The Kenyan National Strategy for University Education Task Force has recommended the following on partnership and linkages for the Kenyan universities. I had the pleasure of chairing this Task Force and I submit this Chapter for comments by STI Forum participants. Kindly send me your comments at E-mail: sowandiga@iconnect.co.ke

8.0 UNIVERSITY LINKAGES AND PARTNERSHIPS

8.1 Introduction

University linkages have been going on without legal agreements or structures. A Memorandum of Understanding (MoU) is often used to formalize a linkage. A partnership, on the other hand, often requires a Memorandum of Agreement (MoA) and often involves collaborating institutions committing financial, material and human resources to support a joint research project or facility.

Collaboration among universities in developed countries such as those of the OECD, is driven by the need to share research resources in different universities. For example, 95% of the world’s scientific research takes place outside the UK. This means that the UK funds only 5% of global science research. The UK therefore supports its universities to establish international linkages and partnerships with other world-class universities in different research areas (Annual Report, UK Investment Framework 2004-2014, 2005). For example, the University of Manchester in UK has established a linkage with the University of Washington, USA, to develop composite materials for use in aircraft design. This linkage is supported by the UK funding.

Collaboration between universities and industries is often driven by the need for technology transfer from universities to industry. For example, the UK has knowledge transfer partnerships that enable researchers in universities to work in strategic industries for one to three years. South Korean universities are setting up university-industry clusters to support collaboration with industries. For example, Hanyang University in South Korea has created an Education and Research Industry Cluster at Ansan (ERICA) campus which facilitates the collaboration between government, industry, national research institutes, and the science and engineering departments of the university.
South African universities have established university-industry linkages and partnerships at two main levels:

i. direct university – industry links. For example Telkom South Africa has established Centres of Excellence in selected departments of engineering in South African universities. These Centres of Excellence conduct joint research. The mining companies have also established links with mining engineering departments; and

ii. national research partnerships established through the National Research Foundation of South Africa. For example, the Hartebeesthoek Radio Astronomy Observatory (Hart RAO) will be an international project that will be built at an estimated cost of 1 billion Euros in 2014-2020. It will be an international facility that will allow South African universities and other international universities to collaborate in research in radio astronomy, space geodesy and satellite ranging.

Commission for Higher Education (CHE) and Kenyan universities have surveyed the different models used in Europe, Asia, and Africa for sustainable university-industry linkages (Ogada, 2000). For example, in Germany, the university-industry links are sustained by joint research projects and technology transfer centres. In Sweden on the other hand, the linkages are through technology parks. Systematic reforms in University – Industry Partnerships in OECD countries have made universities in those countries centres of innovation. Thus, linkages and partnerships are widely used all over the world to increase the research output of universities as well as quality research in these nations. Kenyan universities have begun to establish both technology and science parks. They have also enhanced collaboration in research projects.

The Taskforce has developed the strategic goals, objectives and strategies for the linkages and partnerships. The strategies support seven types of linkages and partnerships, namely:

i. university-industry;
ii. university-university;
iii. university-research institutes;
iv. university - middle-level colleges;
v. university-international organization;
vi. university-community; and
vii. university-relevant professional regulatory bodies.
8.2 Linkages and Partnerships in Kenyan Universities: An Environmental Analysis

8.2.1 Strengths

Public universities in Kenya have linkages with universities in developed countries. The University of Nairobi has linkages with many universities in Eastern Africa Belgium, Germany, the UK and the USA. For example, the link between the University of Nairobi and the Free University of Belgium has in the past six years provided funding for ICT infrastructure and joint Masters and Doctoral degree programmes.

Moi University has links with Indiana University in the USA, and the Free University of Belgium that support doctoral training, faculty exchange and joint research programmes. Egerton University offers a joint degree in Aeronautical engineering with Michigan University in the USA. Jomo Kenyatta University of Agriculture and Technology (JKUAT) has linkages with Japanese universities that have traditionally been funded by JICA, the Japanese development agency. Similarly, all the private universities have links with international universities for faculty and student exchange programmes. For example, Kenya Methodist
University has linkages with a Canadian university that supports joint research programmes. USIU maintains links with universities in China, Germany, India, Japan and the USA for faculty and student exchanges, while Strathmore University has links with universities in Nigeria, South Africa, Spain and the USA.

Kenyan universities also collaborate with Eastern African universities through the Inter-University Council of East Africa (IUCEA). These linkages support limited student and faculty exchanges as well as joint student competitions. In addition, they support joint research projects, like the Lake Victoria research project that involves faculty from universities in the three East African countries working in multidisciplinary programmes. Some faculty members have created research networks in various areas of regional and global concern. All the Kenyan universities are also members of the Association of African Universities (AAU) which supports faculty exchanges. Both IUCEA and AAU organize annual meetings for Vice Chancellors to share experiences.

Kenyan universities have been collaborating in the area of internet bandwidth purchases and development of campus networks as members of the Kenya Education Network (KENET). All the universities are members of KENET. KENET is already coordinating joint production of on-line teaching materials and research databases by faculty at different universities.

All the Kenyan universities also share library resources through the inter-university library loan system. University libraries are increasingly being automated and about 25% have OPAC available off-campus to students and faculty in other universities. Thus Kenyan universities already recognize the need for collaboration in teaching, research and management of the universities.

**University-Industry Linkages**

A study commissioned by CHE confirmed that there is some collaboration between industry and universities in Kenya. Internship and industrial attachments are a requirement in professional degree programmes such as business, law, engineering and ICT in Kenyan universities. Some private universities such as Strathmore University and USIU have an attachment requirement for all their degree programmes. These attachments result in some level of collaboration between the universities and industry.

In 2006, Safaricom Kenya Limited, a leading mobile communications company, entered into an agreement with Moi University to set up and support a modern telecommunications laboratory. The linkage will also offer faculty members opportunities to upgrade their skills through a faculty internship programme.
A few private universities also involve local industry during the curriculum development process. The IEEE, a professional engineering body, also works closely with the departments of electrical engineering to organize project exhibitions and competitions. The university-based student associations and clubs also work closely with other professional bodies like those for Accounting or Marketing. AIESEC, the world’s largest student organization, has chapters in most of the Kenyan universities and coordinates interactions and internships in local and international industries and organizations. Most of the universities also keep in touch with local industry through their respective alumni associations and placement offices.

**University – Research Institutions Linkages**

Research institutions in Kenya are area-specific and as such, they have excellent equipment and qualified manpower that can be utilized to enrich teaching and research at the universities. The institutes can carry out joint research and training with the universities and their facilities can also be used by both faculty and students thus exposing them to the requisite infrastructure for research. Some research institutions have strong partnerships with development partners through whom they get substantive funding and expertise. Universities can similarly benefit through collaboration and also benefit from such funds. There are many international research organizations which operate in Kenya. These research institutes are often disconnected from the local research environment and experts. There is therefore, need to review the legal framework, protocol and conventions that set up these institutions to allow for more collaboration with the universities and local researchers.

**University- International and Multinational Organizations Linkages**

International organizations such as UNESCO, FAO and WHO have extensive funding ability, data and expertise that can highly benefit the universities. Such benefits can only be realised if the universities are well-informed about what these institutions can offer and how funds as well as other resources can be accessed. In addition to United Nations bodies, the universities would also need to form strong links and partnerships with other international organizations like the International Social Sciences Council and the International Council for Science. It is important that universities be well-informed on the protocols and conventions that govern these bodies, their status with Kenya and membership requirements. There is need, therefore, to carry out an assessment of the potential benefits of these bodies with a view to maximizing universities’ exposure and building relevant partnerships.
University - Middle Level Colleges Linkages

The current relationship of universities with middle level colleges revolves around these colleges’ excellent facilities which the universities utilize as their offshore campuses to offer courses to SSS. Collaboration between the universities and middle level colleges can lead to sharing of resources, consultation on curriculum development and consensus on student credit transfer. There are many specialized diploma level colleges with excellent facilities which can partner with universities to upgrade some of their courses to degree level without abandoning their core mandate of offering quality diploma and certificate programmes. These colleges include the Kenya School of Monetary Studies for Finance related courses, Kenya College of Insurance for Actuarial Science, Kenya College of Communication and Technology for Telecommunications related courses and Bandari College for Shipping and Marine Science. There is need to carry out an audit of facilities in these and other colleges with a view to establishing the most suitable partnership and linkages with universities.

University-Community linkages

Some of the private universities in Kenya require each student to undertake a community service attachment with not-for-profit organizations. These include schools, hospitals, and community-based organizations working in the informal settlements. The objective is to develop a community service culture among students.

Public universities also have community outreach programmes through co-curricular activities, although community service is not integrated in the curricula of most degree programmes. For example, the Student in Free Enterprise (SIFE) programme at all the universities in Kenya encourages students to develop social entrepreneurship projects to solve community problems. Experience from Rhodes University in South Africa showed that community outreach programmes underpinned by a specific policy on student volunteerism can enhance the university brand and increase students’ skills in community mobilization.

University linkages and partnerships will therefore lead to progressive innovative institutions whose mandates are informed and enriched by the experiences, expertise and resources of these partners. The partners on the other hand gain by tapping the intellectual and creative energy of the universities. The overall achievement of these partnerships is the production of more relevant knowledge and skills for economic development. The successful case studies of university linkages and partnerships in the developed countries cited above emerged through deliberate and specific reforms that were underpinned by
strong political will and government and institutional support. There is need for a paradigm shift that ensures that universities and collaborating entities mutually reinforce their strengths.

**University-professional bodies linkages**

Professional bodies like the Kenya Medical and Dentistry Association, the Kenya Engineering Association, the Kenya National Academy of Sciences, and other discipline professional bodies serve useful mandates whose formal linkages with the universities would improve the services they provide. The professional associations’ membership is composed of individual academics, civil servants and private sector experts. Holding of joint activities between the universities and professional bodies will improve learning and induct students into professional ethics. Furthermore, supervision of interns is an area that stands to improve once the professional associations take it as their responsibility.

8.2.2 Weaknesses

Anecdotal evidence suggests that most of the links with international universities are not well structured. They are particularly weak in the area of Intellectual Property Rights because most Kenyan universities do not yet have operational IPR policies. Consequently, it is possible for a university to lose IPR to a foreign university. In fact, most universities have not developed guidelines for faculty collaboration with researchers at other universities.

Collaboration beyond student exchange is normally based on common research interests. It assumes that faculty in both universities are equally active in research. The limited research output of Kenyan lecturers reduces the opportunities for collaboration with industry and foreign universities.

A study commissioned by CHE (Gichaga, 2005) found that there was limited collaboration between Kenyan universities and industry. This is partly due to lack of awareness of local industry of the potential for research contributions from Kenyan universities or lack of awareness of university researchers of industry needs. At present, there is no university in Kenya that has a chair in any field of study that is sponsored by local industry. This is because the multinational manufacturing companies undertake their research in the countries of their origin. Incentives should be provided to financial and utility companies to support chairs in their respective areas.

8.2.3 Opportunities and Threats

Many opportunities for collaboration with local and regional universities exist. For example, there are opportunities for purchasing and sharing expensive
laboratory equipment by local universities. There are also opportunities for cost-reduction through economies of scale in the purchase of internet bandwidth and other materials that could be exploited. There is currently great interest in indigenous knowledge and plant and animal materials in other parts of the world which could be of benefit to universities in Kenya. There is also a large pool of local researchers that could support joint research projects at relatively low costs. Kenyan universities just need to market their capability to the rest of the world.

Kenya is considered a hub for financial services and tourism in Africa. The country also hosts the headquarters of the United Nations Environmental Programme (UNEP) and this increases opportunities for joint research. Many companies are also attracted to Kenya as a gateway to Africa. For example, Nokia is establishing its Africa operation in Kenya and is willing to work with Kenyan universities in developing new products. Currently, Google has entered into collaboration with KENET, the university-wide research network to provide e-mail and search engine and local content services to Kenyan universities. Thus, Kenyan universities could scale up their collaboration locally and internationally with universities and industry.

The greatest threat is that of losing indigenous knowledge to foreign universities because of the lack of institutional IPR policies. There is also the threat of brain drain arising out of the collaborations. The mandate of Kenya Industrial Property Institute (KIPI) enables it to protect industrial innovations only. There is need to have its mandate expanded to protect intellectual property rights of innovations from universities and research institutes.

8.3 Strategic Goal, Objectives, Strategies and Outcomes

The strategic goal for linkages and partnerships is to:

“Develop strong university linkages and partnerships that enhance mutual learning, research and innovation”.

The Taskforce identified the following strategic objectives:

i. establish a conducive policy environment for university-industry linkages and partnerships;
ii. promote university-industry linkages and partnerships;
iii. develop and strengthen university-university linkages and partnerships;
iv. promote university-research institutes middle-level colleges linkages and partnerships;
v. promote university-international/multinational organizations linkages and partnerships;
vi. strengthen university-community linkages and partnerships and
vii. promote university-relevant professional/regulatory bodies linkages and partnerships.

8.3.1 Strategies for Establishing a Policy Environment for University-Industry Linkages and Partnerships

The following are the strategies that will be used to achieve this strategic objective:

i. establish a national policy on university-industry collaborative research;

ii. promote innovative knowledge transfer mechanisms. This would involve development of policies for creating spin-off companies to utilise university patents and licenses and establishment of IPR management offices in each university; and

iii. support the establishment of joint university-industry incubation centres. This would involve development of guidelines and template agreements for establishing jointly owned incubation centres.

8.3.2 Strategies for Promotion of University-Industry Linkages and Partnerships

i. **Promote faculty and student internships and exchanges with local and international companies.** Faculty internships in local industries are, at present, limited. An increase in faculty internships and short-term consulting opportunities would greatly improve the quality of teaching. Student internships in public universities are required for technical degree programmes. Internships for most of the students would increase the quality of graduates.

ii. **Promote collaborative curricula development in universities.** The outcome would be curriculum that is relevant to industries operating in Kenya and other African countries.

iii. **Promote joint research and contract research.** The joint research could be with local SMEs as well as multinational corporations operating in Kenya. The outcome would be an increase in the research capacity of local universities, increase in number of publications and patents, and increase in research funding by industry

iv. **Promote creation of knowledge-based start-ups jointly with industry.** The outcome would lead to an increase in the number of joint start-up companies.
8.3.3. Strategies for Promotion of University-University Linkages and Partnerships

The majority of faculty members are not engaged in the partnerships. However, the linkages with international universities are also asymmetrical because faculty at universities in developed countries is more active and better funded than their counterparts in Kenya. The following strategies will strengthen the linkages with local and international universities.

i. **Strengthen the national research and education network (NREN) in order to increase the level of collaboration among Kenyan universities.**
At present, the Kenya Education Network (KENET) is a small-scale NREN that has a focus on ICT and connectivity between Kenyan universities. Increased funding and awareness will mean faculty will create locally relevant content, increase the number of joint subject-specific research databases and also support joint research projects. Students would also collaborate using a strengthened NREN.

ii. **Promote linkages and partnerships between local and international universities.** A fully-fledged NREN could also support collaboration with international universities. Already KENET is linked to the European NRENs through the European academic network. This strategy will develop IPR guidelines for research collaboration. In addition, the strategy aims to increase the level of funding to support joint research, faculty and student exchanges. Linkages will also support consortium-based doctoral and post-doctoral research programmes.

8.3.4 Strategies for Promotion of University-Research Institutes/ Middle-Level Colleges’ Linkages and Partnerships

Kenya has established several research institutes and middle level colleges whose activities are not synchronized with the universities research and teaching programmes. Often, some research institutes have very well equipped research laboratories. In some instances, some universities have better equipped research facilities. Sharing of these resources would benefit both and improve national innovation activities.

8.3.5 Strategies for Promotion of University-International Organizations Linkages and Partnerships

Kenya is a member of United Nations organizations like UNEP, UNESCO, WHO, UNIDO. Involvement of Kenyan universities in linkages and partnership with these bodies is weak although several academic staff members participate in their activities on individual merit. Similarly, several international organizations exist that promote sharing of knowledge like the International Council of Science.
(ICSU), the International Social Sciences Council and several discipline oriented global organizations. Enhanced participation of Kenyan scientists and researchers in international research programmes is one benefit that is derived from membership. Strategies that open the doors for Kenyans to participate in these international programmes would greatly enhance knowledge transfer to the country.

8.3.6 Strategies for Promotion of University-Community Linkages

i. **Integrate community service into university degree programmes**

This strategy will require universities to review curricula in order to incorporate community service in all degree programmes. The outcome of this strategy is expected to produce graduates who are sensitive to community needs and who understand how their degree programmes could support social development.

ii. **Align university research projects and community development priorities**

This strategy aims to ensure that research projects funded by the university or government in any disciplines such as science, engineering, music, tourism, medicine and business are aligned to community development needs. Already, CHE requires that research projects funded by the government address some of the critical development needs of the country such as water and sanitation, agriculture, trade and energy. However, individual universities have not developed research guidelines that are aligned to community development needs or even poverty alleviation. The outcome of this strategy could be an increase in application research output that has an impact on the economies of the different regions of Kenya.

iii **Promote co-curricula activities that engage communities**

This is the area that is most developed in Kenyan universities because of the activities of student clubs and associations in community projects as described in the environmental analysis. However, anecdotal evidence suggests that only a small fraction of the students enrolled in Kenyan universities are participating in community-based co-curricular activities. This strategy aims to increase the level of participation by all students, and especially graduate students.
The outcome would be graduates with a strong volunteer spirit and readiness to help their communities develop.

8.3.7 Strategies for Promotion of University-Relevant Professional and Regulatory Bodies’ Linkages and Partnerships.

The following strategies will be implemented to achieve the strategic objective

i. establish guidelines for university-professional and regulatory body linkages and partnerships;

ii. promote involvement of professional and regulatory bodies in curriculum development;

iii. develop mechanisms for professional and regulatory bodies to participate in internships supervision;

iv. develop mechanisms for professional bodies to facilitate registration and protection of student and faculty IPR.

v. develop mechanisms to allow professional bodies support research, chairs, scholarship in their respective areas.

8.4 Strategy Implementation and Projects

The Taskforce has developed detailed implementation matrices or logframes appended to this Chapter. The logframe has identified activities and projects and the associated indicators, time schedules and persons responsible. These could be customized and incorporated into the strategic plans of the individual universities. It could also be the basis for criteria for evaluation of projects for funding. Some of the key projects include:

i. assessment of the capacity of Kenyan universities to participate in national and international research and education networks;

ii. development of e-learning content and research databases in strategic subject areas;

iii. development of template agreements for university-university, university-research institutes, and university-industry linkages and partnerships that include IPR agreements;

iv. establishment of science and technology parks that would be shared by universities and industries;

v. review of Kenyan university curricula to incorporate a community service component;

vi. development of university research guidelines that align research projects with community development priorities; and

vii. development of policies and mechanisms for university-professional/regulatory bodies linkages.