Human Resources Remain an ICDF Priority
In-house and Around the World

The ICDF has a variety of projects and programs to develop human resources in ROC partner nations, and in the ICDF’s own pool of talented employees.

Introduction
Taiwan has rich human resources, which have been at the foundation of the country’s economic and social development during the last half century. Approximately 94 percent of the population is literate, and the country’s entrepreneurial strengths and ingenuity have powered the economy for decades. The ICDF is lucky to have been able to tap into this pool of valuable human resources to sustain its development work worldwide. Since the early 1960s, beginning with the work of the ICDF’s predecessors, an impressive roster of scientists, engineers, managers, agriculturalists, medical specialists, educators and a host of other professionals and volunteers have contributed their skills, courage and creativity to the ROC’s foreign aid and development work.

Having been an integral part of the Taiwan experience, and having benefited so much from the island’s human resources, the ICDF fully understands the importance of skilled human resources to developing nations. With this in mind, human resources development has become one of the ICDF’s central missions. The organization is continually launching and developing education and training programs in partner nations. Currently, the ICDF sponsors an array of specialized training seminars on a variety of topics, scholarships for promising students in developing countries, high-level training for foreign technical and managerial personnel, and localized vocational, technical and professional training and education development. This report will cover the important contours and milestones of the
ICDF’s recent work in human resources development in partner nations. There have been successes and setbacks in the ICDF’s educational, vocational and training programs, and the organization has strived to learn and grow from these experiences, in order to refine its human resources development work into the future.

**Early Programs**

Two of the ICDF’s early major technical/vocational training projects were created in Guatemala and Costa Rica in the early 1990s. Both projects provided the ICDF with valuable lessons that have enabled the organization to launch smoothly operating education and training programs since that time. Like many Central American nations in the 1990s, these countries were working to develop their light and medium industries and technology sectors. The Costa Rica project was evaluated and planned in 1992 and 1993, and an agreement was signed with the government in 1994. In the Guatemala project, the ICDF sent experts in 1990 to begin planning the project, which was approved by the Guatemalan government and launched soon thereafter. In both projects, the ICDF began by hosting seminars about the ROC’s development of its industrial and technology sectors, and other foundation topics in economic expansion. The ICDF and other agencies then donated a range of light industrial equipment, including refrigeration and air conditioning apparatus, computers, and computer numerical control (CNC) machinery. CNCs are important controllers for a range of industrial activities. Experts were then dispatched to train personnel. The evaluation and initial execution phases of both of these projects were successful in outlining essential needs, problems and approaches, and in training Guatemalans and Costa Ricans in the use of the new equipment. However, some problems were later identified that provided the ICDF with helpful lessons. In both projects, it was determined that while the use of CNCs is commonplace in a host of industries, modern computers are even more important for continued industrial development, and that emphasis should be placed on this in the future. In Guatemala it was found that longer-term consulting and management of projects such as these is important to keep the projects on an even keel and to sustain activities. Also in Guatemala, it was found that planning and support of maintenance, repair and equipment replacement programs, and provision of spare parts, are essential to the sustainability and smooth operation of projects like these.

The challenges encountered in Guatemala and Costa Rica are to be expected in any early projects. Using lessons like these, the ICDF is steadily polishing its methods of careful project planning, design, training, implementation and evaluation. These steps are proving to be rock solid as time goes on, but it is important to remember that the ICDF does not execute them alone. The latest ICDF human resources development projects illustrate once again that sharing responsibilities with teams of hardworking men and women from both the ROC and the host nations is the best way to complete balanced, successful projects.

**The Costa Rica Technical and Vocational Education Improvement Support Project**

The Costa Rica Technical and Vocational Education Improvement Support Project, which took place from January 1998 through December 2000, may be the ICDF’s most successful human resources development project to date. As mentioned, during the 1990s Costa Rica was working hard to develop its technology sector, and many multinational corporations had either established operations, or had expressed interest in doing so, in the country. Although Costa Rica has above-average technical training and education compared to many countries in Central America,
educational and technical professionals during that time recognized that several areas needed improvement. Planning for the Costa Rica Technical and Vocational Education Improvement Support Project began in June 1997, and in January 1998 the Taiwan Ministry of Foreign Affairs contracted with the National Taiwan University of Science and Technology (NTUST) to execute the project. ROC Ambassador to Costa Rica, Mao Kao-wen oversaw the project on behalf of the ROC. The Institute of Technology of Costa Rica (ITCR) was also instrumental. In all, approximately 70 experts, scholars, technicians, managers and other personnel from the ROC and Costa Rica worked on this encompassing project.

The immediate need in Costa Rica was for highly skilled electronics industry production line operators, to fulfill demand created by multinational companies that had expressed interest in establishing operations in the country. Beyond this, it was recognized that a unified, professional technical vocational education system focusing on electronics, electrical engineering, mechanical engineering and computer science would prepare Costa Rica for global competition in the 21st century. The Taiwanese and Costa Rican experts participating in the project created a strategic committee to outline and direct the project. Working to carry out the overall plan, groups were formed to supervise curriculum structure and course content, teaching objectives and training, laboratory facilities and technician training, teaching materials compilation, textbook organization and project promotion. Project execution was to take one year, from January 1998 to December 1999. During this time, the project was evaluated at three-month intervals to ensure efficient operations and to solve any emerging problems.

As assistant coordinators of the project, professors Yang Chien-chiao and Lin Zong-ching of NTUST headed project development on the ground. During 1998, these men and the other people working on the project began by recommending overall curriculum structure, educational materials and equipment specifications. Renovation of Costa Rican laboratories, training and demonstration centers, technical institutes and other educational facilities was started, and the delivery of equipment and computers was negotiated. On July 4, Ambassador Mao donated to the project the first lot of computer equipment on behalf of the ROC and the ICDF. Through the end of the year, more computer and laboratory equipment was delivered, and teacher training began in new laboratories. By the end of 1998 and into mid-1999, the last shipments of equipment were delivered to Costa Rican schools and laboratories, and the teacher training, curriculum content and essential materials were polished and bolstered.
By the end of 1999, the project was in full flower, and the two countries and participating agencies agreed to extend it through 2000, to reinforce the already positive results. In an evaluation of the project’s first two years, some problems were noted, which the ICDF has learned from as it designs similar projects elsewhere in the world. Cultural and language differences between hosts and Taiwanese visitors, for example, must be prepared for thoroughly, to allow all parties to work comfortably together. It was also found that many teachers in less-developed countries are not fully skilled with the latest machinery, industrial equipment and computers, and so high-quality teacher training in current techniques and technologies will be highlighted in future projects.

During 2000, the later phases of the project were completed, including the honing of vertical continuity of course content and horizontal program integration between different schools; the completion of several volumes of teaching materials; the establishment of new regional training centers; and the training of more than 160 high school, college and vocational teachers. A Preventative Maintenance Technique course was launched in September 2000, to strengthen the proper use of laboratory equipment, and thereby extend the effectiveness and sustainability of the project. Additionally, a sister project is planned, which will construct a Technical Teachers Development Center and a Student Learning Achievement Evaluation Center, to further consolidate the technical education and vocational training systems in Costa Rica.

As a capstone to this successful project, and in the hope it will be replicated elsewhere in Latin America, the ICDF and other participants organized a Central American Technical Education and Vocational Training Program seminar in Costa Rica from January 29–31, 2001. Educational policymakers and technical experts from Costa Rica, Guatemala, Honduras, Nicaragua, Belize and Panama attended. Representatives from El Salvador were unable to attend, due to the earthquake that struck the country in January. Ambassador Mao and spokespersons from the Central American countries spoke about the problems and opportunities in technical education and vocational training in the region. It was agreed that primary and secondary education in Central America are in need of serious reform, and that technical education is extremely limited (vocational education is less limited). Modern facilities are needed throughout the region, as is training for the use of these facilities, general technical/vocational teacher training, and curriculum and program materials development. Honduras, Nicaragua and Panama all expressed strong interest in the Costa Rica model, and agreed to review their technical education systems and prepare for future ICDF human
resources development cooperation. Even more broadly, a region-wide textbook project and teacher-training project were proposed during the seminar.

**Technical Education and Vocational Training Projects in Guatemala and El Salvador**

The ROC’s Costa Rica Technical and Vocational Education Improvement Support Project is now being used as a model for evolving ICDF technical education projects in Guatemala and El Salvador. The Guatemala Technical Education Project, inaugurated in October 2000, is providing US$200,000 in funding to create the Instituto Técnico Guatemala Sur (ITGS, the Southern Guatemala Technical Institute). This project will perform background analysis on the Guatemalan economy, industry and educational policy; select a site to build a new technical high school; conduct surveys to determine the demand for skilled workers in industry; begin planning of curriculum, teacher training methods, and required equipment; estimate costs for the construction of the ITGS and other infrastructure; and perform additional planning and pre-implementation activities.

In El Salvador, the ICDF’s large Technological Education Modernization Project is under way. This US$10 million project will wholly remake technical education and vocational training in El Salvador. Seven education centers around the country have been selected to foster the now-familiar components of ICDF-sponsored technical and vocational education renewal in Central America: curriculum development and professional course revision; horizontal and vertical coordination of curricula between technical high schools, technical institutes and colleges; installation of modern laboratory equipment and renovation of existing laboratories; planning for the maintenance and upgrade of facilities; teacher training improvement; reference and textbook selection and development; and consulting services to keep the project thriving into the future. The beneficiaries of El Salvador’s revamped educational and training system will be approximately 24,000 students who will study the gamut of technical subjects addressed by the project: electronics and electrical engineering, mechanical engineering, computer hardware and software development, automotive mechanics, civil engineering, and food technologies. As with the Costa Rica project, groups are now being organized into a tiered oversight and implementation system, to enable the project to systematically unfold.

The ICDF is proud of major projects such as those in El Salvador and Guatemala. But the organization works on many other levels in education and human resources development as well. Following are descriptions and highlights of other ICDF educational support and human resources development programs.

**Seminars and Workshops**

ICDF-sponsored seminars such as the one held in January in Costa Rica, as well as other classes, training programs and workshops, have proven to be good ways to polish ideas and bring together a variety of viewpoints for countries developing their human resources and economies. In 2000, the ICDF held 28 seminars sharing Taiwan’s economic development experience, in areas such as small and medium enterprise growth, international trade, and production and marketing. Over 440 participants from 69 countries and four international organizations attended these programs. A multitude of seminars were also held covering areas in agriculture, floriculture, animal husbandry, aquaculture, public health and conservation. Vocational training seminars in 2000 included topics of computer usage, computer aided design, industrial electronics and vehicle repair.

**Scholarships**

The ICDF has sponsored scholarships since 1998, when a fund was set up for students in the Caribbean region. Since then, the ICDF has extended its
scholarship programs to Africa, Latin America, and Europe. In 2000, the ICDF provided US$550,000 in scholarship assistance to nations around the world. In the Eastern Caribbean, the ICDF conducts the Human Resources Assistance Development Program in St. Kitts-Nevis, the Commonwealth of Dominica, St. Vincent and Grenada. The program has provided assistance not only to elementary and junior high school students, but also to teachers and professionals, who can obtain scholarships for advanced specialized training.

In Macedonia, the ICDF is helping 250 elementary school students continue their studies with a US$100,000 scholarship program.

In Liberia, the ICDF is providing US$50,000 in assistance to Liberians whose education was interrupted by the nation’s civil war (although the war formally ended in 1996, sporadic conflict has continued). Through this program, more than 400 students in agriculture, secretarial science, accounting, home economics and building trades have received vocational training at the Booker Washington Institute (BWI), a historic educational institution in Liberia. The program has contributed training, learning materials, equipment and tools to BWI, and has been a factor in Liberia’s reconstruction.

The ICDF works with the Republic of China—Central American Economic Development Fund (ROC-CAEDF) on the US$400,000 Scholarship Program for Central American Students in Taiwan. The two-year scholarship program will support 12 graduate students and eight professionals in advanced training programs in 2001. In 2002, the program will be expanded to include 24 graduate students and six professionals.

**Senior Human Resources Development**

A flagship ICDF program for the development of senior level human resources is its scholarship program with the National Pingtung University of Science and Technology’s graduate Institute of Tropical Agriculture. This two-year master’s degree program, which has been in operation since 1998, focuses on agronomy, horticulture, plant protection, agri-business, food processing and rural planning. Students are also given considerable flexibility in selecting courses to match their unique interests and areas of study. Students in this program can visit farms and organizations where the techniques they are being taught are applied, and which have contributed to Taiwan’s profuse agricultural output. Students also profit from the energy that is created from exchanges of ideas with professors, scientists, farmers, businessmen and women, and even Taiwanese policymakers. Students at this high level not only contribute to their home countries, but also participate in valuable skills and technology exchange with Taiwan. Twenty-two students from 14 countries have benefited from this program since its inception, with four students graduating most recently, in July 2000. The National Pingtung University Scholarship Program has been so successful, it is being extended into new areas in 2001. Ph.D. studies in agricultural science will now be offered, allowing students to extend their research and study for two years at the institution and in their home countries.

In another new program in 2001, the ICDF will cooperate with the National Chengchi University in Taiwan to sponsor scholarships for Central American students attending a new International MBA program in the university. The program will immerse students in management, marketing, human resources and business strategy courses, with a strong emphasis on entrepreneurship and small and medium business development areas. Taiwan has plentiful experience in. Students who attended a pilot program expressed strong interest in serving in ICDF technical missions in their home countries, as well as in other business-oriented activities.

The ICDF also cooperates with the ROC-CAEDF in the Executive Training Program, providing funding for training of high-level management professionals with leadership potential. The program is strengthening
professional capacities and specialization in an increasingly complex world. Currently, candidates from Honduras and the ROC participate in the program, studying at major colleges around the world. Candidates from Nicaragua and El Salvador have passed the first phase of the selection process.

**Prospects for the Future**

An educated and well-trained population is the essential foundation to economic growth and social stability in all countries. Based in a country that has relied on talented human resources in its own development, the ICDF fully appreciates this, and is excited about its worldwide human resources development, and education and training programs. Major ICDF projects and programs have yielded spectacular results, benefiting hundreds of thousands of citizens by improving educational systems, fostering technical and vocational training, sponsoring scholarships that have deepened the pools of educated people in countries everywhere, and encouraging new areas of economic growth. In addition to its more ambitious projects, a broad collection of ICDF seminars and training classes have sharpened and added to the skills base of people who constitute the keystone of national economies—farmers, fishermen, technicians, craftsmen and women, and low-skilled workers. During recent years, the ICDF has worked hard to sharpen its techniques in all of its human resources development projects, which has resulted in steadily improving methods from project planning, to implementation, to completion and evaluation, and then to duplication in other countries. As we say to all of our partner nations worldwide about their economic and social development, If Taiwan can, so can you!