INTELLECTUAL PROPERTY CO-OWNERSHIP AND COMMERCIALIZATION IN PUBLIC-PRIVATE PARTNERSHIPS IN SOUTH AFRICA

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ABSTRACT

Prior to the promulgation of the Intellectual Property Rights from Publicly-Financed Research and Development Act (IPR Act) in August 2010, the publicly-funded research and development (R&D) organizations such as universities and science councils in South Africa dealt with issues of intellectual property ownership (IP) in whatever manner they deemed fit, as they had unfettered discretion to negotiate and/or agree on any terms of IP ownership with third parties such as private companies.

The IPR Act has however brought about a new dispensation underpinned by specific provisions which dictate circumstances that must prevail for IP to be owned by the publicly-funded R&D organization, co-owned by the publicly-funded R&D organization and a private company, and where ownership of IP may be negotiable between the publicly-financed R&D organization and a private organisation.

Several scholars and legal practitioners have criticized the legal effect of the IPR Act alleging that it might stifle innovation and make the R&D focused public-private partnerships unworkable, as it meant that ownership of IP generated from publicly-funded R&D can no longer arbitrarily vest in third parties as it was previously possible before the IPR Act became law.

While it might appear premature to confirm or deny this allegation given that the IPR Act has been effective for only a period of four years and a few months, this paper discusses a practical case study of a public-private partnership involving a publicly-funded science council and a private company as a way of demonstrating that mutually-beneficial public-private partnerships are possible even under the IPR Act.

Key words: intellectual property, ownership, public-private partnerships, research and development

INTRODUCTION

Public-private partnerships are one of the most valuable strategic approaches towards development of plant varieties that possess value-adding genetic traits.[1] Plant breeding programs and use of molecular breeding techniques[2] pursued within the context of the concerted efforts of both the public sector and private sector in Africa have led to more efficient transfer of genetically improved

[1] S Oikeh, D Ngonyamo-Majee, SIN Mugo, K Mashingaidze, V Cook, and M Stephens (2014) 'The Water Efficient Maize for Africa Project as an Example of a Public-Private Partnership. In DD Songstad et al. (eds). *Convergence of Food Security, Energy Security and Sustainable Agriculture, Biotechnology in Agriculture and Forestry* 67, DOI 10.1007/978-3-642-55262-5_13.(c) Springer-Verlag Berlin Heidelberg 2014.

[2] X Delannay, G McLaren, and J-M Ribaut (2011) 'Fostering molecular breeding in developing countries' *Molecular Breeding*. DOI 10.1007/s11032-011-9611-9

plant varieties from the laboratory to the market[3], and similar outcomes were observed in public-private partnerships for plant breeding in other parts of the world such as Europe.[4]

The increased competitiveness and productivity of the Indian public seed sector is also attributed to its collaboration with private sector.[5] The long established culture of R&D collaboration in South Africa and the necessity of interaction between the key players within the triple-helix[6], require that publicly-financed R&D organizations develop institutional IP policies that will guide their IP generating interactions with third parties.[7] Such policies will also inform the terms of agreement between the two parties, as attempting to determine ownership after the IP has been generated has often proven to be problematic.

The tremendous investment that is required for development of new plant varieties, and the economic value of the genetic make-up of such varieties necessitates that the creative effort of plant breeding is duly compensated. New plant varieties that are distinct, uniform and stable are protectable by plant breeders' rights in South Africa,[8] and similar protection can be attained in the United States of America through plant patents.[9]

It is therefore important that, whenever a publicly-funded R&D organisation decides to engage in collaborative R&D with a private organisation, terms of ownership for the jointly created intellectual property are clearly defined and a written agreement to that effect is concluded. This proactive approach to intellectual property management is crucial for the establishment and maintenance of good working relationships between the collaborating organizations.

The recent promulgation of the Intellectual Property Rights from Publicly Funded Research and Development Act (IPR Act) in South Africa has laid down new and unambiguous rules regarding

ownership of IP generated from State funding.[10] The National Intellectual Property Management Office (NIPMO), an initiative of the national Department of Science and Technology established[11]

[3] T Dubois, D Coyne, E Kahangi, L Turoop, EWN Nsubuga 'Endophyte-Enhanced Banana Tissue-Culture: Technology Transfer Through Public-Private Partnerships in Kenya and Uganda' *African Technology Development Forum Journal, Volume 3, Issue 1*, pp 18 -24

[4] M Lusser (2014) 'Workshop on public-private partnerships in plant breeding' http://publications.jrc.ec.europa.eu/repository/handle/1111111111/31968

[5] A Sharan (2011) 'Public private partnership – the way ahead' *Indian Journal of Genetics and Plant Breeding, Volume 71, Issue 2*, pp199 -201

[6] Leydesdorff L and Meyer M 'Triple Helix indicators of knowledge-based innovation systems. Introduction to the special issue' *Research Policy* 35 (2006) 1441-1449. The triple-helix model of the national system of innovation identifies academia, industry and government as the three major drivers of innovation.

[7] Section 7 of the IPR Act obliges publicly-funded R&D organizations to develop policies for identification, protection and commercialization of IP.

[8] Section 2 of the South African Plant Breeders' Rights Act no. 15 of 1976.

[9] US Plant Patents Act of 1930.

[10] Section 4 (1) of the IPR Act provides that, notwithstanding the possibility of intellectual property co-ownership that may occur in public-private R&D collaborations, the intellectual property generated from State funds will be owned by the institutions that is a recipient of State funds. Furthermore, this legislation provides that it is only where R&D is funded on a full cost basis, taking into account both the direct and indirect costs, that the ownership of the consequent intellectual property may be negotiable.

responsible for the implementation of this legislation regularly develops guidelines[12] and practice notes to provide legally-sound interpretation of these new rules.

Some legal scholars[13], technology transfer professionals[14], and legal practitioners[15] expressed varying levels of discomforts with this legislations citing mainly concerns regarding a possible bureacratisation of innovation, and negative impact international R&D collaborations, and perceived disinterest of the local private sector in collaborating with publicly-funded R&D organizations going forward. Some of these concerns were based on what is believed by some scholars to have been the negative impact of the Bayh-Dole Act in the US, as the purpose and to some extent the drafting of the IPR Act is largely borrowed from the US Bayh-Dole Act.[16]

The IPR Act sets out the conditions that must prevail for IP generated at publicly-funded R&D organizations to be owned by the State-funded R&D institution that developed it[17], co-owned[18] by the publicly-funded R&D organisation and the private organization, and where the ownership of such IP is negotiable[19] between the collaborating parties.

First, ownership of the intellectual property resulting from R&D conducted at the publicly-funded R&D organisation where State funds were used in whatever measure will, in terms of the IPR Act, vest in such publicly-funded R&D organisation. However, in the event that R&D is conducted at the publicly-funded R&D organization without any use of State funds, then the ownership of IP generated in such circumstances may be negotiated, and agreed upon in any way that the collaborators deem fit. The possibility for this negotiation arises only because the provisions of the IPR Act in such circumstances are not applicable, as the IPR Act only sets out rules for management of IP generated from R&D that is conducted from State funding.

In order to ensure that there is consistent basis on which a determination is made when verifying if indeed no funds were received from the State in particular R&D project, the IPR Act requires

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[11] Section 8 of the IPR Act provides for establishment of NIPMO and sets out its scope of operation.

[12] Guideline 1 of 2012, Interpretation of the scope of the Intellectual Property Rights from Publicly-Financed Research and Development Act (Act 51 of 2008): Setting the Scene 2012 was the first guideline developed by NIPMO, and was followed by Guideline 2.1 and 2.2 of 2013, Guideline for the operation of the Intellectual Property Fund. The development of Guideline 4 on Intellectual Property Ownership is currently underway and near completion with the last stakeholder engagement workshop have been held in September 2014.

[13] A Barrat (2010) 'Lessons from the Bayh-Dole: reflections on the Intellectual Property Rights from Publicly Financed Research and Development Act, Journal of Juridical Science, Volume 35, Issue 2, pp 30-69

[14] S Dell (2010) 'South Africa: Jury out on intellectual property laws' 19 September 2010, Issue 62. Dell's article included interviews with technology transfer professionals. An employee at InnovUs, a technology transfer office of the University of Stellenbosch highlighted the problems that the University of Stellenbosch was beginning to experience with industry partners in the wake of the IPR Act.

[15] D Biagio (2010) 'The IPR-PFRD Act has come into force' Spoor and Fisher. http://www.spoor.com/articles/The_IPR-PFRD Act_has_come_into_force-307.html

[16] Sampat Sampat B. Patenting and US academic research in the 20th century: The world before and after Bayh-Dole. Research Policy 35(2006) 772-789

[17] Section 4(1) of the IPR Act.

[18] Section 15(2) of the IPR Act.

[19] Section 15(4) and (5) of the IPR Act.

publicly-funded R&D organizations to quantify, and submit to NIPMO their full cost matrices wherein the institutions' indirect cost recovery rate (ICRR) is quantified.[20] This matrix takes into account indirect cost of conducting R&D, in addition to the direct or unhidden costs that researchers usually include in the budget section of the R&D proposals they submit to prospective funders.

Therefore, an R&D project is deemed to have been funded on a full-cost basis only if the funder paid both the direct and indirect costs of R&D. For example, if a publicly-funded R&D organization has an ICRR of 40%, an R&D project that is funded in terms of its direct costs and a surcharge of 40%, representative of the indirect costs of R&D, will be deemed to have been funded on a full-cost basis. Under such circumstances, the IP generated will not be automatically owned by the publicly-funded R&D organisation in terms of the IPR Act, but will be open for negotiation between the public R&D institution and the collaborative funder. It is advisable, even for R&D projects that are funded on a full-cost basis, that terms of ownership be determined upfront as the absence of such an agreement might create an expectation on the funder that IP ownership will vest with them, as there will be no legislative provision obliging the institutions to own IP in such a situation.

Given the fact that the IPR Act is fairly new, there is no definite trend observed to date that public R&D organizations appear to follow when negotiating ownership of intellectual property resulting from projects funded on a full cost basis. Some institutions have negotiated for further payment of about 300% of the full cost of R&D for the private funding organisations to take IP ownership, while others have allowed funders to take ownership without any further payment to the full cost of R&D. Most institutions are more likely to negotiate for royalty-free licenses to the IP they have created so that they are not barred from pursuing their research interests in the field of practice of the IP they have developed for the private funding organisation.

The case study discussed in this paper focuses on co-ownership of IP in collaborative public-private R&D projects, as provided in the IPR Act. There are four requirements that have to be met for IP generated at public R&D organizations to be co-owned with private organizations.[21] These requirements can be summarised as follows: both parties must contribute resources towards the creation of IP, jointly create the IP, the benefit-sharing arrangements for IP creators based at the public R&D institution must be in place, and the commercialization arrangements for the IP that may be developed must also be in place. For the purposes of the IPR Act, the definition of a private entity or organization encapsulates any private sector company, public entities, international research organizations, educational institutions, international funding or donor organizations.[22] This liberal definition of a private entity or organization extends the right to co-ownership of IP to a broader spectrum of potential collaborators, further evidence that the IPR Act's position on IP ownership cannot be viewed as biased against the private sector.

THE CASE OF CSIR GXN 2107 CASE STUDY

CSIR GxN2107 is the cold tolerant clone of *Eucalyptus grandis x Eucalyptus nitens* which showed unparalleled rooting ability, a genetic trait that made it an economically valuable and sought-after plant variety in the pulp and paper industry. This variety became subject of the first plant breeders'

[20] Regulation 16 of the IPR Act.

[21] Section 15(2) of the IPR Act.
[22] Section 15(5) of the IPR Act.

right (PBR) application filed by the Council for Scientific and Industrial Research (CSIR),[23] as it met the statutory requirements of novelty, distinctness, uniformity and stability.[24]

This clone is one of the outcomes of a long-standing collaborative R&D relationship between the CSIR and a private organization (hereinafter referred to as 'Company X'). Both parties had invested intellectually and financially in development of new plant varieties for a period of almost a decade. The legal effect of the IPR Act found this relationship already in existence and with long established terms of collaboration.

The CSIR had also over a period of more than two decades, independently of its partnership with Company X, developed germplasm that had attracted international clientele, although not statutorily protected. While probably not the most profitable, this IP portfolio had the highest number of license agreements within the organization and the client base continued to grow tremendously.

When the PBR application was filed for CSIR GxN 2107, a protective direction[25] was sought and as a result the CSIR could sue for infringement of this clone although this was only provisional protection. This is one of the unique benefits of the plant variety protection regime, as in the patent regime infringement proceedings are only possible once a patent is granted.

In terms of the R&D agreement between the two parties, the ownership of IP vested in the CSIR. However, when the CSIR elected to file a PBR application[26], Company X negotiated for co-ownership. In the interest of maintaining a cordial partnership, the CSIR finally agreed to file the PBR application citing the CSIR and Company X as co-applicants, and listing the employees, who made intellectual contribution in creation of the clone CSIR GxN 2107, from both organizations as breeders in the application.

CONSIDERATIONS IN TERMS OF THE IPR ACT

The PBR application for CSIR GxN2107 was filed in April of the same year that the IPR became law in South Africa.[27] Taking into account that this legislation was enacted in 2008, hence also known as Act 51 of 2008, the public R&D organizations had been aware of the oncoming requirements of this game changing legislation for some time even though the Regulations for implementing this legislation only came out in 2010, when the IPR Act was finally promulgated. The IPR Bill which had developed into the Act had also been the subject of stakeholder engagement workshops since 2006.

The issue of IP ownership vesting in publicly-funded R&D organisations was perceived as a devastating blow by many private organizations to such an extent that popular belief was that

[23] Hobololo VL, Verryn SD, Snedden CL, Naidoo N, and Thompson I (2010) 'Protection of Intellectual Property through Plant Breeder's Rights for *Eucalyptus* species within the forestry industry: the CSIR GxN2107 case study. *Proceedings of the 4th Institute for Commercial Forestry Research (ICFR) Forest Science Symposium*, August 2010, p. 57.

[24] Section 2 of the Plant Breeders' Rights Act defines these statutory requirements in greater detail, as they have to be all met for plant breeders' rights to be granted.

[25] Section 14 of the South African Plant Breeder's Rights Act of 1978.

[26] The clone in question met the statutory requirements for protection through plant breeder's rights. Such requirements are distinctness, uniformity and stability. They are often referred to as DUS requirements.

[27] The PBR application was filed in April, and the IPR Act became law in August of the same year, 2010.

public-private R&D collaborations were to be diminished by this law.[28] In a conscious effort to comply, the provisions of the IPR Act had to be considered before the CSIR took a decision to agree to co-ownership of CSIR GxN 2107 with Company X. The test for possibility of IP co-ownership then included interrogating whether each of the four requirements provided in s 15(2) of the IPR Act were met by Company X.

Contribution of resources[29]

As given above, both parties had contributed resources in that the R&D project in question was co-funded by the CSIR and Company X towards development of this plant variety. Therefore, the first requirement was met. The resources referred to herein were not only financial but were also in the form of background IP as their breeding programme involved making selections from the germplasm that each party held title to.

Joint intellectual property creatorship[30]

Both the CSIR's and Company X's plant breeders conceptualized the breeding programme and made the selections. It is this creative and intellectual contribution of breeders employed by the CSIR and Company X, respectively that gave rise to this new variety with value-adding traits. Therefore, this requirement was also met. In most public-private partnerships, this is usually the most difficult requirement to meet. This is because, any funder or private organization making some kind of contribution into the resources used towards development of IP may claim to have met the first requirement. However, it is only private entities or organizations with technical expertise required in a particular field of technology that will be able to meet the requirement of jointly creating IP with the publicly-funded R&D organization. Company X, being also an R&D organization with tree breeding technical and scientific capacity were able to meet this requirement.

Appropriate benefit-sharing arrangements for intellectual property creators at the CSIR[31]

When the IPR Act became law, the CSIR already had a policy on IP and benefit-sharing. The policy provided, amongst other things, on how the intellectual property creators employed at the CSIR would benefit from the commercialization income realized by the CSIR when transacting IP.

While this third requirement of s 15(2) of the IPR Act was met in that the CSIR's IP policy already had an established arrangement of benefiting IP creators, it is worth mentioning that the IPR Act introduced slightly different terms of benefit-sharing. For example, the CSIR policy at the time only limited this benefit to its employees, meaning that resignation from the CSIR's employ obliterated this benefit for IP creators.

However, the IPR Act provides that the IP creators must share in the commercialization benefits not only when they are employees of the publicly-funded R&D organization holding title to the IP in

28 See S Dell supra, at 14

29 Section 15(2)(a) of the IPR Act.

30 Section 15(2)(b) of the IPR Act.

31 Section 15(2)(c) of the IPR Act.

question, but for as long as they live.[32] It further provides that, should the IP creators die while the IP they developed continues to generate income, the heirs of the IP creators must benefit in the same way as the creators would have benefited had they been alive. The only event that terminates the right to benefit-sharing is the expiry of the exclusive right of exploitation, or when there is no more revenue accruing to the publicly-funded R&D organization in relation to that plant variety, patent or any other form of IP that IP creators had developed.

Conclusion of an agreement for the commercialization of intellectual property[33]

Following submission to the CSIR of the proposal by Company X to co-own the newly developed plant variety, CSIR GxN 2107, a new agreement had to be developed taking into the account the provisions of the IPR Act. This agreement specified amongst other things the relative proportions of ownership that each party would have, the responsibility of the two parties in relation to costs relating to IP prosecution and maintenance, the obligations of each party in relation to commercialization of the plant varieties, and the rights that each party would have in sharing in royalties realized from commercial transactions.

The CSIR was able to share commercialization benefits with its employees only from the portion that was received by the CSIR. In a nutshell, all four requirements were met as required in s 15(2) of the IPR Act.

CONCLUSION

Since PBR filing, CSIR GxN2107 has been doing well in the market and is still highly demanded by the industry as from when the trial data on its performance became known in the forestry industry through marketing by the CSIR. This clone could however not be taken to the market before a PBR application was filed. This is because Article 6(1)(b) of the UPOV Act of 1978[34] provides that plant variety protection may not be granted for varieties that have been offered for sale or marketed by the with the breeders' consent for a period longer than 12 months prior to filing for protection in South Africa.[35] And where plant variety protection were to be sought in another UPOV member state, then CSIR GxN 2107 would not have been offered for sale or marketed for more than 6 years in any other UPOV member country.[36] The corresponding provision in the South African Plant Breeders' Rights Act also provides that the variety for which statutory protection is sought should not have been sold with the breeders' consent for longer than a year,[37] and also provides in line with

32 Section 10 of the IPR Act.

33 Section 15(2)(d) of the IPR Act.

34 Article 6(1) of the UPOV Act of 1978 provides that plant variety protection may not be granted for varieties that have been in the market for certain periods of time with the knowledge of the breeder.

35 Article 6(1) (i) of the UPOV Act of 1978.

36 Article 6(1)(ii) of the UPOV Act of 1978.

37 Section 2(2)(a)(i) of the South African Plant Breeders' Rights Act.

UPOV Act of 1978 in respect of vine and trees[38] with the exception that for any other varieties the period should not exceed four years.[39]

As South Africa is a UPOV member state, this provisions means that had this clone been sold by the CSIR or Company X in South Africa for a period longer than 12 months, then statutory protection would have not been possible. And if the CSIR or Company X had been placed in international markets, particularly in markets of those countries that have deposited their instruments of accession to the UPOV Convention, then the granting of PBR would not have been possible. This clone started bringing in appreciable quantum of royalties as soon as the PBR application was filed.

Both the CSIR and Company X were able to benefit from the commercialization of this clone. The relationship between the two parties strengthened and this was essentially a win-win situation that proves that even under the IPR Act, workable collaborative relationships are possible. CSIR's IP creators received their share in terms of the CSIR's IP policy, and Company X used their own discretion to benefit the breeder in their employ.

CONCLUSION

In conclusion, while this case study succeeds in demonstrating that public-private R&D partnerships are workable even under the IPR Act, and that the suspicion that the IPR Act would quench the private sector's appetite for collaborating with publicly-funded R&D organizations may be misled, there are yet a few questions of the law that inspire curiosity in the case in point. The first one being, was the CSIR bound by the IPR Act given the facts of this case? Secondly, did the CSIR have a legal obligation to agree to co-ownership as proposed by Company X? The answer to the first questions is that, CSIR being a Schedule 1[40] institution in terms of the IPR Act, the provisions of the IPR Act apply thereto.

However, the IPR Act was not applicable in the case in point as the PBR application for the clone CSIR GxN2107 was filed in April 2010, which clearly proves that this plant variety was not developed after August 2010. Bearing in mind that the IPR Act does not have a retrospective effect,[41] it is only plant varieties or IP in general developed after August 2010 that needed to be dealt with in terms of this new law. Taking guidance from section 81 of the Constitution of the Republic of South Africa, 'A Bill assented to and signed by the President becomes an Act of Parliament, must be published promptly, and takes effect when published or on a date determined in terms of the Act', it is clear that the IPR Act became effective only as from August 2010 and could not have applied to intellectual property

38 Section 2(2)(a)(ii)(aa) of the South African Plant Breeders' Rights Act.

39 Section 2(2)(a)(ii)(bb) of the South African Plant Breeders' Rights Act.

40 Schedule 1 institutions in terms of the IPR Act are other publicly-funded R&D organizations that are not Higher Education Institutions. The list includes the CSIR, Water Research Commission, Medical Research Commission, National Research Foundation, and many other publicly-funded R&D organizations. The Schedule 1 institutions are obliged to comply with the IPR Act in the same way that the Higher Education Institutions are.

41 Guideline 1 of 2012, Interpretation of the Scope of the Intellectual Property Rights from Publicly Financed Research and Development Act (Act 51 of 2008): Setting the Scene

relating to a plant variety developed prior to the publication of the Act and its Regulations, unless there was an express provision that suggested otherwise.[42]

This means that, if the CSIR had determined that it was willing to co-own its IP with the third party such as Company X, it could legally arrive at that decision without considering the provisions of s 15(2) of the IPR Act.

Regarding the second question, the CSIR also had no legal obligation to agree on IP co-ownership with the third party regardless of the nature of the relationship that existed between the two parties, as there was a binding agreement between the two parties that expressly provided that ownership of IP vested in the CSIR.

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[42] In the *Jockey Club of SA v Transvaal Racing Club, 1959 (2) 54*, it was held that a general rule is that a statute is deemed effective only at the time of its promulgation, unless an express provision in the contrary exists.

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