Reforming universities is key to technology transfer

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University graduates in South Africa

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Developing countries must build world-class universities to be serious players in the knowledge-based global economy, says Mohamed H. A. Hassan.

Traditionally, technology has always flowed from developed to developing countries. The thinking was that scant resources and expertise in the developing world should be used to address more immediate concerns, such as increasing agricultural productivity and providing greater access to safe drinking water.

But such thinking ignored the fact that many of these challenges could not be met without first building indigenous capacity in science and technology.

For the poorest developing countries, 'outsourcing' the development and assessment of technology and innovation has been economically catastrophic. Policies designed to alleviate poverty and to create wealth have suffered as a result.

A change in the air

Fortunately, developing countries are now changing course and seeking to build their own scientific and technological capabilities — a change that has shaken some of the conventional foundations of international technology transfer.

Drawing on their own growing expertise, an increasing number of 'scientifically proficient' developing countries are forging scientific links with developed countries that represent true collaborations among equal parties. Joint ventures are beginning to be more about business than benevolence.

But while much has changed, if technology transfer is to truly benefit those most in need and contribute to making the global economy more equitable, much more effort is required.

More effort needed

Universities across the developing world must play a central role in technology transfer. They provide valuable settings for educating and training scientists, economic development specialists and political officials; they produce unbiased information; and they offer forums for international exchange.

Developing nations must strive to build first-rate universities — including at least one world-class institution — capable of providing training and research not only in scientific disciplines but also in science and technology management.

It also critical to establish research units and centres of excellence within university departments and faculties to strengthen the links between education and research. The ultimate goal should be to nurture a culture of excellence within universities.

Universities must also reorientate their curriculum, at least in part, towards demand-driven science. They must, at the same time, encourage stronger ties with international science institutions both within their region and beyond. This is especially true for sub-Saharan Africa, the world's poorest region and the one with the lowest scientific capability.

Developing country governments should follow China and India's example of encouraging young students and professionals to use universities in the North for training. But they must also prevent a 'brain drain' of skilled people to richer countries by providing challenging jobs with reasonable compensation and chances for advancement at home. If
developing country universities are to keep their best and brightest, they must devise administrative systems that reward performance rather than seniority.

Developing countries must also encourage internal technology transfer — from universities to the private sector — by creating incentives for researchers to apply their knowledge to technological and policy innovation.

Strategically, this means changing universities’ culture from institutions that exist apart from their societies to institutions that are integral to them. Tactically, this means creating such mechanisms as technology transfer offices within universities.

Universities can make the difference

Like so many other developing world issues, the technology transfer debate is rapidly evolving. Increasingly, technology transfer aims to help alleviate poverty, create wealth, improve public health and ensure long-term environmental well-being.

Universities have an unprecedented opportunity to participate in this effort. But they can only do so if they are given the means to become stronger learning and research institutions, and only if they engage in fundamental reforms to become not only superior sources of information but also unique mechanisms for promoting innovation.

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