



POLICY BRIEF

Linkages between Research Institutions and Industry An Analysis and Practical Framework

MAIN ISSUES

The policy brief aims to disseminate information on research findings and their policy implications. In this maiden edition, the issue of lack of linkages between Research Institutions in Ghana and Industry is addressed. It is hoped that the paper would provide a solid theoretical and empirical basis for policy making.

Since research plays a very important role in promoting ties between research institutions and industry, the role of Research and Development as a linkage between them is discussed.

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The Issue in Brief

The competitiveness and growth of economies are increasingly dependent on the ability to create, distribute and exploit knowledge. The effective diffusion of scientific knowledge relies on networking and collaboration between research institutions and industry. Despite the aspirations of Ghana to attain a middle-income country by the year 2010, her science policies often miss this link. There is no denial of the fact that one of the ways this objective can be attained is to focus on science and technology, which has remained the single most important contributor to the growth of many countries. Scientific research leads to new innovations that have causal linkages with investment and growth. Linkages between research institutions and industry are very important because science without industry will not create wealth or improve the quality of life, nor will industry prosper without continuous research especially in this era of globalization. Collaboration is needed because the growing interdisciplinary and complexity of research makes it more costly for firms to carry out research alone.

It has been established that, State spending on research and development is inadequate. The economic Community of West Africa States (ECOWAS) proposal for member countries to set aside 1% of GDP to finance research has

not been implemented by many countries.

Notwithstanding, research institutions in Ghana have made significant findings some of which have been used in Agriculture and has resulted in improved yield. However, the scale of diffusion and application of these innovations are yet to reach appreciable levels. A survey of some research institutions and industry (list at the appendix) helped to identify the main reasons for the weak networking and collaboration

Linkages problem

- ◆ Lack of adequate resources to undertake research as most research institutions depend on government budgetary transfers for their research.
- ◆ Most of the research findings from research institutions has no link with the needs of the industry. The outcome of this is that there is a mismatch between industry's needs and academic needs.
- ◆ Lack of effective interface between research institutions and industry has created a gap. This has made it difficult to easily bring out the best of available resources and investment.
- ◆ Lack of proper protection for innovative research findings and lack of clarity in the patenting of

research findings have made it extremely impossible for researchers to derive enough compensation from their research work. There is also lack of willingness on the part of industry to take the risk of investing in relevant research work. Frequently, industry rely so much on external institutions through the importation of technologies and therefore have little stake in local research findings.

◆ Inadequate government support for research institutions in the country over the years has distracted the attention of researchers from basic research. It is therefore likely that the cardinal mandate of technology generation through research and development could comprise commercialization leading to misapplication of human resources trained at high costs.

◆ Currently there is no government fiscal policy that provides incentives to industries, which have invested their resources enormously in research. These incentives in the form of tax relief and tax holidays could motivate continued financing of research work in the country.

Extent of Collaboration

Successful cases of research and development collaboration with industry have emerged in Ghana over the years. Some industries and organizations have been fairly productive in using new technologies, research findings and products. Cases in point are the close and constant collaboration between Centre for Scientific Research into Plant Medicine and Kasapreko Co. Ltd that has resulted in the company funding the establishment of a department at the centre to prepare and supply concentrate for its gin production.

We can also mention Technoserve that has on the whole been very successful in linking research institutions and industry. It has liaised with research institutions to use improved planting materials in field demonstrations on farms leading to future

substantial increase in production. Technoserve in close collaboration with research institutions piloted the spinning press processing plant projects, which assisted in the mechanizing the processing of palm fruits in 1986.

Other industries that have interacted greatly with various research institutions and benefited immensely from research findings and products include Accra Brewery Ltd and Ghana Breweries Company Ltd.

Policy Issues

Creation of an effective interface between research institutions and industry is paramount and this strategy should involve all the three legs of the tripod- the research institutions (including the universities), the government and the industry. Right now, it appears the three players are working without any coordination. In this way, the potential capabilities of all concerned could be harnessed.

Industry should come out with the kind of human resources and skills it would need in future and this communicated to the research institutions and the universities through the interface.

There is also the need for industry to support students' projects, sponsor long-term projects as well as hold period seminars with research institutions.

The universities should also recognize that in today's modern world, the needs of industry are totally different. It will therefore be a more rewarding initiative if industry is invited to participate in periodic review of syllabi and course content at undergraduate and graduate levels.

On the government's side, tax incentives and other packages could be provided for industries that make use local research findings and also. A Fund similar to GETFUND etc could be created to help finance research projects. The Venture Capital Fund could also be an

alternative source to finance initial research oriented institutions.

There is the need for separating Registrar Generals department from the Patent Office and a replacement of the Patent Law PNDCL 305A to bring it into conformity with the international obligation of Ghana under the Trade-Related Aspects of Intellectual Property Rights (TRIPS) is a step in the right direction. Parliament should therefore quicken the pace towards the passage of the new patent law. CSIR should also have a deliberate policy of assisting researchers to take patents in the name of the council.

There is need for intensive public education on patenting laws and procedures to create public awareness. This well clearly spell out the accompanying benefits and also, highlights the likely penalties on breaching the patenting law.

ECOWAS proposal for member countries to set aside 1% of GDP to finance research should be implemented.

Large-scale firms should be encouraged through provision of incentives to establish education and research foundations, similar to that of Unilever.

The CSIR as a means of encouraging researchers to be very innovative and inventive should have a deliberate policy of assisting them in taking patents in the name of the Council.

Researchers should be educated to put findings

in their technical language (full disclosure), and contract patent lawyers to finance patent application forms.

Potential Risk

Greater collaboration has in-built risk and the potential for conflict between the parties involved. In this context, any linkage should address the following issues:

- How can excellence in research and educational missions be balanced with commercial objectives?
- How can the production and diffusion of knowledge be safeguarded?
- Who should own the intellectual property arising from industry-funded research? How should the benefits be shared?
- Are the traditional structures of research institutions and universities suitable to meet the network-based innovation model?
- How can government reduce barriers to collaboration between SMEs and research institution since SMEs may not have the capacity to enter into any collaborative network?