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Science & Technology - Driving Force for the Economy

Ladies and Gentlemen:

It is with pleasure that I come to the STS Forum, as Egypt is a founding member of the forum since its inception in 2004. We believe in the importance of science & technology and international cooperation in understanding the challenges that face S&T.

I come here to try to portray the wisdom of S&T from a developing country perspective, in which we believe in S&T as a driving force for the economy and sustainable development, which leads to a knowledge society.

Developing Countries need to develop towards the knowledge society. This is the only way to achieve development. There is a need for using Science & Technology as a vehicle to transform the economy from a resource based economy to a knowledge based economy. In this respect, developing countries need to focus on innovation, not only part of innovation, but there is a need to apply the complete cycle of Innovation to have an impact on the economy. Not only scientific papers, but also patents and products are the expected outcome from innovation.

Moreover, developing countries need to create demand for S&T, our newly established program of research funding with the Ministry of Trade and Industry is a model of demand-driven research funding.

We need to invest in the future through science and technology; this means that we need to allocate recourses that are appropriate to achieve this objective.

In this regard, UNESCO has developed criteria for measurement of S&T performance. These include:

1. Allocated expenditures and human resources input
2. Upgraded levels of science education and training
3. Creating infrastructure and environment for scientific research and innovation
4. Internationally recognized scientific publications
5. Patents
6. Impact Assessment on Economy

If Egypt is to succeed in having an economic impact from S&T, we need policies to strengthen each of the above 6 criteria.

It should be clear that to achieve these noble objectives, education is actually the most important criterion. It is the base for Science and Scientists, and it starts from elementary education, through tertiary education. In addition, Informal education and life long learning are essential in preparing future scientists through Science Museums and the use of Multi-media in disseminating scientific knowledge. Currently Egypt is undertaking a fundamental reform of its basic and higher education, which started in 2002.

Moreover, for the human resources in S&T in Egypt there are 98000 scientists working in S&T. Of these, 70000 are working in Universities and its research facilities representing 73.5% of the total scientific human resources. In addition there are 15000 working in Industry representing 14.7%, and 13000 working in Research Institutions representing 12.7%. This actually represents a sizable scientific base that we intend to strengthen.

Egypt has to tackle the complete cycle for Innovation. The S&T system should not only produce Papers for Basic Sciences and Applied Research, but also should be able to develop Technology through Patents and Prototypes finally leading to the development of Products.

The 4 P's: Papers, Patents, Prototypes and Products are the measure of the success of the innovation system.

The funding for S&T and innovation should be suitable to achieve the above objectives. Public Funding is to be used essentially for Basic Science, while the Private Sector should fund Applied Scientific research. Venture Capital should be used to fund Technology and Innovation, while Investment Banks to fund the development of new products up to the introduction to the market.

Finally, the Governing System should be conducive for Research and Development. The Governing system should be able to provide generous funding for basic research, encourage Private Sector investment in Science and Technology, encourage Universities, academic institutions and research centers to act as Incubators and create Centers of Excellence.

In Conclusion, there are clear challenges facing developing countries with Science & Technology, in particular the challenges include:

1. Managing S&T and R&D to act as the driving force for the economy
2. Creating an efficient S&T governance system
3. Find the best use of human resources and material resources
4. Sustain the inertia of success
5. Keep tracking of the pace of international developments in S&T
6. Sustainable & progressive educational reform is corner-stone for science & technology policy
7. Enforcing complete cycle for science & Technology to impact the economy
8. Invest in Innovation…. Innovation….Innovation