

Innovation systems necessary for achievement of Vision 2025

By Bitrina Diyamett

TANZANIA expects to realise its development vision in 2025 by giving its people a life of plenty, practically making abject poverty a thing of the past.

By the vision the economy will at the time have been transformed from low productivity agriculture to semi-industrialized, led by modernized and highly productive agricultural activities. It will be integrated and buttressed by industrial and service activities.

A solid foundation for competitive and dynamic economy with high productivity will have been laid!

It is about 20 years to the target year, making it the responsibility of every Tanzanian to ensure the vision is achieved, especially with this new motivation brought about by the new fourth phase government.

Preferable is the role of innovation, simply defined as transformation of new ideas into marketable products and processes in socio-economic development.

Innovation is an indispensable vehicle for productivity growth. Most policy makers in Africa have begun to understand socio-economic development of nations to join their counterparts in more developed world.

Innovation is a multifactor field where an entrepreneur cannot innovate alone, but must interact with other important actors in what is termed as National System of Innovation (NSI).

According to pioneers of the concept NSI is a system, which is constituted by elements and relationships in which the production, diffusion, use, and

transformation of new and economically useful knowledge takes place.

By the concept of elements, basically this refers to two major components of the system: organizations and institutions. The two concepts are frequently synonymously used as just institutions, which also include things like policies, rules, regulations and norms.

On the other hand, organizations are formal structures where things happen. Examples can be industrial firms (producers and suppliers), farmers associations and other economic and social agents, universities, S&T policy organizations, regulatory bodies, R&D organizations and financial organizations.

Entrepreneur or economic agents are always central in the production and distribution of goods and services, but each of the above mentioned organizations has a crucial and specific role to play in a given system of innovation.

The NSI concept in the innovation process basically emerged as a result of realization that innovation is basically a collective endeavour. Innovation is also largely facilitated by the interactive learning between different actors as against the traditional linear model of innovation where innovations are said to be triggered as a result of basic research in science, resulting in widespread use of new processes and products.

The concept emerged as a result of the total failure of the linear model. Experience has shown that it is not enough to train a lot of scientists and well equip our laboratories, hoping this will automatically produce a sound socio-economic development.



Self employment can help fight against poverty. (File photo).

A network of actors, where scientist is only one, is required!

For poor developing countries, innovation system concept is also an attempt to move away from the production system policies of the 1970s that emphasized the short term increase in the production volumes rather than interactive learning between and among economic agents with impacts that are most desirable and long term but sustainable.

In the system of innovation approach, interdependencies and interactions between the system elements is one of the most important

characteristics. Innovations are not only determined by the individual elements of the system but also by the relations between the elements, which are enhanced by appropriate institutions.

Specifically, in shaping and directing innovative activities of economic agents, institutions have functions including reduction of uncertainty, management of conflicts and cooperation and provision of incentives.

Experiences elsewhere indicate that without proper functioning of the national systems of innovation, it is impossible to attain any meaningful socio-economic

development-there is a general consensus on the concept of t e c h n o - e c o n o m i c development.

Such organic relationship between socio-economic and science and technology systems is largely responsible for much of the development we witness in more developed countries.

Science and Technology institutions and organizations were created, as they were demanded by the socio and economic system to the extent that there is now an appreciable integration of socio-economic systems and science and technology systems.

On the contrary, in most

developing countries, especially in the Sub-Saharan African countries, the system is made up of islands of socio-economic and science and technology institutions and organizations-much of the S&T infrastructure were developed from the pressures and motives outside the requirement of the socio and economic system and specific country environments.

As a result we neither have any meaningful socio-economic development nor science and technology development, hence an urgent need to redress the situation.

The starting point should

be an assessment of performance of the current state of the national system against the development vision i.e. Vision 2025.

There are some general common characteristics globally. Most of the system elements and the way they interact are unique for each country. Therefore, it is advisable for any particular country to comprehensively study the functioning of the current system however crude it may be, before coming up with the strategies to further develop it.

In the process of developing the innovation system, two major issues are to be looked at. First, there is capabilities of individual actors or organizations and actual and potential effectiveness of existing policies and regulations. Secondly, are linkage capabilities.

Organizational capabilities are assessed by looking at the function and activities of each of the organization. There are two issues to look at for this - whether the functions and activities of the organization are appropriate for the proper functioning of the system, and whether the organization has capabilities to carry out the functions and activities.

There is also a need to look at the whole system of organizations- it is possible that there is a need to create some and demolish others, or restructure the existing ones.

The same applies for policies and regulations; they need to be looked at, and find out whether they perform their function as stated above, that is: they facilitate linkages, reduce uncertainty, manage conflicts and rigidities, and provide incentives in the system.

It should also be noted that, just as innovation systems of

each country is unique, it is also largely unique for each sector of the economy.

Innovation system of such sectors as manufacturing, agriculture and health in a poor developing country such as Tanzania for instance, are quite different.

Innovation in sectors such as health are quite science intensive, while for the manufacturing sector, innovation is more of the tacit nature (learning by doing and using) than science, where as agriculture is somewhere in between.

Because of these differences, relative importance of the actors in the systems and the way they interact is substantially different!

In the health sector, for instance, R&D institutions and the universities are relatively much or important than the manufacturing sector which normally can innovate without much investments in R&D.

Even the way they interact is quite different. While for the health sector, research output in terms of tangible products is more directly linked to the users, for the manufacturing sector the interaction with R&D and universities is more through consultancies.

Such differences need to be reflected in an attempt to develop national systems of innovation.

Finally, there is no quick fix to this! System development takes time and requires adequate resources. However with New Motivation, New Energy and New Speed, a lot more can be achieved in relatively shorter time frame.

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