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Letters

FOOD SECURITY

Link research funding to commercialisation

UNIVERSITIES have, historically, served as institutions for moral and intellectual development, as well as centres of civilisation.

The emphasis is on education and defending the truth, rather than discovering and investigating the truth. With rapid economic development, they have become more utilitarian with focus on education and research. But, they do not regard the application of know-how as their prime task.

This is what we call Second Generation University (2GU). Today, more and more universities have become Third Generation University (3GU). The classic examples are Cambridge, Oxford and Harvard. They actively pursue the commercialisation of the knowledge they create, equal in importance to the aims of education and scientific research. Universities are seen as the cradle of new entrepreneurial activity by exploiting their know-how from research findings.

In developing economies, however, most universities are still at the phase of 2GU, where the focus is on the output rather than the outcome. Although research outputs such as journal publications, citations and patents are important, the real outcomes of research and development (R&D) are the value and wealth creations generated from commercialisation and entrepreneurship. This is where universities in developing economies have to transition to 3GU in enhancing the nations' development.

Hitherto, low levels of R&D commercialisation and agro-entrepreneurship development by universities are constraints in achieving productivity growth. Moving forward, exploitation of know-how must become the 3GU objective as universities are seen as the cradle of new entrepreneurial activity in addition to the traditional tasks of research and education.

But the question is how best to organise resources to create, diffuse and sustain know-how and to leverage investments in science and technology, research and development and related capabilities with the aim of increasing sustainable food production and ensuring food security agenda, and with the ultimate goal of reaping rewards in terms of wealth creation and increased standards of living.

There are a number of research outputs and innovations in the food production value chain that can be commercialised. These include protected environment, precision agriculture, biological control of plant pests and diseases, biofertilisers, new crop varieties derived through conventional hybrid, as well as biotech breeding techniques, food safety, and nanotechnology. Some innovations are sustainable, which are to increase productivity of crops, livestock and fishery, while simultaneously decreasing the impact on the environment. These research outputs must be packaged with technology diffusion and commercialisation, as well as entrepreneurship programme to commercialise the innovations.

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The question is how to ensure that research outputs can be coupled with technological innovation, entrepreneurship development and commercialisation.

Since the intellectual property rights are basically not sufficient to allow researchers to capture the reward of their investment, the government is responsible to fund R&D in the development of technologies that have high social returns.

While this traditional approach will remain an important part of the R&D landscape, promoting high-quality intellectual property rights in creating economic incentives and fostering innovation should be encouraged.

In particular, a pull mechanism, where the government funding stimulates demand for new technologies, is a useful complement to traditional push mechanisms, which provide funding to increase the supply of R&D.

With a pull mechanism, the government releases funding only when specified outcomes are delivered, which helps to solve the information asymmetries between research funding and researchers. Engaging the private sector and linking research funding to commercialisation will encourage researchers to pay attention to what farmers need and want, and subsequently can enhance the agricultural productivity and food security of the developing economies.

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