

International Symposium on Intellectual Property Education and Research

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1. Introduction: SLIDE 2.

Partnerships between the academic research base and commercial firms have become an increasingly common model for the development of new knowledge-based products and services such as high-specification communication devices and pharmaceuticals. The partnerships are increasingly governed by legal agreements in which the use and sharing of knowledge is embedded in a commercial relationship regarding the ownership and use of intellectual property (IP). The risks and rewards in these agreements are shared in proportion to levels of investment and/ or skill of negotiation. Such partnerships are driven by the expectation that the new product or service will have value in the market place and that consumers and or their agencies will wish to purchase the developed product in volumes that will provide a return for the investment which has been made on an “at-risk” basis.

While many such partnerships have worked well and have delivered new science into real-world applications. The internet, the laser, silicon chips and optical storage devices and many new medicines attest to their ability to deliver. However, in the area of delivering medicines for the poorest they have been perceived increasingly as an actual barrier to success. This paper will discuss how such partnerships can be developed to ensure that the benefits from real-world science can be gained even for the poorest who have no voice in the market.

In doing so, it is salutary to remind ourselves that this is a goal of the utmost importance for the present – not for the future when we may have revised our working models in the light of experience. While we live in the global knowledge economy, where data, information and knowledge have become as valuable as the natural resources that fuelled the industrial revolution we also live in a time of paradox.

At no time in the world’s history have we been better informed scientifically. At no time have we been better placed to be aware of the world’s diseases and yet at no time have we seen (or been aware of) such polarisation and inequalities in terms of access to the fruits of that scientific invention. The scale at times overwhelms – 26.6 million with HIV/ Aids in Africa; one child dying every three minutes from Malaria and 14 million AIDS orphans worldwide (11 million in Africa). We do not even have to look to Africa to see such inequalities. In the USA one in five children live in poverty and 41 million exist without health insurance. In the UK, life expectancy in the East End of Glasgow has decreased for men for the first time in a century. The richest one per cent in the world has as much as the bottom 57 per cent .Someone with \$25k income in the USA is richer than 98% of the world’s population.

The particular statistics or their absolute accuracy hardly matter – what is evident is that there are great imbalances in the world which threaten lives on a daily basis. At a time when science could provide solutions to many ills, there is surely a need to ensure that these are not only available to the richest in our world. Living in a knowledge age means that not only can we benefit from the advancement of knowledge and that knowledge has become a valuable, tradable good but that we have to accept the burden of knowledge of the world's problems. If the way we organise ourselves to bring new understanding to old problems does not solve them for all – then surely we should have the ingenuity to find new ways to do so. Too often in the past in the arena of global health, IP has been seen to be an obstacle to successful delivery of new medicines.

2. The Role of IP in Global Health - SLIDE 3.

Trading and ownership of IP has been most vociferously questioned in the area of access to medicines for the poorest where in the last five years, IP *per se* has become a battle ground. I believe that this is addressing the wrong challenge and that effort is being wasted by attacking a symptom which can itself be cured by the application of effort and creativity.

Mindful that this symposium is focused on IP research and education, I will seek to address the following propositions, in the hope that this will secure improved understanding in the partnerships which need to work better between the scientific research base and the commercial developers who will bring science to market in the shape of new products. I will concentrate on the area in which I have been involved with MIHR – that of using IP to address the health needs of the poorest. It is also this area which offers a significant need and a real opportunity for international co-operation.

3. Focusing IP education for piratical outcomes - SLIDE 4

I believe that the real breakthroughs in IP management will be delivered if we as researchers and educators in the field of IP focus on the following four propositions, namely:

- IP education should be set in the context of the operation of the organisation's goals, values and objectives including:
 - the reasons for bringing science into use and who are intended to be the ultimate beneficiaries;
 - an understanding of the system of incentives, risks and rewards that exist for partnerships to attain their objectives;
- IP education should increase the understanding of different worldviews of partners as this will facilitate the framing of negotiation and the terms of IP contracts
- IP research and evaluation of new models which seek to address current partnerships barriers are worthy of examination, promotion and refinement;
- Research and education needs to focus on practical solutions to rate-limiting steps and to create and promote models of good practice which can be shared across partners from different sectors.

Until IP and its management is de-mystified in this way and moves from being an arcane subject shrouded in difficult legal terminology, it will continue to be used a “battering ram” by those who wish to take sides in the bigger philosophical debate regarding global capitalism and the hegemony of multi-national corporations rather than working positively to find better ways of using the tool sets currently available. Few developing countries have a wealth of experience in their use. Even the middle income countries such as India, China and Brazil are only now beginning to develop the systems to exploit the fruits of their considerable public sector research bases.¹

4. Embedding IP management firmly in organisational objectives – SLIDE 5

4.1 Commercial. In a commercial organisation it is clear that IP management is concerned with competitive business advantage – be that the development of new products through innovation or through the use of ownership of new inventions purely in order to stop a competitor from entering the market. I do not intend to discuss the pros and cons of the latter strategy but some have argued that such ownership can prevent the development of much needed new medicines.

The point which I seek to make is that commercial organisations have a clear focus regarding the objectives of ownership and exploitation of IP. In public research institutions the goal may be to increase knowledge and to educate future generations, however when IP is generated in the course of publicly funded research the complexity of mission of the organisation may result in their being an unclear focus on the protection (or otherwise) of the IP and the issue of whether IP should be making the best commercial return for the institution rather than meeting its wider “public good” goals.

Such confusion may lead to a situation where the institution may be over zealous in its protection of IP and also be overly optimistic regarding the potential value of a new innovation. This may result in a situation where there are inappropriate patenting strategies (protecting IP for which there is no market) and or valuing the IP so highly that no commercial deal can be struck. This has been a major source of difficulty in the closing and negotiation of deals with universities at the very time when the academic research base is being increasingly drawn upon to be the driver of economic development.

4.2 Universities. As industry has reduced its role in undertaking fundamental research and universities have become the source of major new technologies in the knowledge economy a whole new relationship has had to be developed. The first formal acknowledgement of this relationship took place with the enactment of the Bayh Dole act in the USA in 1980. The act was designed to address a perceived failure in the economic system.

The concept of utilizing university research capabilities to advance national goals in the USA arose as a result of the contribution the university sector made in the interests of national defence during World War II. That experience emphasised the

¹ See MIHR’s summary of papers from China, Brazil, India and South Africa to the WHO Commission on Intellectual Property, Innovation and Public Health. www.who.int/intellectualproperty/en

need for a strong commitment to partnerships and linkages among industry, academia and government research sectors. The value of university research as a vehicle for enhancing the economy by increasing the pool of knowledge which could be used by industry through support by the government was first recognised by Vannevar Bush, the Science Policy Adviser to President Roosevelt in the 1940's.²

In the late 1970's it was realised however that the objective of obtaining public benefit from research funded by tax dollars was not being recognised. Some 28,000 patents had been filed on reported inventions but few had been licensed to the private sector for development for the market because being federally owned, they could not be licensed exclusively. The Bayh-Dole Act not only gave universities (among others) the first option to retain title to any invention resulting from research conducted in whole or in part with Federal funds, it gave them the obligation to bring such inventions to the market place. The Bayh-Dole Act had major implications for the function of universities and their relationship with industry. For example whereas in 1972 only about 30 universities in the USA had technology transfer programmes, today there are about 300. More importantly, the Bayh-Dole Act's provisions set the framework for the relationship between US universities and industry in terms of both research and technology transfer.

Bayh-Dole set the terms of ownership for intellectual property and allowed for a standard rate at which industry was expected to pay for university research. This removed at one stroke the two major areas of frustration, acrimonious negotiation and dispute that frequently exists in other parts of the world. Similarly it specified the approach which should be taken by the technology transfer function in regard to its handling of inventions. Inventions must be reported to the Federal agencies, and the university must within a set time opt to retain title and manage the invention. Where a patent is licensed, the income derived from that must be shared with the inventor(s) and the balance used for research or educational purposes.

While the Bayh-Dole Act did not eradicate the challenge of bridging the gap between universities and industry, it did provide a national operational framework which is clearly specified and understood by both sides – thus removing any room for dispute. Where such a framework does not exist, each transaction becomes subject to the approach of the individuals on each side of the table. In this context in particular, perceptions and pre-conceived positions are brought into the negotiation frequently making the gap between universities and industry more challenging. Mintzberg in his study of business behaviour and adoption of business strategy describes this as “strategy as perspective”³

“Strategy is a perspective - its content consisting not just of a chosen position, but of an ingrained way of perceiving the world. What is of key importance is that strategy is a perspective shared by members of an organisation..... when we talk of strategy in this context, we are entering the realm of the collective mind - individuals united by common thinking and / or behavior.”

² Howard Bremner, “Technology Transfer: the American Way”, International Patent Licensing Seminar, Tokyo, Japan, January 2003.

³ Henry Mintzberg, “Five P's for Strategy”, California Management Review, Fall 1987

Too often there may be some dissonance between the academic researcher and the technology transfer office (TTO) in relation to IP management. There is a considerable need for education to be focused on both researchers and those in the TTO. The Association of University Technology Managers (AUTM) typically provides for the latter but less so the former. MIHR not only runs training events in developing countries but has also published a handbook that is not only directed towards the needs of developing countries but also at both researchers and managers.⁴ Such education must take the objectives of the institution/ organization as the starting point and any dissonance should be addressed openly and embedded in institutional policies.⁵

5. Understanding Risk and Reward in Value Chains – SLIDE 6.

In forging partnerships between the academic research base and commercial firms there remains concern at the lack of recognition by researchers and TTO's of the relative risk and reward profiles being borne by the parties to the partnership. In particular, the area of drug development is not only complex and risky, the risk and the vast proportion of the investment has to be borne by the private sector through the process of development. Understanding of the value chain in different industries is important in striking fair deals on IP arising from the research base.

Patents have a greater importance in R&D based pharmaceutical industries than in other industries. Mansfield⁶ estimated that some 65% of new drugs would not have been produced had no patents been in place. This compares with only 30% of products in the chemical industry and 4% of electrical equipment. The investment risk is high with an estimated level of attrition of 99 out of 100 new compounds failing to be developed into products.⁷ The cost of the development of new drugs is estimated to be as high as \$800m. Although the actual costs of development as compared with the costs of development and sales and marketing are often debated, the risks to the successful introduction of successful new medicines cannot be denied. Recent figures from the Federal Drug Administration (FDA)⁸ estimate that half of new drugs now fail in Phase III Clinical Trials and in total only some 8 percent of new entities brought to the FDA will gain approval for Phase I trials. The investment risk is therefore considerable.

The need for strong patent protection in the pharmaceutical industry has developed as a corollary of the R&D paradigm which has emerged with the ever increasing complexity of science and the need for specialist contractors in different parts of the process. In addition to the many organisations and the complex web of interrelationships which comprise this process, it must be recognised also that

⁴ MIHR – www.mih.org the handbook can be down loaded in PDF format. A new extended version is currently being produced.

⁵ Many universities in both the USA and the UK have copies of their institutional policy documents available on their websites.

⁶ Mansfield , E, Patents and Innovation: An Empirical Study”, Management Science, February,1986

⁷ Kettler, H., White, K. and Jordon, S., “Valuing Industry Contributions to Public-Private Partnerships for Health Product Development, Initiative on Public-Private Partnerships for Health(IPPPH),Global Forum for Health Research, Geneva, 2003

⁸ Dr. Lester M. Crawford's July 07 2004 presentation at the Bank of America Securities Healthcare Institutional Conference, Biomedical Market Newsletter, July 22nd 2004.

contractual relationships must pertain over a period of many years. On average a new drug takes 8-10 years from potential lead compound to entering the market. The time frame for vaccines is dramatically higher – an average of 35 years. The reality is therefore that either the entire process has to be held within the same company and governed by corporate responsibility (and/or trade-secrets) or by strong contractual and property rights.

While this system has been relatively successful in the delivery of new drugs for which there is a profitable market, the system has two limiting consequences for the provision of drugs for the poorest⁹. This can be characterised as presenting on the one hand an affordability problem and on the other hand an availability problem.

6. Partnership Players and Divergent World Views SLIDE 7.

Universities and industry have fundamentally different objectives and motivations. This fact underlies the clash of cultures which often beset their working relationships. Industry by its nature is focused on creating value for shareholders and as such views the “inputs” from universities as contributing to their market advantage and profitability. Industry is driven by deadlines, market share and confidentiality. Universities are driven by discoveries, excellence and dissemination of knowledge. While these drivers need not be in conflict or opposition, they lead to sufficient differences to create tensions in the underlying approach and the perceptions and attitudes which prevail between universities and industry. For researchers whose career path is in the university system, progression and promotion are dependent on uncovering new understanding in their chosen field and publishing articles in peer reviewed journals. This is how they are judged, not only in relation to their standing in their chosen profession, but also in terms of their route for promotion. In addition, research in universities is leading edge and often far from the market needs of industry. In both the USA and the UK, as industry has pulled back from undertaking its own fundamental research, it has become ever more reliant on universities to provide breakthroughs which can lead to competitive advantage. The drug development chain for the major pharmaceutical companies is an excellent example of the reliance on universities to provide many of the new leads in this space of the market. At the same time as government funding for university research has become more pressured, Universities are being increasingly forced to look to industry for an increasing proportion of their research money. University and industry is therefore being forced together in a “deadly embrace” which is probably not of either’s choosing. Such relationships are never easy and indeed have been the subject of serious concern. An article in *Atlantic Monthly*¹⁰ in 2000 recorded serious concerns about the emerging relationships between universities and industry and the danger that these were beginning to undermine the paramount value of higher education *per se*.

The *Kept University* highlighted concerns that the developing relationship was threatening the underlying freedom of universities; challenging their independence; creating institutional conflicts of interest and driving their research agendas. The article drew attention to the concerns voiced at Berkeley in 1998 about a deal by the

⁹ Kettler, H. and Towse, A. *Public- Private Partnerships for Research and Development: Medicines and Vaccines for Diseases of Poverty*, Office for Health Economics, London, 2002.

¹⁰ Eyal Press and Jennifer Washburn, “The Kept University”, *Atlantic Monthly*, 2000.

University of California with Novartis where for \$25 million investment, Novartis would receive first rights to roughly one-third of the discoveries arising from the research undertaken in a specific department in the University. This example was only one which raised a more general concern that contracts with industry which “direct” research constrain the free-flow of information and where they capture intellectual property are distorting access to research outputs for the public good. In particular, increased concern has been focused on the “privatisation” of research outcomes in the health field where monopoly rights granted on biotechnology patents are seen to be restricting access to medicines to only those who can pay. Developments in this area have been brought into stark focus in relation to the provision of medicines for developing countries.

There is an increasing debate on the question of the balance between public good and private interest particularly in the area of biotechnology and genomics.¹¹ Not only are there fundamental issues of principle to be addressed in the relationship, there are many operational and practical issues which need to be addressed to make the relationship work in practice. While both sides can benefit from working together with industry getting access to leading edge research and bright people and universities getting access to real world-problems and research funds and often access to new facilities and research equipment, the relationship is fraught with difficulties. The Lambert review¹² in the UK sets out the barriers as perceived by each side very clearly. **SLIDE 8.**

Barriers by Business	Barriers by Universities
Poor customer service	Industry will not pay correct price for research work
Poor project management	Difficult to work with SME's
Poor delivery to timetables and deadlines	Difficult negotiations on contracts
Difficulty of knowing who to contact	Changes in business strategies and priorities
Aggressive attitude over intellectual property	Lack of acknowledgement of value of intellectual property
Emphasis on publication	Changes in personnel
Working in silos	Short-term funding
Poor institutional management and governance structures for decision making	

The views set out in the Lambert report are based on some 50 responses from UK industry and 80 from UK universities. It is clear that many of the perceived barriers come from the underlying motivation and the fundamental mission of business compared to the universities. A major area of difficulty lies in the difference in attitudes to intellectual property (IP). In order to attempt to combat these difficulties, following on from the Lambert Review, a group of leading practitioners from universities and business worked together to create a series of model agreements which are designed to assist the drawing up of the contracts underpinning the

¹¹ The Royal Society, “Keeping Science Open: the effects of intellectual property policy on the conduct of science”, April, 2003.

¹² Ibid

University-Industry partnership. These are freely available on the UK Department of Trade and Industry's website.¹³

There are five model agreements resulting from that recommendation, each providing a different approach in the key area of who is to own, and have the right to exploit, the intellectual property in the results or outcome of the collaborative project.

Lambert Model Agreement	Terms	IPR
Agreement 1	Sponsor has non-exclusive rights to use in specified field/territory; no sub-licences	University
Agreement 2	Sponsor may negotiate further licence to some or all University IP	University
Agreement 3	Sponsor may negotiate for an assignment of some University IP	University
Agreement 4	University has right to use for non-commercial purposes	Sponsor
Agreement 5	Contract research: no publication by University without Sponsor's permission	Sponsor

The model agreements are neither meant to proscribe the relationships between universities and industry or to replace the very necessary discussion regarding the objectives of each party and their objectives in entering into a collaborative agreement. Assistance to that wider process has been generated in the form of a Decision Guide.

The Guide was prepared to indicate the sort of issues that are frequently considered in negotiating research collaborations.

All the agreements and the Guide assume, as a starting point, that:

1. the University and the Sponsor wish to collaborate on the Project;
2. the University and the Sponsor can agree on the description of the Project;
3. the price of the research is guided by accepted norms for the UK such as full economic costing by the University.

The models and the guide are not intended to supplant discussions between parties but may help highlight areas to be addressed at a level of "principles" before legal negotiations are started. Neither do the agreements seek to address issues of "value systems" in the underlying objectives. In that sense they are intended to be neutral.

¹³ Source: www.innovation.gov.uk/lambertagreements

7. New Models of Partnerships for Global Health¹⁴ - SLIDE 9.

As we have seen new health technologies require substantial investment to bring them to the market. When such technologies appear to have limited commercial markets, it is often difficult for technology managers to find any partner willing to invest. Developments in the area of “neglected diseases” may open up new opportunities for licensing. Over the past decade, The Rockefeller Foundation and other donors have provided social venture capital to launch a number of non-profit “companies” that have now collectively raised over a billion dollars from philanthropic and government donors to support product development. These public-private partnerships (PPPs) support development of drugs, vaccines and diagnostics to address diseases that predominantly afflict the poor, such as HIV/AIDS, tuberculosis and malaria. Today, there are nearly a dozen such PPPs following business models, managing portfolios of candidate products (often in-licensed from academia), negotiating in-kind support from the private sector or engaging industry through contract research and development, and using intellectual property in creative ways to harness private sector know-how while ensuring affordability and access.

8. The Problem of Neglected Diseases – SLIDE 10.

For diseases where no market or only a small market exists,¹⁵ investments in drug, vaccine or diagnostics development may be difficult to recover. Private sector pharmaceutical and biotechnology companies that wish to remain responsible to their shareholders cannot justify such up-front and high-risk investment. For this reason, in global health parlance such diseases have come to be called *neglected diseases*.¹⁶

Neglected diseases primarily affect people in developing countries. Public research institutions in the industrialized world traditionally have not viewed these diseases as either a priority or as a major threat to their populations, and research-based companies do not pursue promising compounds or vaccines for these illnesses because of inadequate returns on investment.¹⁷

Developing countries themselves have not traditionally given high priority to investing their limited resources in health research. The lowest income countries have neither the scientific capability nor the manufacturing infrastructure to undertake self-provision.

Likewise international development aid is usually focused on immediate health service delivery and the provision of basic health care. While such initiatives are vital, the development of new treatments for neglected diseases is vital to address the

¹⁴ This section draws heavily on Gardner and Garner, “Technology Licensing to Non-traditional Partners: Non Profit Health Product Development Organisations for Better Global Health”, AUTM Journal Vol. XVI, No 1 summer 2004.

¹⁵ Where a small market exists, the term Orphan Disease may be more common – “neglected diseases” are typified by their occurrence amongst larger numbers of people who cannot afford treatment even if a product is developed, and who therefore tend to have little “voice” in the global market place.

¹⁶ Medecins Sans Frontieres Access to Essential Medicines and the Drugs for Neglected Diseases Working Group, “Fatal Imbalance – The Crisis in Research and Development for Neglected Diseases”, Geneva, 2001.

¹⁷ Ibid.

high levels of morbidity which can put a brake on individual and community advancement. New tools are needed to combat HIV/AIDS, TB and malaria in particular.

All of the PPPs have licensed some technologies from universities into their development portfolios, yet many technology managers still may not be aware of these organizations. One additional challenge is that PPPs, with a focus on social good, are not able to provide major royalty or equity deals. But since most of the technologies they seek to develop have little commercial potential, there are few (if any) opportunity costs to a university that enters into a licensing arrangement of this kind.

Universities have a mission for public good that must be balanced against their wish to see an economic return. The PPPs provide a route to get technologies developed that might otherwise be consigned to the laboratory shelf, with the added advantage that such technologies may begin to make a difference in health outcomes of the world's poorest – 1.2 billion of whom live on less than \$1 US dollar per day. An extensive survey of research and development agreements undertaken by the PPPs has been published by Taubman.¹⁸ At a recent meeting of many of the PPPs,¹⁹ the issue of education/ raising awareness with their prospective partners was a substantial focus. In particular the two-day meeting concluded that there should be awareness raising campaigns both for universities through the auspices of AUTM and the newly formed interest group – Technology Managers for Global Health²⁰ and for commercial companies where the nature of the market for neglected can also be a barrier to negotiation for the PPPs.

9. Developing Good Practice Guidelines for Interest-Based Intellectual Property Management – SLIDE 11.

Intellectual property management has proven to be such an area of contention in the field of global health products, that there are now considerable efforts to develop new approaches and to share these not only with the existing partners but also with those in developing countries who are beginning to work in this field. We have come a long way and are beginning to find not only constructive new ways of working but also changes attitudes since the pharmaceutical industry challenged the right of the South African government in 1998 to use its powers to access medicines by compulsory licensing or parallel importation²¹, there was a considerable backlash.

The AIDS pandemic in sub-Saharan Africa has drawn stark attention to the failure of provision of health care for the poorest. Although the fact that the weight of the disease burden falls most on those who cannot afford treatment is not new, the

¹⁸ Taubman, A, Public-Private Management of Intellectual Property for Public Health Outcomes in the Developing World, IPPPH, Geneva, 2004. www.ippph.org

¹⁹ Dealmaking and Intellectual Property Management for the Public Interest, MIHR/IPPPH, Meeting Report, April 2005.

²⁰ Technology Managers for Global Health is a Special Interest Group of the AUTM membership.

²¹ On 18th February 1998, 28 pharmaceutical companies and the Pharmaceutical Manufacturers Association challenged the right of the South African Government to include a clause (15c) in its Medicines and Related Substances Act to permit compulsory licensing or parallel importation. The challenge was withdrawn on the 20th April 2001 and a joint working party was established including the pharmaceutical companies.

magnitude of the AIDS epidemic which took the lives of 2.4 m Africans in 2002 brought the facts into clear focus. The fact that treatment regimes were controlled by multinational corporations rather than public institutions, gave rise to a serious backlash in public opinion. Those who sought to challenge the trend of globalisation used the South African challenge as an illustration of the dangers in private hegemony and the weakening of the power of the nation state. The streets of Seattle became a focus for heated debate and protest. The World Trade Organisation (WTO) and its treaties were challenged. In particular, the Uruguay round of the General Agreement on Tariffs and Trade (GATT) in 1994 and its introduction of TRIPS (Agreement on Trade-Related Aspects of Intellectual Property Rights) which had set out to establish minimum standards on all types of IP rights was seen to have been promoted by the corporations of advanced economies. At that time, multi-national corporations were beginning to see their competitive edge being eroded by counterfeiting and piracy.²² The US based pharmaceutical industry was amongst the leaders of the movement to protect their position through the introduction of TRIPS.

The events of the 1990's and early 2000's therefore brought IP rights into focus as an international issue of contention and division. For some, the debate became centred on the rights and wrongs of the monopolistic position which the IP system conferred on the multi-national pharmaceutical giants. For others it was an issue of human rights. Inevitably in such an emotionally charged and polarised debate, the actual role which IP rights played became obscured. The IP system itself was challenged as being a negative force²³. However as over time and as much has been done by the pharmaceutical industry and public and philanthropic institutions to address Africa's AIDS pandemic a more constructive debate has developed. More creative approaches have been developed²⁴ including a clarification on the WTO rules through the Doha declaration.²⁵ **SLIDE 12.**

The shift in perceptions and attitudes is illustrated by some of the work in progress in various institutions across the globe to develop practical approaches to work with IP and its management which can make an immediate impact on the availability of much needed medicines. Many of these have already been highlighted in this presentation – but note should also be made of the work being undertaken at the AAAS in Washington DC under the Science and Intellectual Property in the Public Interest working group which is drawing up principles and good practice measures to facilitate humanitarian access.²⁶ Work is being undertaken at various institutions in the US university community including at Yale where much of the impetus for the initiation of this work began.²⁷

The World Health Organisation, Commission on Intellectual Property Rights, Innovation and Public Health²⁸ has commissioned a substantial series of articles and

²² de Koning, 1997 – quoted in Correa, C. M. “Intellectual Property Rights, the WTO and Developing Countries”, Zed Books, London, 2000

²³ <http://www.cptech.org>

²⁴ Attaran, A and Gillespie-White, L. “ Do Patents for Antiretroviral Drugs Constrain Access to AIDS Treatment in Africa?”, JAMA, October 17th, Vol. 286, 2001

²⁵ <http://www.cptech.org>

²⁶ SIPPI Project – www.aaas.org

²⁷ Access to Essential Medicines and University Research: Building Best Practices, Yale University Centre for Interdisciplinary Research on AIDS, fall 2003.

²⁸ www.who.int/intellectualproperty/en

submissions to the Commission which will review the interfaces and linkages between intellectual property rights, innovation and public health in the light of current evidence and examine in depth how to stimulate the creation of new medicines and other products for diseases that mainly affect developing countries.

MIHR²⁹ is currently revising its handbook and the new version will include good practice from agriculture as well as health. In addition, MIHR is undertaking a research review of the contribution of patent pooling and collaborative licensing strategies on behalf of the Sasakawa Foundation of Japan.

Much remains to be done especially in raising awareness of such resources and equipping those who undertake daily IP transactions that their deals may have consequences beyond financial returns – much remains to be done to proselytize the good work that is now underway through further research – but also teaching of IP and its management that is embedded in the context of the real-world consequences of agreements and partnerships that do not focus on the bigger picture.

²⁹ www.mihir.org