

# Politics, Law and Discourse: Patents and Innovation in Post- Apartheid South Africa

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## INTRODUCTION: SOUTH AFRICAN IP LAW AND POLICY

This chapter, when read together with ‘The Political Economy of Traditional Knowledge, Trademarks and Copyright in South Africa’, also published in this handbook, is intended to present a broad overview of developments in the various aspects of intellectual property (IP) law and policy in South Africa since the end of the apartheid regime in 1994. Nevertheless, it can also be read in isolation as a discussion of national patent law and practice, together with innovation policy, referring occasionally to exemplary cases from South African jurisprudence. Like its companion text, it links current South African policy and law to developments in the international IP and trade environment, and aims to uncover and examine the discursive narratives that underlie accounts of IP both at macro and micro levels and which often help to determine political and judicial outcomes.

South Africa is a country with an ethnically and linguistically diverse population; the Constitution recognizes 11 official languages, although English, which ranks fifth in terms of the number of speakers, remains the language of prestige in politics, business

and education. Since the end of the racially-oppressive *apartheid* system in the early 1990s, the country has been a parliamentary constitutional democracy with a market-oriented economy. South Africa has the 25th largest land area in the world, the 24th largest population and the 28th largest economy. The country occupies a strategically important position on the southern sea routes between the Indian and Atlantic oceans (Kornegay, 2012: 42), and possesses a sophisticated economic, legal and technological infrastructure, while at the same time struggling with many of the problems of poverty that characterize other developing or ‘Third World’ countries.

With a nominal GDP of US\$376 billion, the economy is by far the largest in Africa, nearly twice the size of the next-largest Nigerian or Egyptian economies, although several African states perform better than South Africa when GDP is measured *per capita*. Although the informal sector is relatively small in relation to the economy as a whole in comparison with most African countries, unemployment and underemployment are high, and only around 40 per cent of adults have formal jobs. Such indicators show that economic and social inequalities are extreme, and South Africa’s Gini

coefficient is, unsurprisingly, one of the world's worst (World Bank, 2009). As a consequence of this juxtaposition of sophisticated infrastructure with chronic social deprivation, unlike most of the rest of the continent, South Africa can be accurately characterized as a 'two-world' economy (Rooks and Oerlemans, 2005: 1224). Despite the high levels of inequality, South Africa is ranked as upper-middle income by the World Bank (2013), and is a member of the BRICS grouping which joins it with Brazil, Russia, India and China, together the largest emerging economies in the world. As a BRICS member, South Africa exercises significant international political and economic influence. In the last 10 years, official economic policy has focused especially on industrial development, while continuing to recognize the short-term need to assist the poorest of the poor, partly through welfare programmes. As we shall see, these broader realities are reflected in a wide range of differing attitudes and behaviours by government, business, academics, lawyers and civil society organizations towards the specific area of IP policy and intellectual property rights (IPRs).

In a process that is still ongoing, the South African legal system has emerged from the mixing of several distinctive – and sometimes incompatible – judicial systems. These include Dutch civil law, British common law and several African customary law traditions, as well as a constitutional tradition that is in the process of being constructed on the basis of existing local, foreign and international norms. These often fail to merge happily, as for example when traditional leaders in rural areas assert patriarchal practices regarding land ownership, polygamy or inheritance in ways that disadvantage women and violate the emerging constitutional norms already mentioned (Walker, 2013: 78).

Within this hybrid legal framework, South African IP law is made up of a complex matrix of legislation and amendments, rules and regulations, obligations under international treaties and WIPO agreements, and regional and bilateral commitments. These

various responsibilities cover patents, trademarks, and copyright, as well as other aspects of IP, such as the protection of traditional knowledge. The country has ratified 10 of the 15 international IP treaties (Teljeur, 2003: 52), and participated in the diplomatic conference that led to the Marrakesh Treaty on copyright exceptions in mid-2013. Much of the primary legislation is out-of-date, and does not deal adequately with the technological changes of recent decades. At the time of writing, in order for South African IP law to achieve domestic and international coherence, '... a process of almost continuous law reform [would be] required' (Teljeur, 2003: 51) and this appears unlikely to happen soon.

The South African judicial system includes some specialist tribunals dealing with particular fields of law such as labour, land claims, or competition issues. There are two nominally specialist courts for patents and trademarks, but many IP matters are in practice dealt with in magistrates' courts, and the absence of specialist knowledge among the judiciary has been the subject of criticism (Harms and Dean, 2012: 104–113). The cohort of about 160 specialist IP lawyers and law firms is organized into the influential South African Institute of IP Law (SAIPL), established in 1952. Most SAIPL members focus on patent and trademark litigation. The group is engaged, describing itself as 'the custodian of South Africa's intellectual property rights' and as representing 'the majority of national and international businesses who have built their businesses [sic] on brands, innovation and technology, and who protect their interests through our country's intellectual property laws'. The SAIPL is active in WIPO and other forums (SAIPL, n.d.)

IP law is recognized in South Africa as an area of specialization in legal education and research (Klopper et al., 2011). Not all universities approach the subject from the same perspective, however. The University of the Witwatersrand, the University of Cape Town and the University of South Africa (UNISA) all offer conventional LL.M. degrees with a specialization in IP law, and UNISA runs

a diploma course jointly with the WIPO Worldwide Academy. This focuses ‘on the special circumstances prevailing in developing countries’ (UNISA, 2013). Stellenbosch University has an endowed professorship, the Anton Mostert Chair of IP Law, and offers an LL.M. degree in IP law, which the faculty describes as ‘the only fully accredited Master of Laws with a focus on Intellectual Property Law as a legal discipline’ and as ‘designed to train super-specialised academics and equip students ... to practice effectively in this field of law and occupy the position of experts ...’ (Stellenbosch University, 2013).

By contrast, the University of Cape Town’s IP Law and Policy Unit investigates broader theoretical issues, such as the relationship between IPRs and development, or IPRs and nanotechnology. The Unit ‘... specialises in patent law and policy, primarily in relation to development issues for new technologies in the area of health, biotechnology, genetics, nanotechnology, synthetic biology, electronic media and business methods’ (UCT, 2013). It is also involved in the African Copyright and Access to Knowledge (ACA2K) Project, and is the institutional base for Creative Commons South Africa. It has links to government and works ‘with the Department of Science and Technology (DST) on IP issues, and as [a] representative of the DST for meetings in Geneva’ (UCT, 2013).

Post-apartheid governments have not done much to reform the inherited legal framework for IP. Indeed, until September 2013, when it finally published a draft IP policy, the government had not developed a coherent developmental policy for IP, but had rather attempted ‘ad hoc reforms’ in response to immediate practical problems (Davies interview, 2013). IP policy is primarily the responsibility of the Department [i.e. Ministry] of Trade and Industry (DTI), which is counselled by a Standing Advisory Committee on IP (SACIP) established under the 1978 Copyright Act. It is claimed that this body has been sidelined since 1996, when Alec Erwin became minister in the DTI (Dean, 2010: 17). The Department of Science

and Technology is heavily involved in initiatives aimed at increasing the protection of innovation, and the Department of Arts and Culture has also played an occasional role in IP issues. Both the broad approach and some ad hoc reforms – for example, the attempt to protect indigenous knowledge – have attracted criticism from civil society and from opposition parties.

For much of the period after 1994, it has been hard to identify the elements for a coherent national IP strategy and policy, despite intermittent attempts to develop one, and despite pressure on the DTI by civil society organizations such as the Treatment Action Campaign (see below). In mid-2011, for example, the DTI organized a meeting at the Council for Scientific and Industrial Research (CSIR) in Pretoria to discuss a policy document that was described as ‘an important instrument needed to encourage innovation, technology transfer and research and development’ (Hancock, 2011). This meeting did not result in the immediate publication of a policy document, however, and it was only in September 2013 that the important ‘Draft National Policy on Intellectual Property (IP) of South Africa: a Policy Framework’, was released, together with an invitation for public comment (DTI, 2013).

The DTI recognizes that in an increasingly restrictive global trade environment South Africa must develop a coherent overall IP policy which acknowledges international and treaty obligations, but takes advantage of opportunities to develop strategies that impact on industrial development (Davies interview, 2013). The new draft policy is an expression of that strategic approach. The DTI believes in coordinating such work within the BRICS grouping and WIPO, and points to debates on, for example, the patent system that are already taking place in WIPO and elsewhere (see e.g. WHO et al., 2012).

South African IP policy is developing within a global environment that leaves less and less room for independent national initiatives. The United States exerts constant pressure worldwide to enforce strict protection of

its own IPRs, typically although not exclusively through bilateral free trade agreements (FTAs) and TRIPS mechanisms. The five-nation Southern African Customs Union (SACU), in which South Africa is the heavy-weight member, has not signed an FTA with the United States and negotiations between SACU and the US have been stalled since 2006, at least partly because of SACU's objections to US demands regarding IP. Trade between South Africa and the United States is regulated within other frameworks such as AGOA (the African Growth and Opportunity Act) and a Trade and Investment Framework Agreement (TIFA) signed in 1999 and renewed in 2012.

### **DOMINANT AND SUBALTERN IP DISCOURSES IN SOUTH AFRICA**

IP practices are embedded in South Africa's legal and economic systems, and much of the literature, recognizes the reality of this embeddedness and takes it as the starting point for practical analysis. Indeed, the acceptance of IP as a 'given' form of property, as ontological rather than socially constructed, has contributed to its success both in South Africa and as a worldwide system. It is represented as a 'natural right' in Locke's terms, as the logical way of rewarding artists, musicians, writers, and inventors for their creativity, rather than as the complex historico-legal outcome of centuries of technological development and capitalist political economy. The dominant and largely inherited discourse of IP in South Africa, as in other parts of the world, is thus constituted on the basis of pragmatism and positivism. IP research becomes primarily an exercise in making sense of the way things actually are.

But such an approach masks a deeper reality, which is that the global IP system is expanding rapidly and changing in fundamental ways. Despite the conceptual incoherence of IP and its shallow historical roots, IPRs have increased in economic and political

importance in the last few decades. IP issues have entered public consciousness in new ways, while the balance of forces has shifted to favour large commercial interests rather than either creators or consumers. US and EU policy, in defence of industry and commerce, supports the strict worldwide enforcement of IPRs through TRIPS and bilateral FTAs. To some critics, this is not a welcome development:

The dramatic expansion of intellectual property rights ... threatens to make virtually everything bad about capitalism even worse. Stronger intellectual property rights will reinforce class differences, undermine science and technology, speed up the corporatization of the university, inundate society in legal disputes, and reduce personal freedoms. (Perelman, 2003: 29)

Nevertheless, the positivist discourse presents IP expansion – especially in patent and copyright law – as the extension of the existing system under pressure from technological innovation, and the perception of IP as a common-sense system is reinforced. But expansion has also taken place in other, less obvious ways, including a push for the recognition of IPRs as human rights, a claim that rests on Locke's idea that a person has a right to the fruits of his or her labour (Locke, 1689: 216–217) – the 'labour theory' justification for copyright (e.g. Hughes, 2012: 1221–1222). In modern times, the human rights claim has depended on article 27(2) of the Universal Declaration of Human Rights, adopted in 1948, and more compellingly on article 15(1) of the binding International Covenant on Economic, Social and Cultural Rights of 1966, which South Africa signed in 1994; the government announced its decision to ratify the Covenant only in October 2012 (Petherbridge, 2012). Article 15(1) reads in full:

1. The States Parties to the present Covenant recognize the right of everyone:
  - (a) To take part in cultural life;
  - (b) To enjoy the benefits of scientific progress and its applications;
  - (c) To benefit from the protection of the moral and material interests resulting from any

scientific, literary or artistic production of which he is the author.

The question is whether article 15(1)(c) really recognizes IP as a human right. The UN's Committee on Economic, Social and Cultural Rights, a subordinate body of the Economic and Social Council, has considered the question. In a discussion paper submitted in 2000, it was argued that the IPRs of natural persons should indeed be recognized:

The development of a global economy in which intellectual property plays a central role underscores the need for the human rights community to claim the rights of the author, creator and inventor, whether an individual, a group, or a community, as a human right. (Chapman, 2000: 3)

Part of the rationale for this position was the need to create 'an effective intellectual and organizational counterweight to economic interests'; in other words to protect creators against corporations (Chapman, 2000: 3).

Whether recognition would act as a counterweight remains an open question, but it would certainly have other effects. Leaving aside critiques of human rights discourse *per se*, we can acknowledge that human rights derive from the dignity of the human person, and thus have a claim to represent universal and non-culturally-specific values, independent of nationality, race, gender, age, and so on. If this claim to universality is valid, then by implication human rights are also supra-ideological. But the claim is not only that rights are universal; it is that they are also individual and permanent.

To recognize IPRs as a category of human rights is to transform what were originally short-term state grants of monopoly into something qualitatively different – and perpetual. Recognition would consolidate the process of 'propertization' – already well under way – through which the metaphor implicit in the rhetoric of intellectual 'property' has come to be understood literally (Rose, 2002; Carrier, 2004; Hughes, 2006; Loughlan, 2006; Reyman, 2009). Ideas and fixed expression would become forms of

property that could be owned in perpetuity. Recognition would facilitate the further criminalization of IPR infringements – again, a process already well under way – as forms of human rights violation, with all the moral overtones that the latter expression bears. It would impose a correlative duty on the state to respect, protect and fulfil IPRs, because 'far from merely being vague statements of aspiration, internationally recognized human rights have the status of international law' (Chapman, 2002: 863).

However, recognition remains problematic. First of all there is the non-trivial difficulty of patent, trademark and copyright terms, which lapse after a defined period:

... the rhetoric of natural rights ... is often invoked to argue for strengthened protection of intellectual property... It is hard to imagine a natural right that miraculously disappears after 20 or 25 years! (Trebilcock and Howse, 1995: 296, emphasis added)

General Comment no.17 of the UN's Committee on Economic, Social and Cultural Rights (CESCR) makes this same point even more forcefully:

In contrast to human rights, intellectual property rights are generally of a temporary nature, and can be revoked, licensed or assigned to someone else ... intellectual property rights, often with the exception of moral rights, may be allocated, limited in time and scope, traded, amended and even forfeited [but] human rights are timeless expressions of fundamental entitlements of the human person. (CESCR, 2006: 2)

The General Comment is even clearer when it states that it is 'important not to equate intellectual property rights with the human right recognized in article 15, paragraph 1 (c)' (CESCR, 2006: 3).

An additional objection is that the three subsections of Article 15 are written to be read together. Subsection (c) should not and cannot be privileged or treated separately:

... there is a direct relationship between the three sub-sections, the interpretation given to Article 15(1)(c) by definition constrains and probably restricts the interpretation that will be given to the other two sub-sections ... The relationship



between the three sub-sections is in fact of great importance ... sections (a), (b), and (c), in principle, each have the same weight. (Cullet, 2007: 424)

South African jurisprudence, in parallel with developments in India (Cullet, 2007: 411) has played a role in slowing down, if not halting altogether, the move towards recognition. In the process of certification of the new Constitution in 1996 (described in detail in Rickard (2001)), the Constitutional Court heard objections that the 'new text' did not recognize IPRs in the bill of rights. The Court rejected the objection, reasoning that:

... the objection was based on the proposition that the right advocated is a 'universally accepted fundamental right, freedom and civil liberty'. Although it is true that many international conventions recognise a right to intellectual property, it is much more rarely recognised in regional conventions protecting human rights and in the constitutions of acknowledged democracies ... [it] cannot be characterised as a trend which is universally accepted. In the circumstances, the objection cannot be sustained. (Constitutional Court, 1996: 48–49)

This decision was not universally welcomed in South Africa. In a comment in the *Handbook of South African Copyright Law*, Dean maintained that 'it can be argued that the right to hold intellectual property rights, and more particularly copyright, is a universally accepted fundamental right', and further, that the Constitutional Court decision 'is open to serious question' (Dean, 2012: 1.3). Nevertheless, at the time of writing, the demand for explicit constitutional recognition of IPRs seems to have largely fallen away, since most specialists

... agree that the constitutional property clause has scope to include intellectual property rights. Even Dean, who previously argued that intellectual property should be protected under a separate constitutional property clause ... now agrees that intellectual property rights may be included under the constitutional property concept. It would be a logical error to exclude categories of property not explicitly mentioned in the property clause, since the property clause does not specify any particular category of property rights or interests explicitly. (Du Bois, 2012: 192)

Let us now turn to an examination of the rhetoric of IP as it appears in the South African context. The economic interests in play have encouraged some scholars to interrogate local IP narratives in the context of a critique of political economy, and not simply as component parts of a self-contained thought system. Haupt, for example, has attempted precisely this kind of epistemological critique (see e.g., 2008, 2012; Ovesen and Haupt, 2011). Such scholars look behind surface reality in order to ask not only 'how does IP function in South Africa?' but also 'why does it work the way it does?' and 'who benefits?' The last of these questions is clearly important in a developmental state characterized by high levels of social and economic inequality. In the meantime, however, foreign commercial interests, with some support from government, have partially succeeded in dominating the debates about IP in South Africa. The voice of the pro-enforcement, anti-piracy lobby is heard almost to the exclusion of others; in one comparative research project:

... [the] South Africa team documented some eight hundred [industry-inspired] print and broadcast stories over a four-year period in a country with just three major media markets. (Karaganis, 2011: 33)

Consequently, it is hard to avoid the conclusion that the 'evidentiary discourse is ... one-sided. Industry reports remain the primary – and in some cases the only – documents in the South African conversation on IP policy and enforcement' (Primo and Lloyd, 2011: 104).

A fundamental claim of the dominant 'discourse of property stewardship' (Reyman, 2009: 14), made both in and about South Africa, is that massive economic damage, assessed at millions of dollars, can be attributed to 'piracy' – that is to say, to IPR infringements. For example, in 2007, the International IP Alliance (IIPA), a monitoring group funded by the US entertainment industry, claimed total 'trade losses' in South Africa of US\$122 million (R891 million) for 2006 in the two categories of business software and books alone.

The IIPA is a coalition of associations of content producers, including both the Motion Picture Association of America (MPAA) and the Recording Industry Association of America (RIAA). Its main local ally is the Southern African Federation against Copyright Theft (SAFACT), set up in 1999 to represent the local interests of the MPAA (*The Star*, 2007: 7). These organizations are all interested parties, and their pronouncements require careful assessment. The IIPA works closely with US government agencies, especially the Office of the US Trade Representative (USTR), which produces annual 'Section 301' reports on '... countries who aren't doing enough to meet Hollywood and the pharma industry's definitions of what intellectual property laws should look like ...' (Masnick, 2012).

Despite the government's conventional – indeed maximalist – official stance regarding IP, South Africa was for several years on the receiving end of a sustained and hostile campaign led by the IIPA:

... anti-piracy efforts in South Africa remain, in key respects, a US-directed enterprise, only partially taken up by local networks of cultural producers and law enforcement agencies ... Although there has been some mobilization on the part of South African musicians, and although US-industry proxies, like SAFACT [Southern African Federation against Copyright Theft], also represent South African film studios and publishers, enforcement discourse and policy at a national level continue to be driven by US- and multinational-funded industry associations. (Primo and Lloyd, 2011: 104)

Between 1998 and 1999 South Africa was on a US government 'watch list' for insufficiently stringent IP enforcement, mainly because of a dispute with pharmaceutical companies about parallel imports of medicine (Love, 1999). In 2003, the IIPA reported that:

... perhaps no country in the world has had a greater increase in audiovisual piracy levels ... Imports of pirated copies of motion picture DVDs ... flood the South African market. Devotion of adequate resources to fight piracy remains lacking ... corruption exists within South African Customs ... (IIPA, 2003: 271)

The most recent Section 301 report to focus specifically on South Africa was published in 2007. It featured strong language about domestic piracy and lamented the failure to shift public opinion against piracy:

Industry reports that piracy levels are getting worse largely as a result of the perception amongst consumers that piracy is a victimless crime. The impact of piracy in South Africa is devastating for legitimate right holders, legitimate distributors, and retail businesses ... Legitimate distributors have reduced employment levels ... many rental outlets have actually closed. (IIPA, 2007: 520)

The attention of both the USTR and the IIPA has now turned elsewhere. But the discourse remains the same; most recently, the South African DTI-sponsored Farlam report on collecting societies repeated similar claims of large-scale losses of revenue (by entertainment conglomerates), also quoting industry rather than independent sources:

A RiSA report ... on digital music statistics estimates that approximately 3,6 million songs are illegally downloaded in South Africa on a monthly basis, translating into monetary losses of R36 million monthly and R432 million annually. A PricewaterhouseCoopers report ... estimates that if the current trend continues, by 2014 the potential revenue loss due to copyright infringement will be in excess of R500 million per year. (CRC, 2011: 34)

Independent research indicates that it is close to impossible to calculate the economic impact of IP-infringing activity in a robust way whether by sector or nationally. In addition, industry reports invariably discount the effects of commercial piracy as an *economic activity*, momentarily putting aside questions of its morality or legality. The US General Accounting Office has cautiously acknowledged that such effects exist and that 'certain stakeholders may experience some positive effects from counterfeits and piracy, though there is little information available' (GAO, 2010: 9). An OECD report that attempted to test data and methodologies on economic harm concluded that:

the overall degree to which products are being counterfeited and pirated is unknown and there

do not appear to be any methodologies that could be employed to develop an acceptable overall estimate ... [the] information has significant limitations ... and *falls far short of what is needed to develop a robust overall estimate* (OECD, 2008: 71, emphasis added).

Even in specific areas such as public health there were major obstacles: ‘... precise measurement of counterfeiting related public health effects is ... *virtually impossible*’ (OECD, 2008: 149, emphasis added).

At the time of writing, the struggle to dominate and control the debate on IP’s utility and benefits continues. In one incident, a conference – ‘Africa Intellectual Property Forum: Intellectual Property, Regional Integration and Economic Growth in Africa’ – was to have taken place in Cape Town in April 2012. The organizers were the US Department of Commerce and WIPO, with heavy industry sponsorship and involvement. The proposed conference aroused a storm of protest from civil society organizations and others when it turned out to be a thinly-disguised enforcement and anti-piracy event, which was described by one over-excited commentator as a ‘chilling example of US duplicity and conflict of interest at its worst’ (New, 2012). The forum was quietly abandoned, although a similar meeting did take place in Tanzania with WIPO and Japanese sponsorship a year later (WIPO, 2013).

## **PATENTS, ECONOMIC DEVELOPMENT AND HUMAN RIGHTS**

Does IP, especially patenting, promote economic development, even in ‘surprising’ ways (Brewster, 2011) or is it irredeemably a tool for the aggressive exploitation of poor countries by rich ones (Story et al., 2006)? Serious attention has begun to be paid to this question as it applies to the South African case in research by, for example, Teljeur (2003), Kaplan et al. (2009) and Pouris and Pouris (2011), among others. But even if IPRs do help development, what is an

appropriate response when IPRs clash with economic and social human rights, such as the right of access to medical treatment (Martin et al., 2007)? This last battle is still being fought between civil society, the private sector and government, as we shall see below.

The patent system is governed by the Patent Act (no.57 of 1978). Since 2011 it has been managed by the Companies and IP Commission (CIPC), as mandated by the Companies Act (no. 71 of 2008). The CIPC is an autonomous statutory body, and merges two previous entities – the Office of Companies and IP Enforcement (OCIPE) and the Companies and IP Registration Office (CIPRO) – as well as expanding their functions.

South Africa requires an ‘inventive step’ before a patent can be granted, and the concept must not have been previously published. However, South Africa differs from other jurisdictions in several minor ways, and in some significant ones. The minor ways include the tests for the inventive step, which are similar but not identical to those in other countries. There is no mechanism for third-party objections. Additionally, only qualified patent attorneys can draft and file final applications, although short-term or provisional applications, which protect products or processes still under development, may be filed by inventors themselves.

The South African system is depository or ‘non-examining’: ‘the responsibility for ensuring that the patent is valid rests with the applicant ... [the Commission] does not investigate the novelty or inventive merit of the invention’ (Pouris and Pouris 2011: 28). It should be noted that the government’s draft IP policy of September 2013 proposes establishing a substantive search and examination system with the possibility of both pre- and post-grant opposition, and patent flexibilities, as allowed by TRIPS (DTI, 2013: 9–10). This would bring South African practice into line with other jurisdictions where patent examiners search for ‘prior art’, meaning relevant information published before a



specified date. In South Africa at present the responsibility for validating a patent rests with applicants, who must conduct local and international searches at their own expense. The CIPC validates the documentation, not the substance, with the outcome that invalid patents are often registered. Local searching is not easy; there is no complete online database of local patents, and searches have to be ‘carried out by hand ... at the Patent Office through a card-based system’ (Pouris and Pouris, 2011: 32). In addition to this failing, there is another major weakness:

... WIPO’s International Patent Classification system (IPC) is followed, but only to a limited extent: South Africa classifies up to the level of subclasses (of which there are 628 at present) but not up to the level of groups and subgroups (of which there are approximately 69,000). This crude classification *inevitably leads to excessively broad scope of patents granted*. (Teljeur 2003: 54, emphasis added)

The most hotly-disputed sector in South Africa as far as the social role of patents is concerned is health, and in the popular narrative around access to medicine, the pharmaceutical companies (‘big pharma’) are the undisputed villains. Worldwide, tens of billions of US dollars are spent on health research every year, of which 10 per cent is spent on the diseases of the global south (affecting 90 per cent of the world’s population). The other 90 per cent of the money goes towards finding cures for the lucrative ailments of the wealthy ten per cent of people in the developed north. This anomaly is known as the 10/90 disequilibrium, an expression coined by the Global Forum for Health Research in the late 1990s (GFHR, 1999: 7). It is understandable, though regrettable, that commercial companies, whose first duty is to their shareholders, try to maximize profit; but the disequilibrium applies in the public sector too.

The big pharma companies rely heavily on patent enforcement for profitability, although the effectiveness of their research and development programmes is disputed, as even UN specialized agencies admit:

... the pharmaceutical sector stands out in terms of its dependence on patents to capture returns to R&D, *but its role in innovation and how to enhance its effectiveness are matters of continuing debate*. (WHO et al. 2012: 13, emphasis added)

Big pharma plays the system to maintain control of world markets by ‘evergreening’ and by fighting measures based on TRIPS and Doha exceptions. These permit the use or importation of cheaper generic versions of branded drugs. Big pharma also muddies the waters by conflating counterfeits and generics. For example, in imposing stringent IP enforcement even when no public health concerns exist, the Anti-Counterfeiting Trade Agreement (ACTA) blurs the distinction between trademark infringement and trademark counterfeiting, and between counterfeit and generic drugs (MSF, 2012: 2–3). It is in this broad context that the ongoing activism of South Africa’s Treatment Action Campaign (TAC) can be understood.

TAC was founded in 1998 as a broad-based pressure group organized around access to medicine and specifically the ‘availability, affordability and use of HIV treatments’ (Friedman and Mottiar, 2005: 513). The South African HIV/AIDS crisis has been described, without exaggeration, as being of ‘catastrophic proportions’ (De Vos, 2003: 83): an estimated 5.6 million South Africans were living with HIV in 2011 (NDH, 2011: iii). During the two-term presidency of Thabo Mbeki, from June 1999 to September 2008, official policy was strongly influenced, with disastrous consequences, by Mbeki’s personal suspicion of the scientific consensus around AIDS and its causality.

TAC recognized that access to medicine is inseparable from human rights and social justice concerns. The campaign was committed to a multi-faceted programme of street action, education and litigation. Its first action – ‘intended to be tangible, understandable, emotive, and lifesaving’ (Heywood, 2009: 20) – was to demand that the government establish a programme to provide AZT treatment to pregnant women in order to reduce mother-to-child transmission (MTCT) of HIV. The

government had run some pilot projects, but they had been closed down. This brought TAC face to face with patent law; the government's reaction to their demands was to cite the high price of patented AZT as an obstacle to its wider use. The patent holder responsible for the high price was GlaxoSmithKline, a British company and one of the biggest of the 'big pharmas'. The subsequent litigation (*Treatment Action Campaign v. Minister of Health*) turned on the question of whether the establishment of pilot sites constituted compliance with section 27(2) of the constitution, which guarantees access to health care (Budlender, 2001: 129–131). When judgment went against the government in the Pretoria High Court, the case was appealed to the Constitutional Court, where most of the High Court's determinations were upheld: socio-economic rights, such as access to health care were indeed justiciable, and the courts had the power to grant relief, including forcing policy changes.

The MTCT case introduced TAC to the moralizing discourse of IP enforcement, and forced the campaign to offer an alternative to it. As Halbert has argued, big pharma had developed an effective rhetorical strategy in which the drug companies presented themselves as the victims of morally bankrupt behaviour by countries behaving like pirates and thieves by appropriating IP (2005: 91). TAC – and its allies overseas – successfully counter-posed 'a contrary image of a greedy and aggressive industry that placed profits ahead of human life' (2005: 107). The defining moment came in February 1998, when the Pharmaceutical Manufacturers' Association (PMA) went to court to challenge the constitutionality of the Medicines Act (1997), which permitted the parallel importation of cheap generics under broadly-defined circumstances. This was viewed by the PMA as IP infringement, and aggressive lobbying succeeded in getting South Africa placed on the USTR watch list (Heywood 2001: 139). TAC intervened in the PMA case as *amicus curiae* on the government's side, and organized public demonstrations against the drug

companies. Subsequently, TAC's counter-narrative began to be reproduced in reports in the international press:

The case is an attempt to block South Africa from importing cheap medicines. The drug companies have spent three years and millions of pounds preparing the case. They have retained virtually every patent lawyer in South Africa ... their [lawyers] will try to stop the South African government from buying the medicines its people so badly need from countries where the prices are lowest, on the grounds that it is infringing world trade agreements ... a tide of outrage is swelling among local activists and international aid organisations who see medicines denied to the sick in the name of commerce. (Boseley 2001)

After some years, the PMA dropped the case, partly because of the negative publicity, but the government still refused to implement a broad antiretroviral drug (ARV) programme. After further campaigning, TAC finally succeeded in winning a 'much greater victory, the August 2003 decision by the national Cabinet to sanction the distribution of ARVs to people living with HIV/AIDS rather than purely to mothers' (Friedman and Mottiar, 2005: 514).

TAC campaigning against the use of IPRs to deny poor people access to health care continues. At the time of writing, TAC and Médecins Sans Frontières were running a 'Fix the Patent Laws' drive to pressure the government into writing TRIPS and Doha flexibilities regarding generics into national legislation. They argued that the state was still obliged by section 27 of the constitution, guaranteeing access to health care, to make such changes. But the issue of the impact of patent enforcement on such access remains extremely polarized, with almost no common ground between the pharmaceutical industry and either government or activist organizations. The leaking in January 2014 of an industry plan (Public Affairs Engagement, 2014) intended to 'prevent damage to innovation from the ... Draft National IP Policy in South Africa', apparently by clandestine means, provoked a fierce reaction from the country's Minister of Health, Aaron

Motsoaledi. Public Affairs Engagement is a lobbying company based in the US, and was hired by the Innovative Pharmaceutical Association of South Africa (IPASA) to plan a campaign to block reform of the patent system. The Minister accused the companies of conspiring against the state, and described the document as amounting in effect to an attempted genocide in a conspiracy that he described as ‘Satanic’. Motsoaledi added that he was ‘not using strong words [but] appropriate words (De Wet, 2014). It seems likely, then, that South Africa’s political battles in this area are far from over, and will probably impact significantly on the wider struggles over patents in the global south generally.

## PATENTS, INNOVATION POLICY AND HIGHER EDUCATION

A primary objective of government economic policy is to encourage industrial innovation – the ongoing development of new technologies with commercial application. A key policy instrument in pursuit of this objective is patent maximization. Government practice follows international trends by aiming to develop ‘institutional structures that facilitate technology development and its progression into national and international markets’ (DST, 2012: 18). While local firms ‘are innovating at a level that is comparable to that of European business firms’ they are hampered by weak institutions, including ‘insufficient information/knowledge about technologies ... an insufficient amount of venture capital ... an insufficient amount of human capital, and ... restrictive governmental regulations’ (Rooks and Oerlemans, 2005: 1224).

The world of patents is ruled by a discourse in which the causal link between innovation and the granting of monopoly rights via patents is taken as a given. There are two classes of objection to this position, first that patents are often *unnecessary* for innovation; second that they *actually harm* it. There is some historical evidence that the expectation

of future profit has indeed helped to drive innovation worldwide (Moser, 2005) – but it is also true that such profits may be available *without* patents. It turns out that more than three-quarters of the most successful global innovations from 1963 to the present have not been patented, although there is some variation across industrial sectors:

... a large share of inventions ... are not protected by means of patents, casting serious doubts on the critical role of patents for generating technological breakthroughs. (Fontana et al., 2009: 26)

A South African example of this principle is the *dolos*, a 20-ton geometric concrete device for protecting harbours from oceanic erosion. It was devised in East London in 1963 by engineers working for South African Railways and Harbours (now Transnet) and was never patented, for reasons that have been hotly disputed (Bowen, 1999). Nevertheless, millions of *dolosse* are in use all over the world, and the invention can clearly be considered successful. There is also a growing body of research that supports the second objection, that patent rights do not encourage innovation, but rather inhibit it (Boldrin and Levine, 2008; Stiglitz, 2008).

Despite the accumulated evidence that patents may not serve the purpose of encouraging innovation, they have expanded into new areas, especially since the 1980s. It is now possible to patent algorithms, diagnostic procedures, software, business methods, genetically-modified organisms, and even scientific principles. In the United States, this situation has arisen largely because of the close relationship between the US Patent Office and the Court of Appeals for the Federal Circuit, where patent litigation is decided (Masur, 2011). In South Africa, where the number of patents granted is much smaller, the breadth of patentability can probably be attributed to the country’s depositary, non-examining regime.

There are diverging assessments of the value of the South African regime. As we shall see, some commentators believe that it is ineffective, and even that it is in crisis.

They argue that there is no evidence that it stimulates innovation or benefits local industrial development, and indeed suggest that it has the opposite effect: ‘... the current regime is detrimental to the country’s developmental efforts’ (Pouris and Pouris, 2011: 32). Others maintain that the system causes active harm, particularly to public health:

South Africa’s current patent laws puts [sic] the rights of patent-holders before the rights of patients. Our law includes all the worst parts from the TRIPS agreement, but does not include the parts that we can use to make medicines more affordable. (TAC, 2012: [4])

By contrast, in terms of the country’s treaty obligations, the number of patents granted, and the measurable ‘strength’ of the system, South Africa holds

... a particularly advanced formal position in international patent protection, and is a member of, *inter alia*, the Paris Convention, the PCT [Patent Cooperation Treaty], the Budapest Treaty and TRIPS, which ensure national treatment and grant priority to first application for intellectual property protection filed in one member country in respect of corresponding applications filed in other member countries. (Teljeur, 2003: 52)

Other purely formal assessments also rank South Africa highly: the country places 20th in the world on general IP protection, out of 144 countries evaluated, according to the current *Global Competitiveness Report* for 2012–2013 (Schwab, 2012: 325); and a decade earlier was classified 13th in a world index for patent protection devised by Park and Wagh. The index measured ‘strength’ according to five criteria, namely: coverage, duration, enforcement, treaty membership and limitations on patent rights (2002: 33, 39).

A key legislative instrument for the implementation of innovation policy is the Intellectual Property Rights from Publicly Financed Research and Development Act (No. 51 of 2008, hereafter IPR-PFRD), which came into force in August 2010. The legislation was seen as a highly conventional IP-oriented response to the question that

... when the policy documents lapse back into ... more familiar territory ... they turn to proprietary models of intellectual property protection ... underpinned by a market view of higher education. This means that patents and copyrights become the predominant measures for research success, rather than social and developmental impact. (Gray, 2008: 9–10)

New institutional structures were put in place, including the Technology Innovation Agency (TIA) and the National IP Management Office (NIPMO). TIA has subsequently been criticized for ineffectiveness and for a ‘flawed understanding of innovation’ (Wild, 2012: 4). NIPMO, which was set up in early 2011, has assisted universities and research councils to set up technology transfer offices (TTOs), and holds courses under the rubric ‘IP Wise’. Two cooperative TTOs, serving groups of non-research-intensive institutions, have been established regionally, in the Eastern Cape and KwaZulu-Natal, and TIA has also set up regional offices in different provinces to support ‘technopreneurs’ (DST, 2012: 18). The assumption is that comprehensive IP protection is ‘the only valid way of achieving benefit for the country from publicly funded research’ (Gray, 2009: 7). Nonetheless, there is some recognition that pay-offs may still be some way away: ‘... we should not expect to see ... benefits for up to 20 years or longer. The question is whether the investment necessary to sustain this process through to success is tolerable’ (quoted by Dell 2010).

There have been some success stories. For example, Stellenbosch University set up InnovUS Technology Transfer as a technology transfer company in 1999 to encourage patenting, licensing and the formation of spin-off companies; InnovUS has reportedly been especially successful with wine biotechnology-related patents. In general, the TTOs are the gate-keepers of patentable research outcomes and require researchers to keep their research secret so that it may, if possible, be patented. Critics argue that the IPR-PFRD

appears to see open innovation, open source and open access as aberrations that need to be controlled through a bureaucratic process of

government scrutiny ... the IPR Act and its draconian draft regulations could well block the ability of the government to implement ... open innovation requirements. (Gray, 2009: 7)

The IPR-PFRD follows the ‘Bayh-Dole model’, named after the US legislation (35 USC §200–212) passed in 1980 that allowed universities, for the first time, to file patents deriving from government-funded research. The model has spread around the world as other countries have tried to ‘replicate the high technology-led economic development [in the United States] that Bayh-Dole is generally credited with having helped create’ (Stevens, 2004: 93). From the late 1970s, university-held patents in the US have doubled roughly every five years; by 2000 nearly every US university had a technology transfer office (TTO); and licensing revenues also increased rapidly, as did the number of spin-off companies (Nelson, 2001: 13). The widely held assumption is that these developments are primarily outcomes of Bayh-Dole.

However, this assumption and others associated with it are problematic. These assumptions are: first, that the growth in the number of university patents in the US results directly from the Bayh-Dole legislation; second, that the acquisition of patents by universities has a significant financial benefit for them or for the economy in general; and last, that the model is easily applicable in the South African context. An important factor in the immediately pre- as well as post-Bayh-Dole growth of university patents in the US may have been the expansion of patentability, particularly in biotechnology and information technology, which coincided with the rapid growth of those research areas. The legislation magnified an effect that was already present (Mowery et al., 2001; Nelson, 2001). In addition, the marketability of specific patents is hard to predict, and the process is a lottery; not all inventors are George Rieveschl and not all inventions are Benadryl:

An important finding of empirical innovation research is that the returns to innovation are extremely skewed; most inventions are commercial

failures, and the private and social returns are reaped from the few extremely successful and important innovations. (Georghiou et al., 2003: 35)

Data are available for the financial outcomes of TTO activity in US universities in a series of annual reports by the Association of University Technology Managers (AUTM). Revenues are growing, but slowly. In 1995, the income generated by licensing university inventions was 1.7 per cent of total research expenditure; by 2004 this had increased to 2.9 per cent. According to the most recent figures in the AUTM’s *US Licensing Activity Survey* for FY2010, total sponsored research expenditure in the surveyed universities was US\$59.1 billion, and total licence income was US\$2.4 billion, or just over 4 per cent. Most US universities – 130 out of 155 surveyed in research published in 2013 – do not generate enough licensing revenue even to pay the operating costs of their TTOs (Valdivia, 2013: 9). In South Africa, where this type of innovation strategy is still in its infancy, it seems likely that a purely regulatory approach, as typified by the IPR-PFRD, will be unable to ‘achieve the developmental intentions of the Act, as it would not sufficiently engage universities and their inventors in the task of considering how best to transfer knowledge generated by public funds to industry and to society’ (Ncube et al., 2013: 311).

But financial outcomes may not be the only relevant evaluative measure of the benefits of university research, or indeed of TTOs:

Although being one of the worlds’ [sic] largest economies there is only scarce evidence about how TTO are organized in Germany, how they perform and how performance is shaped by institutional and regional factors. (Hülsbeck et al., 2011: 200)

Indeed, it may be that a TTO’s success or failure should not be measured only in economic or crude financial terms. Sorensen and Chambers have suggested a ‘knowledge access metric’ as a way of evaluating technology transfer (2008), and in South Africa the University of Cape Town has taken the opportunity to expand the concept of ‘commercialization’ to mean



... the process by which any Intellectual Property emanating from research and development by UCT's employees, students and visitors is or may be adapted or used for any purpose that may provide any benefit and 'commercialise' shall have a corresponding meaning. (UCT, 2011: 4, emphasis added)

This has enabled the university to place IP in the public domain when appropriate, while meeting the requirements of IPR-PFRD. Surprisingly, other institutions do not seem to have followed suit.

Last, it appears from research conducted in South Africa even before the passing of the IPR-PFRD, that not only may the assumptions about the impact of Bayh-Dole in the US be unsupported, but that the ease with which it can be replicated has likely also been overestimated. Wolson cites the AUTM surveys to the effect that investment in technology transfer needs to be 'substantial', that there is a 'significant time-lag' before benefits are realized, and that even then the distribution of benefits is uneven (2007: 357). She adds:

... in South Africa, it remains a fairly common perception that the main motivation for a university to undertake technology transfer activities is for the purpose of generating income. This is at least partly attributable to a few well-publicised 'blockbuster technologies' which were very successfully commercialised by certain US universities to generate substantial income streams for the institutions and inventors concerned. These cases have created the perception that university technology transfer activities can provide a substantial new source of income for universities. However ... it has become clear that 'big hits' are few and far between, and typical returns, although not trivial, are nonetheless far lower than many had expected. Furthermore, it appears that a number of TTOs do not even recover their full running costs out of income they generate. (Wolson, 2007: 357–358)

The evidence that start-ups or spin-offs (companies set up by academic inventors) are a source of large returns is also ambiguous. A recent Swedish study concluded that 'academic entrepreneurs on average do not make less than they would if staying employed at their university. However, they do take on substantially more risk' (Åstebro et al., 2013: 283).

Huebner has argued that innovation is in decline globally because there are economic and intellectual limits to the human capacity for innovation, and we are 'closer to a technological limit than many people realize'. Consequently innovation may be slowing down worldwide (2005: 980). In South Africa there has been concern about declining research productivity since the 1980s, and it is only recently that there has been a slight upturn (Pouris, 2012). If the research-to-innovation process is a pipeline, with funding, knowledge and institutional support in at one end, and inventions and new processes coming out at the other end, then the future success of IPR-PFRD depends on keeping the tap open, i.e. the generous funding of basic research. A decade ago, South Africa was fast losing ground: 'the overall picture of South African science ... is one of deterioration and decline' (Pouris, 2003: 426). In a 2012 survey, the picture had improved somewhat, with the 'world share of publications ... on the verge of reaching its highest contribution in history' (Pouris 2012: 4). Whether this improvement is sufficient and what it means for innovation, as only a part of what has been called a much broader and more complex 'knowledge and innovation ecosystem' remains to be seen (Ncube et al., 2013: 311).

## CONCLUSION

For several reasons, South Africa is of interest as a case study in the analysis of ongoing struggles over IPRs and their contested relationship to such issues as economic and social development, or human rights and the state's duty to respect, protect and fulfil those rights, as well as the disputed efficiency and effectiveness of IP as a set of legal, political and economic mechanisms. These reasons include the fact that its complex judicial system is sophisticated enough to produce significant jurisprudence around IP questions; its government is committed to the

development – however slowly – of a new kind of IP policy that will, hopefully, serve the interests of the country and its poor rather than only the interests of corporations; and the size of its economy means that advances or defeats in South Africa are noticed and have repercussions in other parts of Africa and the global south. More worrying, however, is the increasing polarization of positions regarding such matters as drug patents, with accusations of ‘dirty tricks’ being made even by government ministers, as we have seen. Whether it is possible to arrive at compromises that protect both the business interests of large corporations *and* the economic and social rights of disadvantaged populations with regard to access to health and education remains to be seen, but at the time of writing it must be said that the prospects for such compromise do not seem likely.

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