months

Consultants will be called in to carry out study with local counterparts as associates

Phase II: Implementation of requirements within 6 months

a. Physical infrastructure
b. ICT infrastructure
c. Tools and contents

Phase III: Implementation of trainer training programs

Two batches of training with 20 trainees (each training will last 20 days)

Phase IV: Evaluation, impact study, enhancement (2 weeks)

A. Methodology and Key Activities

Design Summary/ Objectives/Activities	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Goal Trainers will be able to train trainees to work in industries according to needs	Workplace productivity Employer satisfaction Human output productivity	Market study Evaluation of work performance of trainees (follow-up survey)	
Outcome Workers will work with IT applications in line with industry needs	Impact on new product design Reduced operation cost Improved manpower utilization in industries	Employer satisfaction Survey questionnaire	All workers trained will be employed in industries for which they have been trained
Outputs Increase in turnover Better time utilization of skilled workers Ability to design new products	Volume of goods produced Improvement of product price contentment Launch of new product	Market acceptance of study Demand and supply management study	Re-skilled workers will have increased opportunities through increased productivity Market demands will meet new product design
Activities Implement project in phases	Meeting of target deadlines	Project evaluation	Industries will respond by sending their trainers to be trained

Note: Activities to be repeated in yearly cycles

B. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(US$ thousand)

Item	Government	Donors	Total Cost
1. Consultants			
a. International	0.00	100	100
b. Domestic	50	0.00	50
2. Equipment & software			
a. Equipment	0.00	500	500
b. Software	0.00	250	250
3. Buildings and furniture			
a. Buildings	Will use facilities	0.00	0.00
b. Furniture	already in place	0.00	0.00
Training/Seminars	05.00	0.00	05.00
Surveys/Research	0.00	50.00	50.00
Miscellaneous administration support costs	05.00	0.00	05.00
Contingencies (purchasing new tools)	05.00	200.00	205.00
Total	**75.00**	**1,100.00**	**205.00**

The conversion rate will be in Kyats 6K = US$ 1

C. Implementation Arrangement

The Department of Labour will be the implementing agency with Myanmar Industrial Development Corporation (MIDC) as the collaborating partner. If there is a possibility of a donor (this paper has been prepared on the assumption that there can be a donor), the donor can be the counterpart of this project.

IV. BENEFITS OF THE PROJECT

1. Country (Myanmar)
   a. Upgraded skills development center for industries
   b. Greater opportunity for workers (both local and foreign)
   c. Workforce trained to meet industries' demands
2. Employers (Industries)
   a. Availability of highly skilled productive workforce
   b. Enhanced productivity
   c. Opportunities for business expansion

3. Workers (Employees)
   a. Enhanced skills
   b. Increased income
   c. Job security
   d. Increased marketability

O. NEPAL

In 1976, the Government of Nepal announced a National Education System Plan (NESP). The main objective was to develop mid-level managers and skilled manpower for the development of the country. NESP implemented universal primary education and instituted mandatory one-year trainings for all untrained teachers. Due to the limited progress in teachers' training, Nepal initiated a distance education system for primary school teachers in 1980.

Recently, Nepal has established an umbrella organization, National Center for Education Development (NCED), to provide all educational support to the local level. There are four organizations to conduct in-service teacher training: National Center for Educational Development, Basic and Primary Education Project, Secondary Educational Development Center, and Distance Education Center. In addition, three organizations provide pre-service teacher training: the Faculty of Education, Private Primary Teacher Training Centers, and the Higher Secondary Education Board. Even though the education sector receives 15.8 per cent of the government budget, or 3 per cent of the GDP, educational institutes and training centers lack modern educational technology.

Investment in research and development is comparatively low in Nepal, below 0.5 per cent of GDP. However, investment in information and technology is gaining momentum; the government announced the Information Technology Policy in 2000. The vision of this policy was to place Nepal on the global map of information technology within the next five years. In line with this policy, government earmarked a budget to establish an Information Technology Park, where all the modern facilities will be installed for research and software development.

The constraints on the development of ICT-based education have been identified. Trained manpower to pursue education and training is lacking. Curriculums have not been updated in line with the social, business, and economic environments. Few institutions support the enhancement of the knowledge economy; opportunities for higher education are meager. Furthermore, coordination among the educational and training institutes is lacking. The largest obstacles, however, are the limited sources of funding and the relatively underdeveloped ICT infrastructure.

Project Title **Preventing Brain Drain Through Nationalist Education Program**

Proposer: **Chandi Prasad Dahal**

Country: **Nepal**

Date: **September 2005**

I. INTRODUCTION

Nepal falls under the category of a least developed country with a population of 23.4 million, a population growth rate of 2.25 per cent and per capita income around US$ 269. Agriculture is the major activity, through which 82.6 per cent of the people earn their livings. The change in GDP in real terms during the year 2001-2002 was observed to be 2.23 per cent in the agriculture sector and -1.89 per cent in the non-agriculture sector, resulting in an overall decrease of 0.42 per cent. The country is divided administratively into 5 development regions and 75 districts. The official language is Nepali; English is the official language for international affairs.

Nepal has been investing large amounts of money and scarce resources, internal as well as external, on the development of education and skills upgrading. In support of the knowledge economy, the Government of Nepal has introduced a vision of Education for All. However, the education system has been market-based and caused a flight of human capital in the form of "brain drain".

The present statistics show that there are 1.2 million semi-skilled and skilled Nepalese who are working abroad and about 5 million working in SAARC countries. There is a lack of knowledge-based skilled manpower in the country to conduct development work productively. Leavers are not only from the private sector, but also from the government sector; many doctors, engineers, good managers, and other technical, para-technical, and experienced government officials choosing to work abroad. Data published by the Department of Labor and Employment Promotion shows that workers have migrated to 53 different countries between the years 1991-1992 and 2003-2004.

In view of this situation, the Government of Nepal (the Ministry of Education) has conceptually adopted the Nationalist Education Policy to prevent brain drain in the long run.

II. ISSUES

The state is central in driving the educational system. The government is the founder and regulator of education, vocationalism/professionalism, and sustainable development. To accelerate economic development,

Nepal requires a more highly skilled and better-educated workforce. Hence, education and training are the keys to developing the skills base. Putting the priority on skills for the national interest is now the starting point from which policy has to be developed. To satisfy the present national needs, the existing education system has become dysfunctional and is now in question due to the need of economic, cultural, and social transformation.

The Ministry of Education and Sports (MOES) has geared its efforts toward preparing nationalist productive manpower. It has initiated, as a first step, development of a curriculum through its department, the Curriculum Development Centre (CDC), Sanothimi. In the initial phase of the project, the following problems and issues are being raised and have contributed to the development of this proposal.

- Serious dilemma and conflict among different segments and stakeholders of society about basic definition of nationalism
- Poor linkages between education, vocational/professional training, and economic growth
- Lack of cost-benefit profile of "brain drain", which could allow clear illustration that gain from remittances is offset by real loss from draining of highly productive manpower
- Lack of exact statistics on reasons for brain drain; push factors for brain drain have become more acute because of high security than lucrative pull factors
- Significant mismatch between supply and demand of skilled manpower, raising problem of unemployment and even social and political unrest

III. THE PROPOSED PROJECT

A. Purpose and output

The ultimate goal of the project is to accelerate economic development by preventing the high rate of brain drain in the government as well as the private sector by developing the Nationalist Education Program and other fiscal and non-fiscal measures. An estimate made by the Non Residential Nepali National Coordination Council shows that presently altogether 1.2 million plus 5 million Nepali workforce members are working in foreign countries to earn higher status livelihoods. Research done by Nepal Rastra Bank in 2001 stated that 85 per cent of Nepalese are working as laborers, 13 per cent are in armed forces, and 2 per cent are involved in organized government services in foreign lands. According to the Department of Labor, excluding India, 122,764 workers went abroad in 2003-2004 alone. Meanwhile, most of the development projects in Nepal suffer from time-overrun and cost-overrun and as well as a shortage of skilled manpower to run the projects efficiently.

With these statistics, MOEC has conceptualized the Nationalist Education Program to reduce the rate of brain drain. The required national objectives can be achieved only through such preventive projects and programs.

The project will be divided into two phases, with the first part of Phase I aimed at addressing the magnitude of the problem and injecting the conceptualized idea into the mass of the people or stakeholders. In the long run, the project will achieve the required output through various programs and policy measures.

Phase I

(a) Create appropriate nationalist education program

(b) Develop curriculum in basic school level to required direction of nationalistic approach

Phase II

(a) Work out long-run human resource development planning along with national requirements, not only relying on market-based education system

(c) Turn "brain drain" into "brain gain" by bringing back migrated population as non-residential Nepali in form of capital, skills, and technology

B. Methodology and Key Activities

Project Framework

Design	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Impact Increase of general consensus for nationalist education	Improvement of curriculum in school level education Collection of correct statistics of brain drain	Assess whether curriculum improvement is in line with national as well as market requirements Assess trends in brain drain statistics	All political factions of country will join mainstream
Outcomes Realization at basic level of necessity, advantage, and importance of nationalist education for building of nation	Decreased of brain drain Increased investment of NRN in country	Assess decreasing trend of brain drain Increase of returning skill, capital, technology	Migrated workers are sentimentally dedicated to national pride and glory

Design	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Outputs Increase of skilled manpower dedicated to nation-building	Decrease in shortage of skilled manpower	Evaluate supply and demand of skilled manpower	Government policy is grand panacea for market imperfection
Activities **Phase I** Identify nationalist education	Number of self-employed people through self-dependent vocational education	Conduct monitoring and close coordination with National Curriculum Department Centre and MOES	MOES takes sufficient initiative for policy leadership and CDC implements policy effectively
Phase II Fully implement program via nationalist knowledge economy	Reduction of gap between supply and demand of skilled manpower Reduction in human capital flight rate	Organize regular meeting with national stakeholders	MOES can coordinate with different concerned ministries and commissions (e.g., Ministry of Finance, Ministry of Labour and Planning Commission)
Inputs Support for curriculum development to CDC and Higher Secondary Education Board (HSEB) Support to government organization, media, NGOs', civil society	Support provided helped CDC and HSEB produce quality curriculum	Conduct monitoring interviews and surveys of CDC, HSEB, scholars Assess situation of proper use of skilled manpower	CDC and HSEB continuously support Nationalistic Education Program of MOEC

C. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(US$ thousand)*

Item	Government	Donors	Total Cost
1. Consultants			
a International	0	360	360
b. Domestic	0	76	76
2. Equipment and software			
a. Equipment	0	25	25
b. Software	0	20	20

Item	Government	Donors	Total Cost
3 Buildings and furniture			
a. Buildings	200	0	200
b. Furniture	15	5	20
4. Training, seminars, conferences	0	50	50
5. Research, development, survey	0	50	50
6 Miscellaneous administration and support cost	20	5	25
7. Contingencies	0	5	5
Total			**831**

Note: * Cost estimates are in 1000 dollars with exchange rate at NRs 72 per US$. The project will last for 5 years.

D. Implementation Arrangement

MOES, the Curriculum Development Center, and the Higher Secondary Education Board (HSEB) will handle this project. MOES will lead the policy matters and CDC and HSEB will implement the project. A coordination committee including a representative from the Ministry of Finance will guide it.

IV. BENEFITS OF THE PROJECT

Institutions	Benefits
1. Country (Nepal)	Development of nationalist, educated, skilled manpower Retaining of highly productive human capital in country Reduction of high rate of brain drain and increase in economic growth rate
2. MOES	Enhancement in capacity for long-run human resource development for manpower planning in line with nation building requirements
3. CDC/HSEB	Opportunity to develop quality curriculum according to need of market and nationalist education objective

P. PAPUA NEW GUINEA

The country's National Plan for Education 2005-2014 and the Medium Term Development Strategy (MTDS) 2000-2010 focus on implementation of reform aimed at achieving universal primary education. Empowerment through human resource development is one of the objectives spelled out under the MTDS; the strategy recognizes that the country's brightest and most talented students must have the opportunity to receive a quality higher education.

The Department of Education takes the lead role in universal education up to grade 12. In 1970, a national education system was established. By 2003 there were 33,000 teachers, a million students, 4,000 elementary schools, 3,300 primary schools, 170 secondary schools, and 140 vocational schools. Today, the schools are governed by 20 provincial education boards. Privately run schools also exist throughout the country.

Rationale for implementing a universal education system:

- Integral development of every individual
- Education system that satisfies country's requirements
- Improvement of education standards
- Benefits of education for all
- Education accessible to poor and needy
- Education opportunities for women and girls

The Commission of Higher Education takes the lead role for education in the tertiary institutions and universities. There are six universities in the country, of which two are church-run. There are also many colleges and institutions, both public and private, that provide tertiary studies.

As a major policy shift, vocational schools will take in grade 8 and 10 dropouts for relevant life and skills training. Open and distance education will provide opportunities for students and adults who cannot attend an educational institution to complete their education.

Some of the issues that will continue to affect the implementation of the universal education system are

- Lack of general infrastructure
- Lack of maintenance of rural school infrastructure
- Low salary scale for primary and secondary school teachers
- Non-payment of teachers in rural areas
- Unaffordable school fees
- Healthy living
- Curriculum and teacher education
- Financial organization of Education Department
- Gender equity

Project Title: **Increasing Employment Opportunities for Women and Youth Through Small-scale Garment Making Business**

Proposer: **Henry Norm**

Country: **Papua New Guinea**

Date: **September 2005**

I. INTRODUCTION

Papua New Guinea has an estimated population of 5.6 million people. About 85 per cent of the people live in rural areas. It has a total land area of 463,840 square kilometers. The ratio of population to land size is 12 persons per square kilometer. Although the indigenous people own 97 per cent of the land, a significant portion of the population is affected by relative poverty in terms of low income and poor economic opportunities, health, and education standards. In 1996 around 38 per cent of the population lived in poverty. Given the country's poor economic performance for the six years that followed, the poverty rate remains high.

The government has undertaken basic educational reforms to ensure that children are equipped with life skills for their benefit if they do not proceed on to secondary education. They have the land for agriculture and other natural resources that they can use to generate income to enhance their livelihoods.

The other emphasis is on income-generating opportunities. The government recognizes that through small and medium enterprises and especially the informal sector, more employment opportunities can be provided for the people if they utilize their resources.

II. CURRENT STATUS

One of the means is the Women's Textile Training Centre (WTTC), a development project of the Government that was established in Port Moresby four years ago, serving as a vehicle for promoting and developing small and medium enterprises. The Training Centre's major activities are provision of basic garment making skills as well as entrepreneurial training, which also complement similar activities pursued by non-governmental organizations in the country.

The country's textile and garment industry is in its infancy. It is supported by imported garment products and related accessories, for which the bills are estimated to be K 300,000,000 (US$ 90,000,000) per annum.

This includes second hand products, which are sold at very cheap and affordable prices. Although the country's industry is yet to grow bigger

to support the country's garment requirements, its development will create more job opportunities.

III. ISSUES

There are limited job opportunities in the formal sector of the industry. Therefore, those trained for activities in the sector are encouraged to apply their skills in the informal sector to make income. However, women and youth are not fully applying the skills and know-how there. The following are considered to be the main causes:

- Trainees not properly and adequately prepared with skills (garment as well as entrepreneurial) and thus lack self-confidence
- High unit cost leads to high price of products, while second-hand market offers more affordable prices
- Lack of capital or access to finance and other related backup support to set up
- Lack of business-mindedness

Due to these problems, even those trained are not making income to support their livelihood, resulting in poverty.

IV. THE PROPOSED PROJECT

A. Purpose and Output

The goal of the project is to support women and youth to sell their products and make income for themselves. This will be accomplished through

- Delivery of proper and adequate skills
- Reduction of production costs
- Provision of related back-up support service
- Collaboration

B. Methodology and Key Activities

Project Framework

Design Summary	Performance Targets/Indicators	Monitoring Mechanisms	Assumptions and Risks
Goal Graduates produce, sell, and generate income	People trained actually producing and selling	Survey of those producing and those not	

Design Summary	Performance Targets/Indicators	Monitoring Mechanisms	Assumptions and Risks
Outcome Graduates have proper and adequate skills for production and sales	Training attendance and certificates acquired Unit products produced and sold	Number of trainings attended	Skills provided are utilized for purpose provided
Output A Capacity building for trainers	Trainers' products knowledge and skills enhanced	Performance appraisal	Trainers have appropriate level of competence
Activities Conduct in-service training for trainers on products Appropriate short training on products for trainers Seminars/workshops for trainers			Trainers develop appropriate ways of delivery training (e.g., e-learning) Trainers know how to develop products Trainers learn new products
Output B Extension training for graduates in self-employment			
Output C Appropriate backup support for graduates in small business activities			

C. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(US$ million)

Item	Government			Donor			Total Cost
	07	08	09	07	08		
1. Consultants International Local	 0.03	 0.03	 0.03	 0.10	 0.10		 0.20 0.09
2. Equipment Equipment Software	 0.01 0.03	 0.01 0.03	 0.03 0.03	 0.03	 0.03		 0.11 0.09

Item	Government			Donor			Total Cost
	'07	'08	'09	'07	'08	'09	
3. Furniture	0.02						0.02
4. Training, seminars	0.03	0.03	0.03	0.03	0.03		0.15
5. Research, surveys	0.01	0.01	0.01				0.03
6. Administration cost	0.11	0.15	0.20				0.46
7. Others	0.10	0.10	0.10				0.3
Total	**0.34**	**0.36**	**0.43**	**0.16**	**0.16**		**1.45**

D. Implementation Arrangement

The project will be implemented by the Women's Textile Training Centre. The Government will be responsible for its proper implementation through Project Steering Committee, which will guide the project.

V. BENEFITS OF THE PROJECT

The trainers' training and delivery skills will be enhanced. The Training Centre will benefit in terms of enhanced skills to trainers and improved facilities, including equipment to deliver its training products. The trained women and youths will benefit from the product skills imparted to them and the conversion of those skills for income generation. As more people find income generation opportunities through self-employment, their living conditions will improve. Employment opportunities in the country will increase as a result.

Q. PHILIPPINES

While the Department of Education of the Philippines (DepED) continues to grapple with the problem of improving quality and broadening access, new challenges to educational institutions have emerged within the context of globalization, the rapid development of new digital technologies, and the transition to a knowledge-based economy.

The poor performance of students across the country in national and international achievement tests and the consistently high drop out rates at both elementary and high school levels underscore the deterioration of the quality of the Philippine school system. At the same time, the relative underdevelopment of the alternative learning system means that the needs of an overwhelming majority of the estimated 16 million youth and adults who have not completed basic education are not being met. At the root of the crisis is a combination of under-investment and poor management.

Recognizing the potential benefits of integrating ICT in education systems, the Department of Education launched the National Strategic Planning Initiative for ICTs in Basic Education in February 2005 as part of a system-wide reform process to bring Philippine basic education out of crisis. A series of round table discussions and consultative meetings were held with representatives of government, the private sector, academia, non-government organizations, and other education stakeholders for the purpose of formulating a National Framework Plan for ICTs in Basic Education. The Plan sets the parameters and articulates the goals and strategies for ICT integration in Philippine basic education over the next six years. This plan should (1) serve as a reference for filtering ICT programs to ensure that they address the priority needs of DepED, (2) add focus and direction to current ICT programs, and (3) guide ICT program development, resource generation, and allocation.

For the past seven years, DepED has conducted a massive computerization program for secondary schools. This has been supplemented by ICT-related initiatives of other national government agencies, local government units, non-government organizations, private firms, foreign governments, and international aid donor agencies, not just in computerization and connectivity, but also in teacher professional development, technical training, content development, policy, and planning. However, much work still needs to be done to ensure that computers and other ICT equipment deployed in public high schools are used to improve the quality of teaching and learning. DepED estimates that 69 per cent of public high schools have at least one computer and hopes to raise this figure to 75 per cent by 2005.

At present, the delivery of the alternative learning system (ALS) curriculum is mainly print-based. The Bureau of Alternative Learning Systems (BALS; formerly the Bureau of Non-Formal Education) has developed more than 500 print modules, some in two languages (English and Filipino). There is currently a pilot project on radio-based instruction in support of the Accreditation and Equivalency (A&E) program. Set to run for six months, this pilot targets out-of-school youth and adults, particularly mothers, in five regions and will be aired on the Southern Broadcasting Network (SBN). Although there are many educational programs on television, there is no system that organizes topics according to the ALS curriculum.

The leading challenges to an ICT-integrated education system are (1) lack of ICT facilities in schools, (2) schools that have computers lack hardware peripherals, (3) limited availability of subject-specific educational software, and (4) absence of specific curricular standards and guidelines for integrating computers into the subject areas.

Project Title: **ICT-Related KSAs Development for the Future Workforce**

Proposer: **Deogracias B. Genito Jr.**

Country: **Philippines**

Date: **September 2005**

I. INTRODUCTION

New challenges have emerged within the context of globalization. Rapid technological development and the shift to a knowledge-based economy have driven growth, creation of wealth, and employment in many countries.

To increase the competitiveness of the workforce in a global economy, education must evolve into a dynamic key that will spur the country into an economic tiger whose workforce has the ability to increasingly transform information into knowledge and to apply the knowledge in a variety of contexts.

In recognition of the potential of information and communications technology (ICT) to harness the Philippine workforce, several policies and initiatives have been undertaken to integrate ICT in basic education. One major thrust of the Philippine Medium Term Development Plan (MTDP) for 2004-2010 is the use of ICT as a development tool (NEDA, 2004a, p. 2).

To achieve this thrust, the Department of Education has implemented the 2002 Basic Education Curriculum (BEC), which recognizes the need to harness ICT in "the acquisition of lifelong skills, a reflective understanding and internalization of principles and values and the development of a person's multiple intelligences" (BEC, 2002, p. 8).

II. ISSUES

Efforts have been made to provide computer laboratories to public high schools in the country. At present estimates, 69 per cent of the six thousand public high schools (SY 2003-2004) have at least seven computers that are used for teaching and learning and bundled with office software. It is expected that by the end of 2005, 75 per cent of public high schools will have computer laboratories.

A number of teachers have been trained in the use of computers at the beginning and emerging stages. Almost fifty-five thousand public secondary school teachers have been trained in the last ten years.

However, much progress remains to be made in utilization to improve the quality of teaching and learning due to a very low student-computer ratio. Moreover, the use of computers was predominantly in computer education classes by third- and fourth-year students. As a result, the use of computers in schools was more on teaching *about* the technology rather than teaching and learning *with* the technology in subject areas like English, science, and mathematics.

Likewise, schools with computers lack hardware peripherals and courseware to maximize the functionality of the computers. Only 6 per cent of public high schools have Internet access and about 35 per cent of schools have courseware in English, science, and mathematics.

While there is a national standard for all subject areas, including computer education, the absence of specific curriculum standards and guidelines for integrating ICT into the different subject areas has contributed to the under-utilization of ICT in education. Although the BEC advocates the use of ICT in teaching and learning, there is no ICT-curricular framework that can provide challenging and authentic content that will engage the students in the learning process and address the gap between the content and the required skills of the market. The ICT framework will contain the scope and sequence, particularly the integration point, year level, learning objectives, ICT objectives, content/concept, and type of ICT activity to be used.

The overriding goal in our continuing commitment to deliver quality education is improvement in the participation rates and achievement levels through the systematic integration of ICT.

More specifically, ICT shall be exploited to improve the

- Teaching-learning process
- Knowledge, skills, and attitudes (KSAs) of teachers
- Quality learning materials

Recognizing the potential benefits of the ICT-based KSA development, secondary vocational schools (SVSs) can best maximize the potentials of ICT in the development of a globally competitive workforce. These schools are established to provide for effective involvement in a technology-oriented society.

About 220 technical-vocational high schools nationwide recently implemented a redesigned education program in support of the thrust for productive, relevant, quality vocational education. These schools, therefore, are fertile grounds where the future workforce can be developed for a knowledge economy in which they are producers and manipulators rather than mere consumers and users of information.

III. THE PROPOSED PROJECT

A. Purpose and Output

The **ICT-related KSAs Development for the Future Workforce** aims to develop a support program that will provide students challenging and authentic knowledge, skills, and attitudes in a learning process where information and its manipulation are the commodity and the activity.

More specifically, the proposed project intends to

- Identify ICT-related knowledge, skills, and attitudes (KSA) required by industries and the workforce
- Develop ICT-based materials based on identified KSAs
- Improve qualification of teachers of technical-vocational education on ICT use

B. Methodology and Key Activities

The proposed three-year support program consists of three components.

1. Curriculum and Materials Development – This involves the development of ICT-based competency standards, ICT curriculum framework across the major components of the redesigned tech-voc. program, and ICT-based lessons and support materials for students and teachers.
2. Staff Development – Training programs for pilot teachers aimed to train the implementers on the development and use of the ICT-based lessons and support materials for students and teachers.
3. Procurement of Hardware and Software – Computer hardware and software, including furniture to augment the facilities of existing computer laboratories.

One tech-voc. school in each of the 17 regions of the Philippines will pilot the support program.

Project Framework

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
Impact	High employability Increased enrollment in ICT-related tertiary courses and in tech-voc. education	Placement Reports Enrollment Reports	Schools may not have information on their graduates
Outcomes	Increased gross enrollment rate (GER), cohort survival rate CSR), mastery/ achievement levels Reduced drop-out rate	Basic Education Information System (BEIS)	Factors such as poverty, migration, and quality of assessment instruments may affect outcomes
Outputs	***A. Pre-implementation phase*** 1. Number of computer hardware and software procured & distributed 2. Number of top-earning industries surveyed 3. ICT-related KSAs developed 4. Consultative workshop conducted 5. Number of ICT-based materials for students and guides for teachers developed 6. Number of materials pre-tested/validated 7. Number of materials revised 8. Number of materials reproduced and distributed 9. Teachers' KSAs enhanced ***B. Implementation phase*** 1. Number of pilot schools, students involved, materials used	 Procurement report, IRPs, delivery receipts Survey report List of ICT-related KSAs Attendance sheet List of SM & TG developed Validation report Workshop report IRP Workshop report Monitoring reports Follow-up training rep Quarterly reports Students' records Classroom observations Interviews	 Possible lack of respondents; poorly constructed instruments Possible lack of qualified writers Possible lack of private sector participation Materials developed are supportive of LCs Training design needs-based; materials are ready before teacher training Commitment of stakeholders involved in pilot ICTs other than computers may not be available

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
	C. Post-implementation		
	1. Results monitoring conducted	Evaluation report Completion report	Possible inability of implementers to document proceedings
	2. Number of ICT-related learning competencies developed	List of competencies	
	3. Number of ICT-based student materials and teacher's guides developed and utilized	Final list of SMs & TGs	Competent staff exists to undertake post-implementation evaluation
	4. Performance indicators improved	GER, CSR, DOR	
Activities	***A. Pre-implementation phase***		
	1. Conduct bidding for procurement of computer hardware & software	Procurement report Contracts/Awards	Possible delay due to administrative concerns Possible delays in delivery
	2. Distribute computer hardware and software to pilot schools	IRP & delivery receipts	
	3. Conduct survey of top 3 earning industries on ICT-related KSA requirements	Survey report	Commitment of stakeholders & industry
	4. Conduct workshop on development of ICT-related KSAs	Workshop report & attendance sheet	KSAs developed are supportive of BEC objectives/strategies
	5. Conduct consultative workshop on ICT-related KSAs developed	Feedback on KSAs developed	
	6. Conduct workshop on development of ICT-based lessons and support materials for students and teachers	Workshop report ICT-based materials	Commitment of participants to produce appropriate materials
	7. Pre-test of ICT-based materials	Report on results of pre-testing	Pre-testing activity can provide valid/reliable data that may be used to devise materials
	8. Workshop on revision of ICT-Based materials	Workshop report Revised materials	Commitment of participants to revise materials
	9. Reproduce and distribute ICT-based materials	Distribution Report	
	10. Training of teachers on use of ICT-based materials	Workshop report Feedback on training & materials	Delay due to administrative concerns Inability of schools to fill slots

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
	B. Implementation phase 1. Monitor pilot ***C. Post-implementation phase*** 1. Evaluate results	Monitoring Reports Completion of report Evaluation of report	Systems and procedures are in place Minor revisions of materials, systems and procedures Possible lack of qualified staff to conduct evaluation
Inputs	1. Executive & management support 2. Commitment of stakeholders (school heads, teachers, students, industries and community) 3. KSAs of teachers 4. Technical assistance	Department issuances Administrative, financial & technical support Educational & performance records Review of documents	Possible delay in issuance of memoranda/ orders Possible lack of appreciation and understanding of program Possible lack of commitment Possible unavailability of qualified resource persons

C. Cost Estimates and Financing Plan

Cost Estimates and Financing Plan
(US$ million)

Item	Government	Donor	Total Cost
1. Consultants	–	0.10	0.10
2. Equipment and software	0.10	0.10	0.20
3. Training, seminars, conferences	–	0.25	0.25
4. Research, development, surveys	–	0.10	0.10
5. Miscellaneous administration and support costs	0.10	0.15	0.25
6. Contingencies	0.05	0.05	0.10
Total	**0.25**	**0.75**	**1.00**

D. Implementation Arrangement

The proposed program will be implemented by the Department of Education through the Bureau of Secondary Education (BSE), which has administrative supervision of tech-voc. schools. Specifically, BSE will provide policy direction and overall program coordination. The division offices, with the assistance of the regional offices, will monitor the program implementation by pilot schools.

Domestic consultants will be hired at critical stages in the implementation of the program, particularly during curriculum and materials development, staff development, and program evaluation. Summary findings of monitoring activities will be consolidated and provided from each pilot school on a regular and periodic basis to serve as a reference for improvement of program implementation.

IV. BENEFITS OF THE PROJECT

The proposed program, ICT-Related KSAs Development for the Future Workforce, is expected to develop students who are competent in using ICT as a tool for sustainable development. More specifically, the proposed program shall develop a culture of creativity in using ICTs to develop knowledge, skills, and attitudes and inspire innovation in both students and teachers to create opportunities for gainful employment.

R. SRI LANKA

Education has long been a priority in Sri Lanka resulting in one of the highest literacy rates in South Asia at 92 per cent. However, general literacy is not sufficient for ICT development and growth. According to recent statistics, only 9 per cent of the population is computer literate. If Sri Lanka wants to benefit from globalization, it needs to accelerate and promote ICT programs, especially in rural areas.

In Sri Lanka, opportunities for tertiary education are limited and admissions are highly competitive as education is provided for free. In 2004, only 13 per cent of the students qualified to gain entrance to universities were admitted. Therefore, other forms of tertiary education must be established and administered. E-Learning has been identified as the most suitable method to address this issue.

The e-learning policies and strategies are in the initial stages of planning. Five key strategies have been identified in the realization of the "e-Sri Lanka Initiative", which was previously called the ICT Roadmap. The strategies are

- Use of ICT as a key lever for economic and social development
- Building of implementation capacity
- Building of a national information infrastructure
- Developing ICT human resources
- Delivering citizen services through e-Government

The goals of e-learning are to increase participation in certificates, bachelors, postgraduate, and masters study programs, to provide access to international courses, and to improve quality and quantity of human resources.

The Open University of Sri Lanka (OUSL) was established in 1980 as a national single-mode distance teaching university and is the first recognized university in Sri Lanka to employ distance teaching techniques. The University of Colombo School of Computing (UCSC) established the e-Learning Centre in 2002 to deliver distance-mode study programs in ICT as well as other disciplines, such as English and mathematics to students with the assistance of SIDA. The Bachelor of Information Technology (BIT) degree has given a clientele for e-learning, numbering 5,000 students. There are 40 study programs and 600 courses offered by the OUSL, out of which e-learning is being used as supplementary delivery medium by eight departments to deliver 41 courses.

Project Title: **Upgrading of the Department of Computer Science of the University of Ruhuna to the Level of a Center of Excellence in ICT for the Southern Province**

Proposer: **Kandage W.S.P. Athukorala**

Country: **Sri Lanka**

Date: **September 2005**

I. INTRODUCTION

There are 14 universities in Sri Lanka and the University of Ruhuna is the only university serving the Southern Province, which has the second largest population in the country.

The Department of Computer Science of the University of Ruhuna was established in 1997. The Department conducts courses in computer science for the B.Sc special and general degree programs. The Department is involved in research activities in information technology and provides assistance to other departments to resolve ICT problems. Annual intake of students amounts to less than 100 and overall enrollment so far is around 400 students. This Department presently offers optional courses, including a computer literacy course, for all science students who are not offered computer science as a subject. It also offers fee-levying courses to the public sector employees of the Southern Province.

II. ISSUES

The Department currently shares its resources, including equipment and floor space, which belong to the Department of Mathematics. The space amounts to a total of 720 square meters. This has caused an overcrowded and congested situation in both departments, which will have an adverse impact on the quality of both departments' courses. The rapid growth of the activities of the Department of Computer Science is being retarded by the lack of room for expansion. Therefore the Department urgently needs a building to accommodate elementary labs, advanced labs, research labs, hardware labs, lecture theaters, tutorial rooms, a seminar room, staff rooms, a reception area, and other common facilities in addition to necessary ICT training equipment. The total floor area of the requirement is 29,000 square meters.

A. Why is the Project Important?

Since the Southern Province is the area that has the second highest literacy rate in the country, a dramatic increase in the demand for ICT

literacy is evident there. The University of Ruhuna is the only state sector higher educational institute presently catering to this need. Due to the limited capacity of the Department of Computer Science, many youths leave the Southern Province and move to the Western Province seeking opportunities for learning ICT literacy. This has led to problems such as unnecessary expenditures for youths and an increase in the congestion in the Western Province. At present ICT learning opportunities are mostly concentrated in the city of Colombo and suburb areas; they should be expanded to the other provincial areas. This project is essential to alleviate rural poverty and to avoid a recurrence of youth unrest like the ones experienced in 1979 and 1989, particularly in the Southern Province.

B. Target Group

The target group will be students and academic staff of Ruhuna University and youths, particularly those living in the Southern Province. The private sector in the Southern Province will be an indirect beneficiary of this project

C. Rationale

As educational planners in the Department of National Planning, we observed that this has been a long-felt need that should be addressed as early as possible.

III. THE PROPOSED PROJECT

Construction of a State of the Art building complex and provision of modern ICT training equipment and furniture for the Department of Computer Science of the University of Ruhuna are the tasks of this project.

A. Goal, Outcomes, and Outputs

The overall goal of the project is capacity building or institutional strengthening of the Department of Computer Science of the University of Ruhuna. The outcomes will be a new building complex and modern ICT training equipment and furniture for the Department of Computer Sciences. The outputs will be an increased intake of students, highly qualified ICT professionals, and providing ICT training to both the government and private sectors.

B. Methodology and Key Activities

The capacity will be upgraded through infrastructure development in terms of constructing a building complex and provision of modern ICT training equipment and furniture.

Through competitive bidding, the project will carry out three key activities:

1. Construction of the building complex
2. Provision of modern ICT training equipment
3. Provision of furniture

C. Cost Estimates

Financing Plan
(US$ million)

Item	Government	Donors	Total
Consultants			
International		1.0	1.0
Domestic	0.5		0.5
Building construction	2.0	10.0	12.0
ICT teaching and training equipment		5.0	5.0
Furniture	1.0		1.0
Miscellaneous	1.0		1.0
Contingencies	1.0	2.0	3.0
Total	**5.5**	**18.0**	**23.5**

D. Implementation Arrangement

The University of Ruhuna will implement the project and it will be the employer for all contract activities in the consultancy and construction phases. The University Grants Commission and Ministry of Education will supervise the implementation of the project.

IV. BENEFITS OF THE PROJECT

After implementation of this project, the students and the academic staff of the Department of Computer Sciences of the University of Ruhuna will be able to learn and teach their courses in a sound academic environment in a new building complex. The motivation of the beneficiaries will increase the quality of degree courses as well as the quality of the research work of the Department.

Project Framework

Objectives and Activities	Performance Indicators	Monitoring Mechanisms	Assumptions and Risks
Goal Capacity development of Department of Computer Science of University of Ruhuna	Increase of overall intake of students to Department of Computer Science by 50 per cent	University statistics on annual entrance	Donors' assistance will be received in time
Outcomes New building complex for Department of Computer Sciences of the University of Ruhuna Availability of ICT teaching and training equipment Availability of furniture	Completion of civil works Installation of teaching and training equipment Provision of furniture	Supervision of University and University Grants Commission	Building materials will be available in time Government Tender Procedure will take place in time
Outputs Increased number of trainees and professionals in IT field	Increased number of students from Southern Province will use educational and training facilities of Department	University statistics of annual registrations for courses in computer science	All necessary facilities will be available
Activities Construction activities of proposed building Provision of ICT training equipment Provision of furniture			Political stability of the country will be maintained

Project Title: **Public Sector Workforce Development in Sri Lanka Through ICT Literacy**

Proposer: **Rupa Malini Peiris**

Country: **Sri Lanka**

Date: **September 2005**

I. INTRODUCTION

Sri Lanka is a small island in the Indian Ocean with an estimated population of approximately 19.2 million. More than 72 per cent of this population still lives in rural areas. Education has been a priority in Sri Lanka since ancient times and continues to be so to this day, resulting in one of the highest literacy rates in South Asia at 92 per cent. However, general literacy is not sufficient for ICT development and growth. According to recent statistics, still only 9 per cent of the population is computer literate.

II. CURRENT STATUS

In November of 2002, Sri Lanka announced the e-Sri Lanka Program, a National roadmap designed to spread the benefits of ICT to all sectors of the population and to re-engineer the Government, making it more accessible to people. Through this initiative, more and more computer-based systems are being introduced to governmental ministries and departments and ICT training is being provided for selected persons representing these institutions with the objective of improving the living standards of the people, particularly in the rural areas, through the use of ICT. However, it is apparent that the employees who have already received ICT training are mostly confined to the Western Province, where the capital city is situated, whereas a dearth of such employees exists in the other areas. In consequence, an ICT-based total service delivery system has not yet become a reality in Sri Lanka. Therefore, it has become absolutely necessary to make the nearly one million public sector employees, who are providing services to the people, literate in basic ICT as a matter of priority.

Also, in comparison to the growth rate of other developing countries that are fast moving toward the knowledge-based economy, Sri Lanka is lagging behind in terms of ICT literacy in the public sector. It is necessary to take a hard look at the overall human resources, particularly those of the public sector, to jump-start the drive toward the knowledge-based economy.

ICT literacy has now become a part of the required set of basic skills of a person. However, due to a shortage of funding and other priorities weighing heavily on the Government, it has so far been impossible for the Government to meet the urgent need of giving its huge public sector a second life through infusion of ICT literacy.

This project aims to systematically address the key issues of giving basic ICT literacy to the public sector employees in an efficient and sustainable manner.

The stakeholders of this project are many. The key stakeholders will be the Ministry of Home Affairs, the Ministry of Public Administration, and the Provincial Councils, being the direct authorities. In addition, all the other Ministries also have a stake in this project since the issue to be addressed by this project is shared by the entire public sector. The beneficiaries of this project will be the public sector employees and the citizens at large.

III. ISSUES

A. Description of the Issue

Delays in delivering services

In Sri Lanka, Provincial Ministries and Departments deliver various services, such as issuing permits, licenses, and certificates and implementing public assistance programs to the public. These activities are still being done in the conventional manner: manually. This causes severe delays and immense difficulties to the service seekers. The entire public service is often blamed for inefficient services of this nature.

Unnecessary expenditure incurred to clear backlogs

As a result of manual operation of these activities, the time consumed for each task is unnecessarily long and in spite of all efforts, work accumulates daily. In consequence, additional expenditure is always required to pay overtime and other allowances in order to provide services meeting the urgent requirements of the public.

Public employees losing interest in their own work

Non-availability of a clear systematic approach to provide basic ICT literacy to public sector employees has resulted in a large number of employees losing interest in their own work due to sheer frustration. With the need for ICT literacy being very prominent and the mechanisms to get that literacy lacking, public sector employees are increasingly getting the feeling of being left out of the race in the knowledge economy. This causes the quality of their work to deteriorate.

B. Why is the Project Important and Needed?

If these burning issues concerning the public service are not addressed without further delay, ordinary people will soon lose confidence in the public service delivery system and the Government at large. Further, public funds and human and physical resources allocated for the activities of these institutions will go to waste without proper use.

Allegations are often leveled at the public sector in Sri Lanka on various delays caused by the existing service delivery system. Further, non-improvement of the public sector workforce to suit the emerging current needs is hindering the development of the knowledge economy in the country.

Therefore, this project is very timely and essential for the Government of Sri Lanka to keep pace with the knowledge economy and rectify the situation. Since this issue seriously affects the entire Government mechanism, the responsibility of making this project proposal is vested with any of the Ministries who have a stake in this issue. Representing the Ministry of Education, I therefore submit this proposal for ICT literacy, seeking financial assistance from donors.

C. Intended Target Group

The target group will mainly be the employees in the Provincial Ministries and Departments. The employees who are working in the Central Government but are not yet trained in ICT will also be covered under the project.

IV. THE PROPOSED PROJECT

The project aims at systematically addressing the key issue of giving ICT literacy to public sector employees in an efficient and sustainable manner. ICT literacy will be followed by e-learning work related to ICT issues at their own work places in a continuous manner. The ultimate objective is to have an efficient public sector that is fully able to exploit developments in ICT-based activities.

As quantitative targets, the project aims to create nine state-of-the-art, full-fledged ICT training centers for the public sector employees for each province. Since two centers, one at the Western Province and the other at the Uva Province are already available, construction of only 7 computer training centers are needed. The existing two centers will only need upgrading of equipment.

Each center will have two fully equipped computer laboratories with 70 computers with multimedia distance learning centers capable of video conferencing. All centers will be provided dedicated access to the Internet. At least 75,000 employees are expected to benefit from the systematic ICT training programs that will be conducted at these centers over a five-year period. Even after the project period, these centers will continue to serve the provinces as ICT training centers with funds generated by offering fee-based ICT training courses and various services.

The government is expected to show its commitment to this endeavor by setting up computer centers at each province.

A. Goal, Outcome, and Output

The main objective of the project is to enhance the ICT knowledge of the public sector employees in all provinces in an equitable manner.

The project has three components:

1. Provision of ICT training infrastructure in a decentralized manner for public sector employees
2. Provision of necessary trainers and training courses with effective monitoring systems through public private partnerships to ensure acquiring of basic competencies
3. Supporting government e-Sri Lanka Program to gain its full potential through ICT-literate workforce

B. Methodology and Key Activities

Each provincial council is expected to give the required support by implementing efficient schemes for selecting employees for ICT training in batches.

Five key activities are involved:

1. Provision of 7 ICT Training Centers with infrastructure, upgrading of 2 existing centers
2. Selection of workforce representing a cross-section of all provincial ministries and departments (parallel with civil works)
3. Procurement of equipment through local competitive bidding, to be ready for delivery at completion of civil works
4. Public-private partnership on development of initial training courses, e-learning courses for specific Ministries, and provision of trainers for those purposes will happen in parallel
5. Setting up of an effective monitoring mechanism to measure impact of ICT training with proper linkages with every province.

The Government is expected to announce and reiterate key requirement to have ICT literacy for every public sector employee and recognize level of literacy for promotional avenues. The above steps will be repeated in cycles until the full provision of ICT training is achieved.

C. Cost Estimate and Financing Plan

Cost Estimate and Financing Plan
(US$ million)

Item	Government	Donors	Total
1. Consultants			
a. International		1.0	1.0
b. Domestic		2.0	2.0
2. Equipment and software			
a. Equipment	3.0	10.0	13.0
b. Software	1.0	2.0	3.0
3. Building and furniture			
a. Buildings	1.0	5.0	6.0
b. Furniture	1.0	2.0	3.0
4. Training seminars and conferences	2.0	5.0	7.0
5. Research development and surveys	1.0	2.0	3.0
6. Miscellaneous administration and support costs	1.0	2.0	3.0
7. Contingencies	2.0	5.0	7.0
Total	**12.0**	**36.0**	**48.0**

D. Implementation Arrangements

The executing agency for this project will be the Ministry of Home Affairs, who will have the overall responsibility for project coordination and monitoring.

The Ministry of Public Administration will play a key supporting role in the extremely important area of motivating the public employees for ICT literacy by emphasizing the level of literacy for promotional avenues.

The Project Steering Committee, comprising responsible officials from relevant Ministries, Provincial Councils, and associated organizations from the public and private sectors, will be the highest-level coordinating and monitoring body.

Consulting services will be required for:

1. Detailed setting up of public sector work force development project
2. Identification of efficient and effective training mechanisms
3. Identification of and writing up of specifications (domestic consultants)

V. BENEFITS OF THE PROJECT

The project is expected to facilitate rapid development of an ICT-literate public sector work force in the long run. The following are the benefits are expected to be achieved in the short term.

- Increasing workforce productivity through motivation and effective use of ICT
- Sustainable ICT infrastructure that will be a key resource for knowledge-based economy
- Achievement of full potential of e-Sri Lanka Program

S. VIETNAM

The demographic trends in Vietnam indicate that an increasing number of young people will be entering the workforce. The population of the working age will increase to 52.7 million by 2005 and 58.4 million by 2010, accounting for 64.3 per cent and 67.6 per cent of the total population, respectively. This trend will put serious pressure on employment and present a significant challenge for vocational training.

Unskilled labor makes up four-fifths of the total population age 15 and above. However, this ratio is gradually declining by 2 per cent annually, which means that about 1 million people will enter the un-skilled labor force. Due to differences in economic development between urban and rural regions, the ratio of skilled and professional workers varies depending on the region. Agricultural labor accounts for 60 per cent of the total workforce but 88 per cent of the rural labor force is unskilled.

Labor exportation has contributed to a reduction in poverty. However, salaries paid to Vietnamese workers are very small because they do not have appropriate technical skills. The need to conduct training for exported workers is critical, especially for Vietnamese workers in Japan and Taiwan. Training for technical work should be both long- and short-term. Combined with the development of the formal job-training system, it is necessary to encourage individuals and social organizations, including foreign organizations, to take part in job training. Secondly, investment in capital for job training should be augmented. Thirdly, the Government should link job training with employment settlement. The most important task is training scientific workers and managers capable of serving as the core for industrialization and modernization.

Vietnam aims to improve the quality of human resources and prepare the workforce for industrialization and competitiveness in the world market. Therefore, reforms in the education sector should be pursued, most specifi-

cally regarding teachers, curriculum, educational method, material foundation, management of education, and training. The first priority is on developing high-quality technical and vocational education to train technicians and highly skilled workers. The Government must continue the policy of socializing education in order to diversify education forms and mobilize resources for education from various sources, including the state budget, public donations, social organizations, loans, and international financing. To transform Vietnam into an industrialized country by 2020, the Ministry of Education and Training has finalized a plan for sending scientists and technicians to study abroad with funds from the state budget, accounting for an average of US$ 15,000 per person per year.

Project Title: **Research and Training Center of ICT – For the International Collaboration of Technology Development and Diffusion**

Proposer: **Nguyen Nu Hoai Ninh**

Country: **Vietnam**

Date: **September 2005**

I. INTRODUCTION

To realize the strategic objectives for development of the country toward the knowledge-based economy for the 2010-2020 period, and to train human resources with higher quality, a project to support improvement of Human Resources in Science and Technology (HRST) in line with the socio-economic structure of industrialization, modernization, and integration in the global economy will be essential. Science and technology is the key element in this knowledge-based society of the 21st century. In this context, human resources in science and technology will be the key success factor for the economy. Activities under the project will support the enhancement of Vietnam's science and technology policy building, and by improving the research capacity and quality at the national level, to fulfill the requirements of labor market.

As Vietnam is now in the initial stage of its development toward industrialization, the shortage of high technology and skilled workers, especially knowledge workers, is obvious and severe. In addition, the current vocational education and training of the country is limited in providing the economy with highly qualified, skilled workers who have been equipped with high technological knowledge and skills. Therefore, it is the Government's responsibility and concern to develop a structure to solve the problem. A Research and Training Center of ICT will be an appropriate model to stimulate modern technology in the country. We have seen some successful examples from which Vietnam can learn how such centers have contributed to the prosperous development of the countries in which they have been implemented.

Korea has become an industrialized country in Asia with advanced technology development. Cooperation with Korea is highly beneficial for Vietnam, as Vietnam can learn from the experience of Korea since its starting point in the 1950's. Further, with the long-term cooperation of the two countries, Vietnam can also benefit from the high technology development of Korea. In terms of economy, many Korean firms and companies have invested in Vietnam and Vietnamese workers have participated in the Korean employment market. Cooperation in research and training is a further step to stimulate these activities.

II. ISSUES

Vietnam developed with high economic growth since its launching of the open economy in 1989. The economy, however, has started to decline slightly in recent years. One of the main reasons is that the country aims to develop toward industrialization and modernization without a strategic plan to develop a workforce that is capable of coping with the new challenges of the economy; the country lacks the suitable infrastructure to support the development. The proposed project aims to solve the problem by the government's action to decide to establish a center to promote ICT and ICT experts. International experience and support is one of the essential factors that will contribute to the success of the project.

III. THE PROPOSED PROJECT

A. Goal, Outcome, and Outputs

The project aims to improve the situation of scientific and technological policy building, consolidate the national R&D network, and train researchers to contribute to the development of Vietnam.

The outcome will be the establishment in Vietnam of a Research and Training Center of ICT.

The first stage of the outputs will be in human resources: researchers, teachers, and staff for the center. The second stage will bring outputs in infrastructure; a center in Hanoi, the capital of Vietnam, will be ready for operation.

B. Key Activities

- Develop an organization structure for center
- Study tour by Steering Committee to learn experience of ICT development in Korea
- Korean consultant(s) for feasibility study & preparation (analysis of national policies and current situation, reports, etc.)
- Prepare center establishment (seminars, design, employment of initial staff)
- Build premises and procure facilities for the center;
- Train center staff
  - (1) Short-term training in Korea (total: 15 persons)
  - (2) Medium-term training in Korea (total: 15 persons)

Cost Estimates
(US$ thousand)

Item	Duration	Vietnamese Government	Korean Government	ADB	Total Cost
1. Developing organization structure for center	1 year to plan and design center for research and training				
(1) Study tour to learn experience of IT development in Korea	5 persons x 15 days	0	0	75	75
(2) Korean consultant(s) for feasibility study & preparation	12 man-months	50	0	200	250
(3) Cost for preparation of center establishment (seminars, admin.)	1 year	20	0	100	120
2. Training staff, including long-term exchange program	3 years to prepare institute for research and training				
(1) Short-term training in Korea (total: 15 persons)	5 persons x 1 month x 3 times	0	30	150	180
(2) Medium-term training in Korea (total: 15 persons)	5 researchers/year x 3 times	0	120	300	420
3. Building premises and procure facilities for center (loan project)	–	–	–	–	–
(1) Land use rights		100	0	0	100
(2) Building premises	5 yrs	0	0	500 (loan)	500
(3) Equipment procurement and installation	5 yrs	0	0	500 (loan)	500
4. Contingencies	–	20	15	20	55
Total	–	**190**	**165**	**1845**	**2200**

D. Implementation Arrangement

The Ministry of Science and Technology of Vietnam and the Ministry of Education and Training will set up a Joint Steering Committee for the preparation and implementation of the project.

The project will last three years, including development of feasibility study, approval by the Vietnamese government and donor(s), and implementation of the project's activities.

After one year of feasibility study, consulting, and some training, the second component of the project will be launched. This is actually another project of building the physical center and facilities. Here we focus on the initial project.

IV. BENEFITS OF THE PROJECT

Benefits of the Project

Sector	Benefits
Technology	Contribute to innovation of ICT and diffuse advanced technology
Training	Training engineers and researchers in ICT
Industry	Attract foreign direct investment and cultivate Vietnamese industry in ICT
International cooperation	Vietnam and Korea can cooperate in ICT innovation, particularly in establishment of center Vietnamese researchers and scientists can participate in international consortia of ICT development Center can be a bridge for the two countries in ICT research and training Center will be a model for Indochina region (Lao, Cambodia)

ANNEXES

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ANNEX I

WORKSHOP AGENDA

Day 1 – Wednesday, 7 September

08:30 – 09:00	Registration
09:00 – 09:30	Opening Ceremony • Welcome Remarks by Jang-Ho Kim, President, KRIVET • Opening Remarks by Peter McCawley, Dean, ADBI • Election of Officers • Group Photo Session
09:30 – 10:00	Break
10:00 – 10:40	Introduction to the Workshop and of Participants and Resource Speakers Jeoung-Keun Lee, Senior Capacity Building Specialist, ADBI
10:40 – 12:00	Presentation: Development of National Innovation System to Create a Knowledge Economy Motoo Kusakabe, Senior Counselor to the President, European Bank for Reconstruction and Development
12:00 – 13:00	Lunch Break
13:00 – 13:45	Presentation: Educating the Public on Internet Safety Scott A. Warren, Director of Internet Safety Enforcement, Microsoft North Asia Region, Tokyo
13:45 – 14:30	Country Reports (Bangladesh, Bhutan, Cambodia, People's Republic of China, India, Fiji, Indonesia, Kazakhstan, and Kyrgyz Republic)
14:30 – 15:10	Break
15:10 – 17:20	Country Reports (Lao People's Democratic Republic, Mongolia, Myanmar, Nepal, Philippines, Sri Lanka, Korea, Maldives, Papua New Guinea, and Vietnam)
18:00 – 20:00	Welcome Dinner Hosted by ADBI

Day 2 – Thursday, 8 September

08:30 – 09:15	Presentation of Group Discussions
09:15 – 10:00	Presentation: Employment Trends and Workforce Development Policies of the Republic of Korea Young-Hyun Lee, Visiting Scholar, Max Planck Institute for the Study of Societies, Germany

10:00 – 10:30	Break
10:30 – 11:15	Presentation: Developing ICT Strategy for Economic Growth Motoo Kusakabe, Senior Counselor to the President, European Bank for Reconstruction and Development
11:15 – 12:00	Presentation: Knowledge Worker Development: Technology Neutrality and Growth of IT Industry Michael R. K. Mudd, Director of Public Policy, CompTIA
12:00 – 13:00	Lunch Break
13:00 – 13:45	Presentation: KOICA's Official Development Assistance and Human Resource Development Hyun-sik Chang, Managing Director, KOICA
13:45 – 18:00	Study Tour Human Resource Development Services of Korea (HRD Korea)
18:00 – 19:30	Dinner Hosted by HRD Korea

Day 3 – Friday, 9 September

08:30 – 09:15	Presentation: Policy Implications of Knowledge Economy Daan Boom, Principal Knowledge Management Specialist, ADB
09:15 – 10:00	Presentation: Closing the Gap in Education and Training Utak Chung, Head, Education Team, Korean National Commission for UNESCO
10:00 – 10:30	Break
10:30 – 11:15	Presentation: Human Resource Development Policy in Korea Moon Hee Kim, Deputy Director, Policy Supervision Division, Ministry of Education and Human Resource Development, Korea
11:15 – 12:00	Presentation: Developing ICT Strategies Using Open Technology Samuel Lo, Director, Education and Research, Asian Pacific, Sun Microsystems
12:00 – 13:00	Lunch Break
13:00 –13:45	Presentation: Developing Learning Portal for Workforce Development Kyohsuke Yoshimura, Learning Solution Executive, Industry Solution, Public Sector, IBM Japan

13:45 – 14:30	Presentation: Financing Vocational Education and Training Sung-Joon Paik, Vice President, KRIVET
14:30 – 15:00	Break
15:00 –15:45	Presentation: Educational Policy Making in Asia Philip Kwok-Fai Hui, Founder and President of the Living Knowledge Communities, Hong Kong
15:45 – 17:00	How to Prepare Project Proposals Ja-Kyung Yoo, Chief, ICT Applications Section, UNESCAP

Day 4 – Saturday, 10 September

09:00 – 09:45	Presentation: Use of Information and Communications Technology in Technical Education and Vocational Training Chris Chinien, Director, National Center for Workforce Development, Canada
09:45 – 10:30	Presentation: Contribution of Technical Education and Vocational Training to Sustainable Development Hans Kronner, Former Staff of the UNESCO-UNEVOC
10:30 – 11:00	Break
11:00 – 11:45	Presentation: Creating and Re-engineering Knowledge Workers in Developing Economies K. Subramanian, Deputy Director General, National Informatics Center, India
11:45 – 12:30	Presentation: Implications of Ubiquitous Computing for Education Philip Kwok-Fai Hui, Founder and President of the Living Knowledge Communities, Hong Kong

Day 5 – Monday, 12 September

08:30 – 09:15	Presentation: Open Education System in India K. Subramanian, Deputy Director General, National Informatics Center, India
09:15 – 10:00	Presentation: Need Analysis of ICT Workers in Asia and the Pacific Ja-Kyung Yoo, Chief, ICT Applications Section, UNESCAP
10:00 – 10:30	Break
10:30 – 11:15	Presentation: Emerging Technical Skills Requirements for 21st Century Knowledge Workers James LeValley, Education Programs Director, Microsoft

11:15 – 12:00	Presentation: Core Sustainable Development Competencies for the Workforce Chris Chinien, Director, National Center for Workforce Development, Canada
12:00 – 13:00	Lunch Break
13:00 – 13:45	Presentation: Trends and Developments in Cyber Crime in the Information Age Steven Martinez, Deputy Assistant Director of Cyber Division, Federal Bureau of Investigation, USA
13:45 – 14:30	Presentation: International Standards in Technical Education and Vocational Training Hans Kronner, Former Staff of the UNESCO-UNEVOC
14:30 – 15:00	Break
15:00 – 15:45	Presentation: Knowledge Worker Development with Computer Supported Cooperative Work Environment Man-Gon Park, Director-General, Colombo Plan Staff College for Technician Education
15:45 – 17:30	Preparation of Project Proposals
19:00 – 20:00	Farewell Dinner hosted by KRIVET

Day 6 – Tuesday, 13 September

08:30 – 10:00	Presentation of Project Proposals Ja-Kyung Yoo
10:00 – 10:30	Break
10:30 – 12:00	Presentation of Project Proposals Ja-Kyung Yoo
12:00 – 13:00	Lunch Break
13:00 – 13:45	Presentation of Project Proposals Ja-Kyung Yoo
13:45 – 14:30	Finalization of the Action Plans and Workshop Evaluation Jeoung-Keun Lee
14:30 – 15:00	Break
15:00 – 15:50	Closing Ceremony Closing Remarks by KRIVET Closing Remarks by ADBI Handing Out Certificates Vote of Thanks by Participants

ANNEX II

LIST OF PARTICIPANTS

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