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CropLife International Annual Conference 2005

**Innovation and intellectual property:
serving society, securing the future?**

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Conference summary

Table of Content

Session 1: Research, development and innovation: drivers of change	3
Keynote lecture: THE FUTURE OF INNOVATION Charles Leadbeater, Independent strategist and adviser to Tony Blair on innovation	4
INNOVATE AMERICA: THRIVING IN A WORLD OF CHALLENGE AND CHANGE Chad Evans, Vice president, National Innovation Initiative	6
RESEARCH AND DEVELOPMENT DRIVING ECONOMIC CHANGE William Masters, Professor of Agriculture Economics at Purdue University	8
R&D FUNDING: IS THE SWISS CASE A SHOW-CASE? Jane Royston, Chair of the Swiss Federal Institute of Technology	10
RESEARCH PRIORITIES IN AGRICULTURE: AN HISTORICAL PERSPECTIVE AND A FUTURE OUTLOOK Piet Boonekamp, Business unit manager at Wageningen University and Research Centre	12
THE CULTURE OF INNOVATION IN THE PLANT SCIENCE INDUSTRY Hans Reiners, President of BASF, Agricultural Products, and President of CropLife International 2005-2007	14
Session 2: Intellectual property right or wrongs?	16
SETTING THE SCENE: CURRENT DEBATES AND ISSUES Geertrui van Overwalle, Senior researcher, Centre for Intellectual Property Rights, University of Leuven	17
THE IMPORTANCE OF IP FOR BUSINESS IN DEVELOPED AND DEVELOPING COUNTRIES Maria Livanos Cattai, Secretary general of the International Chamber of Commerce	19
A DEVELOPING COUNTRY PERSPECTIVE Francisco Sagasti, Director, Agenda:Peru	21
INTELLECTUAL PROPERTY: IN THE PUBLIC INTEREST? Graham Dutfield, Senior research fellow, Queen Mary, University of London	23
GLOBAL CHALLENGES IN THE INTELLECTUAL PROPERTY ARENA Richard Kjeldgaard, Senior counsellor for biotechnology and genetic resources, World Intellectual Property Organisation, Geneva	24
EXPERIENCES IN MANAGING INTELLECTUAL PROPERTY IN PUBLIC-PRIVATE PARTNERSHIPS FOR DEVELOPMENT OF 'NEGLECTED' HEALTH PRODUCTS Roy Widdus, Former project manager of the initiative on Public-Private Partnership for Health, Global Forum for Health Research	25

Session 1:

Research, development and innovation: drivers of change

Keynote lecture

THE FUTURE OF INNOVATION

Charles Leadbeater

Independent strategist and adviser to Tony Blair on innovation

“Large companies think that innovation is about coming up with new ideas, but it is also about transforming ideas and throwing out those that don’t work.”

Innovation processes are changing, Charles Leadbeater suggested. Pointing out that innovation can be extremely painful, he commented: “The payoffs are greatest when uncertainty is highest. Failure is an essential component.” He challenged the assumption that innovation can only happen in a closed environment, where businesses tend to hire bright people, put them in special conditions that are free from market pressures, thereby creating a pipeline of ideas that can be converted into products and delivered to passive customers who only say ‘yes’ or ‘no’.

“In the last 20 years this closed pipeline model has been reformed so that it is a more overlapping, cross-functional approach,” he said. “There are several reasons why the closed model is breaking down, particularly as innovation is not a localised activity.”

He suggested that knowledge is now being distributed far more, particularly as the workforce is now increasingly mobile and there is a greater outsourcing of ideas.

Citing a recent visit to a biotechnology company in Bangalore, he said the company’s policy is definitely to ‘learn as you earn’ – with very bright people speaking English perfectly and with most having worked abroad at some point. “What we have to realise is that it only would only take 5% of the Indian workforce to innovate and this would be equivalent to the entire UK workforce. China is also producing scientists at a rate of knots. Ten years ago Singapore had no biotechnology industry, but it has now gained a foothold.”

The role of users is now changing, particularly as they are no longer just ‘yes’ or ‘no’ people.

“Where did the mountain bike come from? Traditional theory is that it came from an innovator, but it actually started 30 years ago by users who had become fed up with the flimsiness of riding racing bikes over rougher ground. They started making real clunkers in a garage and it was only after 10 years that bike manufacturers started coming into the market.”

User innovation will be critical, he explained, as well as a need for users to know what the technology is for.

“One mistake is to think that there will be a shift from the closed to open innovation systems, but I don’t think this will be true as there will be many different ways of generating innovation, but companies will share through collaboration.”

Key messages – talking points – quotes

- Innovation is as much an unlearning of old ways of doing things as it is a relearning new ways of doing things.
- Failure is an absolutely crucial part of the innovation process.
- The world is moving gradually from closed models of innovation to open models of innovation.
- The lesson is that more ideas are going to come from more people in more places.
- The role of users is also evolving. They are no longer passive to the innovation process. They are helping to determine the direction of innovation (eg: mobile phone manufacturers in Europe didn't know what to do with – or how to market SMS messaging. They released it onto the market and let the users define it.)
- The more uncertainty there is about the usefulness of a product, the more end users are required to help define it.
- Old models of management rely on propulsion – the picking up and throwing of a rock from point A to point B. New models require us to move a "flock of birds" (stakeholders) from point A to point B. Propulsion is no longer effective, have to coax them – incentivise them to move. It is now less about propulsion, than it is about attraction (to get the birds to move, don't push them, rather, leave a pile of seed at Point B and let them get there of their own accord).
- Communication is conversation. Communicating is no longer a one-way process. People have become such sophisticated consumers of media, direct marketing communication is no longer effective. The most effective form of communication is conversation. Get people talking to their peers about your company/ product, and you have them sold.
- IP: Strong patent protection doesn't always lead to greater innovation. Linux – the open-source computer platform which is a competitor to Microsoft office software - is perfectly compatible with corporate models. It has found a new way to innovate. The open source approach is vital to promoting competition.
- Avoid IP fundamentalism – companies would be wrong to assume – and behave- as if they have inalienable rights to IP.
- There can be situations where strong IP limits innovation – because it stifles competition.
- The biggest single contributor to innovation is immigration.
- Regulation: European government regulation was crucial to creating the GSM market by setting harmonised standards.
- Outside the US, many of the best places for innovation are small countries which have at their heart an entrepreneurial and develop a sense of innovation nationalism, eg Singapore, Ireland, Israel, Finland.

INNOVATE AMERICA: THRIVING IN A WORLD OF CHALLENGE AND CHANGE

Chad Evans

Vice president, National Innovation Initiative

"Europe and Asia now produce more PhDs in natural science and engineering than the US."

The nature of global competition has changed from emerging markets in the 1980's and early 1990's, to today's open market where there is competition and collaboration with greater movement of information, people and goods around the world.

Chad Evans asked: "What do we mean by innovation?"

Innovation is more than just new technology, he explained, as it can also be a process or service that generates value for society and improves on the existing ways of doing things. "21st century innovation is faster, more open and collaborative, multidisciplinary, is increasingly global and is responding to more sophisticated demand," he pointed out.

Illustrating the pace of innovation from the US perspective, he said that the period of innovation for the radio, mobile and internet was far quicker than for the car, telephone and electricity.

The goals of the National Innovation Initiative (NII) are to bring together America's top minds on innovation, and look beyond the traditional tools for economic stimulus to develop new innovation networks and practices. But Chad explained that as well as the backbone group, there are more than 600 people involved in making recommendations.

The NII recommendations are based on three platforms:

- a.) Talent – building the base of scientists and catalysing the next generation of innovators as well as empowering workers to take a risk and succeed.
- b.) Investment – revitalise frontier and multidisciplinary research, energize the entrepreneurial economy.
- c.) Infrastructure – create a 21st century intellectual property regime.

He warned that Europe and Asia now out-produce the US in terms of producing more PhDs in natural science and engineering. "Peter Drucker said: 'My ancestors were printers in Amsterdam from 1510 or so until 1750, and during that entire time they didn't have to learn anything new.' This does not hold true today as jobs require imagination and creativity," Chad explained.

And yet, he said, in the US there are no core classes in creativity, design or innovation within the 15 leading business schools, only elective classes in these subjects.

"While America still leads the world in many areas, we have found a range of challenges. For instance, while there is a flexible workforce, this can also lead to a brain drain."

The NII has also found that while there is an active entrepreneurial culture, a

weakness is the regional access to early stage capital; and even though there is a growing economy, there is also a triple deficit in terms of trade, federal budget and personal savings.

Chad also pointed out that even though there is sustained, high productivity, measuring the contribution of innovation is difficult. In the US economy, which is increasingly serviced based, he questioned how you measure innovation to optimise the economy.

Key messages – talking points – quotes

- The Council on Competitiveness brings together CEOs, university presidents and labour leaders to increase US prosperity.
- Innovation is more than just new technology. It is the “intersection of invention and insight”, it improves on the way of doing things, generates value for society, can come from anyone, anywhere and can be a product, service or strategy.
- The pace of innovation – and pick-up of that innovation by a voracious market - is increasing exponentially (the internet penetrated the US market at ten times the speed of the automobile).
- Innovation takes place in an ecosystem. It is an organic process, requiring the input and collaboration of a diverse range of players. There are no silver bullets.
- Europe and Asia now produce more PhDs in natural science and engineering than the US – a source of concern for US.
- Of the 15 leading business schools in the US, none offer a core course in the innovation studies - design, creativity, innovation.
- Knowledge and innovation underpin economic growth – the contribution of innovation to US growth is growing every year.
- Innovation will be the single most important factor in determining America’s success through the 21st century.
- IP: We are beginning to see a migration from strict patent protection to a more enlightened view of innovation and what drives it.
- Regulation – regulations that are prescriptive are an inhibitor to innovation. Regulations which are flexible encourage innovation.
- Innovation takes place “where the rubber hits the road” - in small communities, local economies.

RESEARCH AND DEVELOPMENT DRIVING ECONOMIC CHANGE

William Masters

Professor of Agriculture Economics at Purdue University

"New funding mechanisms may be necessary to create innovation for sustained food output in Africa."

In 500 years of data on the world economy, there is only 250 years of growth, stated William Masters. He pointed out that growth had not been at the same rate across all countries and continents, illustrating that while China had leapt ahead, others such as Africa had lagged well behind.

Looking specifically at US agriculture output growth between 1800-1990, he said that at first growth happened because of the accumulation of land, machinery and labour. However growth then ground to a halt until innovation picked up and now output growth is being achieved using increasingly less land, labour and machinery.

He reminded the conference that technologies are not equally useful across the whole world, particularly in the Tropics where there is an enormous pest and disease burden.

"The result is a lack of food production in the Tropics to the extent that scarcity of food remains the biggest health threat – 128 million life-years are lost each year due to this, 50% more than losses through AIDS," he said.

Even though undernutrition is being eradicated in all major regions, in Africa it is still rising, which is due to the fact there has been no sustained growth in food production over the decades, unlike Asia.

To match Asia's success Africa has a lot of catching up to do – average cereal yields in Africa are still 1 tonne/ha compared with 3.5 tonnes/ha in East and South East Asia.

He suggested that Africa is still one generation behind in new technology innovation, for example, with the prevalence of slower maturing tall varieties. This, he said, is due to Africa's remarkably low public investment in crop improvement – equivalent to just \$2 per person compared with \$16 in the OECD. R&D has varied but high payoffs in all regions, including Africa, Prof Masters explained, but in Africa sustaining foreign aid for agricultural R&D has been very difficult.

"In the 1960's there was a need to build up food supplies in Asia and during that time there was virtually no growth in Africa – it was a forgotten country." He stated that new funding mechanisms may be necessary.

"Very poor people have no choice but to be farmers. However private firms can not capture more than a small amount of added value, even the introduction of Bt cotton only achieved a small amount. Donors also have great difficulty in going to Africa and contracting for innovation," Prof Masters asserted.

“But the value of new techniques can be measured after adoption, for instance by looking at the number of acres planted. Therefore donors could pay innovators at that point, according to the net value added. Innovators could observe the spill-over and growth incurring and choose to apply for payment to make evident to the public eye.”

Key messages – talking points – quotes

- OECD figures show the world economy has grown exponentially in the last 100 years.
- Each nation’s economic growth spurt is linked to the time when it began to systematically innovate its economy.
- Africa lags behind the rest of the world. Despite being at the same level of estimated real income as China and India in 1950, Africa has stagnated while the other two countries have skyrocketed.
- There is an unequal geographical distribution of economic growth – tropical underdevelopment is endemic. Underdevelopment is more common in the tropics – as you get closer to the equator – health and climate factors also retard growth in the tropics.
- Local food production is crucial to a nation’s economy and collective well-being.
- The example of Asia shows there is a link between sustained food production and sustained economic growth.
- Africa has remarkably low public investment in crop improvement – well below the OECD average.
- IP: Industry has over-reached in its attempts to protect patents – many industry patent applications will eventually be ruled to be “discovery”.
- The sooner we can get to the world where agricultural biotech is accepted as part of the public domain, the better.

R&D FUNDING: IS THE SWISS CASE A SHOW-CASE?

Jane Royston

Chair of the Swiss Federal Institute of Technology

"In Switzerland 80% of R&D is research, 20% is development. In Finland the R&D proportion is 20% research, 80% development."

Companies spend a massive amount on R&D to boost the bottom line, but Jane Royston asked why countries invest in R&D?

She cited possible reasons, such as enhancing national prestige, boosting economic growth, attracting researchers and creating jobs.

"One of the best-kept secrets is that Switzerland is the most innovative country in the world," she explained. "It has produced 25 Nobel Prize winners – more than any other country. More scientific publications, more citations and more patents. It also spends more public money than anybody else on R&D. Why are we doing this? I am not sure it is to boost the economy."

The Swiss are very good at re-inventing themselves. For instance, when the Japanese started overtaking Switzerland in the watch industry with the production of quartz watches, the Swiss re-looked at their core skills and turned to producing satellite components. However between 1974-2000 Switzerland still had a much lower growth rate than other countries, despite spending more on R&D.

She suggested that one of the reasons could be that the Government has a big fear of not being politically-correct. This has resulted in money being given to every sector and area of the country, which in-turn has led to no critical mass of people and little focus. Much of the public R&D money goes into academia, where universities are good at carrying out research but not at development that would benefit industry.

"In Switzerland 80% of R&D is research and 20% development. In Finland it is 80% development from 20% research," Jane stressed.

She challenged the Swiss government to be more courageous, less politically correct, and focus funding on a few key areas that are capable of evolving into leaders in emerging sectors.

Key messages – talking points – quotes

- In Switzerland, 80 percent of private R&D goes into only three industry sectors: chemicals, pharmaceuticals and machinery.
- The Swiss govt is too concerned with the politically correct allocation of funding that no critical mass of creativity/innovation ever develops. Critical mass is crucial for innovation to go from idea to implementation.
- All public R&D money in Switzerland goes to academia. 80 percent of this money goes into research, 20 percent goes into development. As a result, Switzerland has lots of Nobel prizes, but its industry produces very little.

- SMEs are the backbone of any national economy. Innovation needs to be encouraged in SMEs – as in Israel where the government funds innovative projects.
- Regulation – “When I look at the types of people who work for governments and put regulations in place, they have usually never spent a day of their lives working in industry.”

RESEARCH PRIORITIES IN AGRICULTURE: AN HISTORICAL PERSPECTIVE AND A FUTURE OUTLOOK

Piet Boonekamp

Business unit manager at Wageningen University and Research Centre

"It used to be that science operated from its ivory tower, but now science and practice are playing together."

Nowadays farming employs more biotechnology, more large scale precision farming and more ICT and Decision Support Systems. At the same time, society has become more complex, has a fork-to-farm reverse chain (ie: consumers can now dictate what farmers produce). Public and private partnership (PPP) is needed to produce sustainable and acceptable innovations, maintained Piet Boonekamp.

It is important to define innovation – new scientific discoveries brought into practice leading to a discontinuous leap forwards.

In this context, Piet suggested there is a need to have a free flow of intellectual knowledge and ideas whilst keeping an eye on best practice so that society is listened to, and to generate an ability to build associates.

Back in 1920 when farmers faced a nematode problem in narcissus bulbs, they flew in a scientist who was given the specific task of finding a solution. Within five years the scientist had identified the problem and advised that to overcome it would need the heat treatment of bulbs.

In 2002 to establish a plan for overcoming phytophthora in potatoes, a consortium of scientists, agri-business including breeders, growers and traders, and the ministry of agriculture was formed. Piet explained that it would be very hard to convince farmers of the need to finance a 10-year plan if they didn't see results until the end. This is why the plan integrated research that would enable farmers to reap benefits after 2-3 years.

Under the umbrella plan farmers steer the research which is financed by the ministry of agriculture. The ultimate aim is to build not only a Dutch plan for fighting phytophthora but also to co-operate on an international scale. Using the example of the NemaDecide 2005 decision support system, Piet showed how the results of 20 years of research data can be used to help a farmer's own particular situation.

Other examples of PPP being used in the future include the International Banana Action Plan that involves a consortium looking at overcoming the potentially devastating effects of the Black Sigatoka Pathogen, primarily using genome sequencing technology.

This consortium involves a significant number of partners including researchers, agrochemical companies and banana trading businesses.

There is also more collaboration with the agrochemical industry in the development of a bio-monitoring system that can measure disease levels, and

therefore a product's effectiveness, faster and more accurately. Piet explained this is still quite novel technology but it is being developed with an eye on the end user.

Key messages – talking points – quotes

- Cited the flower bulb experience in Netherlands in 1920s – where the private sector fully funded a research facility for 50 years.
- Public-private partnership initiatives in the Netherlands, including the Banana Action Plan (BAP). BAP instigated to combat Panama disease in banana crops – a partnership with the agro-chemical industry. Partnership involved industry, governments and academia.
- It used to be that scientists lived in an ivory tower – used to throw ideas down to the masses, indifferent as to whether or not they were actually useful. Now it is more of a two-way street.
- Farmers will only grow GM crops if consumers accept and want them.

THE CULTURE OF INNOVATION IN THE PLANT SCIENCE INDUSTRY

Hans Reiners

President of BASF, Agricultural Products, and President of CropLife International 2005-2007

"Our industry cannot justify an investment without a certain level of protection."

Our industry is about helping farmers produce healthy crops and getting affordable, high-quality and nutritious food on the table, Hans Reiners stressed, adding that this is done using innovation in modern technologies to create sustainable farming.

"However the benefits of our industry's innovation are not always self-explanatory. In Europe, for example, there seems to be a fear that agrochemicals are harmful to our health and the environment," he reminded the conference. He pointed to the criticism of the industry that not enough is being done to get innovative products and technologies to developing countries, putting profits before anything else. But, he said, there is common ground as many NGOs and institutions do agree that modern, innovative agriculture is critical to getting high quality, affordable food on the table. There is also the growing contribution that farming will make to the energy supply.

"Never before have so many people enjoyed access to such high quality, varied and reasonably priced food. Back in 1960, Germans spent 29% of their disposable income on food, a big improvement on the 50% spent in 1920. Today, Germans spend less than 12% of their incomes to feed themselves and their families," Hans said.

"The need for high quality nutritious food will increase as the population grows. Some estimates put the population at over 9 billion by 2050, but at the same time potential arable land is decreasing and people are eating more calories a day."

This means agricultural production has to be intensified further in a sustainable manner and where food is needed, he explained, especially in some parts of Asia and Africa.

Similarly there is more land likely to be used for renewable fuel crops such as sugar cane, corn and canola. Just a few weeks ago the French government announced new measures to promote biofuel production facilities, and US president George Bush has placed ethanol and biodiesel production in a more prominent position in the proposed energy bill.

This all makes competition on arable land even greater, he suggested. "It takes five kilograms of maize to make 1.5 litres of bioethanol. In a car, this does the same job as 1 litre of gasoline. Those same five kilogrammes of maize would feed one person for 11 days."

He pointed to the dramatic increases in crop yields already achieved – maize crop yields up by 160% in developed countries and almost 130% in developing nations.

But he stressed there was still much to be done, particularly in terms of reducing losses from pest diseases and weeds, and overcoming the opinions of many who equate plant science with bad chemicals.

As well as producing products that have to pass through stringent regulatory hurdles, the industry does much more than make chemicals, particularly giving farmers a whole set of tools to produce healthy crops, he defended. For instance, creating compounds with better efficacy at lower toxicity and an improved environmental profile.

He said: "High salt levels make about one-third of the world's irrigated land unsuitable for growing crops. Green biotechnology will make it possible to engineer crop plants that tolerate high levels of salt in the soil. "Rice cultivation has traditionally meant flooding paddies with water to control weeds, and yet new rice varieties combined with herbicides will allow farmers to forego this."

All new technologies require huge investment in R&D, he explained, adding that for every compound tested, only one in 140,000 actually makes it to market which can cost a company between \$180-\$220 million over 10 years. "In view of the magnitude of this investment, globally active plant science companies need to know that their investments will be safeguarded. As a globally operating company, we believe we need a matching global regulatory framework, and yet regulations continue to vary from region to region, and often from country to country.

"A good regulatory framework favours investment and innovation will support advancements in agriculture. We can only invest in countries that respect intellectual property and observe data protection standards."

Key messages – talking points – quotes

- The benefits of plant science not always self-explanatory.
- Industry is profit-making and thus is interested in functioning markets.
- One major point of agreement amongst all parties to the biotech debate – modern agriculture technology is crucial to getting healthy food in dependable supplies on the tables of the world.
- The market approach – including effective data protection – is the best model for all stakeholders.
- Biofuels are starting to be used in Germany as markets become more discerning.
- The plant science industry's products have to pass regulatory requirements equal to those expected of the pharmaceutical industry.
- Plant science companies are creating technologies that help farmers, have lower toxicity, promote biodiversity and protect ecosystems.
- Hard physical labour is still a daily reality for many farmers. Given the choice, many farmers employ plant science industry products, services and technologies.
- It costs an average of between US\$180 and \$220 million for a plant science company to bring a new crop protection product to market – the stakes are very high.
- The plant science industry needs to know its investments will be safe – this includes the creation of a predictable global regulatory framework, strong patent protection, and free trade.
- The plant science industry needs to explain better why certain standards in IP need to be agreed.

Session 2:
Intellectual property right or wrongs?

SETTING THE SCENE: CURRENT DEBATES AND ISSUES

Geertrui van Overwalle

Senior researcher, Centre for Intellectual Property Rights, University of Leuven

"In biotechnology pioneer innovations can bar further development through royalty stacking."

There are four major developments that need to be observed, Geertrui van Overwalle, explained, namely the growth in intellectual property (IP), the increasing complexity of IP legislation, growing ethical sensitivity and the effects of globalisation.

One of the big issues is the right of access to IP, she suggested, pointing out that the fences accompanying IP are patents that can lead to lack of use.

In biotechnology pioneer innovations bar further development, known as royalty stacking. One of the ways to overcome access restrictions is to build in a research exemption or set in place multi-licensing systems such as patent pools to cut through the global patent thicket.

When it comes to the growing complexity of IP legislation, she questioned whether this was right, but could see that it makes it difficult for people in that domain – "the tragedy of anti-governance," she observed.

Regarding ethical sensitivity such as that surrounding stem cell developments, Dr van Overwalle suggested this is right in so far as ethics are being linked with patent indications rather than research.

She explained that because there is now more emphasis on public health there is increasingly a greater balance between the private interest of the business developing the technology and the public interest, which has led to compulsory licensing.

However the negatives surrounding ethical sensitivity to IP could lead to competitive disadvantages particularly for the US and EU – the so-called tragedy of ethics – that could in-turn lead to research being discontinued.

Globalisation, Dr van Overwalle explained, also has its pros and cons – the advantage being that it establishes minimum standards all over the world, but could also lead to standards that are too high. As she said: "One size does not fit all."

Key messages – talking points – quotes

- Four trends we see developing in the area of IP:
 - 1) a "growing "of IP – whereby more subject matter is being covered; more patents applied for and granted and new IP protection systems being developed
 - 2) a growing technicality of IP legislation, and

3) a growing ethical sensitivity.

4) globalisation.

- Expansion of IP can lead to a deficit of access – the privatisation of knowledge denies access to that knowledge of a majority of the population.
- “Tragedy of the anti-commons” – whereby a knowledge is encased in a fence of patents – preventing access to it by a large number of people.
- Patent pools (pooling together to apply for a group licence) are a very effective mechanism in the electronics field.
- Ethical sensitivity is affecting competitiveness.
- Globalisation creates minimum standards all over the world. This has a positive effect on trade; however, for second comers to the global economy, those standards prove too high for them to meet.
- Developing countries need more flexible IPRs standards than do their developed counterparts.

THE IMPORTANCE OF IP FOR BUSINESS IN DEVELOPED AND DEVELOPING COUNTRIES

Maria Livanos Cattai

Secretary general of the International Chamber of Commerce

"If regimes give value to intellectual assets we also need to face the fact that regimes need to be enforced."

The importance of intellectual assets is growing dramatically both within developed and developing countries, Maria Livanos Cattai explained. She pointed to the fact that in 2000 such assets were worth 16 billion euros in the EU but now value added products are 450 billion euros, equivalent to 5% of the EU's GDP. The growth and importance of intellectual property has made policy much more complex including how to tackle issues such as counterfeiting and piracy. She asserted that innovation is driving intellectual property and now intellectual assets are becoming the most important aspect for business, both within developed and underdeveloped countries.

"Companies use intellectual assets to increase stock value," she explained. "More and more such assets are not restricted just to developed countries. For instance, at the end of 2004 China had 2 million registered trademarks." She maintained that business not only needs sensible IP systems but also systems that can be enforced. "IP systems must be sensible, namely efficient and accessible and must provide industry and companies with an incentive to innovate."

Reiterating that IP has become so important that it has become much more than just a legal and registration matter, she stressed there must be sanctions applied for unfair competition. Above all, there needs to be consistent and persistent government action in enforcement, particularly as the seriousness of counterfeiting can result in serious problems for human safety.

Ms Cattai explained that the ICC had visited the government heads in 68 countries to discuss this issue but there had been little follow-through, and she urged businesses to also work together to create a secure system especially as IP has become a target for organised crime.

"Many industry efforts by companies and countries are being launched but are fragmented, which is why the ICC trying to reach the highest levels and put IP on a strategic level to co-ordinate efforts."

Key messages – talking points – quotes

- IP has gone from being a peripheral issue for business to being one of major importance.
- IP is not an inalienable right – it is an economic incentive. As such there will always be different models.
- Intellectual assets are the most important assets any business can have. Knowledge based businesses are growing in both developed and developing countries. IP goes right through the value chain in all companies.

- Business needs governments to create sensible IP systems – and they need to be enforced. Systems must provide individuals and companies with incentive to create, and must carry sanctions for those who compete unfairly – counterfeits and pirates.
- Government and business should work together to develop the IP regulations and standards.
- BASCAP – Business Action to Stop Counterfeiting and Piracy – is a new initiative launched last year by ICC to combat the \$600 billion market which exists in counterfeit goods.
- IP thieves have become very sophisticated with hi-tech methods. So profitable and poorly sanctioned is the black market of counterfeit products that organised crime syndicates are moving from trade in drugs to trade in counterfeits.

A DEVELOPING COUNTRY PERSPECTIVE

Francisco Sagasti

Director, Agenda:Peru

"It is in the long-term fundamental interest of private corporations to promote more equitable IPR regimes."

From the perspective of developing countries, knowledge generation has changed and the social context has also changed, Francisco Sagasti asserted. Knowledge generation has moved from magic and religion towards science, and there have been changes in the technological base – from techniques where there was much trial and error to employing technologies.

However despite an explosion in knowledge, traditional techniques and production still matter, he explained, particularly when considering that two billion people still do not have electricity.

"Poor countries have very limited access to this huge wealth of information, part of which is protected by IPR," he outlined.

Pointing to the huge knowledge divide between rich and poor societies, he showed that OECD countries out-rank low income countries far more on scientific output – the number of scientific publications per 100,000 inhabitants in 1995 was 72.9 for OECD countries compared with just 0.2 for low income countries (excluding India).

He said that IPR has evolved against the backdrop of transformations in science, technology, production and innovation, arguing that the balance has shifted from public interest to private gain.

Referring to TRIPS (trade-related aspects of intellectual property rights) at the World Trade Organisation, Mr Sagasti questioned whether there was indeed a level playing field:

"TRIPS are rather a 'level playing minefield' with rich countries holding the maps on where the mines are placed. And yet, the US is pushing beyond TRIPS in bilateral trade negotiations."

He challenged IPR regimes, saying they continue to evolve in piecemeal fashion and in a highly inequitable and unfair manner between and within countries resulting in unequal power relations – knowledge rich versus knowledge poor. He called for a fundamental re-think regarding the approach to IPR and referred to a number of basic principles, namely:

- more IPR is not necessarily better
- individuals and groups should surrender their special private interests if they conflict with the public good
- bring equity and fairness considerations to balance unequal power relations
- explore new approaches to IPR such as open source research, expansion of public domains and other forms of reward.

Key messages – talking points – quotes

- Knowledge is an intangible public good – not diminished by use and freely available.
- The crucial question re: IP – how to balance the public interest with the private incentive.
- Inter-relation of science, technology and production in industrialised nations gives them an advantage over developing countries where:-
 - science, technology and production are not linked,
 - there is cultural opposition between modern and traditional methods.
- There has been a knowledge explosion since the 70's – yet there are 2 billion people in the world with no access to electricity.
- Poor countries do not have access to this huge stock of knowledge – creating a knowledge divide – leading to economic disparities.
- The Science and Technology Capacity Index – a scientific breakdown of the links between scientific and technological capacity and a country's economic performance shows the disparity.
- IPR regimes need to be tailored to individual countries and situations – the essential problem with TRIPs is that it does not create “a level playing field”, but rather “a level minefield”.
- “Kicking away the ladder” – the tendency whereby developed countries ascend to the top of the economic tree then pull away the ladder deny developing countries the same access.

INTELLECTUAL PROPERTY: IN THE PUBLIC INTEREST?

Graham Dutfield

Senior research fellow, Queen Mary, University of London

"Some copying is necessary – it's about learning."

Harmonising patent law could prevent developing countries from ever catching up, Graham Dutfield suggested, arguing that while some copying is wrong, some copying is necessary – it's about learning.

He pointed to various incidents that showed how countries and companies have benefited from copying in history such as Monsanto gaining from around 4000 German patents since World War One. He also said that in the past the American Pharmaceutical Association demanded unfair monopolies on drugs by Germany, accusing the country of abusing the trademark systems.

He suggested that in attempting to harmonize patent law, it would be very difficult to draw a line that would suit every country.

He also argued that biopiracy is blown out of proportion, and that developing countries are often made the scapegoat.

"It is often said that large companies prey on smaller firms that can't afford to go to court.

"However harmonization could be bad for poor countries who are net importers as there would be an outflow of money."

He suggested that stakeholders needed to see a benefit and therefore imposing IP from the outside wouldn't work until there was the support of local people to enforce the regime.

Imposing a slightly imbalanced system would be certain to fail without the confidence of countries, he suggested, adding that once Brazil and China began filing patents in the EU and US, companies in the West would begin preaching balanced IP rules.

Key messages – talking points – quotes

- Harmonising patent law could prevent developing countries from ever catching up.
- It would be very difficult to draw a line that would suit every country.
- One should look back in history to see that companies in the West, now demanding strict IP regimes, have benefited from the lack thereof in the past.
- Some copying is necessary, it's part of learning process

GLOBAL CHALLENGES IN THE INTELLECTUAL PROPERTY ARENA

Richard Kjeldgaard

Senior counsellor for biotechnology and genetic resources, World Intellectual Property Organisation, Geneva

"Do we have to have a deal done on harmonization everywhere?"

There are a multitude of problems and challenges associated with IP, Richard Kjeldgaard explained.

He reminded the audience that despite the common corporate perception that TRIPS has ended, in fact there is still much more to be done. There are conflicts of interest in terms of ownership, particularly in developing countries. There is also the conundrum as to what should be harmonized.

On this, he said there is a clear divergence of views, with most people thinking in terms of grant criteria that would increase the quality of patent examination, and decrease duplication in order to lower costs. However developing countries tend to think of pre-grant consent, post-grant enforcement and technology dissemination.

He also challenged: "Do we have to have a deal done on harmonization everywhere?"

Data protection is a major challenge, with questions on what the benefits and trade-offs would be for countries.

He stressed that IP and biological material would remain controversial for a long time, particularly in terms of the relationship to IP rights and understanding ethical issues such as DNA.

There are still many other questions to be answered such as what is the relationship of IP rights and disclosure of origin? How are IP systems to be integrated? And to allay people's concerns this would need more factual discussion, he said, adding that some of the systems are being force fed into some parts of society where discussions probably need to be re-cast so the underlying rationale is understood.

Key messages – talking points – quotes

- We are seeing an increased interest by all stakeholders in WIPO, in particular, there is an increased participation by academia in IP.
- The discussion of harmonisation of patent laws has been going on for 30 years. The question is whether we need a global harmonisation in IP.
- IP and bio materials will remain controversial.
- Cultural considerations of harmonisation. Most of the US/Western IP regulations created using language and philosophies of such western scholars of Locke, and Jefferson – and are being foisted upon Confucian or Muslim societies – may need to rethink the very philosophical bases – not to mention language – of western IP thought.
- Data protection is a major and growing challenge, with increased requests for WIPO assistance from developing countries.

EXPERIENCES IN MANAGING INTELLECTUAL PROPERTY IN PUBLIC-PRIVATE PARTNERSHIPS FOR DEVELOPMENT OF 'NEGLECTED' HEALTH PRODUCTS

Roy Widdus

Former project manager of the initiative on Public-Private Partnership for Health, Global Forum for Health Research

"There has been an imbalance in knowledge of IP management but PDPs are playing by the rules and are becoming competent in handling IP negotiations professionally."

Drawing on his experiences of how public-private partnership can work in the health sector, Roy Widdus outlined their use among poorer populations that are suffering a range of infectious and neglected diseases.

He explained: "These diseases disproportionately affect the poor and there is very little motivation for companies to tackle them."

Public-private partnerships can be very complex structures involving a combination of civil society organisations such as NGOs, academia and philanthropists, public sector organisations such as Government agencies, and for-profit organisations including pharmaceutical and biotech companies. Pointing out why there is a need to have these partnerships, he stressed that many people still do not have access to essential drugs. In regions such as Sub Saharan Africa the economy only contributes 2% to pharmaceutical revenue, and therefore there is little motivation to supply and protect IP in these markets. Types of public-private partnerships for health include Product Development Partnerships, partnerships for improving access to medicines, and partnerships for strengthening health systems.

Regarding Product Development Partnerships (PDPs), he explained that the variation in partnership depends on the choice of product or disease focus. For example, the MMV (Medicines for Malaria Venture) portfolio in 2004 was the largest-ever portfolio of antimalarial drug R&D.

By investing in the MMV portfolio, public bodies reap a number of benefits such as IPR in 'field' as well as a drug supply. While private bodies investing chemistry, IPR, and technology will reap the benefit of IPR out 'field', and the benefits from PR and HR.

He reasoned that PDPs need to manage IP as they acquire the right to develop candidate products, and IP is generated from such investments. PDPs manage IP, sometimes known as 'access' conditions at product development stage or distribution/supply stage. New types of PDPs are emerging to help poorer nations covering areas such as pesticide development, and drought-tolerant crops. Between 5-10 years ago pharmaceutical companies were operating in a different environment where NGOs criticised them for putting profits over people. But today this criticism is subsiding as most people in the world have an interest in public health and collaboration is proving increasingly beneficial.

Key messages – talking points – quotes

- Diseases that disproportionately affect poor countries create a vicious circle – the diseases suppress economic growth which means companies are not interested in investing in the country.
- There is a large number of independent organizations – eg. IAVI – International Aids Vaccine Initiative - which have sprung up in an attempt to make up for lack of private sector interest in the markets of developing countries.
- Public-private partnerships (PPP) – the win-win proposition: a deal is sustained by balancing the investments and incentives of each participant.
- PDP – product development partnerships – cooperation between private and public sector to share information and patent rights.
- New types of PDPs for the poor: Global Alliance for Livestock Vaccines, Drought Tolerant Crop Initiative.