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## Increasing access to biotechnology results

### Report on the symposium 'Reconsidering Intellectual Property Policies (IPP) in public research', 11 April in Wageningen<sup>1</sup>

*Formulating a general patent policy that satisfies all stakeholders will not be easy for Wageningen University and Research Centre (WUR) and other public institutes. The different interests at stake within the organisations were very clearly apparent at the workshop 'Reconsidering Intellectual Property Policies in Public Research', held on 11 April in Wageningen. The following is a report of the main discussions and findings of the workshop.*

Intellectual property protection is caught in between the need for valorisation of research outcomes, and the wide availability of these outcomes. For example, biotechnologists regard patents as a crucial tool in acquiring research contracts. Added to that, they can help safeguard a top position in research rankings and may boost income. Using patents as 'currency' – to remain attractive for market parties – is a worldwide trend, and it is very difficult not to go along with it, because research funding bodies including the Dutch government organisations such as STW and NWO currently promote patenting of research results. For instance, those funding the Wageningen Centre For BioSystems Genomics (CBSG) have set a target of obtaining 25 patents, 20 licenses and 2 spin-offs – all in the coming five years.

However, as a public organisation, Wageningen University and Research Centre has a mission to contribute to agricultural development in poor regions, and this goal may be hindered by the fast growing number of patents. Rector Martin Kropff formulated the dilemma during the closing debate: 'The millennium goals are important for us, they are part of our strategy, and technology has to be available for developing countries. But we also have to follow the current system of IPR, for instance because we want to generate spin-out companies.' While the rector did not yet have a concrete answer, he promised that the existing policy group on Intellectual Property Rights at WUR would take into account the outcomes of this symposium.



Foto: Veerle Vanvenckenray

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### **Liability: bottleneck for the patent holders**

Research institutes devoted to poverty reduction indeed face increasing difficulties in obtaining the biotechnology they want, stated Marc Ghislain, biotechnology advisor at the potato institute CIP in Mexico. 'Today', he concluded in his speech, 'the transfer of proprietary (bio)technology from the private sector (...) has never been so difficult, not to say impossible.' According to Ghislain, public institutes are still transferring proprietary technology, but are encountering increasing difficulties. He gave the example of potatoes bred at CIP using a parent with engineered PLRV resistance (acquired in 1993). This technology could not be provided to India due to lack of response from the technology holder. A second example concerned a Bt gene construct for insect resistance; the company has refused to provide this construct due to liability and reputation risks.

In the last decade, it has become more difficult to obtain (humanitarian) licenses, and liability of the patent holder is a major cause at present. The patent holder cannot fully control what happens with his genes or enabling technology, and he fears brand name damage in the case of misuse or bad product performance. What makes this worse is that according to the Cartagena protocol on Biosafety, the patent holder is likely to be liable for financial claims in case of damage caused by transgenic technology.

In addition, the patent-holder may fear that licensing to several institutions in the South decreases the patents' value and jeopardises negotiations with commercial partners. The requesting institutes often have weak infrastructure and weak funding, and they lack expertise on Intellectual Property issues which worsens their credibility. Added to that, many public institutes devoted to poverty reduction lack a clear definition of the end-product(s) that they want to produce, and they may not be able to guarantee that only resource-poor farmers will commercialise the products. It is therefore clear that institutes devoted to poverty reduction, including the CGIAR institutes, will have to elaborate a clear patent and R&D policy if they are to increase their credibility in the eyes of the patent holders.

### **Lowering the transaction costs**

Nevertheless, Ghislain and some other professionals at the workshop expected that humanitarian licenses for these poverty-reduction-institutes can at least partly solve the dilemma. Victoria Henson-Apollonio, IP advisor for the CGIAR institutes, asked why public institutes shouldn't formulate a general policy that guarantees some sort of a humanitarian license or freedom to operate for these institutes in all patent negotiations. This could be realized with clauses that prevent misuse. For instance, a clause such as that used by the Wageningen University in the cassava project in 1996: the cassava technology can be used royalty free for food security goals and local use, but not for the world trade in starch. Similarly, CGIAR's Generation Challenge Programme uses a consortium agreement in which the use of humanitarian licenses has been standardized for all projects under the programme. The advantage of such arrangements is that they lower the transaction costs, which can be a significant hurdle for humanitarian licenses. Wageningen UR is party to this consortium.

An alternative approach to lowering the transaction costs for humanitarian licenses was presented by Kyle Jensen of PIPRA - the Public sector Intellectual Property Resource for Agriculture. PIPRA is an IP management office, started by the landgrant universities in the USA, which facilitates the transfer of technology to developing countries. PIPRA aims to pool the currently fragmented intellectual property in the public sector and making it easily available through a database. This way, any person interested in a specific technology can easily find out whether it is publicly available, and from which institutes. While many participants agreed that this initiative is promising, Jensen acknowledged that the patent pool has had limited impact so far. PIPRA has therefore extended its activities to Intellectual Property research, capacity building and the creation of packages of available proprietary technologies that together constitute a valuable asset for research in the South (e.g. transformable vectors).

Geoff Tansey was, however, critical towards the capacity building program within PIPRA. He questioned the role of intellectual property protection in developing countries more fundamentally. The Intellectual Property system has been developed from a Western perspective, with rules that suit Western countries. By accepting this international patent system (signing the TRIPS agreement), developing countries no longer have the chance to copy technologies, which was crucial for developed countries in the past. Therefore, according to Tansey, capacity building can also be regarded as a way of promoting acceptance of this Western system.

### **Open source for fundamental research**

The social scientists presented many arguments in favour of patent pools and open source strategies, such as that of PIPRA and CAMBIA in Australia. Henk van den Belt from the Applied Philosophy Group at WUR reminded the audience that we should not necessarily take for granted the science ethos behind the current patenting strategy. In 1942, Robert Merton defined the 'ethos of science' then as 'communism, universalism, disinterestedness and organized scepticism' – totally different from the current ethos, in which biotechnologists are stimulated to file patents for commercial reasons.

Van den Belt and other social scientists also suggested economic reasons for adopting open source strategies: the proliferation of patents upstream (genes, DNA fragments, research tools) hinders innovations downstream (e.g. drugs, transgenic crops). Besides, the transaction costs to obtain freedom to operate are very high, the patents are only profitable for the biggest potential 'blockbusters', and they cause market under-investment in public goods.

Steve Hughes, a social scientist from Exeter University, pointed out how disappointingly low the revenues are that American universities receive from their patenting strategy: only 0.56 % of their total revenues come from licensing and royalties. He suggested that patenting no longer fits the current 'network' character of genomics research. A highly interconnected network of dozens of research groups will be more productive if there are many soft ties rather than hard property rights. The patenting system does not mesh with the latest ideas about innovation either. In the new innovation strategies, all stakeholders (institutional, professional and individual, including farmers) 'co-generate' knowledge and innovation. In such a learning and interactive network, patents can be very unproductive.

Some professionals at the meeting therefore proposed putting all research financed by public money in an open source domain. However, most participants were not convinced about the advantages of such a general policy. Farmers – also poor farmers – can benefit from patented technology, for instance, because patents can stimulate local business to bring those technologies to the market. This is why the potato institute CIP in Peru – financed with public money – applies for Intellectual Property in some cases. For innovation, it will be more important to put the results of fundamental research in an open source domain than the products and the results of more applied technologies, according to some participants.



*Foto: Veerle Vanvenckenray*

## **Access to non-patented technology**

Kyle Jensen already noted that simply having a patent pool is not sufficient for transferring technology, and therefore, PIPRA is getting more involved in outreach activities such as capacity building. Victoria Henson Apollonio suggested to include also non-patented technologies in the technology pools that PIPRA offers. ‘The patented part of the knowledge is relatively easy to find’, she said. ‘But all other knowledge, and especially the knowledge that is important for low-tech solutions, is often not available.’

The access problem not only concerns the untraceable low-tech solutions, but also the fact that scientific articles are often either untraceable or too expensive to read (because they are published in expensive journals). Considering that, so far, most knowledge developed within public research institutions have not been patented, the lack of access must have other causes than the patent policies alone. The rectors of the Dutch universities have recognized this broader access problem, said Martin Kropff, and they will evaluate this point in the coming months.

A final point is that access to technology, material and knowledge – patented or free – is often not enough for innovation to take place in poor regions. For instance, breeders are free to use planting material protected with (only) plant breeders rights. However, breeders in developing countries seldom use this material for further breeding. Institutes in the South also need opportunities, funding and expertise to be able to use open-access knowledge and technology. This means that public institutes have to do more than just adapt the current Intellectual Property Policy: they need to teach PhD students from the South, collaborate in innovation projects and participate in other ways in capacity building in the South. Therefore, they must continue to invest money in North-South research, some professionals remarked.

## **Epilogue**

In 2007, the European Patent Office (EPO) published a report, called ‘Scenarios for the future’. This report questions the validity of the current patent system for biological products, and illustrates the unclear impact of patents in innovation. It also acknowledges the significant differences between innovation in biological materials and industrial products, and opens the door to a differentiated understanding on how a system for intellectual property protection can serve best innovation. Because the report comes from EPO, the statement can have important consequences for the legal and policy environment in which public research institutes such as Wageningen University and Research Centre (WUR) have to operate, and therefore for the problems that have been discussed in this workshop. The issues discussed show that public research institutions in the North should carefully reflect on the role of public funded research and the institutional settings in which such research takes place. Initiatives such as PIPRA and CAMBIA may provide some guidance in this process. In addition, requirements set by research funding organizations concerning valorisation of research need to be reassessed.

The workshop has emphasized the complexity of the IP debate and the various approaches that can be taken to increase the ‘freedom to operate’ for researchers in developing countries. Overall, the conference has made clear that the patent discussion needs to be placed in a wider context. Liability issues, weak infrastructure and a lack of control over production processes at most public research institutes in the South seriously weaken their credibility in the eyes of patent holders willing to provide technologies via humanitarian licenses. High transaction costs and the difficulty of finding useful technologies – both patented and non-patented - further complicate the access to technology. As such, it became clear that access to intellectual property is only a precondition for a wider strategy in which capacity building and institutional partnership can truly contribute to the development in the ‘South’.