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Tapping America's Greatest Sustainable Resource

*Higher Education
Partnerships for
International
Development*

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Higher Education Partnerships for International Development



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Without adequate higher education and research institutions providing a critical mass of skilled and educated people, no country can ensure genuine endogenous and sustainable development and, in particular, developing countries and least developed countries cannot reduce the gap separating them from the industrially developed ones.

Sharing knowledge, international co-operation and new technologies can offer new opportunities to reduce this gap...Henceforth, partnership, based on common interest, mutual respect and credibility, should be a prime matrix for renewal in higher education.

UNESCO's World Declaration on Higher Education for the Twenty-first Century: Vision and Action

The examples highlighted within this publication are based on information found through various sources, including Internet Web pages, institution and organization publications and other sources, and newspapers and periodicals. Publication herein does not constitute ALO or USAID endorsement or confirmation of claims.

**Tapping America's Greatest
Sustainable Resource**
*Higher Education Partnerships
for International Development*

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1. Introduction

According to the U.S. Department of Education, of \$303 million invested by USAID in



U.S. higher education institutions bring an historic legacy of accomplishment to contemporary development challenges. United States colleges and universities have a long tradition of partnering with various U.S. Government agencies, as well as with foundations and local NGOs and other institutions in developing countries to:

- ❑ *Develop human capacity and educate future leaders* — Developing country graduates of U.S. universities hold responsible positions in their countries of origin and have developed viable in-country institutions;
- ❑ *Apply the advances of research and technology to development* — U.S. university research and technology have improved standards of living and economic competitiveness in many developing countries; and,
- ❑ *Help build sustainable institutions* — Long-term partnerships continue to build institutional capacity and enable scholars to work together on issues that span international boundaries.

U.S. higher education research and development programs address issues that lie at the crux of international development: in economic development, natural resource management and stewardship, health and civil society, and governance.

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Alex Khaydarov, left, of Tashkent State University; Khazan Sharipov, Uzbek Deputy Minister of Special Alloys; Michael Krasnyansky, President of Ameritest, and Mitch Fadem of Kent State University at the Ameritest site in Ohio. Tashkent and Kent State are establishing an Associates of Applied Science degree in Environmental Technology in Uzbekistan.

Much has changed since U.S. colleges and universities first began working in international development. It is now clear what works and what does not. New technologies such as the Internet enable faster and continuous communication, provide a way to keep graduates of U.S. institutions in touch and up to date in their fields, and allow more rapid response to developing country problems. A broader range of schools has become involved, including community colleges, liberal arts schools, and regional state universities. Perhaps most importantly, U.S. colleges and universities recognize that international development accomplishments have long-term *mutual* benefit for both the United States and developing countries.

U.S. colleges and universities have the expertise to make a significant impact on the challenges that face the developing world. What is more, they are the locus of many other untapped resources, modes of collaboration and creative approaches that can maximize their contribution to the global society.



Education

Higher education partnerships are an important long-term development assistance investment and should be a key aspect of United States international development collaboration. Such partnerships provide:

- ***Continuous access to critical expertise*** — In an increasingly technologically-interdependent world, rapid access to updated research, technical expertise and information on an ongoing, in-depth basis is critical. America's colleges and universities are highly responsive to human needs, all the more so as globalization and exponential population growth have raised worldwide challenges which need to be addressed. Long-term, sustainable higher education linkages foster a steady exchange of knowledge and skills between partnering institutions, with e-mail and distance-learning now facilitating a continuous flow of information.
- ***Cost-Effective Engagements*** — Pooling resources with a US institution or consortium bolsters a developing country university's capacity to meet development challenges. Through cost-sharing, institutions leverage their partner institution's resources without exorbitant costs; the whole becomes significantly greater than the sum of its parts. For example, in existing



Visitors from Novgorod State University, Russia, observe production techniques at the Mason-Dixon farm milking facility. In partnership with the University of Maryland and Purdue University, Novgorod is developing an environmental sciences and policy curriculum.

USAID-sponsored partnerships, it is not unusual to see higher education institutions contributing as much as 100% of USAID's share. Likewise, higher education's contribution can

leverage additional funding from potential partners in commerce and industry.

- ***Sustainable Results*** — Investments aimed at building higher education partnerships, strengthening institutions and training leaders yield long-lasting results in developing countries. People trained through such partnerships often move into posts in their countries as ministers, agency heads, university presidents and business leaders. Higher education collaboration also strengthens educational infrastructure—linkages build stronger, more responsive developing country institutions and promote long-term self-sufficiency. The capacity of overseas universities and other organizations to identify and solve problems at home, with indigenous human resources, is a critical factor in the sustainability of international development efforts.

The expertise (particularly in technology and training), cost effectiveness, and staying power of U.S. higher education institutions committed to partnering abroad make them a key American resource for international development. How do such partnerships work?



Members of the Hotel Association in La Paz, Mexico, discuss their workforce needs at the Universidad Autonoma de Baja California Sur (UABCS). Maricopa Community College in Arizona is assisting the region in development with UABCS.



How U.S. Higher Education Advance Development Goals

U.S. colleges and universities are a valuable resource for *sustainable* international development. In partnership with higher education institutions in countries around the world, they increase the long-term capacity of societies to improve the quality of life of their own people. U.S. colleges and universities support United States international development goals...

By stimulating broad-based economic growth and agricultural development

- *Snow Peas in Guatemala* — Virginia Polytechnic Institute and State University helped snow pea growers in Guatemala combat infestations of leaf miner, a problem that had led the U.S. to quarantine imports. This resulted in lifting the quarantine in 1997, and 20,000 small farm producers in Guatemala resumed nearly \$34 million in snow pea shipments.

The keys to broad-based economic growth are expanded human capacity through education and training, a policy environment that promotes economic opportunity for all members of society, sound institutions, and good governance. In most of the least developed countries, the transformation of agriculture and food systems is essential for such broad-based economic growth.



Dr. Jerry Maranville, a researcher at the University of Nebraska, examines sorghum leaves. University research has led to improvements in sorghum yield and other products of agriculture worldwide. *Photo courtesy of the University of Nebraska.*

- ***Pest Management in Indonesia*** — Clemson University and the Institut Pertanian Bogor created a Center of Excellence in Biological Control Training in Indonesia. Farmers using new pest management techniques developed by the Center earn \$700 more per hectare, per crop, than those who follow previously existing pest management practices.
- ***Soil Conservation in Honduras*** — Texas A&M University and Mississippi State University developed innovative soil conservation methods to protect sloped lands from erosion. These methods helped increase the net income of Honduran farmers by 15 percent.
- ***Sorghum Hybrid in Niger*** — Sorghum is a staple grain in Niger and other parts of Africa and in China and India. Purdue University and the National Agricultural Research Institute of Niger developed a sorghum hybrid that yields 50 percent more grain than the best local sorghum varieties.

Increasing human capacity through education, training and improved access to information is the basis of social and economic progress. Colleges and universities produce educated leaders and skilled professionals—from teachers who provide quality basic education, to decision-makers and practitioners essential for sustained growth and progress in all sectors.

By building human capacity through education and training

- ❑ ***Transferring Business Expertise*** — Maricopa Community College District in Arizona worked with the City of Phoenix training 19 delegations of business and government officials from Chengdu, China. In three years, 118 Phoenix professionals assisted in training 220 high-level managers of state-owned enterprises from Chengdu in economic development, including import/export policies and stocks and securities.

- ❑ ***Information Technology Education for Women in Africa*** — California State Polytechnic University-Pomona collaborated with Winrock International Institute for Agricultural Development in Arkansas on two Electronic Learning Network (ELN) projects in East and West Africa. Twenty female scientists and 15 multimedia trainers have been trained.



Agostinho Neto University (ANU) professor, Dr. Nelson Chuvika, trains government officials in Huila, Angola, on macroeconomic policy in April 1999. Together, the Mississippi Consortium for International Development and ANU are addressing the severe post-civil war shortage of skilled public administrators in Angola.

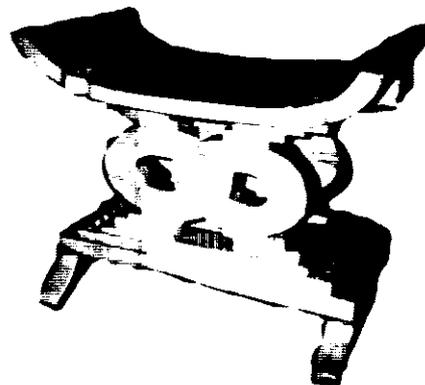
- ❑ ***University Strategic Planning Expertise*** — Through the efforts of the American Council on Education, several U.S. higher education institutions are collaborating on a project that pairs U.S. university presidents with South African institutions for consultation in strategic planning. The project also provides institutions with financial planning software, assistance with data analysis, and computer equipment and training.



Tim Robbins of Kirkwood Community College and Leopoldo Foster of Universidad Tecnológica Fidel Velázquez investigate the wastewater problem of Mexico City, from which over 2.5 billion gallons of untreated sewage pass daily. The two institutions are working together to create wastewater management, operator training, and program development assistance throughout Mexico.

- ***Training Managers*** — Carnegie Mellon University transferred a computer simulation program to the International Management Institute (IMI) in the Ukraine and, in one year, trained more than 200 Ukrainian banking executives. MBA students at IMI made a series of corporate site visits in the Eastern U.S. to gain planning expertise in fee-for-service consulting projects. DuPont, Digital Equipment Corporation, and Ukrainian International Airlines are already among IMI's clients.

- ***Business Training in Swaziland*** — California State Polytechnic has partnered since 1992 with the University of Swaziland and Swaziland College of Technology to strengthen institutional capacity in business management and accounting. Swazi faculty with advanced degrees increased by 43 percent. Commerce faculty trained in information technology increased from 40 percent to 100 percent.



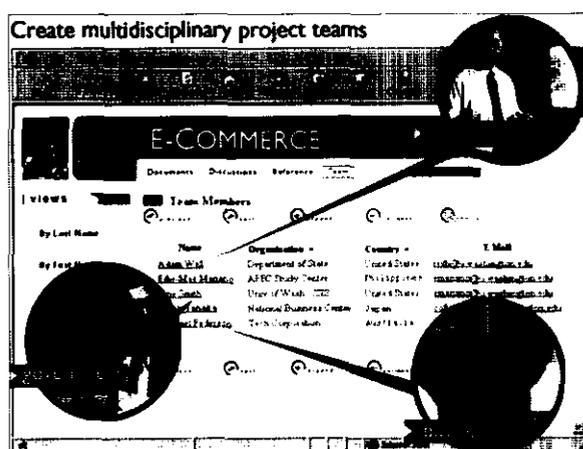
Carving this stool can take a master craftsman five days. The University of Maryland, Eastern Shore and the University of Cape Coast in Ghana suggested time-saving and inexpensive methods for creating this and other drafts.

Environmental degradation threatens human health, undermines long-term economic growth and impairs critical ecological systems. Not only are countries affected directly by environmental issues such as global climate change, biodiversity and pollution, but struggles over land, water and other resources can lead to instability and conflict, which may become direct threats to security—both in developing countries and the U.S.

By protecting and enhancing the environment for long-term sustainability

- **Ghana and the Environment** — Central State University in Ohio joined Ghana's University of Science and Technology, establishing an Environmental Analysis Lab to monitor pollution's effects on Ghana's countryside.
- **Environmental Training in Eastern Europe** — The Environmental Training Project (ETP), targeting countries in Eastern Europe, began in 1992 as an agreement between USAID and the University of Minnesota. ETP has delivered over 150 courses and trained over 12,000 participants, including continuing education for 2,389 public officials and private industry managers. ETP alumni have initiated investment projects totaling over \$1 billion.
- **Biotechnology Education in Ghana** — The University of Cape Coast (Ghana) and Eastern Washington University (EWU) have developed a lab on the Cape Coast, where EWU faculty teach biotechnology courses, give workshops on curriculum development, and provide research and consultation on environmental erosion.
- **Ecology Training in South America** — The Center for Tropical Ecology at the University of Missouri-St. Louis trains students from over 20 developing countries—38 Ph.D. and 45 M.S. students by 1998. One

graduate is now director of Guatemala's National Museum of Natural History, the first woman in her country to receive an advanced degree in biology. Another graduate is Coordinator of Biodiversity Research Programs in the Caroni River Basin while another is director of the Parupa Research Station in Venezuela.



The University of Washington and Chulalongkorn University in Bangkok, Thailand, are applying Internet technology to the Asia Pacific Economic Cooperation Forum's Southeast Asia Coastal Zones project to aid in regional water resource management.

By strengthening democracy and good governance

- ❑ ***Conflict Resolution in Haiti*** — In 1998, the University of Florida's Center for Governmental Responsibility conducted workshops on conflict resolution skills for 150 faculty and students at the University of Haiti. The Center also conducts a Haiti Conflict Resolution program with workshops for teachers, police, and women's groups. It has trained 500 people since 1996.
- ❑ ***Human Rights Training in Uganda*** — The University of Florida and Makerere University have established the Human Rights and Peace Center (HURIPEC) in Uganda. HURIPEC is devoted to teaching, researching and compiling local/regional materials on human rights.
- ❑ ***Journalist Training in the West Bank*** — The University of Missouri is collaborating with Birzeit University in the West Bank to train Palestinian journalists in accurate and objective reporting. The partnership promotes citizen discourse and has attracted additional support from agencies in Sweden, Finland, and Germany and from the Voice of America.
- ❑ ***Public Law Training in Argentina*** — Yale University Law School partnered with the University of Buenos Aires, Argentina, to establish a Master's program in public law. This linkage has increased the pool of law school graduates in the Southern Cone who have been exposed to progressive thinking about law, democratic institutions and the role of women in society.
- ❑ ***Judicial Training in Russia*** — A dean from the University of Wyoming, a judge, and a local attorney trained regional judges in Saratov, Russia, to conduct jury trials. Educational exchange and collaborative research on political reform continue for students and faculty in both countries.



Democratic processes encourage people to take responsibility for their own progress, protect human rights and foster participation. Democracy requires transparent and accountable government, fair and effective judicial systems, access to information, and citizen participation.

By stabilizing world population and protecting human health

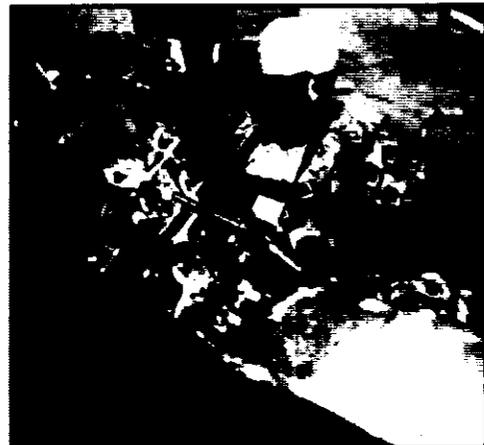
- ***Professional Health Association Development*** — Training at the University of Connecticut gave participants firsthand exposure to the effective, activist roles of professional associations and provided them with materials on maternal childcare. One student took what she learned and turned the Association of Pediatrics in Uzbekistan into a formidable force for medical training—increasing the Association's membership to over 300, training more than 150 doctors in the prevention of various diseases, and educating over 200 women about the advantages of breast feeding. She also opened a private clinic, which trains nearly 80 doctors per year in new techniques for patient care.
- ***Developing and Marketing Weaning Foods Through Kenyan Cooperatives*** — At least one-third of Kenyan children under age 5 suffer from malnutrition as they are transitioned from breast milk to solid foods. Pennsylvania State University, Tuskegee University and the University of Nairobi have worked with 88 women's groups in Kenya to develop and market culturally appropriate weaning foods through cooperatives. The collaboration has fostered two Nutribusiness Cooperatives with over 1,000 rural women members.
- ***Ebola Virus Containment in Zaire*** — Tulane University has partnered with the Kinshasha School of Public Health in Zaire to train health professionals. Over 50 percent of the health professionals in the country are graduates of the school. In 1995, 185 people trained at the school successfully handled containment of an Ebola virus outbreak.
- ***Trauma Medicine Training in South Africa*** — Howard University's School of Medicine and the University of the Transkei in South Africa are producing an Internet educational package in emergency and trauma medicine for health care facilities like Umtata General Hospital, where none of the physicians or nurses has formal training in either area.

Stabilizing population and improving health and nutrition are essential elements of development. People who are well-nourished and free from disease can contribute to social and economic progress. Improving health of women and girls enhances child survival, family welfare, economic productivity and prospects for population stabilization.

Crises destroy resources for social and economic progress, interfere with the creation and sustainability of free markets and democratic institutions, and usually have the greatest impact on the poor. Timely humanitarian assistance can enable victims to resume their normal lives more rapidly.

By saving lives, reducing suffering associated with natural or man-made disasters, and reestablishing conditions necessary for political and/or economic development

- ***Disaster Relief in the Caribbean*** — CASS (Cooperative Association of States for Scholarships) students at Reedley College acted quickly to coordinate a food and clothing drive following Hurricane Mitch. The faculty, staff, and students of Reedley College and the residents of Reedley, California donated 1,357 cans of food and 1,510 pieces of clothing, which a local furniture company volunteered to deliver to the International Red Cross in Los Angeles.
- ***Technical Institute Training in Guyana*** — St. Louis Community College helped Guyana train more than 200 staff of its technical institutes to prepare the skilled labor force required for the country's economic revival.
- ***Wheelchair Production*** — San Francisco State University's (SFSU) Whirlwind Wheelchair network, started in 1980 by an SFSU scientist, has established workshops to design and produce wheelchairs in 26 developing countries worldwide. The chairs are not only affordable, but are designed in each country to meet specific cultural requirements (such as floor-level cooking and eating in the Near East and Asia) and terrain challenges.
- ***Rebuilding Guyana*** — St. Louis Community College helped Guyana train more than 200 staff of its technical institutes to prepare the skilled labor force required for the country's economic revival. Other member institutions of Community Colleges for International Development recently shipped 180,000 pounds of school supplies to Guyana.



Fanama Achan welds a wheelchair in a jig designed in a collaborative effort between builders in Kenya and Whirlwind Wheelchair International (WWI), a program at San Francisco State University.



Benefits to the U.S.

Experience has proven that when U.S. universities contribute to international development, it benefits the U.S. as well as developing countries:

- ❑ The application of insights, knowledge and practice gained from international partnerships for development helps bolster America's competitive edge in areas as diverse as infectious disease control, agriculture and information technology;
- ❑ American faculty and students develop sharper global perspectives from working in development;
- ❑ Higher education partnerships provide an effective means of building and strengthening bridges of understanding and cooperation between the U.S. and other nations, contributing to global stability and peace; and,
- ❑ U.S. colleges and universities are the first choice for students worldwide. About three-fourths of foreign students in the U.S. come from developing countries. Foreign students comprise only 3 percent of America's higher education enrollment, but they have a significant impact on U.S. campuses and communities. According to the U.S. Department of Commerce, higher education was the U.S.' fifth largest export in 1997, with foreign students contributing more than \$7.5 billion annually to the economy through tuition and living expenses.

Below are just a few examples of how concrete benefits are provided back home as a result of partnerships between U.S. universities and developing countries:

In Economic Development and Productivity

Increasing Sorghum Productivity — Sorghum is fed to two-thirds of non-grazing cattle in the Southwest and one-third in the Midwest. Damage by greenbug to sorghum is estimated to cost U.S. producers \$248 million annually. Texas A&M University and DeKalb Plant Genetics Corporation developed greenbug-resistant sorghum hybrids, using sorghum germplasm from Russia. In 1991, the economic gain to the U.S. from use of these hybrids was \$389 million.

In Environment and Natural Resources

Pesticide Use Reduction — The University of Georgia, with partners in Jamaica, the Philippines and West Africa, led a project which resulted in a pest management strategy that eliminates the need for 42,000 tons of chemicals yearly for peanut production in the United States.

In Educational Innovation

Public Education — Florida's School Year 2000 project aims to serve as a new model for public education in the state. It arose as a direct consequence of a USAID-funded effort run by Florida State University to overhaul South Korea's primary and secondary educational systems. The U.S. effort is creating a new educational system in Florida that is learner-centered, competency-based, and supported by technology.

In Health

Immunization Scheduling — Columbia University and Harlem (New York City) health officials collaborated with counterparts in Mali on record-keeping procedures in both Mali and Harlem. The International Road to Health Card, developed in Mali by Columbia University to help illiterate or semi-literate parents remember scheduled vaccinations, is currently being adapted for use in New York City.

In Increasing Global Understanding

Student Exchange — A 1996 university student exchange program helped to advance long-term relationships among students and faculty at the University of Illinois at Urbana-Champaign, Southern Illinois University at Carbondale, and St. Petersburg State Agrarian University in Pushkin, Russia. In addition to benefiting developing countries, student exchanges and long-term partnerships with developing country higher education institutions result in the "internationalization" of U.S. universities and their faculty and in the preparation of internationally-literate graduates.



United States as a Legacy of Higher Education Research

United States higher education has a tremendous wealth of technical resources at its disposal to address complex international development issues. From its pioneering role in the green revolution in the 1960s, to seminal research on problems of climate change and biodiversity loss, to information technology and distance learning today, higher education is continually experimenting with innovative ways to address global development challenges. With the rapid globalization of the world's economy and explosive advances in telecommunications, institutions of higher learning have moved to address the manifold challenges that have arisen in the "New Information Age."

Aside from their obvious role of preparing women and men to become productive members of society, U.S. institutions of higher learning play a pivotal role in the advancement of knowledge through groundbreaking research and outreach programs. Landmark discoveries at university campuses and research centers—often the end result of assiduous application of the scientific method and sometimes a bit of serendipity—have allowed humankind to enjoy quantum leaps in quality of life.

Pivotal moments in this legacy include the following:

1926 - *The chlorinated water purification system* was developed by Johns Hopkins University. It was eventually adopted by every major municipal and industrial water supply system in the United States and many other parts of the world;

1930s - *The science of birth-control pharmaceuticals*, which led to the birth control pill, was developed by Clark University and Penn State University;

1950 - *The standard malaria preventive pill* was developed by the University of Chicago;

1954 - *The Salk polio vaccine* was developed at The University of Pittsburgh;

1959 - *The intrauterine birth control device* was invented at SUNY-Buffalo;

1972 - *The existence and significance of the acid rain problem in North America* was documented at Cornell University;

1980 - *Research which warned about the environmental dangers of diminishing rain forests* was first conducted at Washington University in St. Louis;

1980s - *Hurricane damage mitigation* was studied at Duke University and the first program was developed for studying and analyzing development along the East and Gulf coasts of the United States in an effort to mitigate hurricane damage;

1985 - *The first vaccine against bacterial meningitis* was developed at the University of Rochester;

1987 - *The first vaccine against salmonella* was developed at Washington University in St. Louis; and,

1989 - *The first post-Cold War program for educating Soviet business managers* in free-market business practices was conducted at Duke University.

Through ongoing efforts, universities have also revolutionized agriculture by developing vaccines and treatments that have eliminated or controlled hundreds of plant, poultry, and livestock diseases, and by developing high-yielding, disease-resistant fruits, vegetables, and grains. Rutgers University alone is credited with developing 80 major varieties of fruits and vegetables.

When working with higher education institutions, federal agencies usually pay neither top dollar nor first dollar because of a large, existing infrastructure of scientific expertise. In 1998, U.S. colleges and universities were awarded more than \$575 million in royalties from inventions licensed to industry. Federal agencies invested some \$13 billion for college- and university-based research in FY 1997. This wide-ranging knowledge and capacity stand at the ready for application to a variety of development challenges.



ing on Board

Higher education partnerships offer a cost-effective, innovative, and sustainable means of advancing the development agendas of the United States and cooperating countries. Collaborative projects in areas as diverse as public health, human rights, agriculture, information technology, and tourism strengthen skills of the local population, which translates into a more robust and stable host country economy. This, in turn, provides a more dynamic market for American goods and services.

Higher education partnerships afford access to cutting-edge practices for the solution of complex problems and can mobilize vast resources around key development tasks. Higher education partnerships can improve the quality of life in developing countries by equipping people to improve their diets; provide potable water; inoculate children against preventable diseases; build sturdier homes; and use the power of literacy.

Higher education partnerships have proved to be one of America's greatest sustainable resources for international development and have many untapped resources available to serve the global society in the future.

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Economic development is increasingly linked to a nation's ability to acquire and apply new knowledge. For this, countries need skilled people, knowledge institutions, learning networks, and well-developed information and communication infrastructures. Tertiary education institutions, as knowledge institutions, play a critical role in the creation and transmission of knowledge, in the training of a competitive workforce, and in developing business, civic and political leaders. Through research and development activities (R&D), universities provide technical support to and product innovation for the private and public sectors.

***The World Bank and
Tertiary Education, 1999***