

leavers and bachelor's degree recipients; in the sphere of research and innovation—a small number of large research projects and inefficient marketing. This prediction of common problems allowed universities to create a set of shared goals and principles for further collaboration. The consortium will focus on the development of interdisciplinary research, acceleration of the innovation process by means of integrating education and research, the collective positioning in national and global markets, and increasing economic efficiency of universities. Such ambitious goals are going to be achieved with the use of a flexible two-level organizational structure. On the first level (center), the universities will conduct large collaborative research projects and develop double-degree master's and PhD programs. On the second level (periphery) the universities will conduct their educational programs and research projects.

The emergence of new strategies reflect some factors that stimulate universities to look at each other not only as competitors, but as partners.

Two arrangements are relevant for planning practical issues—the development of the City Credit Transfer System and the Common Technology Transfer Office. The first format allows students to take courses for their bachelor's or master's degree at any of the city universities. Universities approve the amount of courses available to all students in Tomsk; then, a student can add some of the courses to the curriculum, attend them, and pass final exams. The rationale for the second arrangement is the pressing need to be competitive on the market of new technologies and innovations. This office is aimed at overcoming the territorial remoteness of Tomsk and mediating between investors, hi-tech companies, and researchers.

NEW INCENTIVES FOR COOPERATION

The emergence of new strategies reflect some factors that stimulate universities to look at each other not only as competitors, but as partners. First, the risk of decreasing enrollments and problems for extensive development will force universities (especially in the regions) toward efforts for collective positioning and attracting talented school-leavers. Second, due to the considerable changes in state policy supporting higher education, Russian universities will need to develop effective strategies to obtain or retain status and additional funding. Collaboration can form a significant part of such strategies. Third, Russian universities are starting to understand importance to be included within the networks of the global knowledge economy and develop interconnections at the institutional level. In many respects the successful development of the Russian higher education system depends on the success of international engagements. ■

Ethiopia: The Dilemmas of Expansion

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Ethiopia is one of the poorest countries in the world. More than three-fourths of the nation's primary economic activity involves small-scale agriculture, not only highly inefficient but extremely vulnerable to variations in climate and international market prices. In order to move from an agrarian to a modern economy, Ethiopia requires citizens with more education. This necessity is especially critical in a country with the 15th-largest population on the planet and a median age of barely 17 years. Accordingly, the government has expanded the higher education system while growing enrollment, both at breakneck speed.

Ethiopia had only two universities for much of the 20th century. Since the mid-1990s, the number of private institutions have expanded, with a simultaneous growth of the public sector. Today 19 additional public universities represent either newly established institutions or colleges merged and upgraded to university status. There are also 26 regional teacher education colleges and approximately 60 accredited private postsecondary institutions (only one recognized as a university).

The pace of growth has been intoxicating, and the challenges of current circumstances in Ethiopia make the expansion of the higher education system all the more daunting. The country reflects the tensions that Sir John Daniels graphically presents in his "iron triangle," where access, cost, and quality are precariously balanced against each other.

STRONG (MALE) ENROLLMENT GROWTH

At all levels, access to education in Ethiopia has improved significantly, with greater numbers of students completing secondary education and continuing on to postsecondary study. Ministry of Education statistics show that during the 2000/01 academic year, undergraduate enrollment at public universities (not including distance and evening enrollment) was approximately 34,000. By 2007/08, regular undergraduate enrollment had increased to more than 125,000. Many more men than women, however, are benefiting from expanded access: less than 30 percent of the undergraduate enrollment and barely 10 percent of graduate enrollment is female.

QUALITY CHALLENGES

While difficult to measure, quality has cause for concern. The number of instructors has not kept pace with enrollment growth. In 2000, slightly more than 3,400 teachers provided instruction at Ethiopia's universities. In 2008/09, there were

approximately 7,500 university instructors. In other words, while enrollment nearly quadrupled, teaching staff barely doubled. This disparity is also apparent in the evolution of the teacher-student ratio, which grew from 1:8 in 1995 to 1:15 today.

The system struggles to fill many teaching vacancies given the absence of enough qualified Ethiopians to fill these positions. As a result, instructors are also hired from abroad. Most universities do not have the resources to effectively supervise or mentor so many new and inexperienced instructors. Fewer than 20 percent of the current teachers hold master's degrees, and fewer than 4 percent hold PhDs, underscoring the limited experience with scholarship.

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Quality is also constrained by infrastructure. During the past two years, the country has suffered from regular rolling blackouts, and few universities have generators to keep technical infrastructure operational during power cuts. The construction of classroom space, expansion of library collections, addition of computer labs, and the development of electronic networks lag behind enrollment expansion. International agencies are helping the government to develop new facilities and infrastructure; however, these efforts are largely uncoordinated and will take time.

COST CONSIDERATIONS

The cost of educating a growing cohort of university students is quickly exceeding available government funds. A new policy has eased the country away from fully subsidized higher education to a cost recovery scheme, but this system will not return funds to government coffers for several years to come. The government currently depends on international aid as well as expatriate faculty to fill in the many gaps that result from the rapid growth of higher education. But even with aid, funding is insufficient to address the enormous needs of this nascent system.

HUMAN RESOURCES AS A "MOVING TARGET"

Too many of the best and brightest academic and administrative staff in Ethiopia are on the move. Graduate study and professional development opportunities are currently available overseas through national and donor agency programs. In the long term this will certainly strengthen Ethiopian higher education. However, educational opportunities abroad often lead to "brain drain," while even the short-term absence of professors and administrators presents significant challenges at the home institution. Extra teaching responsibilities fall onto the colleagues who remain behind, and a wide range of develop-

ment and research projects are often handed off to less-experienced and less-qualified staff.

Meanwhile, the movement of individuals from one university to another or out of higher education altogether is pervasive throughout Ethiopia. Staff turnover takes place at all levels, driven by the desire to improve earnings and to move from rural toward urban areas. Constant staff turnover wreaks havoc on an institution's capacity to operate efficiently and to manage long-term planning and development.

LONG-TERM PLANNING VS. SHORT-TERM ACTION

What are the alternatives to rapid growth without the corresponding infrastructure, staff, or resources? In 1999 less than 1 percent of the age cohort was enrolled in higher education. If the Ethiopian government had decided to "build the house before moving in" for a decade or more the country might not have achieved much progress in expanding access. Instead, the government has pushed forward, putting pressure on university leaders and instructors to "catch up" as they can while providing larger numbers of young Ethiopians with opportunities for further study.

Today 3 percent of the age cohort in Ethiopia is now enrolled in higher education, according to UNESCO (United Nations Educational, Scientific, and Cultural Organization) data. Although far short of international levels, Ethiopia has achieved a rapid 300 percent rise in enrollment, and the government will continue to push for greater gains. The question is whether the universities respond to enrollment gains with relevant resources and personnel.

This period has proven to be an exciting time for Ethiopia's higher education system, but "growing pains" are evident and will continue, given such rapid expansion. At this critical stage, where much has already been accomplished, quality assurance and a commitment to appropriate and sustained infrastructure must rise to the top of the national agenda. ■

Enhancing Retention and Success in South Africa

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Internationally, one of the key challenges facing higher education institutions is to match expanding enrollments and more diversified student bodies with enhanced retention and success rates. Nowhere is this imperative more pressing and topical than in South Africa, for a number of reasons. First, the