

3RD ANNUAL LECTURE AND AWARD OF POST-GRADUATE SCHOLARSHIPS AT THE STEPHEN OLUWOLE AWOKOYA FOUNDATION FOR SCIENCE EDUCATION, LAGOS, NIGERIA ON 17TH MARCH, 1998

REMARKS BY DR.BABALOLA CHINSMAN, UNDP PRESIDENT REPRESENTATIVE AND UN RESIDENT CO-ORDINATOR IN NIGERIA AS THE GUEST OF HONOUR

Today's lecture has aptly demonstrated that science and technology have an essential place in the development and survival of humanity. Scientific breakthroughs and technological innovations have resulted in profound societal change, and science and technology have been major instruments of economic growth and human development.

My remarks will focus on capacity building for the use of scientific research and technological innovations for development in a highly competitive world. Let me state at the onset that for a new orientation of science and technology that would better serve the needs of the people in Africa, the following principles are worthy of note:

- (i) Science and technology is not an end in themselves. They are both the product of the genius of a given culture as well as instruments for the advancement of the welfare of people. Science is, therefore, intimately linked to value systems and to a specific vision of the world.
- (ii) The application of science and technology to development should have as its main purpose the attainment of the goals of a society, including its basic needs, and the aspirations of its people, with full respect for human dignity and cultural identity.
- (iii) True development only occurs when science becomes part and parcel of culture. Hence, the vital need for an endogenous development of science as an integrated part of national culture, without which only superficial transfers of science and technology would be made.

As the continent turtles into the 21st century, a major issue that it has to contend with is that of globalisation. The global attention is focused on advancing science to exploit the new and emerging technologies better to serve the needs of humanity.

Globally, science and technology have been characterised by the transfer of skills and techniques from the developed to the developing countries. The development of indigenous scientific and technological capacities, founded on the traditions, knowledge and national socio-economic objectives have had little encouragement and support. Thus, in spite of the globalization of development the world is still far from being integrated. We are still living in a single world divided by technological competence. While economic liberalisation and global economic integration have led to gains in efficiency in resource use and management in many parts of the world, it has in many instances contributed to environmental degradation, increases in unemployment, poverty, inequalities, and accentuation of economic and social insecurity in Africa. Recent years in particular have been marked by a clear trend towards intensification of poverty and regional inequalities. The global inequality has been accentuated by the uneven distribution of scientific, technological and research capability, largely to the -disadvantage of Africa. Efforts to rectify the situation emphasizes-the need for improving scientific research capacity in the continent for the advancement of development.

First, there must be a united and sustained internal effort to overcome underdevelopment by achieving economic growth with distributive justice and -involving the people in the process of national development. Second, there is the need to harness the national potential, particularly by unlocking the human resource potential. Third, the continent has to take cognisance of the need to work within an amicable international environment. Harnessing the national potential calls for national capabilities to take advantage of recent advances and new opportunities, particularly in the field of science and technology. This calls for national capacity building focusing on scientific research, as well as co-operation among African countries.

CAPACITY BUILDING FOR SCIENTIFIC RESEARCH AND DEVELOPMENT

Globally, social and economic advancement and improved welfare has been generally assisted by technology. New technologies have offered dramatic new capabilities to humanity. In general, societies that lack the technological know how or capacities for scientific breakthroughs have difficulties in meeting the increasing needs of their people. National capacity for harnessing new technologies to meet development requirements and thrust them beyond assimilation of imported technologies and adaptation to local conditions implies investment in basic sciences, research and development, and technological innovation. The capacity to generate scientific and technological knowledge is not only necessary but imperative.

A typical case is the green revolution of the 1960s. It offered a bridge of hope for many societies to be able to meet the food requirements of their teeming populations, albeit at some environmental cost. The contribution that agricultural research and extension can make to technological transformation in agriculture is evident from the experience of many countries in the last few decades. But these technologies cannot simply be transferred from one region or country to another without taking cognisance of their environmental risks. To effectively serve the needs of the farmers, research has to be more localised and sensitive to farmers' conditions and requirements in different areas. The same situation applies to industrialisation.

THE NEED FOR COLLABORATION TO ADVANCE SCIENCE AND TECHNOLOGY IN AFRICA

Knowledge, skills and research capability are vital ingredients of sustainable development. Very few African countries have acquired or sustained any impressive educational and research capabilities. Serious deficiencies in capacities exist in many cultures, especially in the science and technology which constitutes the "motor" of sustainable development. Cooperation among African countries would go a long way towards remedying these deficiencies. Such cooperation would greatly help to upgrade

the human resources of the continent in a p cost-effective way and build up its capacity for the utilization of science for development.

Specifically, an African Educational Co-operation Programme for research and development could focus on:

Education in the basic sciences, engineering, medicine and public health; technical and vocational-training, including industrial apprenticeships; and the development of entrepreneurship and management skills.

The co-operation in basic sciences and engineering should be to address the obvious weaknesses in the teaching of mathematics and sciences at the primary and secondary levels. Improving the skills of teachers should be an integral part of this scheme. . At the undergraduate level, arrangements could focus on staff exchanges, teaching materials and students, particularly in new areas of teaching and research such as molecular biology, genetic engineering and computer science. At the post-graduate level, existing centres of scientific education and research could build up or strengthen a network for post-graduate studies in particular specialisation. The opportunities offered through the internet to access the most up to date knowledge should be seized.

With respect to health, a potential area of cooperation for promoting scientific and research advances in Africa is that of traditional medicine. Programmes could be designed to facilitate the dissemination of the results of research on indigenous systems of medicine and offer training in these systems to students from the developing countries.

To acquire or upgrade technical or industrial skills, national, regional and sub-regional internship and technical assistance programmes could be set up to promote flows of educational, medical and technical personnel among developing countries. Countries should work together in the field, share experiences and provide technical support to each other. In this regard, modern communication technology can be used to share experiences

and distance-education materials, which could include materials that promote research in the South.

African countries need to cooperate in strengthening their scientific and technological capabilities for the purpose of harnessing the growing potential of science and technology for development. This cooperation could involve identifying a number of areas of scientific research and technical innovations, which are of immediate concern to the continent and which could generate significant benefits for the advancement of sustainable development among the developing countries. The cooperation could also involve carrying out a set of research activities that would demonstrate its value and help to strengthen the foundations for greater collective self-reliance in science and technology.

Special attention needs to be given to the higher training and education of scientists, engineers and technicians from developing countries. Priority should be given to setting up jointly funded, specialised training and research institutions that could produce able researchers and scientists from developing countries and provide opportunities for them to work in conducive environments.

In addition, governments and scientific organisations in Africa should facilitate contacts and exchanges between research scientists and between scientific institutions to promote the development of a commonwealth of scientists of the continent interacting with each other. It is now a common knowledge that many scientists from Africa work in developed countries, even when they continue to be concerned with the problems of development in the continent. Formal contacts would need to be established with them so that they could be of assistance in training of scientist, improvement of institutions, and in research in Africa. The UNDP-sponsored TOKTEN programme offers a viable means of achieving this objective.

To foster scientific research for development, Africa would need to urgently examine the research implications for its development of current advances in biotechnology and

microelectronics and in the use of raw materials, robotics and fibre optics. There is a need for interregional consultations in these areas so as to sensitise and guide themselves on the capacity requirements of these new challenges that would be tapped for sustainable development. Overall, there is the need for regular exchange of information and experience in technology transfer and adaptation in the continent. All these call for the strengthening of human and institutional capacities for scientific research to advance development.

CONCLUSIONS

The challenges and opportunities now facing many African countries demand that capacities are built to utilize science, scientific research and technological innovations as the highest priority. African countries should strengthen their own ways and means of generating capacity when and where it is needed, and to meet the goals of their development programmes. To do this effectively, the commitment of the national leadership is not only fundamental, but also imperative. There is a widening gap between research capability and what is required for the attainment and promotion of sustainable human development. This constitutes an added urgency in view of the need to evolve viable development strategies that respond effectively to a rapidly changing globally competitive economic and technological environment.