focus G *Education and skills for rural development*

The rural world is changing rapidly, and young people need to be prepared to rise to the new opportunities. Agriculture is also changing, with new technologies, products, markets, and business environments. And many rural people will need to become engaged in nonfarm activities or migrate to urban areas. To seize these opportunities, all will need skills that differ from those of their parents—but education and training systems are not ready to face the challenge.

Basic skills and beyond for rural youth

Across the developing world, the challenge of providing appropriate education and relevant skills to rural youth needs to be met—it is necessary to provide a basic education that motivates them to study, training to give them skills for the labor market, and opportunities for some to pursue higher education.

Improving the quality of basic education

Despite progress over the past decade in increasing access to schooling in the developing world, education levels measured by years of schooling are still dismal in many countries (chapter 3). Low attainment in rural areas is often attributed to farm work; in those areas, children miss school or drop out to help with farm or household work. But studies of child labor show that of the 5- to 14-year-old children not in school, 37 percent do not work and an additional 32 percent do only domestic work.[1] Other reasons for dropping out include the inability to meet costs of attendance, distance to school, a curriculum or language incompatible with local conditions, beliefs that education is not necessary, and poor school quality. Improving basic education in rural areas, whether primary education in Africa or secondary in Latin America, is essential to energize the process of rural development.

The poor quality of rural schools diminishes their attractiveness and the benefits of schooling. The PROBE report of public schools in rural India showed that physical infrastructure was woefully inadequate, with 82 percent of schools needing repair.[2] Books are often unavailable, and teacher absenteeism tends to be high. A study of primary schools in six developing countries found that 19 percent of teachers were absent on any given day, and 23 percent were absent in rural schools in India, Indonesia, and Peru.[3] Teachers present are unprepared and poorly paid, and violence and harassment are common. The PROBE report found that many children did not like school because they were mistreated or discriminated against, and in many countries fear of violence in schools leads children to drop out.[4]

Low quality of schooling means little learning—it is not uncommon to find fifth graders who cannot read and write[5]—and low educational attainment reduces the possibilities for employment.

Skills for employment

Finding and maintaining employment requires broad-based occupational skills or specific job-related skills, acquired in training institutions or on the job. In today's rapidly evolving and globally competitive economy, they increasingly include personal capabilities such as flexibility, resourcefulness, and communication.

Vocational schooling. Vocational schools aim to prepare students for entry into the labor market. In developing countries the vocational education sector tends to be smaller (22 percent of student enrollment) than in Organisation for Economic Co-operation and Development countries and geared to lower educational levels such as lower secondary education.[6] It is also often uncoordinated, with vocational training centers dispersed under various ministries. Programs that have private participation in managing institutions (Brazil's SENAR) and designing curricula (Namibia's *Community Skills Development Centers*) have been most effective in meeting labor market demands.

SENAR is managed by an agricultural employers' association, and members of agricultural cooperatives make up the board.[7] One of its most successful features is the integration of occupational training and social promotion in the same organization. The learning process is related to rural work and living conditions and rural women are given preference for social promotion programs, including training in protection against toxic products used in agriculture.

In Namibia seven Community Skills Development Centers impart basic skills to enable youths to generate income through wage employment or self-employment. The centers are training institutions that vary their basic training courses as income-generating opportunities change in the local economy. To align with market needs, experts conduct market assessments, covering the occupational interests of youth, local development plans, and the needs of employers and businesses in both the formal and informal sectors.[8]

Enterprise training. Enterprises also provide training, available only to those with formal jobs, usually those with higher levels of education. Smaller enterprises train less frequently and often use apprenticeships, which can perpetuate traditional skills that may not be useful in changing markets.

Training programs for firms in niche markets with good growth prospects have raised the productivity and income of enterprises by upgrading technology and managerial skills. In Madagascar training is targeted to small suppliers of intermediate goods for processing and exporting.[9] Other examples include the Tanzania Integrated Training for Entrepreneurship Promotion and the Ghana Opportunities Industrialization Council.[10]

Higher education

The transition to higher education, which is particularly difficult and expensive for rural youth, requires support. The Mexican *Jóvenes con Oportunidades* offers youth in school a savings account in which they accumulate points during grades 9 to 12. The money can be tapped upon the completion of 12th grade for further study, opening a business, improving housing, or buying health insurance.[11] The program thus provides incentives for children to graduate from secondary school and facilitates their continuing on to higher education.

Second chances

Many countries operate programs to get out-of-school youth back into school or into informal training courses—and illiterate youth into literacy programs. Few countries, however, have a system of second chances that meets the diverse needs of young people who have left school at different stages and come from different socioeconomic settings. Successful programs are linked to the school system, informed by the demands of the labor market, and provided on a flexible and part-time basis that can accommodate work and family responsibilities.

Morocco's second-chance schools target the 2.2 million children between 8 and 16 years old who have never entered school or have left before the end of the compulsory cycle. More than three-quarters of them live in rural areas and some 45 percent of them are girls. The Ministry of Education

forms partnerships with nongovernmental organizations (NGOs); with the Ministry providing funding, training facilitators, and supplying educational materials; and with NGOs engaging young graduates as facilitators, enrolling pupils, seeking additional funding, and managing local programs.[12]

Business education for the entrepreneurs of the "new agriculture"

Entrepreneurs in the new agriculture need the skills and competencies to operate in open and demanding markets. Though advanced agronomic techniques remain essential, entrepreneurs also need a better understanding of the business side of their operations. They need more and better market information and greater understanding of their costs and revenues, the required investments, and the value chain they operate in.

To help students get a foothold in the new agriculture, some African universities encourage business development. The University of Swaziland and the Botswana College of Agriculture offer practical Entrepreneurial Projects. Business plans are put into practice using a revolving credit fund, with students retaining 75 percent of the profits. In Mali an agricultural research organization, Institut d'Economie Rurale, and a higher education institution, Institut Polytechnique Rurale, have joined to establish the Mali Agribusiness Incubator to help agricultural entrepreneurs integrate modern technologies into local agricultural systems.[13]

Costa Rica's EARTH University[14] prepares graduates to start up agricultural enterprises, emphasizing values development, environmental management, and community service.[15] Uganda's Makerere University is in the process of adapting the EARTH University approach. In Chile, Management Centers run by farmer organizations support decision-making, entrepreneurial, and managerial capabilities among individual family farms and market-oriented producer organizations.[16]

Agricultural professionals and researchers

The new agriculture also requires more and better trained researchers and agricultural professionals.[17] But the education and training structures are not always up to this task.

Sub-Saharan Africa's human resource pool is severely depleted. Among the 27 African countries, half saw a decline in the number of agricultural researchers in the 1990s (chapter 7).[18] Only one in four African researchers currently possesses a doctorate. The huge potential for women professionals to upgrade farming systems remains largely untapped, with women making up just 18 percent of African agricultural scientists.[19] The brain drain of senior staff and unfilled positions are widely reported in research agencies and universities. Too often, staff shortages are compounded by the loss of life from HIV/AIDS. For more than a decade, donors have turned their back on funding higher education and overseas training in agriculture. A new generation of agricultural professionals is needed to replenish this dwindling human resource pool and engage the shifting opportunities associated with the rise in market-driven production.

Efforts to revitalize agricultural education should concentrate on updating curricula, transforming teaching practices, and increasing the number of graduates at all post-secondary levels. Most agricultural education institutions offer curricula focused narrowly on the production of predominant crops and livestock. Curriculum reform should introduce greater institutional flexibility in the face of rapid change and greater responsiveness to employers and stakeholders.

One effort to correct these deficiencies is the professional upgrading developed for extension workers by a dozen Anglophone and Francophone universities with assistance from the Sasakawa African Fund for Extension Education. Focusing on mid-career professionals, the program offers a reformed interdisciplinary curriculum leading to bachelor of science and master of science degrees, emphasizing technology transfer, participatory methods, and respect for local knowledge.[20]

For agricultural higher education, priority should be given to a major staff development campaign. In the 1960s the Brazilian government dispatched 1,000 academic staff for overseas studies in agriculture. In the 1970s the Brazilian Agricultural Research Enterprise (EMBRAPA) sent 500 agricultural researchers abroad for doctoral degrees.[21] These are the professionals who have guided the impressive growth and diversification of Brazilian agricultural exports over the past three decades.

Aggressive human capital development programs have paid long-term dividends for Brazil, India, Malaysia, and other countries. Is it not possible for Africa to follow a similar path? Because of the retirement of senior academic staff and researchers, Africa should launch a vigorous human capital campaign with a goal of providing doctoral training to 1,000 new students in agriculture over the next 15 years[22] with at least half of these awards earmarked for women. The Female Scholarship Initiative, initiated by Makerere University in Uganda and funded by the Carnegie Corporation, could be a model for this.

Doctoral training can be carried out in existing African centers of strength in agricultural disciplines, such as the African Centre for Crop Improvement in Pietermaritzburg, South Africa, the Jomo Kenyatta University of Agriculture and Technology in Kenya, and the Ecole Nationale Supérieure d'Agriculture in Senegal. Alternatively, they can be carried out in general African universities where business, economics, biological sciences, and science departments can complement the agricultural disciplines.

Because of the interdependence of knowledge across disciplines, it may be better to train agricultural specialists in general universities, where there is close interaction with specialists of other departments, instead of treating agricultural sciences and agricultural economics as isolated disciplines in separate agriculture universities. This change needs to happen now, starting with investments in the postgraduate programs of local universities.

Where local training is not feasible in some disciplines, students can obtain doctoral training at cost-effective overseas sites or through "sandwich" programs that combine locally relevant training with access to international knowledge resources, instruction in research methods, and exposure to a wider range of modern technologies. Greater south-south mobility of students has also facilitated access to postgraduate programs to students in countries without the necessary university infrastructure.

In Sub-Saharan Africa, the second most important destination for students (after Western Europe) is South Africa—9 of 10 students who study abroad within the region go to South Africa. In East Asia, 40 percent of mobile students also remain in the region.[23] The University of Pretoria, South Africa, and the University of Philippines, Los Baños, are main centers for foreign students in the agricultural sciences.

Because of the long time needed to prepare a new generation of agricultural scientists and professionals, urgent action is needed now to design, fund, and implement programs that combine upgrading local universities, supporting regional centers of excellence in teaching and research, and providing cost-effective higher-degree training outside the region.