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Special Industrial
Research Awards Programme

Background Information

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Introduction

The African Centre for Technology Studies (ACTS) proposes to establish a Special Industrial Research Awards Programme (SIRAP) which will help in the promotion of research in an area of vital industrial interest to the Kenya business community. This prestigious award will be given annually to a Kenyan researcher or businessman who can demonstrate his or her ability to contribute through research to economic productivity and renewal. The funding for the award will be sought from Kenyan entrepreneurs or any other donors who consider research to be a vital aspect in the growth of business activities.

Background and Rationale

Most of the conventional research funding available in Kenya is drawn from international sources and Kenyans have not so far been able to substantially provide financial support for research. The country is entering a crucial phase in its industrial growth with implementation of the District Focus strategy, the introduction of the 8-4-4 educational system as well as the expansion of scientific and technological activities by the government through the Ministry of Research, Science and Technology. The climate for research in science and technology has thus improved considerably in the last decade.

These are government initiatives which need to be complemented by other independent and private efforts. There is a need to increase our understanding of the potential role that the local industrial sector can play in fostering the improvement of the human welfare of Kenya. In line with the objectives of ACTS, the setting of an award programme based on local industrial research needs and financial support will go a long way in strengthening the national capacity to realize its industrial potential.

The SIRAP will concentrate on the industrial sector because this area has not received much research attention. Furthermore, most of the productivity required to meet the current and future employment requirements can only be achieved through increased industrial output as well as closer linkages between the industrial sector and the agricultural and service sectors. Awards may be given for research in other sectors so long as they illustrate that significant economic gains are likely to be made in strengthening specific linkages. If necessary, complementary awards may be instituted for research in the agricultural and services sectors.

This programme is also aimed at showing that the business and research communities in Africa have identified the crucial role played by collaborative research in

economic renewal and productivity. The fact that research plays a crucial role in international competitiveness has become a major component of economic policies in the industrialized countries. One of the significant ways through which African economies can enhance their role in the global economy as well as improve the welfare of their population is the increased use of research findings by the entrepreneurial sector.

Objectives

The aim of SIRAP is to establish closer links between the Kenyan business community and researchers so that local entrepreneurs can benefit from locally-supported research findings. The programme also aims at enabling researchers to enter closer working relations with the business community. The programme is based on the understanding that although research is vital to the survival of business activities, the links between the two institutions are still weak. This programme will help to strengthen such links through the granting of the award as well as the contacts that will be made during the research project itself.

Over time, the ACTS will start to build a data and information bank on various aspect of the Kenyan business sector which can then be readily utilized by entrepreneurs. The ability to keep this knowledge base available and renewed will depend largely on the willingness of Kenyan entrepreneurs to contribute to the Fund. Kenyan entrepreneurs have demonstrated their capacity to contribute to projects which reflect the long-term interests of the country. It is in this spirit that this programme has been formulated.

Sources of Funds

Following the precedent set by the President of the Republic in raising funds for the Universities Research Fund, prospects exist for extending such activities for independent research efforts. Since the programme is aimed at strengthening local research links with the local business community, ACTS will approach leading entrepreneurs to contribute to a Special Fund. The interest and other monies from this Fund will be used to support the annual award.

In order to strengthen the financial base of the award, it may be necessary to request funding for specific research areas. Some donors may be interested in supporting research into a particular area of industrial development. Arrangements will be made with such contributors so that their requirements can be made. This, however, should not done at the expense of supporting work in areas that have widespread

benefits to the economy. This will still remain one of the key criteria for the award programme.

Administration of the Award

The ACTS will establish a committee under a businessman which will administer the Fund. The committee will be composed of businessmen, researchers and policy makers who will also sit to determine the topic to be researched and call for research proposals. This committee will also be responsible for organizing the selection of the award winner. In this respect, the business community will be able to define their research needs. The committee will be helped by a member of ACTS staff.

Criteria for Selection

The awards will be given to proposals which aim at demonstrating ways in which productivity and economic gains in the industrial sector could be achieved. Priority will be given to those proposals which deal with subjects that have widespread gains to the economy. The study should aim at outlining realistic ways in which this could be done. On the whole, the research must contribute to the promotion of science and technology policy studies.

In order to maintain high standards in research, the awards will be given to people with considerable research or business experience who need time and resources to consolidate their knowledge and ideas. During the tenure of the award, the recipient will become a Research Fellow of the ACTS and will work in conjunction with other ACTS Fellows and the Peer Group. The ACTS will provide any additional support required to meet the objectives of the award.

Output of the Award

The recipient of the award will be expected to undertake a full year of research and present his findings at the end of the tenure of the award. The expected output will be a report which the ACTS will publish. One of the requirements of the ACTS will be that the paper be of good quality to command a price on the market. This will enable the find to earn additional income that would support further awards.

The findings of the study will be presented at the end of the award as a public seminar. It is also at the event that the next recipient will be selected. In undertaking this programme, the ACTS will work closely with other organizations funding and

conducting research in science and technology in the country as well as government institutions such as the National Council for Science and Technology.

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Origins

The African Centre for Technology Studies (ACTS) is a regional not-for-profit research organisation established in Kenya as Technoscan in 1982. The name was changed to ACTS in 1988 to reflect the extent of its mandate. The need to set up the organisation resulted from the realisation that most African development policies did not adequately reflect the role played by science and technology in economic growth. In addition, there is now a considerable number of people trained to handle science and technology policy issues yet there is no institution that is dedicated to such work.

The late 1970s and early 1980s marked a significant phase in African development. The high oil prices, especially the 1979 oil price increase were starting to take their toll on the African economies. It was the same year that the United Nations Conference on Science and Technology (UNCSTD) was held in Vienna.

While most of the industrialised countries were responding to the high oil prices through technological innovations, the African countries were focussing on monetary and financial reforms. The problem was seen largely as that of foreign exchange. The crucial role played by science and technology in development was recognised at Vienna but the capacity to help in policy formulation remained limited. ACTS was set up to help in the process of policy formulation and implementation as well as the capacity-building in the field of science and technology policy studies.

It has taken six years to build the core capacity for ACTS and to test the feasibility of undertaking science and technology policy studies.¹ Over this period the need for science and technology policy studies has become more pronounced and grants from donor organisations have helped provide a baseline in this field. Meanwhile, major policy changes in African countries have made it relevant to implement the objectives of the organisation.

First, it has been shown that the capacity of the African countries to meet their basic needs and diversify economic activity relies largely on the available technological capability. Secondly, the economic problems facing Africa have forced a large section of the population to engage in innovative activities. Third, the major advances made in fields such as microelectronics and biotechnology have undermined the presumed

1. This period has resulted in several books and project reports and a venture research programme has also been produced. See ACTS (1988), *Science, Technology and Economic Renewal: A Venture Research Programme*, Programme Concepts, African Centre for Technology Studies, Nairobi.

"comparative advantage" of African countries in the world economy.² Some African countries are currently reforming their policies to reflect technological imperatives.

Kenya, for example, has not only changed its educational system to reflect its technological needs, but it has recently set up the Ministry of Research, Science and Technology. The President of Kenya has personally launched a Universities' Research Fund which has helped raise public awareness on the role of science and technology in development. In addition, the introduction of the 8-4-4 educational system in Kenya, which emphasizes technical training, has also provided a suitable environment for the flourishing of scientific and technological culture.

African countries are currently searching for new directions; whichever way they turn, technological imperatives confront them. The challenge facing Africa is to take technology, the proverbial double-edged sword, and use it to improve the welfare of the people. But uncritical faith in technology can lead to negative impacts. ACTS starts from the vantage point of critical optimism. Time has come for a search for alternatives, a period of experimentation. Africa must innovate.

Objectives

The Centre will undertake the following:

- (a) conduct policy studies in the field of science and technology, natural resources, environment and related public affairs.
- (b) explore the links between technical change and institutional organisation so as to find ways of facilitating technological development.
- (c) collaborate in research, development and demonstration of technologies with other institutions and promote innovation at the community level through local organisations.
- (d) collect, assess and preserve local knowledge for purposes of using it in technological development.
- (e) monitor trends in science and technology in other regions of the world and analyse their implications for African economies.
- (f) identify policy options that would ensure long-term and sustainable development.
- (h) act as forum for dialogue and exchange of ideas between practitioners and researchers in matters pertaining to science, technology, environment, natural resources and public policy.

2. The granting of the 1987 Nobel Prize for economics to Robert Solow marks a significant step in the transition towards the recognition of the role of science and technology in economic development.

- (f) work closely with government institutions in implementing ACTS programmes and participate in national educational programmes so as to share research results with the public, students and university staff.
- (i) provide affiliation to researchers and students whose work is in line with the long-term economic objectives offer research awards to researchers to undertake designated work.

Rationale

Recent economic and ecological problems in Africa, as highlighted by the recent famines, have underscored the need to re-examine the future of the continent. One of the ways of dealing with these problems is to increase the application of science and technology. However, this requires careful understanding of the complex relationship between technology and society. This need has led to formation of science and technology policy studies in the industrialised countries.

The need to set up ACTS resulted from the limited number of institutions in Africa that provide policy options on science and technology issues. Most of the policy-related information available in Africa is generated through consultancy work or feasibility studies. This knowledge is either partisan or unavailable to the public. As a result, the information is not subjected to public scrutiny or used for educating the public on the role of technology in development. Technology still remains a "black box" for most people. ACTS intends to work towards changing this dire situation.

Most African countries undertake economic planning in the absence adequate information on international technological trends. No effective searches of the international market for technology are conducted and as a result, they end up investing in inappropriate sectors of choosing irrelevant technologies.³ In the absence of effective "honest brokers" in the industrialised countries, it has become necessary for African researchers with the relevant skills to constitute themselves in network that would provide policy options on these issues.

Africa is currently at the crossroads. The continent needs to build its technological capacity at a time when the industrialised countries are moving into more science-intensive activities. Dealing with the situation will require a rise in the ability to adopt available technology as well as generate new innovations. This transitional period requires more institutions which can provide effective policy options.

3. This theme is explored in a forthcoming ACTS study, *Rust in Peace: Technological Failure and Development Policy in Africa*.

Feasibility Test

In order to prove the feasibility of the Centre, a number of projects were undertaken. The first research work was the completion of a study on the place of technology in economy theory which was published in 1987 as *Long-Run Economics: An Evolutionary Approach to Economic Growth* (Pinter Publishers, London). ACTS has undertaken a research programme on the policy implications of biotechnology and genetic resource conservation for African economies. The first product of the study will be published in June 1988 as *The Gene Hunters: Biotechnology and the Scramble for Seeds* (Zed Press, London). Other feasibility projects of ACTS will result in the publication of *Rust in Peace: Technological Failure and Development Policy* and *The Economics of Sustainable Development: Alternative Paradigms*.

Scope of Operation

ACTS will undertake research in the areas of science and technology, environment, natural resources management and public policy. The Centre will not only seek to analyse science and technology policy issues, but it will also monitor international trends in various field and advise African countries on their long-term implications. All the relevant media will be used to disseminate the results. The technology focus will cover agriculture, biotechnologies, information technologies, capital goods, energy and small-scale industries.

The area of natural resource management is becoming increasingly important for African economies, especially given the major technological advances which are changing the composition and quantities of natural resources used in industrial production. This area will be a major research item, especially given the rising importance of material such as genetic. The topics under this subject will include human resources, genetic resources and sustainable development.

The issue of environment has been on the research agenda for a relatively long period, especially after the 1972 United Nations Conference on the Human Environment at Stockholm. However, technological advances are starting pose new environmental challenges while at the same time offering new possibility for ecological improvement and the provision of basic needs. These issues need to be adequately analysed in relation to African development. These research area will cover issues such as policies for sustainable development.

All these areas of study fall in the category of public policy research. The Centre will undertake research in this field to illuminate the key factors which influence policy

formulation and implementation. It is through such work that the Centre will examine in detail the role of research in public policy. Issues such as institutional infrastructure and social organisation will be covered under this subject area and will also include items such as gender relations, culture and scientific institutions.

Mode of Operation

The ACTS Secretariat will constitute of a chief executive, administrative support and project development team. These will be helped by a Peer Group and the projects will be implemented by Research Fellows. The Centre will maintain a small secretariat but will function mainly through networks of researchers and institutions. The policy guidance will be provided by the peer group of eminent people who have over the years accumulated considerable knowledge in the field of science and technology, natural resource management, environment, and public policy.

Specific projects will be implemented by Research Fellows of the Centre. The prospective Fellows will be identified by the Centre on the basis of their competence and research contributions. Researchers seeking to be Fellows may submit their proposals to the Centre for funding or fund-raising. The tenure of the Fellows will run concurrent with their project. In addition to the Fellows, the Centre will seek research collaboration with "centres of excellence" in Africa and other countries. The Centre will work closely with government and inter-governmental institutions and provide an open forum for discussing issues of science and technology, environment, natural resources and public policy.

The Way Ahead

The Centre will initially concentrate its activities in Kenya but will eventually operate as a regional centre through links with research fellows and institutions in other countries. The fellows will be encouraged to work in their respective countries so that they can establish similar institutions. In this respect, the Centre will also play a key role in stimulating and encouraging public policy research in other countries.

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