

Restructuring Higher Education for the Transition to a Market Economy: The Experience of the Higher Institute for Agricultural Cooperation

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Institution building was an early strategy for the development assistance programs of both the bilateral and multilateral donors. This strategy addressed both the physical infrastructure of developing nations and the strengthening of public sector service providers. The latter included statistical services, specialized equipment, and training for public sector employees, as well as assistance for education and other sectors involved in building the stock of national human capital (Brookings Institute, 1977; McPherson, 1981). Since the post-WWII period, development assistance strategies have changed, emphasizing the “poorest of the poor,” sector development (e.g., agriculture), ideological competition (e.g., the Cold War), and more recently private sector support. In general, these changes have been driven by the interests of the donor nations, the current global economy and country-specific conditions, and a growing understanding of the factors associated with the growth and development of economies.

Among the results of the decades-old “lack of an inner compass” for development assistance has been the reduced support for these endeavors by the developed nations. This is not a surprise. If the general public cannot be assured that there is a successful strategy and/or if the strategies change often and are not successful, it is understandable that there will be reduced financial and other support for development assistance. In the United States, the shifting strategies for development assistance and concerns about tangible results also have impacted support for both higher education and agriculture as keys to assistance strategies (McCalla, 1998; McPherson, 1981). In the former case, there was a shift to deliverers of foreign assistance away from the universities to what are commonly called the Washington “beltway” consulting firms. The presumption has been that these firms would deliver more quantifiable, short-term results. In the latter case the shift has been in

response to strong opposition from agricultural and commodity associations. These interest groups have argued that assistance to agriculture would increase competition in international markets and reduce export opportunities for U.S. agriculture.

In this presentation we report on a successful institution building effort in Egypt. The main cooperators have been the Higher Institute for Agricultural Cooperation (HIAC) and Iowa State University (ISU). The project is noteworthy for its accomplishments in Egypt, contributing to the national objectives of improving higher education and accelerating the transition to a market-based economy. It is also significant for its implications for higher education institution building as a development strategy. In this connection, at least two elements seem of interest. First, HIAC is an institute that trains students for jobs in technical management and for administrative positions in the emerging private sector. Second, the focus of the initiative was agriculture, the lead sector for economic reform. Thus, the initiative was in tune with the national market driven priorities and the choice of a lead sector for implementation of the reforms.

Our purpose is to report on the HIAC/ISU cooperative effort, and to make generalizations that seem appropriate about higher education institution building as a development strategy, the focus of development assistance on agriculture, and the emerging more critical role for higher education institutions for nations receiving development assistance, given our modern and improved understanding of the growth and development process. We begin with a brief review of the structure of the higher education system in Egypt. The purpose is to provide perspective for HIAC and the HIAC/ISU project. Then we discuss the history and evolution of HIAC/ISU project, followed by a section

on lessons learned. Finally, we return to the broader issues of development assistance, the institution building strategy, and what we believe is a growing role for cooperation in higher education between HIAC and ISU for the success of future development assistance efforts.

The Structure of Higher Education for the Agricultural Sector in Egypt

Agriculture is the oldest of the professions in Egypt. It evolved originally to achieve family and personal sufficiency in food and other necessities of life. Irrigated agriculture in Egypt has changed slowly over time, even though managed under quite different economic systems. Recent years have witnessed rapid development in technology and the concepts driving the policy and organization of agriculture. Especially since 1980, the structure of agriculture in Egypt has experienced accelerating change. Beginning in 1980, major economic reforms were introduced in Egypt that were designed to achieve a transition to a market economy. Because of its importance in Egypt and concerns about food production and food security, agriculture was selected as the lead sector for this economy-wide transition. Also by virtue of its smallholder structure and the independent nature of the Egyptian farmer, agriculture was the sector most ready for the transition to a more free-market orientation, and to precede other sectors in the process of privatization—a significant first step in the market transition.

Agriculture and the economic transition

Agriculture was also a logical first choice for the lead sector in the transition to a market-based structure because of the previous heavy involvement of the government. Price and input allocation, including credit, had been under government control. Much of the processing and distribution system for agricultural and food commodities was under government ownership. This was especially the case for the export commodities and for the staples. The result was a system that imposed high government costs and performed at a relatively low level in terms of productivity. Finally, the public control and monopoly had resulted in relatively slow technological innovation during a period of increasing technical change in the global agriculture and food production system.

It is perhaps remarkable that agriculture education with its numerous and established organizations did not keep pace with the evolving nature of the economic structure for Egyptian agriculture. Outdated principles of economy and agricultural technology continued to be the focus of higher education in the institutions serving agriculture and the agribusiness sectors. For example, in the areas of management and administration, the institutions continued to use curricula that were developed to serve the former planned economy. As well, there continued to be a separation of the research, education, and extension missions of the institutions serving agriculture. Particularly in the case of research, this meant that the newest technologies for the agriculture and food sectors were not reaching the students. Finally, modern teaching and learning methods were slow to find their way into the routine activities of the higher education institutions.

It was necessary to effect changes to better cope with the new human resources requirements of Egyptian agriculture, the aim of which was now national self-sufficiency and the exportation of surpluses compared with a past emphasis on household self-sufficiency. This change has been in response to the growing urban population in Egypt and an increasing dependence on food imports. With the market reforms came the fuller expression of comparative advantage and specialization, leading to a focus on export markets for high value, labor intensive crops. This, too, resulted in new demands for the higher education system and greater emphasis on postharvest technology as well as modern systems of assembly, processing and distribution. From the view of support for this new structure, there was increased emphasis on agribusiness and processing and assembly technologies to reduce losses; reaching global markets; and the functioning and organization of domestic markets.

Agricultural education in Egypt

At the beginning of the nineteenth century, and with the independence of Egypt from the Ottoman Empire, an agricultural renaissance started. Agricultural technical schools were initiated to support the increasingly complex agricultural production and emerging export-oriented distribution system. Late in the nineteenth century, higher education began for agriculture. Early in the twentieth century (1908), a national university was established, which became Cairo University in 1925. The establishment of new universities has continued in Egypt. Most

major cities now have a university. In particular, there are now 13 universities, 17 faculties of agriculture, and 8 faculties of veterinary medicine. There are also two private institutes serving agriculture—HIAC in Cairo and the Higher Institute of Agricultural Cooperation and Extension in Assiut (Upper Egypt).

At a more practical level there are 106 agricultural technical secondary schools, distributed among the 25 governates of Egypt. The main function of these technical schools is to prepare students with skills for careers in agriculture and related sectors. Many of these technical schools are specialized to the types of agriculture of their governates. Students enroll in these agricultural technical skills and graduate as skilled agriculture industry laborers or farmers.

It takes four years after obtaining a High School certificate to graduate from an agricultural university. Each agriculture faculty graduates 500 to 1,000 of these students per year. Study with the veterinary faculties requires five years after receiving the secondary school certificate. The growth area for employment of graduates from agricultural universities is the emerging private sector. All faculties of agriculture and veterinary medicine award B.Sc., M.Sc., and Ph.D. degrees. The total number of faculty (staff and researchers) at the universities dedicated to agricultural education is 3,700 for the faculties of agriculture and 1,172 for the faculties of veterinary medicine.

In addition to faculties of agriculture and veterinary medicine, there are the two private institutes mentioned previously: HIAC in Cairo and the Higher Institute for Agricultural Cooperation and Extension in Assiut. Both are now private institutes, but remain affiliated with the cooperative unions in Egypt. The cooperative unions now are also freestanding and not a part of the public sector. These two private institutes are largely self-financed, increasingly from the tuition and fees paid by their students.

The number of students joining these two private institutes yearly is about 5,000: 4,000 to HIAC in Cairo and about 1,000 to the Assiut Institute. About 75 agricultural schools in the 18 governates are served by the graduates of these two institutes. As well, there are agricultural technicians (assistant engineers) working in the 6,500

rural cooperative organizations who complete their education at these institutes, having acquired practical experience for several years. Generally, these prospective students work in the fields of agricultural and cooperative extension, administration, marketing and land reclamation. These experienced students spend four years at these two institutes to receive the B.Sc. degree. Most of them have arrangements with their employers that allow them to maintain their jobs while studying for the B.Sc.

HIAC serves many of the students coming from work experience with the cooperatives and agricultural extension, or who have already begun their careers in agriculture. It is noteworthy that approximately 90,000 students have graduated from HIAC over the last 30 years. Most of these graduates worked in agriculture before coming to the Institute; a few worked in the fields of agriculture technical education, retail trade, and the industrial and service sectors. The important feature of HIAC's role in serving the economic reform of agriculture is that the students who graduate go almost immediately into jobs within the agricultural sector. Perhaps to a greater extent than in the case of the other faculties of agriculture in Egypt, HIAC provides a means of targeting higher education to directly serve the economic transition process.

Agricultural research in Egypt

Agricultural research in Egypt has evolved to be organized around institutes. In 1883, the first Committee for Agricultural Research in Egypt was formed to study the control of the cotton leaf worm. In 1897, the Khedevite Agricultural Society was established with a broader research mandate, and preceded the formation of the government organized research service. In 1910, the Agricultural Department which managed agricultural research was organized as an affiliate to the National Ministry of Public Works. Finally, in 1913, the Ministry of Agriculture was established. The Ministry organized a Technical Research Committee in 1928. In 1971, the Agricultural Research Center (ARC) was established and affiliated with the Ministry of Agriculture and Land Reclamation. The ARC was assigned the responsibility for drawing up and carrying out projects and developing a strategy for publicly supported agricultural research in Egypt.

The ARC now includes 16 research institutes and nine central laboratories. It employs 2,550 professors (research chiefs), assistant professors (senior researchers), and lecturers (researchers) all holding Ph.D. degrees in the agricultural sciences as well as about 1,335 assistant researchers holding M.Sc. degrees. The ARC has 47 regional and branch agricultural research stations and 21 extension field stations. The Center also has responsibility for the National Agriculture Library of Egypt.

A number of the major international agricultural research centers have branches in Egypt, and participate in research programs with the ARC. These include the International Rice Research Institute; the International Center for the Improvement of Maize and Wheat; the International Center for Potatoes; the International Center for Agricultural Research in Dry Areas; the International Institute for Food Policy Research; and the International Center for Living Aquatic Resources Management. In many cases these international centers work with the ARC in carrying out research projects that are financed by international donors.

Extension and training in Egypt

Agricultural extension and training in Egypt is evolving with the transition to the market economy. The following public sector organizations participate in extension and training.

- The Ministry of Agriculture through its Training Center specializes in technical courses for agricultural technicians and specialists, including participants from other African nations, Latin America, and selected Arab countries.
- The Training Center affiliated with the Central Agricultural Cooperative Union, in close cooperation with the Training Center at HIAC, offering courses in an array of technical and administrative areas.
- HIAC through its Training Center, which was transformed into the Agribusiness Research, Training, and Information Center (ARTIC) as a part of the project with ISU offers courses emphasizing management and business organization.

The ARTIC holds long-, medium-, and short-term training courses for those working in agriculture in Egypt (with an emphasis on agribusiness, marketing, and other skills and resources for successful participation in the market economy). Foreign participants are also served by this Center. The ARTIC as well undertakes training for specialists working in the fields of food processing and distribution, retail trade, export markets, land reclamation, and modern agricultural production technology. It also takes part in preparing trainers for the Egyptian cooperative movement as well as specialists for global and regional organizations such as the International Fund for Agricultural Development, the Food and Agriculture Organization of the United Nations, the International Labor Organization, and the Arab Cooperative Federation.

The History and Evolution of HIAC

In 1960, a cooperative training center affiliated with the Ain-Shams University was established. The course of study within the training center was for one academic year. The curriculum was structured for a long-term training program open to graduates of agricultural technical secondary schools. The objective was to prepare the participants for work in the cooperative societies and in the branches of the Agricultural Credit Bank of Egypt located in rural areas. In 1965, the course of study at the training center was extended to two years, allowing the center to award graduates a two-year diploma in cooperative studies. Students studied a curriculum of social, economic, and cooperative sciences. Among the most important components of the curriculum were agricultural economics, farm and cooperative management, and agricultural extension.

In 1968, the course of study at what is now HIAC was extended to four years and in 1972, HIAC became a formal and accredited four-year program. Secondary school graduates were allowed to join HIAC whether in the year of their graduation or after working for a period of time. Until 1987, the course of study at HIAC was not significantly different from courses of study in the departments of economics at the other Egyptian universities. The main difference in the graduates from HIAC was in the background of the students.

The modern era for HIAC

In 1987, the Institute made a major orientation change and began to specialize more in economic sciences, extension, and agricultural organization. Curricula were changed to reflect the market transition in Egyptian agriculture, which was already underway. The priorities of HIAC for supporting the new Egyptian agriculture were in both education and training. Past graduates and undergraduates had studied courses that served well the planned economy and associated institutions. This economy was largely directed by a central authority and the implementation of associated governmental plans. Students educated in these traditions knew little of agribusiness management and the functioning of market economies. HIAC began to reformulate the course of study for its graduates, giving greater emphasis to mathematics, statistics, computer science, land reclamation, and new lands cultivation. Economic studies were increased to include accounting and corporate finance, price analysis, marketing, information systems, and project or feasibility analysis.

During this period the Institute also initiated graduate diplomas for Egyptian students and for students from the Arab nations. These diplomas were in selected areas: feasibility studies and agriculture project evaluation; agricultural and cooperative marketing; agricultural and cooperative finance; cooperative accounting; cooperative education and training; cooperative extension; and cooperative information systems.

The mission of HIAC had changed in response to the demands of an agriculture guided by markets. However, the available national experience for supporting the associated reforms in the curriculum of HIAC was limited. It was necessary to more fully access the Western model of administrative sciences and business education. This was the reason for the initiation of the cooperation between the Institute and the Center for Agricultural and Rural Development (CARD) at ISU.

The cooperative HIAC/ISU project

With financing from the United States development assistance program, the Agribusiness Research, Education, Training and Media Center (ARETMeC) project was established. The first stage of the project covered the period from 1993 to 1995 and the second

stage from 1995 until the present. Both stages to date have been financed by a total of 41 million Egyptian Pounds or approximately \$12 million U.S. In addition to these resources in the form of development assistance, about 6 million Egyptian Pounds was allocated from the Institute budget to support the restructuring of the education and training programs. The funds for the HIAC budget were mainly allocated to improving the infrastructure of the Institute. The major additions to the infrastructure and educational capacities of the Institute were in the areas of technology and equipment; a demonstration and training facility; materials for education; training of faculty and staff; and technical assistance.

Technology additions included English language laboratories; four computer laboratories; training facilities equipped with up-to-date electronic audio/video equipment; media studio with full capacity for large-scale audio and video reproduction; three electric generators; computers and software necessary for support of the administrative work of the Institute; and a modern electronic information network connecting with national and international communication and library resource systems. Other additions included six laboratories for support of education and training in technical agricultural sciences, equipped with the necessary hardware and with audio/video instructional aids; four buses for transporting students and trainees; three cars for official use; and audio/video equipment in several lecture halls.

As a key part of this project with CARD at ISU a demonstration and training facility, known as the Post Harvest Center, was established on an area of 40 hectares in the New Lands. The center includes a hostel to accommodate 400 student/trainees, an administrative building, a facility equipped for processing fruits and vegetables, and six buildings for workers and farm equipment. Twenty large green houses also were constructed. Farm machinery necessary for the center was acquired, including tractors, cultivators, planters, sprayers, and fertilization equipment. Two deep wells and appropriate water pumps and distribution networks were established at the Post Harvest Center and necessary control instruments were purchased.

Materials purchased for education included library books and reference materials necessary for the new curriculum at the Institute and computers for all senior faculty and

other teaching staff. Additions in the area of human capital included extensive training of professors, technicians, and administrative staff in the United States for various periods of time; support for scientific missions to Egypt by professors and technical experts for participation in projects to upgrade the education and training programs; joint research projects implemented by Egyptian and U.S. partners; and preparation of trainers by their participation in similar programs within the United States.

Additional technical assistance included support of long-term resident ISU professors for teaching courses at the Institute and assisting HIAC professors with the introduction of new materials in the curriculum; support of joint conferences; and participation in training programs on design and implementation of extension services.

In general, more than 70 percent of the cost of the two-stage project was allocated to these activities and to improving the physical infrastructure at HIAC. This allocation of resources represented a true lack of self-interest by the two cooperating parties and a genuine sense of commitment to the success of the enterprise developed at these two institutions from developed and developing nations. There was a clear vision of the objectives of the cooperation and there was efficiency in the allocation of the donor assistance and the resources of the Institute and ISU to the achievement of results consistent with these objectives.

The ARETMeC project was implemented using a five components structure: research and data base development; education, including the B.Sc. and Diploma programs; training directed at both the practitioners in Egyptian agriculture and agribusiness as well as the Institute faculty and staff; media and extension, preparation of materials, and the organization of conferences and workshops; and the Post Harvest Center.

Results for the HIAC/ISU project

The indicators of the success of the cooperative project between HIAC and ISU are important for the future of reforms in the agricultural and agribusiness sectors in Egypt, but as well for assessing the impacts of this higher education institution building effort. The results are summarized by the above-mentioned five components of the ARETMeC project.

The research and data base development component

A research unit has been formed within the Institute. Professors and contributing experts provide training on research methods and undertake joint research in the fields of agriculture and food systems development. Modern Internet connections have helped this unit conduct timely, policy-oriented research in cooperation with the ISU faculty and staff. Research topics and results have included assessments of the efficiency of the food processing and distribution sector; trade analysis for support of the import of staple foods and the export of high-value crops and products; efficiency of irrigation systems in the New Lands; cropping pattern changes with the onset of the economic reforms; cooperative restructuring; and marketing systems for the high-value crops. Workshops, national conferences and industry and scholarly publications have been used to disseminate the results of the research. In addition, the HIAC researchers are called on for advice on the changes in policy that are accompanying the market transition of Egyptian agriculture and agribusiness.

Education

The accomplishments of the education component are perhaps the most remarkable. A major restructuring of the curriculum as well as the materials to support the education of the students at HIAC was accomplished. These required the participation in training programs in the United States for up to one year by nearly all of the professors and department heads at HIAC. In addition, the senior professors studied the English language to assure access to the modern materials and concepts available for the western curricula adapted to HIAC. The dedication of the faculty at HIAC was critical to the speed and range of the change in the curriculum.

Changes completed at the B.Sc. level included revising, adapting, and modernizing the B.Sc. curriculum; training professors, assistants, and technicians; producing specialized materials and educational aides for the courses; introducing English language into the courses; increasing the amount of computer education; adding more involvement of students in research; and improving labs and practical training through the PHC and other experiential learning approaches.

Changes completed at the postgraduate level (diplomas) included adding three diplomas in English that are cooperative with ISU; on completion, students can transfer to ISU for the MBA degree. These diplomas are in agribusiness, accounting and finance, and education and communication. The existing diplomas in Arabic language have been enhanced and modernized to include materials that are consistent with the English language diplomas and to include concepts to prepare the students for the emerging market economy in Egypt.

After the implementation of the project, education and training changed in both method and substance. Outcomes can be measured in terms of the graduates from the education and training programs, all of whom readily find positions in the traditional areas of employment or in the growing private sector. The leverage on the investment in this institution building project is indicated by the following results. Every year, more than 3000 students graduate with the B.Sc. degree and 150 from postgraduate diploma programs, all qualified with the up-to-date curricula and technical skills necessary for success in an agricultural and agribusiness sector that is increasingly market oriented.

Training courses, whether for previous graduates working in the agriculture and food sectors or for authorities and organizations, are now regularly held. There are about 150 of these courses per year in a range of areas linked to the economic reform in Egypt, the outputs of the research program at HIAC, and new technologies related to computers and information systems. These training courses are attended by about 5,000 trainees per year. Programs for the preparation of trainers are also provided at the Institute. The training is in methods as well as in substance. About 250 persons complete these “train the trainer” courses per year.

Media and extension

Distance education and training have become a reality at HIAC as well as for Egypt. Media and extension methods have been combined with training and education efforts through the production of films and other support materials for training and education. Production of these materials has become permanently demanded by the extension organizations of the Ministry of Agriculture, cooperative organizations, and by the

private sector. These training and educational materials help HIAC partner with other organizations assisting the growth of agriculture and agribusiness in Egypt.

The Post Harvest Center

The Post Harvest Center has had a major impact on Egyptian agriculture, especially in New Lands and among agricultural producers and marketers. The focus of the training at the Center has been modern agriculture production and processing technology, marketing methods, and the steps necessary for better accessing of local and international markets. At present, it provides an applied scientific laboratory that supplements the mission of education and training of the 18,000 students at HIAC and those practitioners who come for short course and specialized programs.

Finally, it should be added that the enrollment at HIAC has increased significantly over the period of the HIAC/ISU collaboration. At the beginning there was an enrollment of about 12,000 students. The increase of 6,000 students was due in part to the attractiveness of the restructured education programs and in part to the confidence of the government officials who have increased the enrollment cap at HIAC.

This enrollment increased over a period when the tuition and fees at HIAC more than tripled. Egyptian students and their sponsors are willing to pay for this type of education. It is also of note that the qualifications of the students admitted to HIAC has improved, even with the increase in enrollment. In Egypt, students are placed in the higher education institutions by examination. The entering students have increased their median score about 20 percent during the period since 1992. In addition, the Institute is supporting the priority of the government for increasing the participation of females in higher education. Even though most of the students at HIAC still come from rural or agricultural backgrounds where the families are the more traditional, the enrollment of females at HIAC is now above 35 percent.

Lessons Learned and Implications for Other Nations and Institutions

The process of developing HIAC and the cooperation with ISU provide a basis for a number of observations regarding collaboration that may be of use to other institutions in developing and developed nations. These range from relationships with donors to relationships with the government of the host institution. As well, they concern how the process of cooperation unfolded. We review selected lessons learned by HIAC and ISU in the case of Egypt and the United States. Perhaps some of these lessons will prove to be enlightening for others engaged in the process of building and repositioning institutions of higher education.

Processes of cooperation

One of the particulars of the HIAC/ISU project was the way the donor funds were made available. These funds were from balances from U.S. assistance commitments over which the Egyptian government had principal control. There was a requirement for U.S. concurrence, but the funds were essentially under the decision of the Government of Egypt (GOE). Two implications followed from this situation. First, there was a conscious decision of the GOE about the project. That is, the project was selected by the GOE over other priorities. This made it difficult to compete for the funds. But those representing the interests of Egypt made the decisions. Second, continuing pressures for accountability were the result of the way the funding was made available. Each time the funding was renewed, careful documentation of prudent use of previous funding and tangible results were required.

A related aspect of the funding was that the allocations for the project came to HIAC, not ISU, as might have been the case if the project had been funded through normal development assistance channels. HIAC then subcontracted with ISU. Again, the primary responsibility for the funds was with the institution that had the most at stake relative to the success of the project. Priorities of the Institute were the driving force in the allocation of funds.

On the faculty and staff side, there was an almost immediate commitment of the senior faculty to learn English and to invest at their personal cost/hardship as well as the Institute's expense in long-term training. Four of the senior faculty came to the United States for a period of one year during the first year of the project. The language and the close association with the ISU senior faculty made it possible to work much more effectively in restructuring the curricula for the B.Sc. and diploma programs. Faculty members studied English, audited classes in their disciplines, and worked with a faculty team from ISU in developing the new curricula for HIAC.

The staff of HIAC was also involved in the out-of-country training. Here again, the participation of the staff in out-of-country training was different than it might have been had ISU been the lead contractor. It was recognized by the leadership of HIAC that the personnel of the Institute would have to take ownership if the project were to succeed, and at the pace planned. Giving the staff the opportunity to develop a better understanding of higher education in the West was, in the end, most helpful in getting the commitment and vision to move the project along. It was also a way to gain rapid acceptance of the new technology and the computer systems that were being acquired by the Institute.

Through the entire project, annual work plans were developed and approved by the Advisory Committee of the project. The Advisory Committee was made up on the Egyptian side of leaders in higher education, representatives of key ministries, and leaders from the cooperative sector. The Advisory Committee was useful not only in reviewing and approving the plan but as well in keeping the priority for the project high with the GOE. The U.S. members of the Advisory Committee were from the agricultural and food industry and from the ISU administration. The latter turned out to be important for the project, which was viewed as risky by the GOE. The fact that the project was supported at the highest levels of ISU made gaining the commitments in Egypt more feasible. The Advisory Committee met semiannually, once in Egypt and once in the United States.

On the curriculum changes, the project probably moved too fast. From the U.S. side, there was perhaps a lack of understanding of how the modern market and administrative science concepts would have to be adapted

to be successfully introduced into the HIAC curriculum. During the first year of the project, all four years of the curriculum for the B.Sc. as well as for the new diploma options were redone. Much of this work had to be revised as we better understood how to adapt the curriculum changes to the institutions in Egypt, the HIAC faculty and staff, and the backgrounds of the students. Still, the learning experience was ongoing for both sides and resulted in curriculum changes that were sustainable as well as an attitude of acceptance and willingness to change by the HIAC faculty and staff.

Finally, from a procedural side, there was a close working relationship and trust by the project leaders of the two institutions. Problems were openly discussed as was the strategy for moving the project forward. Both leaders participated actively in hosting the visiting faculty and staff. And, both worked as a team with the project Advisory Committee. There were times when both ISU and HIAC were significantly financially overextended to keep the project going. These risks were taken with significant downside implications for the project leaders had the project funding not been secured.

Institution building

From the perspective of institution building, there were aspects of the project that preconditioned it for success. First, there was pressure on the agricultural sector of Egypt to reform and to perform. Agriculture was leading the reform in Egypt. This made it more feasible to keep the commitment of the GOE to the project. Rapid change was necessary in the agricultural sector. HIAC was a private Institute with the flexibility to adapt to support these changes. Second, from the modern development and growth theory, it was becoming apparent that human capital development was a key to reform and growth. There was a need to find a way to educate large numbers of practitioners and new entrants to the agricultural sector. The higher education institutions were a logical choice for this task.

HIAC had another feature that made the project more possible: it was essentially a private institution. With the severing of the official relationship between the cooperatives and the GOE, the Institute became private. HIAC was now a private institution of higher education but one with a long tradition in agriculture. In a way, it

had the best of both worlds. HIAC had an established position in the hierarchy of higher education in Egypt. But it was not tied to complex government regulation and the inflexibility of the agricultural faculties in the public institutions.

The Post Harvest Center was another move of the project that had significant implications. Again, this was undertaken with significant risk. The Center was in the New Lands and had to be built from the ground up. But, the move was important in signaling the change of the Institute and in moving the education of the students from a hands-off to a more hands-on approach. The Center also provided experience and participation in the actual marketing and distribution systems for food products. This was valuable to both the students and the faculty and staff.

The donor organization relationships were always somewhat strained. The project was not a part of the planned United States Agency for International Development portfolio for Egypt. USAID is a very process-driven organization. Having a big, visible U.S. project in Egypt that was not a part of their portfolio was a problem for the bureaucracy. For a while the project was mainly ignored. Then when it became a success, there was more acknowledgement. Still, even now the project is not seen as a part of the U.S./USAID programs in Egypt, even though it may be the most successful donor effort of the United States in Egypt in modern times. The lesson here is to work more closely with the donor organizations, making them a part of projects up front. Alternatively, the lesson may be to work within the host country and be sure that the project is consistent with their own priorities. In the end it is these priorities that drive the donor funds, fortunately not the latest fad of the development community.

The project is moving along currently with little subsidy in the form of donor or GOE assistance. This is because the Institute has the license to adapt its tuition to meet the costs of the higher quality education it is giving the students and trainees. This fiscal independence has been extremely important to the capacity of the project to sustain itself. All along the Institute was investing its own funds in the project. This prepared the Institute for the day when the project would have to be self-sustaining. Tuition was raised sharply. Fees for training were set to

cover costs. Computer labs were operated in off-hours to manage the cost of the depreciation of the equipment. In general, when the external support for the project was reduced, the Institute was able to carry on.

These observations are advanced based on our experience with the HIAC/ISU project. We offer them without claim that they will generalize. Still, with the major transitions to market economies underway in the developing nations, higher education institutions would seem to be a logical focus for donor support. These are the institutions that can provide the leverage necessary for support of broad and rapid change. They are also the institutions that have the faculty who are best equipped to filter the experience of the developed nations and find the concepts and contexts to support change in the economies of the developing nations.

Conclusions and Observations

We are optimistic about the possibilities of institution building as an approach to development assistance. Perhaps the time has come to globally revisit this initial development assistance strategy. If focused on higher education, it is consistent with the modern understanding of the process to stimulate economic growth and development. It is also an efficient way to import the kinds of different thinking that are associated with the transition from planned to market economies. Finally, there are real leverages associated with the reform of higher education institutions. As in the case of HIAC, the development assistance investment can result in large numbers of trained professionals coming into the economy and remaining there on a continuing basis. Viewed in this way, the cost of the HIAC/ISU project was small. Already, more than 21,000 graduates with modern training in economics, marketing, and the administrative sciences are assimilated into the Egyptian economy.

Institutions must resonate with the political, business, and academic cultures of the host nations. Here we were perhaps fortunate. The ultimate funding decisions were always in Egyptian hands. There was input from ISU, but the priorities of Egypt and the ways of making the changes were in the end Egyptian. ISU was more the technical assistance provider than the guiding light of the project. This resulted in a project that could be more fully

supported by the GOE and by the faculty and staff of the Institute and the students. It was the HIAC faculty that had the good read on how fast the changes in curriculum could be made without disrupting the course of study at the Institute. It was also the HIAC faculty that were instrumental in tailoring the new material for the curriculum in such a way that it could be learned effectively by the Egyptian students.

We look forward to a new era of cooperation between HIAC and ISU. We see this as occurring through distance education. The technology for broadband low-cost international communication is almost at hand. Trends toward distance education in the United States are resulting in the preparation of a number of portable web-based courses and degree programs. The similarities of the curricula at HIAC to the economics, business, and administrative sciences program at ISU make collaboration through distance education more feasible.

Last, we have invested in a restructured curriculum at HIAC. The change was from a curriculum that supported a centralized planned economy to one that better prepares students for success in a market economy. These kinds of economic reforms are underway in many of the developing nations. Why not use this experience and the curriculum more widely? Perhaps HIAC and the HIAC/ISU project could serve as one element of a multinational project to accelerate and institutionalize educational reform for agriculture and agribusiness in higher education in nations transitioning to market economies.

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