

# Assisting the International Community in Reducing the Digital Divide

It was quite an event at the Her-bin Elementary School auditorium on Sunday! One student was standing in the middle of the stage, struggling to read his diary word by word. On the side of the stage was a line of children waiting for their turn at the podium. They had smiles on their faces and they could barely stand still due to the excitement. The only thing special about them was that they had a small device attached to the back of their ears.

Seated in front of the stage were the parents of the children, watching their kids read out loud. Some were so proud that they were moved to tears. "Do you know how many children have been rescued by the Teddy Bear Cooperation Project?" Several days before, Chen Fu-kuei, a teacher from Hsiao Kang Vocational High School asked this question to Wang Hung-tsu, a specialist from the TaiwanICDF's International Human Resource



- ① El Salvadoran students introduce their culture for an Internet broadcast
- ② Taiwanese students participating in the Teddy Bear Project

Development Department. Wang commented, "You're exaggerating things. Do you really need to use the word 'rescue'?" However, once Wang made a trip to the school, she completely understood.

This group of students all had hearing or verbal disabilities. They have overcome these physical handicaps, however, to speak with students located on the other side of the Pacific Ocean in El Salvador. The concentration that could be seen on their faces made it seem as if the El Salvadoran children were right next to them. Kids from Taiwan took part in a program that helped them develop their

potential, and students at the Salvadoran school have warmly received them.

They have emerged from their silence and gained much-needed confidence. It is precisely because of these character changes that the teacher mentioned the transformational characteristics of the Teddy Bear Cooperation Project. The activities have helped the children tremendously. This

is why Chen used the word “rescued.”

Thousands of miles away from Taiwan in another corner of the world sits a school called Centro Escolar Corazon de Maria in the outskirts of the El Salvadoran capital of San Salvador. The students here are equally as excited as the students of Her-bin Elementary School in Taiwan. They often wave Taiwan’s flag and play with puppets given to them by students in Taiwan while welcoming them online. The students of these two schools actually have never met face to face. They are in contact with each other through an Internet connection, which enables them to interact with each other through video conferencing. For the students of these two schools, neither Taiwan nor El Salvador is unfamiliar. “I never believed that I would have the opportunity to meet people from other countries simply as a result of studying computers,” said a student from the Central American nation. “Our teacher pointed out where Taiwan is on a map and it is so far away. But having a class like this is a lot of fun,” the student said.

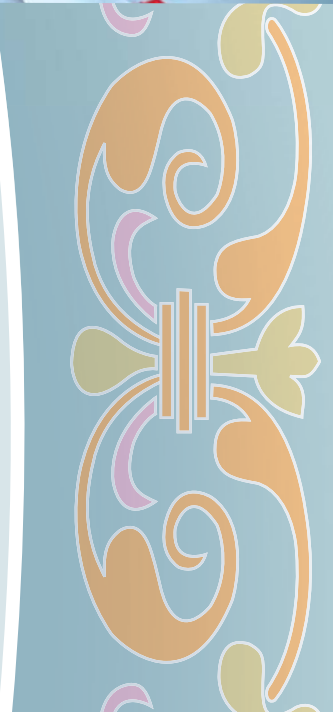
This is an example of the Teddy Bear Cooperation Project carried out jointly between the TaiwanICDF and World Links. The core goal of the project is to teach children from developing countries how to use computers, which helps to bridge the nation-to-nation and region-to-region “digital divide.” By providing instruction to children from different

regions and cultures, numerous digital opportunities are being created.

The schools taking part in the project in Taiwan and El Salvador each have delegated a pair of Teddy bears as goodwill ambassadors to visit the school in the other nation. The students must welcome these guests into their homes and write a daily diary introducing their own country’s culture, customs and lifestyle, and then transform this information into a PowerPoint file. Lastly, the students then broadcast their achievements over the Internet for the students of the other school to view. Using Teddy bears as a means to spark cultural interaction and having teachers design fun courses enables the students to become skilled in computers, to access information, and to contact others in faraway places. This process creates all sorts of unexpected opportunities.

### **The Digital Divide — A 21st Century Challenge**

The Teddy Bear Cooperation Project is only one small portion of the TaiwanICDF’s work in recent years to assist the international community in reducing the digital divide. In fact, the topics of nation-to-nation, region-to-region, and group-to-group digital inequalities are gaining more prominence worldwide, with increasing efforts being undertaken to reduce the gap. The IT revolution is the most important force in pushing ahead with global high-speed development. IT





creates employment opportunities and has changed the way that education, business, and governments operate. It is clear that whoever has IT has the key to future opportunity.

From another standpoint, those who do not have the advantages brought by IT are outside the circle of progress and are marginalized on an ever-increasing basis. In a globalized society, the consequences of the digital divide over the long term are more serious than any other unequal distribution of resources. It threatens the balanced development of society.

UN Secretary General Kofi Annan said that the digital divide is the result of the combined gap in technology and basic infrastructure. “We cannot assume that this divide will disappear on its own,” he said, adding that while the power of technology can create an information-based society, how to establish one is in our hands.

As a result, the UN’s Economic and Social Commission in March 2001 asked its secretariat to establish the Information and Communication Technologies Task Force, the goal of which was to draft strategies to direct the amazing power of IT into uses for humanity, especially for the world’s needy.

Furthermore, many developed and developing nations have begun to awaken to the importance of this issue. For example, APEC member countries are putting increasing emphasis on “new economy” and “globalization” issues. The digital divide is precisely one of the key symptoms behind a widening disparity in development amongst APEC nations.

With APEC gradually placing more emphasis on the topic, Taiwan is also playing a leading role in working to rectify the situation. In response to APEC’s call to promote knowledge-based economies, Taiwan, at the APEC Leaders’ Meeting in November 2000, proposed the concept of transforming the digital divide into digital opportunities, a concept that was strongly



▲ The Internet opens a world of opportunity for children in remote areas

supported by the representatives at the meeting. At the 2001 APEC Summit Forum, human capacity building was a theme for discussion. Participants began to draft concrete strategies for the people of all APEC member nations to enjoy the advantages of the Internet before the year 2010.

Over 500 government and corporate leaders and education and training experts from 21 APEC member nations gathered in one room for the summit, discussing action plans that would effectively bridge the digital divide and talking about critical elements that needed to be included in the plans.

Firstly, the experts felt that creation of close-knit cooperation between the industrial, government, and academic sectors would be beneficial in achieving the agreed-upon goals. The government should not implement new strategies unilaterally. Likewise, the non-official sector cannot be charged with carrying out the effort on its own. Instead, all “stakeholders” must be included in a joint plan of action, working together to create a framework that would provide the basis for results. This strategy would include not only the government and the corporate sector, but society as well.

For example, the pursuit of e-commerce is not



limited to international corporate giants. Family-run companies and even traditional small retail outlets should be able to increase their use of IT to participate in the global economy and reap the benefits of such. Education is an ongoing part of life in the 21st Century. Every person needs to continue to increase his or her knowledge and skills to be able to adapt to the rapidly changing society. Communities need to use IT to reduce urban and rural area inequalities. These challenges require governments to offer good policy environments. They also require that corporations and individuals change their traditional ways of thinking and adopt new management styles, work structures, and lifestyle planning methodologies. The agenda created by industry, the government, and academia will facilitate upgrading the digital ability in society in general and will reduce the digital gaps amongst small communities. In this process, the digital divide is transformed into digital opportunities benefiting all citizens.

Secondly, experts at the summit also discussed various routes that could be taken to reduce the digital divide, including strengthening the concept of lifelong education as well as assisting educational and training organizations to provide methods to satisfy these needs. Developed nations can use international assistance to foster the expansion of IT throughout developing nations. Governments should create a good environment in which to invest in the IT sector and related business opportunities, seek the widest degree of Internet usage possible, and encourage online education projects.

### **Utilizing the Taiwan Experience for a Better Tomorrow**

Taiwan is among the world's leaders in IT hardware and software manufacturing technology. The island also has a comprehensive IT industry supply chain and an abundant source of highly trained

personnel. Strong relationships among the industrial, official, and academic sectors have played a critical link in enabling Taiwan's computer industry to thrive. In many respects, this triumvirate of industry, government, and strong human resources were responsible for Taiwan's rapid development. Their expertise is thus being utilized to assist the international community in reducing digital inequalities.

Taiwan's government has considerable experience in helping to reduce digital inequalities on the island, creating a model of experience and success that is worthy of being replicated. The Chungliiao Digital Opportunity Center, created by the Institute for Information Industry in the Nantou County township of Chungliiao, is one such example.

Chungliiao is situated in a remote part of Taiwan. In fact, computer classrooms were only set up in the township's junior high school in 1999. Prior to that, the young people of the township lacked computer literacy skills when looking for jobs. The center changed all of this. It not only taught villagers basic skills in how to use computers, but also helped to market the area's agricultural products and tourist attractions. The area's products and tourist services broke through traditional marketing avenues. Potential markets suddenly became bigger than anyone had ever imagined.

Chungliiao was not the first place where efforts were made to reduce the digital divide, and the model used there is not the only one available. In fact, Taiwan, with its unique developmental experience and technical advantages, has accumulated a number of successful models to reduce the digital divide. In addition to providing information learning opportunities, considerations are made with regards to e-commerce and expanding local agriculture, tourism, and cultural industries in order to achieve sustainable development.

In recent years, Taiwan's economic prowess has enabled it to play an active role in participating in



international and regional cooperation, sharing its successful e-experience with other countries and seeking opportunities to exhibit its responsibility as a member of the world community. Following its call at APEC in 2000 to turn the digital divide into digital opportunities, Taiwan formally proposed the Fostering IT Schools for the Information Age Project at the 2002 APEC meetings in Mexico, which again was lauded by member nations. The project calls for selecting one or two schools in APEC member nations that lag behind others in IT development and providing equipment and technical assistance to train local information-related personnel. In August 2003, Wathuayrong Elementary School in the outskirts of Bangkok, Thailand, set up its first computer classroom with the help of donations made by companies from Taiwan. The students at the school took advantage of the computers and the Internet to understand the world beyond their city.

In November 2003, Taiwan participated in the first stage conference of the UN's World Summit on the Information Society that was held in Geneva and also held a global forum on e-commerce to showcase Taiwan's IT sector development and experiences. According to the proclamation and action plans passed at the summit, the Executive Yuan's Science and Technology Advisory Group would set up digital opportunity development centers in six countries and train 54,000 teachers and experts throughout the world. The programs and measures carried out by the TaiwanICDF are among the most important tools in realizing these goals.

### **Telecenters for Community Development**

In April 1999, World Links proposed a partnership with the TaiwanICDF to assist Taiwan's diplomatic allies in bringing innovation to the

classroom through training seed teachers, enabling and facilitating connectivity, and engaging students in learning projects via the Internet. The plan was based on a similar plan by the World Bank, which set up such classrooms in Zimbabwe and other nations. Since 1999, the TaiwanICDF and World Links have established information education classrooms and trained teachers in Senegal, Burkina Faso, Paraguay, Costa Rica, El Salvador, and the Dominican Republic. In 2004 alone, the World Links program assisted 79 schools in El Salvador and Costa Rica to set up IT classrooms, and trained 313 teachers and over 10,000 students in computer-related topics.

In July and August 2004, three TaiwanICDF-World Links telecenters were established in the Dominican Republic. Under this model, World Links carried out the planning for the centers, the TaiwanICDF provided the necessary funding, and the US Peace Corps was responsible for operating the centers. This is a useful model that is worthy of being implemented in other places. Cooperation between international NGOs and development organizations, enabling each to focus on their area of expertise, provides leveraging to the project and creates enormous benefits.

IT education in the Dominican Republic faces certain obstacles. First of all, schools with computer access are usually not open to the general public. Secondly, schools usually teach only basic computer courses, and the content is quite dull, not focusing on practical and fun things such as going online, surfing websites, playing games, and sending email. Thirdly, computer maintenance and repairs are a problem since all computer maintenance is carried out solely by the Ministry of Education in Santa Domingo. Given the ministry's lack of resources, it does not have the ability to service the over 300 computers in the school system. The result is that computers in many schools

have been broken for years, waiting to be repaired. While people wait, IT education is interrupted.

The telecenters have been a resounding success in their communities. Members of the Peace Corps are stationed in the community for long periods and not only help maintain the computers, but act as seed teachers in IT education. The Peace Corps volunteers instruct teachers on how to use computers, enabling the teachers to take that knowledge back to their respective schools.

The centers also enable people in the community who normally would not come in contact with IT to learn about computers. In addition, the telecenters feature a reasonable fee mechanism that ensures their sustainable viability.

Two designated schools have also opened the doors of their telecenters for public usage. This is the first opportunity for many people to use computers. Meanwhile, students have already become accustomed to searching for various information online to carry out research or find information needed for their assignments. Going online has become something that is vital to their everyday life and plays an important role in their education.

The telecenter in San Rafael is the only place in

the small town with an Internet connection. Previously, anyone in the town who desired to use the Internet had to travel about 30 minutes to a neighboring larger town. Now, residents have to walk only a few minutes to get to the telecenter that Taiwan has funded. They have the opportunity to take part in the joy of surfing the Internet, and interest in computers amongst the town people has increased substantially. Peace Corps volunteers are rushing to offer even more computer courses to meet the needs of the community.

In another town, Fundacion, the telecenter is presently undergoing hardware upgrading. The volunteers plan to organize an IT Club that provides the municipality's youth with computer-repairs training services. The telecenter intends on becoming a for-profit computer repair center. This strategy will boost income to keep the center operational on a long-term basis. Since the town lacks computer maintenance personnel, people whose computers required servicing in the past had to lug their computers to a city about 25 minutes away or pay a substantial fee to have a maintenance engineer come to their home to fix the problem. This, however, is no longer the situation. The telecenter not only provides the community with valuable services, but also



① An El Salvadoran student gives a briefing at a TaiwanICDF-World Links telecenter ② TaiwanICDF and World Links staff assess training facilities for seed teachers in the Dominican Republic ③ The Internet is a useful tool for closing distances between children far away from each other





Photograph by World Links

▲ Children in the Dominican Republic participate in an educational computer game



Photograph by World Links

▲ Students in the Dominican Republic display their folk-dancing skills for the World Links program

provides the area's youth with a place to learn skills that will help them find jobs.

Two more telecenters will be opened in the Dominican Republic soon, and the residents of those communities are eagerly awaiting the inauguration of those facilities. That nation has become aware of the importance of IT in its national development. The strong cooperative model of World Links, the TaiwanICDF, and the Peace Corps, with each organization contributing according to its strengths, will make dreams come true throughout the country.

### **Cross-cultural Communication through the Global Virtual Classroom**

The cooperative efforts of the TaiwanICDF and World Links to reduce the global "digital divide" are not just limited to telecenters. I\*EARN Taiwan, also in conjunction with the TaiwanICDF, is attempting to promote cultural exchanges through the use of computer technology.

I\*EARN Taiwan is an international education organization whose mission is to utilize the Internet and share educational resources throughout the world

to encourage cultural interaction. The Teddy Bear Cooperation Project is one of the activities carried out under this program. I\*EARN Taiwan acts as the primary coordinator and works to match domestic and international primary and junior high schools with the TaiwanICDF's digital learning platform that fosters cooperation and education activities. The achievements between the partnering schools are announced annually at a gathering and are also published on I\*EARN Taiwan's website.

I\*EARN Taiwan cooperation programs have the goals of providing IT education, multinational study, cultural interaction, and boosting Taiwan's image. Since 2003, World Links-associated schools in El Salvador have participated in two exchange projects, namely the Taiwan-El Salvador Video Conference and the Teddy Bear Project. In the first project, six schools represented Taiwan -- National Fenghsin Senior High, National Kaohsiung Normal University Affiliated Senior High, Kaohsiung County Fengsi Junior High, Kaohsiung Municipal Shoushan Junior High, Chung Cheng Industrial Vocational High, and Kaohsiung Municipal Hsiao Kang Senior High. Meanwhile, Jih Kai Elementary School, Hsin-Chya Elementary

School, the National Kaohsiung Normal University Affiliated Elementary School, and Her-bin Elementary School participated in the original Taiwan-El Salvador Teddy Bear Project. In less than a year's time, over 10 schools are now participating in the project.

The win-win cooperation strategies of the TaiwanICDF and World Links will be expanded in the future. From 2005 to 2009, World Links will strengthen its connections with Taiwan. World Links will establish a Southeast Asia regional office in Taiwan and will provide training to local teachers and volunteers to serve as seed teachers for worldwide projects. World Links will also invite Taiwan companies to provide assistance in the creation of a teacher/student educational portal. This will combine the advantages and human resources of Taiwan in an effort to promote a digital society in partner nations.

### Evaluating Digital Opportunities with Seminars and Conferences

Cooperation with World Links is not the only means through which the TaiwanICDF assists in efforts to reduce the digital divide. The TaiwanICDF also has many projects that help to fulfill this

objective. The Fund is carrying out feasibility studies on a variety of projects, indicating that the TaiwanICDF is moving forward in these efforts, but in a prudent manner.

One method of evaluation is for TaiwanICDF to send a fact-finding team to partner nations to hold international seminars and workshops on the development of digital opportunities. This process shares with others Taiwan's experience in establishing a digital society and provides initial consulting services. The conferences also enable TaiwanICDF members to collect related information as a reference for mapping out and implementing future projects.

In 2004, TaiwanICDF held regional conferences in Guatemala, Swaziland and Senegal. At the conferences in Guatemala and Swaziland, TaiwanICDF experts spoke on themes including infrastructure in e-government and e-business, and IT workforce training. In addition to introducing Taiwan's development experience, the experts sought to understand the problems being faced by various officials in promoting IT as well as to assess the state of the industry in friendly and allied nations. They also asked the officials what sort of cooperation they would like to see from Taiwan.



① A Chilean girl utilizes a computer for a homework assignment ② Participants during a question and answer session at the International Conference on Digital Opportunities ③ A keynote address for an international conference on digital opportunities in Guatemala





The delegation of experts also made visits to various places. In Swaziland, for example, the team visited that nation's Ministry of Education, Ministry of Finance's Computer Department, University of Swaziland, Swaziland Posts and Telecommunications Corporation, Swazi Net, and Africa Online to better understand the facilities of those organizations. The team also visited the central business district of the nation's capital to understand information and communication products and market operation models.

In addition, the team of experts evaluated the status, problems and potential of Swaziland's e-infrastructure, e-government, e-business industry, and e-education. The team determined that efforts should be made to implement the computerization of government agencies and to promote e-tourism and e-education, and it began drawing up cooperative plans.

The conference held in Guatemala, focusing on topics related to assisting in developing digital opportunities, was another example of the efforts by the TaiwanICDF. Taiwan's Investment and Trade Service Mission stationed in Central America arranged for the TaiwanICDF's team of experts to visit Guatemala's most representative computer hardware and software companies. One company visited was Sega Outsourcing, which is Guatemala's best-known systems integration and hardware sales firm.

In the course of the visit, the Taiwan experts helped the company compare its operational structure with those of its counterparts. In addition, based on similar industrial development processes in Taiwan, Sega was offered assistance on how to overcome operational bottlenecks and how to obtain government contracts. Based on these visits and interaction, the Taiwan team came to understand the state of telecommunications technology in that country better and to begin to mull future cooperation plans.

Since Guatemala is the commercial and

governmental center of Central America, it boasts a fairly comprehensive infrastructure. The team of experts recommended that when Taiwan plans digital development projects to the region in the future, Guatemala could be selected as a partner to carry out vanguard plans. It was recommended that important universities be selected as cooperative partners in the first phase of the project in an effort to boost the facilities and the qualifications of the teachers and students, and to nurture IT specialists.

A seminar held in November in Senegal was also a resounding success. Altogether, 40 academics from Senegal, The Gambia, Chad, São Tomé and Príncipe and Nigeria participated in the event. The titles of the discussions were "Government Policy," "The Power of the Academic Community," "Community Participation," and "NGO Assistance Projects." The seminar also summarized the "Taiwan experience," human resource training, hardware and software plans, and e-commerce. In addition, members of the Taiwan Technical Mission in Senegal explained rice marketing and sales using the Internet, topics which left a deep impression on the participants.

### **IT School – The Cradle that Nurtures Hope**

The TaiwanICDF also continues to combine various resources from domestic sources that are used in carrying out all types of cooperation plans. One example of this is the IT School Project.

In an effort to use the advantages and experiences of Taiwan's IT industry to assist in reducing the international digital divide, the MOFA has sought to build on the achievements of the IT School concept that it unveiled under the APEC framework to assist member nations Chile and Peru in developing IT education. In May 2004, the TaiwanICDF sent an appraisal team to the Andes to look into this mission.

The team sought to comprehend the level of academic and governmental support in Chile and Peru for implementing IT education policies and if these sectors would be interested in project participation. The team also wanted to understand the information network environment in both countries and evaluate the strengths and weaknesses of each school. The results would be used in selecting schools to cooperate in the project. Thirdly, the team sought to determine first hand the hardware and software requirements of the bodies that would participate in the project.

The team made various recommendations after completing the fact-finding visit. It suggested that Taiwan's cooperation plan be implemented in conjunction with the IT education policies of those nations. As the project would be designed according to the needs of those countries, it would gain recognition from all facets of society. Secondly, the appraisal team believed the plan should be implemented under the coordination of the government of the recipient nation and be executed in close cooperation with local governments, NGOs, or non-profit organizations. This collaboration would yield the greatest possible results.

Lastly, the team proposed holding a conference on IT development, to which government, industrial, and academic representatives from partner nations would be invited. The conference would introduce Taiwan's IT industry and help Taiwan to understand local business opportunities better.

Prior to the end of 2004, the TaiwanICDF completed the donation of hardware and the training of teachers for telecenters and it also held various seminars. The classrooms were established in the Liceo C-3 Granaderos De Putre Junior High School in Chile and the Edelmira del Pando Girls Junior High School in Peru. Over 40 of Chile's most senior IT development policy officials and IT education instructors participated in the seed teacher training



▲ Students from Edelmira del Pando Girls Junior High School in Peru take advantage of computers from Taiwan

course and related seminar in Chile. This number attests to the high degree of interest in the program within the local community.

Also in 2004, the TaiwanICDF appraised and began implementing an IT School Project in Paraguay. Computer hardware was donated for use in telecenters in four provinces throughout Paraguay so that teachers, students, and residents could become familiar with computers and the Internet. The telecenters will hold training courses periodically to teach students about computers and how to use them.

Taiwan's global ICT ranking is expected to rise to fifth place in 2008. Taiwan clearly has unique developmental experiences, outstanding human resources, and state-of-the-art technology that can be used to assist the international community in reducing the digital divide and creating digital opportunities. The nation has every desire to make a valuable contribution to international society. The TaiwanICDF has also carried out many multilevel, effective, and far-reaching cooperation plans in this regard. It intends to continue to work toward even greater achievements in the days ahead.