

**REPORT ON REGIONAL SEMINAR AND WORKSHOP ON INNOVATION  
INTELLECTUAL PROPERTY MANAGEMENT AND TECHNOLOGY  
COMMERCIALIZATION**

**HELD 24-26 MAY, 2011**

**KENYA INSTITUTE OF MONETARY STUDIES  
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**A. INTRODUCTION**

The Regional Seminar and Workshop on Innovation, Intellectual Property Management and Technology Commercialization was organized by:

1. United States Patent and Trademark Office (USPTO);
2. Public Intellectual Property Resource for Agriculture (PIPRA);
3. African Regional Intellectual Property Organization (ARIPO);
4. Kenya Industrial Property Institute (KIPI); and
5. World Intellectual Property Organization (WIPO).

The Seminar and Workshop took place between 24 and 26 May, 2011 at the Kenya Institute of Monetary Studies, Nairobi and drew participants from East Africa (Kenya, Tanzania and Uganda), Southern Africa (Lesotho, Malawi, South Africa and Zimbabwe) and West Africa (Gambia and Ghana).

The seminar focused basically on the need for Intellectual Property (IP) Management Policies, Legislation and Infrastructure to facilitate the commercialization of innovations and inventions through public-private partnerships using the mechanisms of scientific parks.

This report summarizes the proceedings at the workshop by outlining the presentation and activities which took place there. A conclusion on the salient aspects of the seminar is then made.

**B. National Initiatives on IP Management**

The first day of the Seminar dealt largely with instances of national initiatives to address IP management and commercialization.

**1. South Africa**

The presentation by Dr. Maclean Sibenda from South Africa dwelt largely on the recent legislation, the Intellectual Property Rights and Publicly Funded Research and Development Act and Innovation and Technology Transfer Act. The legislation is based on the premise that IP contributes to local and national development and tries to address the disparate policies previously in existence in South Africa on IP. This entails trying to balance incentives and regulation by ensuring that publicly funded IP is identified, protected, utilized and commercialized for the benefit of the community. In this regard, the IP should be disclosed and its ownership determined. For this purpose, Government may own the IP. It was also significant that there existed the National IP Management Office (NIPMO), the possibility of co-financing research and innovation which would determine benefits sharing arising from the commercialization of an innovation.

## **2. Kenya**

It was revealed that Kenya has a Policy on Science and Technology and the Kenya IP Institute (KIPI) had been instrumental in developing and implementing it. This arose from a 2002 meeting at Moi University where emphasis was placed on the initiative to identify knowledge created, protect and manage it. This required Institutional IP policies now evident at Moi, Kenyatta and Nairobi Universities and the Jomo Kenyatta University of Agriculture and Technology (JKUAT).

These policies are supplemented by the Seed Policy and Incubation Policy. The constitution also protects IP Rights of people of Kenya. Additionally infrastructure for IP management includes:

- (a) University based companies;
- (b) Technology Transfer Officers (TTO); Industrial Parks; and
- (c) Industrial clusters.

Nevertheless, Kenya still lacks a National IP Policy which is necessary to avoid inconsistencies.

However, it was stressed that the development of IP management policies in Kenya had been University driven. Furthermore, the Science and Technology Innovation Act borrowed extensively from the US Bayh-Dole Act. Additionally, the Science and Technology Innovation Policy, 2008 mandates Universities to have IP policies.

It was emphasized that a strong IP regime should be assisted by legislation, policies and Government bodies. In Kenya there exist KIPI, the Kenya Board of Copyright and Ministry of Agriculture, complemented by the International Livestock Research Institute (ILRI) which is based in Kenya. The other is the Anti-counterfeit Agency created under the Anti-counterfeit Agency Act, 2008.

It was also noted that IP flourishes in a competitive market environment. A good example was the Mobile Money Transfer arrangement MPESA which surfaced in 2006 and has todate handled Kenya Shs.200 billion.

The appreciation of the stages of IP development including preincubation, incubation, use of science parks both in Universities and nationally was mentioned.

### **3. United States of America (USA)**

In a presentation titled, “Unleashing Potential of Government Sponsored Research,” Professor Peter Lee of the University of California Davis (USA) explained that The National Institute of Health issues grants for research conducted at Universities. The funding is worth US\$30.5 billion. Based on this the issue arose as to who should own the patents from such research – the Government or the inventor? This arose from concern about the University Patenting publicly funded innovation.

To address this concern the Bayh-Dole Act was passed in 1980. It permitted Government grantees of research funding to patent innovations. This included mainly universities and research institutes. The Act essentially regulates:

- (i) Title to invention;
- (ii) Agreements with scientists;
- (iii) University share of revenue with inventors;
- (iv) Default situation where grantee of funding may not take title to patent;
- (v) Situations where Government would retain paid up licence; and
- (vi) Situation where funding agency retains rights arising from compulsory licensing of a patent.

The impact of the Bayh-Dole Act was two-pronged. It is an inspired legislation in the USA and has contributed to University patenting. The number of patents rose from 495 in 1980 to 3,270 in 2005. The negative effects of the Bayh-Dole Act are:

- (i) concerns about a double subsidy where a University gets Government funding but then patents innovations from which it derives income;
- (ii) proliferation of University patenting which inhibits fundamental research; and
- (iii) commercialization of academia leading to alteration of research priorities.

It was noted that the National Institute of Health (NIH) has hardly exercised the default (retained) rights under the Bayh-Dole Act. For that purpose the Act creates a regime which is superior to the defaults arrangement and curtails movement to investor-owner regime. The Act also emphasizes that IP is based on technology transfer with patenting playing only a small part of that transfer.

The Act also stresses the following institutional considerations:

- (i) need to integrate patenting and licensing with the university mission;

- (ii) need to focus on the public benefit; and
- (iii) appropriate restraints on exclusivity in relation to patenting in order to cater for research and humanitarian objectives.

## **C. IPR Themes**

### **1. IP Related Agreements at Public Sector Institutions, by Professor Peter Lee, University of California, Davis, USA.**

#### **(a) General**

The need for IP policies stems from the need to relate Intellectual Property Rights and Research. This in turn entails sharing of research, replication and funding of public research.

The objectives of IP include public benefit, transfer licensing, student opportunities and academic 'freedom.' Most University and Research Institutional policies cover stakeholder rights, patent and licensing/royalties and the security of funds (see e.g. University of California, USA, Policy). Others stress benefit to the public, rights of scholars, contractual commitment and the use of the University name/insignia (see e.g. Harvard University Policy, 2008).

The main issues affecting patents are reporting, assignment, engaging the Technology Transfer Office (TTO) and title to invention /patent.

In spite of patenting, certain rights are reserved through humanitarian provisions normally related to provision of drugs and health care.

#### **(b) Non Disclosure Agreements (NDAs)**

NDAs binds University personnel and outsiders. Generally, the parties are identified, the confidential information is mentioned together with the definition of the purposes for using the information as well as necessary limitation on NDAs. These include information in the public domain or already possessed by the recipient or disclosed to recipient through legitimate means.

The Agreement should also indicate duration thereof. Other provisions relate to severability relative to enforceability, choice of law, delineation of remedies in the event of breach of the agreement.

Other issues covered include:

- Academic freedom;
- Principal/Agent concerns;
- University Professional Capacity; and
- whether students are bound by the agreement.

The University of Michigan NDA was given as an example.

### **(c) Employment Agreements**

The main issue relative IP is who is the owner of an invention. Is it the University or the inventor? Ordinarily, if the invention is made in the course of employment it belongs to the employer (University). Nevertheless, there can be default provisions in the agreement permitting the owner to assign or license the invention either to the University or a Company. This will depend on the wording of the agreement.

### **(d) Material Transfer Agreements (MTAs)**

MTAs affect biological materials used in research. In the USA there are guidelines governing MTAs [e.g. Uniform Biological MTA, (1995) and Principles and Guidelines (1999)].

Normally users of MTA should make findings available to the community. MTAs will contain provisions on warranties, liabilities and the governing law.

Categories of MTAs, include university to university MTA and University to Company MTA.

Other MTA provisions relate to replicability, publication and rights in research results.

### **(e) Co-Development Agreements (CDAs)**

The aim of CDAs is to take advantage of complementary skills and resources and facilitate exchange of information (know-how). The provisions normally cover co-operative research, reports, financial staffing obligations, licensing, publication, warranties and indemnification.

For samples one is referred to best practices, IP issues and realistic objectives contained in [iphandbook.org/handbook/resources/agreements](http://iphandbook.org/handbook/resources/agreements).

## **2. Best Practices for Technology Valuation and Licensing by William Tucker, Director TTO, University of California (UC).**

Mr. Tucker stated that based on UC experience 25% of patents are filed; 50% get licensed; 34 generate licence issue fees and 16 generate royalties, 15 generate US\$. 1 million while one generates more than US\$ 1 million.

Companies license technology for business reasons. This requires evaluation of commercial opportunity, including the state of knowledge and market commercialization space and whether the technology is ready for the market.

The following considerations are critical.

### **(a) Identification of Industry Partners**

This involves location in commercial space, structure of the industry, potential of the technology and the investor.

### **(b) Who licenses Technology**

People who license technology include visionaries, technology developers, product marketers and product developers.

### **(c) Structure of Industry**

There are two (2) types of industry: emerging and mature.

*Emerging industry* requires exclusive rights and is driven by visionaries. *Mature industry* comprises established companies. These want more than proof of a research principle. They want a prototype.

Related to this is that one should identify a technology champion. In the case of an emerging industry, this is a researcher, while for a mature one this is an employee of a company.

Ordinarily the identified investor will provide seed money for the development of the technology.

### **(d) Valuation of Technology**

In evaluating the technology it is essential to relate the technology to a product, what its market value is relative to internal value position.

It is also essential to calculate royalties expected based on sales rather than net income.

The speaker also referred participants to the following sources:

iphandbook.org  
[william.tucker@ucop.edu](mailto:william.tucker@ucop.edu)

## **3. Case Study: Successful Licensing Programme from Kenyan Institution by Anthony Mbayaki, Moi University**

Mr. Mbayaki highlighted the fact that ownership of indigenous knowledge was controversial and it was necessary to identify research products and potential market.

He advised that in Kenya French beans had potential for patenting. There was also need for an enabling law to assist Technology Transfer Offices (TTOs).

Further discussion revealed the need to advise relevant bodies, including the Ministry of Industry and National Commission for Science and Technology (NCS & T). The Kenya NCS & T was supporting 38 institutions and 300 projects. Scholars were encouraged to include the cost of patenting in the research proposal.

It was further emphasized that Universities and Research Organizations should set up TTOs.

#### **4. IP Related Resources and Government Support for Public Sector Institutions by Ms. Kitsri Sukhapinda, USPTO**

The resources were listed as follows:

- (a) uspto.gov/ip/training/learning/index.jsp
- (b) global IP Academy (WIPO)
- (c) grants.nih
- (d) sbir.gov
- (e) sbir.gov/federal-links.htm
- (f) stopfakes.gov
- (g) copyright.gov
- (h) uspto.com
- (i) WIPO portal
- (j) WIPO Publications
  - Guidebooks
  - training tools
  - manuals
  - case studies
  - WIPO E learning programmes
  - E Newsletter
  - E Forum
- (k) wipo.int/uipc/en  
[yumiko.humano@wipo.int](mailto:yumiko.humano@wipo.int)

### **D. PRACTICAL ASPECTS OF IPR**

#### **1. Intellectual Property and Technological Innovation Importance of IP for Economic Development**

##### **(a) General**

IP is a form of property which contributes to the economy, develops business and rationalizes inefficient industries.

In Kenya IP has been elevated to a constitutional status. In East Africa IP has become prominent given the revival of the East African Community (EAC) with a potential market of 130 million people.

The basic aspects of IP are evident from 3 International Conventions:

- (ii) Berne Convention on Copyright;
- (iii) Paris Convention on Patents; and
- (iv) Trade Related Aspects of Intellectual Property (TRIPS) which is multidisciplinary.

Strong IP should be balanced by a competitive business environment. This should be backed up by policies geared towards each and every person. Evident IP opportunity lies in, for instance, the possession of mobile phones estimated at 17 million in Kenya where an investor can decide to produce pouches for hand sets.

The link between IP and a pro-competitive market is best illustrated by the trademark regime which essentially reserves a market for goods through guarantee of source of origin, quality and reservation of area of operation. Generally IP envisages a duty to protect other peoples rights.

#### **(b) USA**

The importance of IP for US and economic growth is underpinned by the President's Plan for Science and Innovation. This has led to the improvement of the patent system resulting in amendments to the Patent Act. It is important to stress the nexus (connection) between Innovation and IP Protection with economic growth.

The process of examination of IP and innovation followed economic downturn in USA over the past three (3) years.

IP promotes technology processes, medicine and production leading to additional income and more taxes. The incentives for industry to collaborate with researchers and Universities are, therefore, obvious.

Complementary factors for IP to effect growth include the market, legal and economic infrastructure, and political stability.

The trade-offs from a strong IPR system are a domestic industry based on foreign investment, concurrent investment and development of human resource.

#### **(c) East Africa**

The challenge for IP in East Africa is that member states of EAC are at different levels of development. Hence the need for approximation as opposed to harmonization in terms of



structures. A reasonable approach is to combine a set of policies for instance Anti-counterfeiting legislation. The movement towards compliance with the TRIPS convention which is expected in 2013 is another challenge.

Other challenges include the need for an interministerial committee to handle industrial property, copyright and plant breeders rights. The structures in Kenya where plant breeders rights are handled by the Ministry of Agriculture, copyright by the Kenya Copyright Board and Patents by the Kenya IP Institute (KIPI), may be instructive on how to proceed in EAC. By way of comparison, in the USA, patents and trademarks are handled by the US' Patents and Trademarks Office (USPTO) and copyright by the Library of Congress. Nevertheless, USPTO co-ordinates general policy on IP.

Other challenges for trade users is the pirating of software and the work of musical artists.

### **IP Issues Relevant to Researchers and Scientists**

As a start, IP is enshrined in the constitution. However, to make it practical, it should be promoted in schools and used to start companies.

With respect to a patent, this is essentially a monopoly over an invention granted by Government. However, the condition for the grant is that the inventor should disclose how the invention works. At the international level the TRIPS Agreement has an enforcement mechanism. Critical aspects to consider are:

- Patent Claim determines infringement;
- Office fees;
- Agent/Legal Fees; and
- Maintenance Fees (e.g. website).

Essence of the patent is that it must be new with an inventive step and must be industrially applicable (See Patents Act Cap.216 of Uganda)

Other considerations are:

- to exercise care in applying for a patent before publishing findings in a journal, which may prejudice entitlement to a patent;
- grace period within which to patent;
- filing patent abroad under the Patents Co-operation Treaty;
- trade secrets which may not need registration; and
- traditional knowledge and genetic resources.

### **IP and Technology, Management for Universities/Research Institutes/Roles of TTO in University Invention Disclosure Process**

By Yumiko Humano WIPO

The presentation focused on the role of universities in IP Management.

### **(a) Role of World Intellectual Property Organization (WIPO)**

It was explained that WIPO is one of the 16 UN Agencies. It administers 24 treaties and is involved in legal and capacity building.

### **(b) Significance of IP**

Eighty (80) percent of Fortune 500 companies are based on intangible assets (IP). In the 1950s the companies were based on tangible assets but this changed from 1990 to intangible assets (*Innovation Report*, 2003). Clearly, therefore, IP is linked to economic growth. This is reflected in increased Research & Development (R & D) expenditure in developed countries; 5,000 patent filing companies, industry strategies involving R & D collaboration with universities leading to increased technology transfer activities from Universities since 1980. This coincides with the Bayh-Dole Act in the US which permitted IP exploitation by universities from public funded research. Effectively the Act abolished professional privileges related to invention.

This trend has been extended to other countries, including Germany (2001), Austria (2002), Denmark (2002) and Japan (1995, 1998, 1999, 2000, 2004).

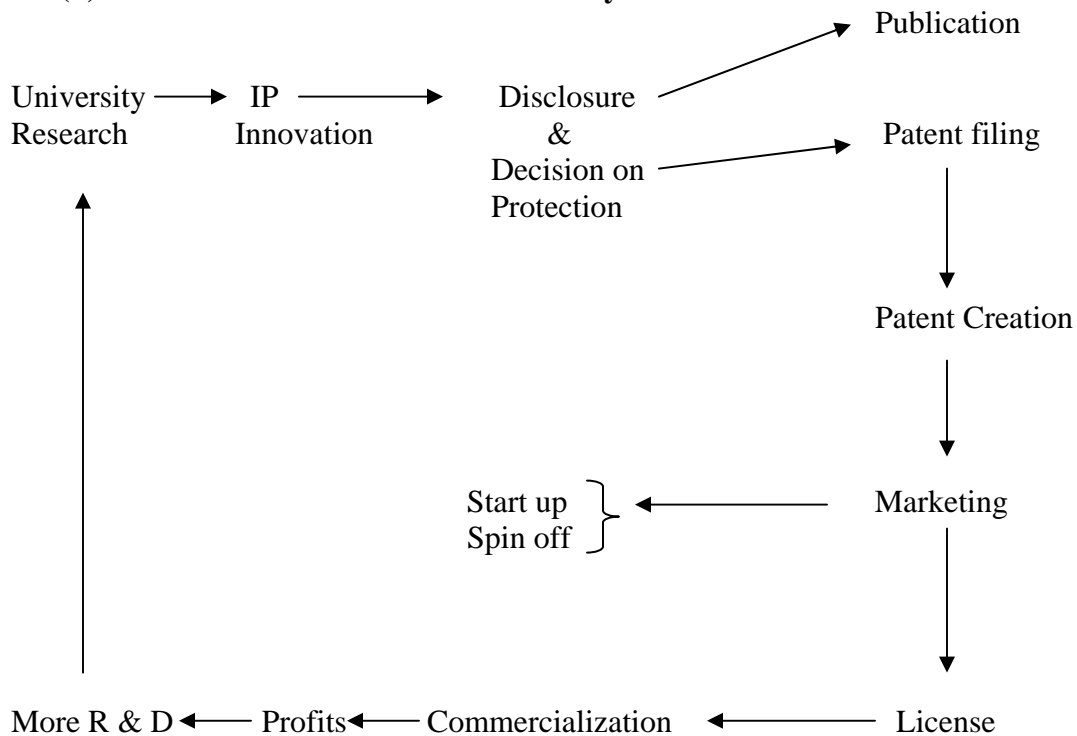
Related to this is the possibility of international patenting under the Patent Co-operation Treaty (PCT). In Japan, applications increased at a rate of 20 percent (%) per annum since the 1990s.

### **(c) IP and Globalization**

Patents give incentives for creativity and material reward through marketing of products. However a notable disparity in the spread of IP internationally is discernible from the following statistics:

- 91% from Organization for Economic Co-operation and Development (OECD);
- 85% from European Union, Japan, Korea & USA.

#### (d) Innovation and Economic Growth Cycle



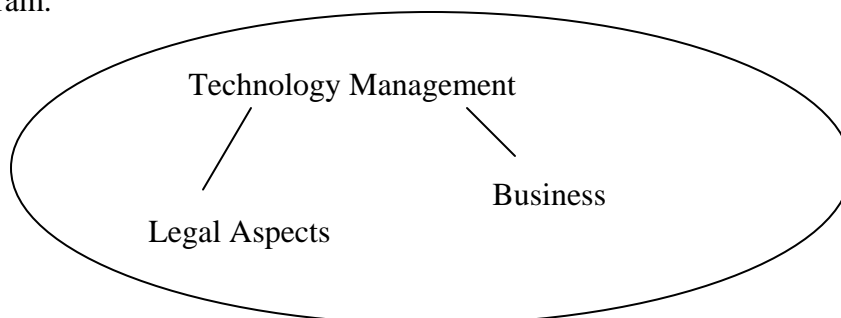
#### (e) University and IP Rights

It is essential to identify, manage and commercialize IP. This sequence envisages the involvement of stakeholders including the University/Research Institute, researchers and investors.

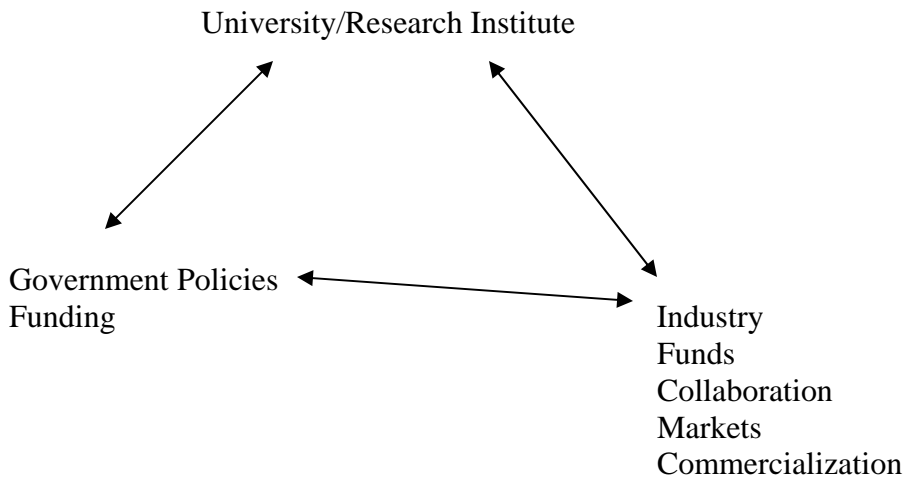
At the university focus should be on:

- (i) infrastructure including TTO and policies;
- (ii) capacity building to manage IP;
- (iii) protection of IP through patenting and registration; and
- (iv) exploitation of IP through commercialization

The essential features of technology management are summarized in the following diagram.



The features of University/Industry collaboration are summarized thus:



Other key requirements include an Institutional IP Policy which defines ownership and types of agreements related to IP including Non Disclosure Agreements (NDAs), MTAs and collaborative initiatives.

The IP Policy will also regulate privately funded research relative to IP including authorization, approval and ownership. The Policy would also regulate commercialization in terms of donation, licensing, written agreement and spin offs.

The contract deals with the subject matter, conditions, parties' obligations, incentives to staff including training and financial compensation. It also regulates cases of conflict of interest.

**Ownership and Rights/Benefit Sharing and Incentives** by Prof. Tom Ogada, British Council, Kenya.

It was essential to distinguish between ownership and benefit sharing.

#### **(a) Privately Sponsored Research**

Privately sponsored research entails the following steps:

- (i) negotiation with investor with provision that the University/Research Institute would own the results;
- (ii) consideration of joint ownership of the invention between the investor and the university; or
- (iii) the university owns the invention but the investor/industry is given exclusive licensing rights; or

- (iv) the industry owns the invention but adequately compensates the University.

### **(b) Collaborative Research**

It is essential to provide for IP in collaborative projects. The IP Policy should cater for:

- (i) collaborating institutions;
- (ii) students;
- (iii) supervisor; and
- (iv) visiting researchers.

As an example, the Science and Technology Act provides the employee researcher with incentives. Additionally, there should be provision for financial benefits in a licensing agreement. These vary from a base payment to quarterly payments based on sales or alternatively lump sum payment in case of exclusive licensing.

The sharing of income from inventions/patent is typically between the inventor or his/her group research department, Technology Transfer Office (TTO) and the University or Research Institute. Issues of possible conflict of interest should also be addressed.

### **Commercialization of Publicly Financed Research: Marketing, Valuation and Licensing**

By W. Tucker, Director, TTO, University of California

Mr. Tucker reviewed the practice at the University of California (UC) on IP commercialization. He explained that US Policy on IP commercialization is based on the Bayh-Dole Act.

Technology transfer is based on principle, policy and practices. Principle defines technology transfer. Policies are the rules of the game of technology transfer while practice governs the management of IP. There is, therefore, inevitable interface of policy and practice. In this regard external forces (to the University) may affect policies and practice.

The University of California practice on IP commercialization is governed by eight (8) principles:

- (i) Open Dissemination;
- (ii) Commitment to students;
- (iii) Accessibility for research purposes;
- (iv) Public benefit;
- (v) Informed participation;
- (vi) Legal integrity and consistency;
- (vii) Fair consideration for commercial use; and
- (viii) Objective decision-making.

The practice is based on UC Licensing Guidelines. A key element thereof is that employee inventions in the scope of employment for the University and using UC facilities belong to UC. There exists a royalty sharing arrangement of 35-65% between UC and inventors.

IP Licensing is based on:

- academic principle;
- public benefit;
- capacity of licensee to bring the product on the market;
- the license including diligence terms; and
- UC receives fair consideration; and integrity.

Goals of UC TT Programme include evaluation and marketing.

Evaluation entails:

- (i) availability to the public;
- (ii) service to academia;
- (iii) linkage with industry and management of IP;
- (iv) supporting economic development through creation of companies, employment and generation of taxes; and
- (v) securing fair compensation.

The goals should be balanced. With regard to marketing the following strategies are applicable:

- (i) that the inventor leads;
- (ii) professional networking;
- (iii) use of existing corporate relationships;
- (iv) using web pull (searchable databases) + web push; and
- (v) unsolicited marketing announcements.

In marketing and valuation it is essential to set a goal/expectation and then manage it based on quantitative analysis and market comparison.

The marketing strategy should also be cognizant of the licensing agreement which comprises:

- Recitals (preamble);
- Definitions;
- Grant;
- Sublicences;
- Fees (equity);
- Royalties and reporting;
- Diligence;

- Patents;
- Audit rights;
- Use of name;
- Representation and warranties;
- Indemnification;
- Notice;
- Assignability;
- Waiver;
- Governing law;
- Government approval (if any);
- Export control;
- Force majeure; and
- Confidentiality.

The essential attributes of a TTO rest on:

- existence of IP Policy;
- strong legal support;
- relationship with stakeholders;
- ICT;
- Economies of scale (viability); and
- Regular interface with colleagues and industry.

In the US networking is done through Public Intellectual Property Resource for Agriculture (PIPRA) and various TTOs.

In concluding, Mr. Tucker outlined nine (9) critical points germane to IP management and commercialization. These are:

- (i) reservation of research rights;
- (ii) encouragement of technology development and use (diligence);
- (iii) minimizing licensing to protect future improvement;
- (iv) catering for conflict of interest;
- (v) ensuring broad access to research tools;
- (vi) taking care to avoid litigation;
- (vii) compliance with export regulation, if any;
- (viii) avoiding patent aggregators or persons who license patents in order to suppress an invention; and
- (ix) incorporating “humanitarian use” language or provision to cater for the underprivileged, for instance, in relation to the use of drugs and healthcare.

### **Public-Private Partnerships: How Universities and Research Institutes can collaborate effectively**

By Monica Andete-Saez, PIPRA

Public-Private Partnerships are useful to IP Commercialization. This is based on the premise that basic research is normally carried out in public institutions, developed into applicable form and then commercialized with the aid of the private sector or investors:

Basic Research → Applied Research → Commercialization

In practical terms, this arrangement assumes the existence of research infrastructure, networks and culture of reporting from the private sector following commercialization on business returns. This in turn assumes that technical, legal and business aspects of the partnership are met.

Public Research ↔ Private Sector/Investment/Capital