Chapter 4
Innovation and the Global Regulatory Regime for Intellectual Property

This chapter and the next review the policy frameworks needed for innovation and competitiveness. This chapter surveys the global intellectual property regime centred on the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO) from an African and developing-country perspective, focusing on two main concerns:

- IP (IP) regimes and the policy space left to African policy makers to enhance innovation and competitiveness so as to bring about structural change.

- The scope for reforming and coordinating intellectual property policy regionally, including the Continental Free Trade Area; where intellectual property is an issue for negotiation).

IP: Concepts and dilemmas

Article 2 (viii) of the Convention that established the WIPO in 1967 defines intellectual property thus:

> Intellectual property shall include rights relating to: literary, artistic and scientific works, performances of performing artists, phonograms and broadcasts, inventions in all fields of human endeavour, scientific discoveries, industrial designs, trademarks, service marks and commercial names and designations, protection against unfair competition, and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.

IP is generated not only through research and development (R&D) but also routine learning and practice in economic and business operations as well as creative activities (WIPO, 2015).

Traditionally, intellectual property has been categorized into two groups: industrial property[26] and copyright and neighbouring rights.[27] However, as the phrase "all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields" suggests, intellectual property is a much broader concept. This formulation is appropriate because intellectual property is an evolving field. Thus plant varieties, for instance, are protectable—if also controversial—in many countries under plant breeders' rights, an intellectual property category different from industrial property and copyright and neighbouring rights. New subjects come up regularly for protection, such as software programs, databases and traditional knowledge.

IP ownership is conferred through rights (intellectual property rights), outlined in Article 27 of the Universal Declaration of Human Rights. The Declaration includes as a human right "the right to benefit from the protection of the moral and material interests resulting from authorship of any scientific, literary, or artistic production." Intellectual property rights therefore allow the owner, or creator, of a patent, trademark, or copyright to benefit from his or her innovation and creativity.

While intellectual property rights provide an incentive to innovate, history has revealed an inherent dilemma in their application: they can only work in certain contexts. Intellectual property rights cannot boost innovation if the required conditions—skills, information, capital, market prospects—do not exist. In that case intellectual property protection may pre-empt the kind of duplicative imitation of foreign technologies that was crucial for the technological catch-up of countries such as the Republic of Korea and Japan.[28] And so there is a need to calibrate the strength of intellectual property rules to a country's level of development.

Indeed, the history of developed-country intellectual property rules suggests that their design should be adaptable to society's changing needs: the levels of intellectual property protection in developed countries increased as their industrial and technological capacities improved. The United States, for instance, introduced copyright protection for foreigners only at the end of the 19th century. Copyright protection was denied to foreigners to ensure availability of cheap

books for expanding literacy and to encourage growth of the domestic publishing industry.[29] Sometimes, intellectual property laws were revoked to protect or facilitate development of an industry. For example, in 1869 the Netherlands abolished patent protection to enable Philips to start producing light bulbs without infringing Edison's patents. The chemical and textile industry flourished in Switzerland in the 19th century, abetted by the absence of patent protection.[30]

To be effective, intellectual property rules should encourage innovation and creation relevant to the country. If they mainly benefit foreign firms undertaking research and production abroad, they will not do this, and could stifle domestic innovation.

Overview of the global intellectual property regime

International intellectual property agreements from industrial property to copyright and neighbouring rights were the main vehicles for intellectual property protection in the 19th century. Late 20th century additions include protection of computer software (part of copyright), patentability of micro-organisms (part of patent protection) and systems for protecting existing or new subject matter (plant varieties, as a new category of IP, and circuit layouts, as part of extended copyright protection) (Drahos and Smith, 1998).When colonies, most African territories early encountered the international intellectual property regime, and at independence inherited most of the colonial authorities' intellectual property rules. Many countries incorporated them into national legal frameworks—without, however, considering the implications for development.

WTO Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement

The TRIPS Agreement, which entered into force with the creation of WTO in 1995, is the most comprehensive multilateral agreement on intellectual property rights. It deals with all types of intellectual property except plant breeders' rights and utility models or innovations and inventions, which are protected on less stringent requirements than for patents.

TRIPS also incorporates the following intellectual property treaties concluded in WIPO before WTO was established: The Paris Convention for the Protection of Industrial Property, the Berne Convention for the Protection of Literary and Artistic Works, the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations, and the Washington Convention on the Protection of Layout Designs of Integrated Circuits.

All WTO member States are bound by the provisions of these conventions (except the Rome Convention), even if they have not ratified them. In a major departure from earlier intellectual property agreements, TRIPS contained detailed provisions on enforcing intellectual property rights.[31] It also had fundamental implications for the policy space available to developing countries in designing their national intellectual property rules and policies. TRIPS universalized standards of intellectual property protection that would benefit certain industrial sectors where firms from developed countries are dominant. Monopoly rights granted by intellectual property rights were regarded as an instrument to avoid catch-up based on imitative paths of industrialization by developing countries.[32]

Thus for copyright and related rights, TRIPS enhanced the market position of software, database and phonogram industries—sectors where US firms were globally dominant.[33] The main obligations under TRIPS for copyrights include protection of works covered by the Berne Convention; protection of computer programs as literary works and of compilations of data; recognition of rental rights at least for phonograms, computer programs and cinematographic works; and recognition of rights of performers, producers of phonograms and broadcasting organizations.[34] The recognition of computer programs as copyrightable material went beyond the requirements of the Berne Convention where it was not mandatory to regard computer programs as eligible for copyright protection.

TRIPS also broadened the understanding of databases such as collections of short stories, anthologies or scholarly works for copyright protection under the Berne Convention to include collections or compilations of factual material such as news stories, even if they do not constitute literary or artistic works. Another wide expansion from the Berne Convention was on the application of copyright exceptions and limitations. These became subject to a three-step test—it should be a special case, should not conflict with normal exploita-

tion of the work, and should not unreasonably prejudice the normal interests of the author.

On trademarks, TRIPS required all member States to comply with the provisions on trademark protection under the Paris Convention even if they had not ratified that convention,[35] which did not define the subject matter of trademark protection. In this context, Article 15 (1) of TRIPS provided an explicit definition of subject matter that would be eligible for trademark protection. It made any sign that is perceptible to a human being visually or through other sensory modes of perception such as sound and smell to qualify for trademark protection.[36] It also made "well-known" trademarks eligible for protection even if they were of no effective use in a country.[37]

TRIPS introduced the minimum period of trademark protection of seven years and made trademarks indefinitely renewable.[38] It also precluded countries' freedom to impose special requirements regulating the use of a trademark such as the use with another trademark or to use the trademark in a special form,[39] preventing a practice common among developing countries of requiring a foreign brand to link its mark with the trademark of a local enterprise so as to ensure continuity in business relationships and enable the local enterprise to develop its brand identity.[40] This provision could also preclude the ability of countries to require the depiction of trademarks for certain unhealthy products such as tobacco in a special form in order to diminish the brand identity, unless the government taking the measure can establish that such restrictions are justified (Frankel and Gervais, 2013).

On geographical indications, TRIPS requires member States to provide the legal means to prevent the use of a geographical indication in a manner that misleads the public or constitutes unfair competition, and requires countries to invalidate a trademark if the public is misled as to the true place of origin of the product. It provides additional protection for geographical indications on wines and spirits and requires negotiations to establish a multilateral system of notification and registration for increasing protection of geographical indications in this area.[41]

For industrial designs, the only requirement under TRIPS is for member States to provide a minimum standard of protection of industrial designs for at least 10 years,[42] although members have the freedom to decide how industrial designs should be protected, and can do so through copyright protection, the grant of design patents, or a *sui generis* system of registration of industrial designs.

With patents, TRIPS introduced substantial expansions over the standards in the Paris Convention. First, it required member States to grant patents without any discrimination over the field of technology involved, the place of invention or whether the product is locally produced or imported, if they are new, involve an inventive step and are capable of industrial application.[43] Patents now have to be granted for a minimum of 20 years. In this way, TRIPS took away much policy space hitherto available to developing countries to deny or restrict the term of patent protection in certain areas of technology such as chemicals and pharmaceuticals, or to require that a patent be granted only if the product is produced locally. Though member States can exclude plants, animals and essentially biological processes for the production of plants and animals from the scope of patent protection, microorganisms and non-biological as well as microbiological processes are eligible for patent protection Members are also required to grant protection of plant varieties either by patents or by a *sui generis* system, and while some developing countries have adopted their own system, many are being encouraged in bilateral trade agreements to adopt the International Union for the Protection of New Varieties of Plants system as the *sui generis* model.

TRIPS also requires layouts of designs and integrated circuits to be protected in accordance with the provisions of the Washington Treaty of 1989. For undisclosed information, member States are required to protect trade secrets against unfair competition, but this does not require members to provide exclusive protection to such undisclosed information. And with test results and other data submitted to governments to obtain approval for pharmaceutical or agro-chemical products, governments are required to protect such data against unfair commercial use or disclosure, but this does not extend to making the right over such data exclusive.[44]

An underlying principle of TRIPS is that protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and the transfer and dissemination of technology to the mutual advantage of producers and users of techno-

logical knowledge in a manner conducive to social and economic welfare and to a balance of rights and obligations.[45] Article 66.2 of the TRIPS Agreement creates an obligation on developed-country members to provide incentives to enterprises and institutions in their territories for promoting and encouraging technology transfer to least-developed countries to enable them to create a sound and viable technological base.

Least developed countries have, in fact, raised concerns over how this article has been implemented since 1998. A study on the reports submitted by developed countries on implementation for 1999 to 2002 found that the article's language and reporting mechanism did not provide enough data to identify how much developed-country incentives were working to promote technology transfer (Moon, 2008). In 2011, least developed countries submitted a proposal for standardizing the format of these reports to improve data analysis and evaluation.[46]

The Sustainable Development Goals adopted by the UN in September 2015 include two targets—17.6 and 17.7—on technology transfer through a balanced approach to intellectual property rights. The means of reaching them have yet to be agreed on. African countries should stay active on this issue.

Despite heavy expansion of the scope of patent protection, the TRIPS Agreement contains "flexibilities" that afford some policy space to developing countries. These include the ability to determine the criteria of patentability in a strict manner, the freedom to allow pre-grant opposition of patent applications by interested parties, post grant patent opposition, international exhaustion of patent rights, issuance of compulsory licences or government-use authorizations, and application-limited research exceptions.

An important flexibility for least developed countries under Article 66.1 is an extendable transition period. During this period least developed countries need not implement provisions (except for Articles 3, 4 and 5, which contain provisions on national treatment and most-favoured-nation treatment). This flexibility was given to least developed countries in recognition of their special needs and requirements, the economic, financial and administrative constraints faced by least developed countries, and their need for flexibility to create a viable technological base.[47]

This transition period can be extended if the least developed countries submit a "duly motivated request" for such extension to the TRIPS Council. According to Article 66.1, "The Council of TRIPS shall, upon duly motivated request … accord extensions of this period." The TRIPS Council has extended this transition period three times, including a specific extension for pharmaceutical products, and it is possible to seek further extensions. The least developed countries can use a general transition period until 1 January 2033. The least developed countries seek to make this extension permanent until such a time as a country graduates from least developed country status. This general transition period is without prejudice to the specific extension of the transition period for pharmaceutical products that is in force until 1 January 2033. Least developed countries[48]

Forty-two African countries are parties to the TRIPS Agreement by virtue of being members of WTO.[49] Twenty-nine of them belong to the WTO least developed country group (with 35 members).

WIPO agreements

WIPO administers 15 intellectual property treaties in 24 regimes, including the Paris and Berne Conventions. Table 4.1 summarizes the regimes in a three-tiered categorization where:

- Fifteen treaties define internationally agreed basic standards of intellectual property protection in each country.

- The five "global protection treaties" ensure that one international registration or filing will have effect in any of the signatory states. Through WIPO the applications and filings are simplified, and associated costs are reduced by removing the burden of having to deal with countries individually.

- The four "classification treaties" organize information on inventions, trademarks and industrial designs into indexed, manageable structures, to simplify retrieval.

Though not all countries are party to all WIPO-administered treaties, by virtue of the TRIPS Agreement all WTO member States are bound by them. Of these treaties, the WIPO Copyright Treaty, the WIPO Performances and Phonograms Treaty, the Beijing Treaty on Audio-visual

Table 4.1.

The WIPO regime

Tier 1. intellectual property protection		
IP regime	**IP protection subject matter**	
	Main	**Specific**
Paris convention for the protection of industrial property (1883)	Industrial property	All categories of industrial property
Berne convention for the protection of literary and artistic works (1886)	Copyright and neighbouring rights	All categories of copyright and neighbouring rights
Madrid agreement for the repression of false or deceptive indications of sources of goods (1891)	Industrial property	Unfair competition
Buenos Aires convention (1910)		
Universal copyrights convention (1952)	Copyright and neighbouring rights	All categories of copyright and neighbouring rights
Rome convention for the protection of performers, producers of phonographs, and broadcasting organisations (1961)	Copyright and neighbouring rights	Neighbouring rights
United Nations convention establishing the WIPO (1967)	All categories of IP	All categories of IP
Convention for the protection of producers of phonograms against unauthorized duplication of their phonograms (1971)	Copyright and neighbouring rights	Neighbouring rights
Brussels convention (1974)		
Nairobi treaty on the protection of the Olympic symbol (1981)	Industrial property	
Film register treaty (1989)	Copyright and neighbouring rights	
Treaty on intellectual property in respect of integrated circuit (1989)	Industrial property	
Trademark Law treaty (1994)	Industrial property	Trademark
WIPO copyright treaty	Copyright and neighbouring rights	Copyright
WIPO performances and phonograms treaty (1996)	Copyright and neighbouring rights	Neighbouring rights
Tier 2. Global protection treaties		
IP regime	**IP protection subject matter**	
	Main	**Specific**
Hague agreements (1934, 1964)		
Lisbon agreement for the protection of appellations of origin and their international registration (1958)	Industrial property	Appellations of origin
Patent cooperation treaty (1970)	Industrial property	Patents
Budapest treaty on the international recognition of deposit of microorganisms for the purposes of patent procedures (1977)	Industrial property	Patents
Madrid agreement concerning the international registration of marks (1891) and the protocol relating to that agreement (1989)	Copyright and neighbouring rights	Trademarks, service marks
Tier 3. Classification treaties		
IP regime	IP protection subject matter	
	Main	Specific
Nice agreement concerning the international classification of goods and services for the purpose of the registration of marks (1957)	Industrial property	Trademarks, service marks
Locarno agreements and establishing and international classification for industrial designs (1968)	Industrial property	Industrial designs
Vienna agreements establishing an international classification of the figurative elements marks (1973)	Industrial property	Trademarks, service marks
Strasbourg agreement concerning the international patent classification (1979)	Industrial property	Patents

Source: Authors' compilation from various WIPO sources.

Performances and the Marrakesh Treaty to Facilitate Access to Published Works for Persons who are Blind, Visually Impaired or Otherwise Print Disabled were concluded after the entry into force of the TRIPS Agreement.

The WIPO Copyright and Performances and Phonograms treaties expanded traditional copyright to the digital environment and restricted access to copyright works through the use of technological protection measures by intellectual property right holders. Parties are required to take legal measures to prevent the circumvention of such measures.[50] These treaties therefore create serious obstacles for developing countries to access copyrighted works using digital media. The Marrakesh Treaty requires parties to introduce a standard set of copyright exceptions and limitations to permit reproduction, distribution and making available published works in accessible formats for visually impaired persons, and to permit exchange of those works by organizations that serve such persons.[51]

In addition to the substantive intellectual property treaties, WIPO also administers treaties that lay down maximum requirements on formalities for intellectual property application. These are the Patent Law Treaty, the Trademark Law Treaty and the Singapore Treaty on the Law of Trademarks. WIPO also administers agreements on filing intellectual property applications. A very important agreement is the Patent Cooperation Treaty, which enables applicants to file in Patent Cooperation Treaty member states through a single international application that also receives a preliminary search and examination report by a recognized international search authority. While these reports do not preclude freedom of national offices to conduct their own substantive examination, developed countries have attempted to make the Patent Cooperation Treaty system more binding on national patent offices, which could curtail countries' ability to apply the standards of patentability under their own laws.

Negotiations on other treaties or legal instruments in WIPO have achieved little progress, such as the protection of broadcasting organizations; copyright exceptions and limitations for libraries and archives, and for educational and research institutions; a design law treaty and regulations; and an international legal instrument or instruments on traditional knowledge, traditional cultural expressions and genetic resources.

Some well-known analysts have made critical observations about the global intellectual property regime. Chang (2001) laments that the global regime is designed to favour technologically advanced countries. Bhagwati (2002) wonders how intellectual property protection became a trade issue driven by WTO—an organization that should be concerned with lowering trade barriers and tackling market access problems. The conspicuous development towards a stricter global intellectual property regime and the way developed countries achieved it have made intellectual property protection look more like a tool of neo-mercantilism than a public good instrument for promoting innovation.

Fifty-three African countries are members of WIPO.[52] Egypt has signed the most intellectual property treaties (15), South Sudan none (info 4.1 and annex 4.1). Ten African WIPO member States are not members of WTO,[53] and so are not bound by the TRIPS Agreement. Forty-seven of Africa's WIPO member States are also party to the Patent Cooperation Treaty.[54]

Annex 4.1 provides the status of subscription by African countries to multilateral intellectual property treaties.

Preserving intellectual property policy space in key economic and social sectors

African and other developing countries seek to know: If the intellectual property development ladder has been kicked away, how can they bring it back?

The most important issue in formulating domestic intellectual property policy is integrating intellectual property issues into national development policies. The main purpose of intellectual property policy is to improve the prospects of socio-economic development—not to protect and promote intellectual property rights (Correa, 2010).

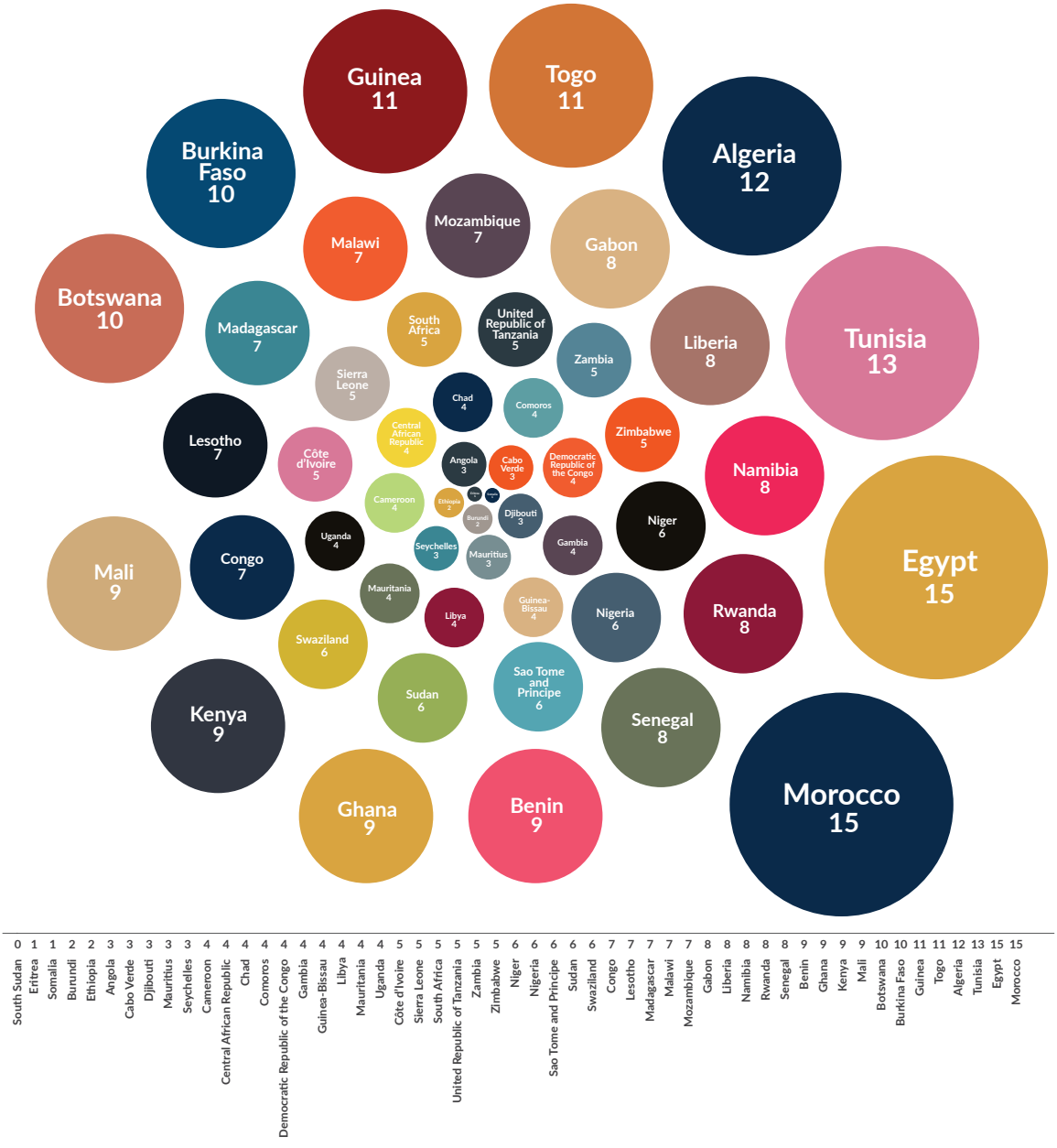
Agriculture

The agricultural sector is of huge importance to most African countries as a source of livelihood, income and employment, and so when designing an intellectual property system, policy makers must consider the sector's characteristics, possible changes from growing

Info 4.1—Who has signed the most intellectual property treaties, and who the fewest

Fifty-three African countries are members of the World Intellectual Property Association (WIPO). Egypt has signed the most IP treaties (15), South Sudan none. Ten African WIPO members are not members of World Trade Organization and so are not bound by the TRIPS Agreement. Forty-seven of Africa's WIPO members are also party to the Patent Cooperation Treaty.

Number of multilateral intellectual property treaties signed by African countries



Source: ECA calculations based on UNCTADStat, 2015.

liberalization of agricultural trade, the inputs in sustainable productions, and food security—including the structure of the seed supply system.

Traditionally, most seeds in developing countries have been produced by farmers through the customary practice of saving seeds for their own use or exchange. Although developing countries are required by the TRIPS Agreement to provide for protection of plant varieties either through patents or a *sui generis* system, the plant variety protection system was established to support commercial breeding activities by conferring temporary exclusive rights over plant varieties to the breeders. It is important for African countries, as some have already done, to adopt a *sui generis* system that strikes an appropriate balance between the rights of plant breeders and the ability of farmers to save and exchange seeds.

African countries should also assess whether patent protection is to be available for cells and subcellular components, including genes. Patenting of genes and cells may have sizeable implications in countries where genetically modified plant varieties have been accepted. In such countries, if one or more patented transgenes are incorporated into a variety, farmers may be prevented from saving seeds and breeders, too, would have limited freedom to conduct further research using that variety.

Countries in Africa will also want to ensure (after analysis) that intellectual property policy is based on the optimal mode and level of protection for the geographical indications that best suit local conditions. Geographical indication protection may be extended under collective trademarks, through a special geographical indication regime, or through disciplines on unfair competition. For some local agricultural products that have niche markets and high-value customers, geographical indication protection may add value and generate economic benefits in certain regions. However, increased geographical indication protection does not itself guarantee better market access unless quality is assured by, for example, producers' complying with importing countries' sanitary, phytosanitary and other quality regulations. Moreover, extended geographical indication protection could restrict local production of products that infringe foreign geographical indications. Therefore, a full cost-benefit analysis must inform the design of the national geographical indication regime.[55]

Manufacturing

How intellectual property may affect innovation in manufacturing's several branches must be considered. To be effective incentive mechanisms, intellectual property rights need a large market with sufficient capital, enough qualified personnel at firm level, innovation-oriented entrepreneurs and a solid scientific base open to collaboration with industry. Few African countries have these markets (chapter 5).

And even if these conditions are met, intellectual property rights may not promote innovation. For instance, pharmaceutical patent protection has not increased production, R&D or foreign direct investment and domestic investment in pharmaceuticals in developing countries. It is often assumed (on little evidence) that high intellectual property protection in a sector will encourage foreign direct investment, yet it may simply encourage intellectual property rights holders to exploit their rights through exporting the final product rather than investing in or transferring technology for local production.[56]

National intellectual property policy should reflect the country's stage of industrial development, typically categorized into three stages—initiation, internalization and generation.[57]

Initiation. Firms adopt primarily "mature" or fully developed technologies through acquisition of machinery and equipment, reverse engineering and subcontracting, turnkey agreements and foreign direct investment. Intellectual property laws are unlikely to promote local innovation, and should allow as much space as possible for absorbing and diffusing acquired technologies.[58]

Internalization. Local producers develop minor or incremental innovations derived from routine exploitation of existing technologies rather than deliberate R&D. High intellectual property protection may have little or no effect on innovation, but could reduce technology diffusion and increase the cost of foreign inputs and technologies. The intellectual property system should be very flexible, but given the TRIPS Agreement (and other free trade agreements that impose yet higher standards), developing countries have limited policy space.[59] Those in this phase should make full use of the flexibilities open to them to allow reverse engineering and technological diffusion, such as strict criteria to as-

sess patentability, exceptions to exclusive intellectual property rights, compulsory licences and exceptions for education in copyright laws.

Generation. Some industries may benefit from increased intellectual property protection, but there may be a need to balance that with the need to ensure access to and diffusion of technology.

Public health

The intellectual property system must not constrain access to affordable generic medicines and health technologies. African countries must be able to use, to the maximum possible extent, the flexibilities granted under the TRIPS Agreement and avoid accepting obligations in bilateral or regional agreements that may erode them. One key flexibility is the freedom of countries to define the criteria of patentability and apply a differential standard for pharmaceutical patent applications. Patent offices should be encouraged to consider the following typical applications as *not* constituting inventions: new dosage forms of known medicines; new salts, ethers, esters and other forms of existing pharmaceutical products; discovery of polymorphs of existing compounds, enantiomers, therapeutic, diagnostic or surgical methods of treatment; and claims for new uses of known products.[60]

African countries should also be free to use patented products for research and to conduct experiments and other procedures to obtain marketing approval for a generic drug during the patent's life. They should adopt an international regime of exhaustion of patents allowing parallel importation of a generic medicine if the patented product is put on the market in any country. Under the TRIPS Agreement, countries also have the freedom to determine the grounds for issuing a compulsory licence. In addition, they should refrain from introducing data exclusivity in relation to test data as this will require generic companies to incur significant expenses in generating test data rather than relying on test data already submitted by the originator drug company. There is no obligation under TRIPS to grant data exclusivity: Article 39.3 only requires protection of test data from unfair competition.

Many African WTO member states have yet to ratify the Doha Declaration on the TRIPS Agreement and Public Health. They should do that soon.

Access to knowledge

On the cross-sectoral issue of access to knowledge, intellectual property policy should aim to make the maximum use of flexibilities available under copyright law to facilitate access to creative works, including protected computer programs.[61] Official texts and their translations, political speeches and speeches delivered in course of legal proceedings should be excluded from copyright protection, and access to copyright content in the digital media for legitimate use should not be constrained by "technological protection measures" or "anti-circumvention measures."[62]

African countries should also ensure the broadest possible accessibility to scientific and factual data. Though such content is traditionally excluded from the scope of copyright protection, some regulations, such as the European Database Directive of 1996, make it possible to apply and extend proprietary claims to all factual content.[63]

African countries should consider making it easier to grant compulsory licences on patents over environmentally sound technologies to promote affordable and sustainable access to these technologies. Agenda 21, adopted by the 1992 UN Conference on Environment and Development, suggested use of such licences to prevent abuse of intellectual property rights (Correa, 2010 p. 40).[64]

African initiatives for intellectual property rule-making

Engaging the global regime

African countries have as a regional group coordinated their negotiating stance for the global intellectual property regime at WTO and WIPO; they have also cooperated with other regional developing-country groups (table 4.2). At WIPO, some African countries are members of the Development Agenda Group, a cross-regional group of developing countries. African countries also collaborate with the Group of Friends of Development at WIPO.

At WTO, five major initiatives stand out in which African countries have been involved. First, African countries were major sponsors of the 2001 amendment to the TRIPS Agreement through a special Ministerial Declara-

Table 4.2.

Overview of intellectual property proposals involving African countries

Platform	Subject of proposal	Countries and groups behind the proposal
WTO TRIPS Council	Public health and access to medicines	African Group, least developed countries and so on (2001)
WTO TRIPS Council	Extension of the TRIPS implementation transition period for least developed countries	Least developed country group (2005, 2011 and 2012), Senegal (2011), Mali (2012), Madagascar (2013) and Togo (2013)
WTO TRIPS Council	Review of Article 27.3 (b) of TRIPS on introducing a mandatory disclosure requirement about country and source of origin of genetic resources used in a patent application	Zambia and Zimbabwe with non-African countries (2002); African, Caribbean and Pacific (ACP) group (2003); African, Caribbean and Pacific group, African Group, least developed country Group, South Africa, with non-African countries (2006); ACP Group, African Group, LDC Group, with non-African countries (2008); Africa Group (2010); African, Caribbean and Pacific Group and Africa Group, with non-African countries (2011)
WTO TRIPS Council	Geographical indications	Guinea, Kenya, Madagascar, with non-African countries (2005)
WTO Trade and Negotiations Committee	Geographical indications	Kenya, Madagascar, United Republic of Tanzania, with non-African countries (2007); African Group (2008); ACP Group, African Group, with non-African countries (2008)
WTO TRIPS Council	Issues in the TRIPS Agreement on transfer of technology	LDC Group (2002, 2011, 2012); Egypt, Kenya, Zimbabwe, and several non-African countries (2002)
Working Group on Trade Transfer of Technology	Issues on transfer of technology	Egypt, Kenya, Mauritius, Tanzania, Uganda, Zimbabwe, with non-African countries (2002); Kenya, Tanzania, Zimbabwe, with non-African countries (2003)
WIPO/Standing Committee on the Law of Patents	Patents	African Group and the Development Agenda Group (2011, 2014)
WIPO/Standing Committee on Copyright and Related Rights	Issues on copyrights, limitations and exceptions	African Group (2009, 2010, 2011, 2012)
WIPO/Intergovernmental Committee on Genetic Resources, Traditional Knowledge and Folklore	Issues on genetic resources, traditional knowledge and folklore	African Group (2011, 2014)

Source: Authors' compilation from various WTO and WIPO documents.

tion at the WTO Ministerial Conference in Doha to clarify ambiguities on the need for governments to override parts of the Agreement on public-health grounds (box 4.1).

The second initiative was technology transfer, where several proposals were made in the WTOTRIPS Council as well as the Working Group on Trade and Transfer of Technology. Third was extension of the transition period for least developed countries to implement TRIPS. Fourth was review of Article 27.3 (b) of TRIPS on introducing a mandatory disclosure requirement about country and source of origin of genetic resources in a patent application. Fifth was extension of the register of geographical indications to include African products.

African countries have taken common positions on the following proposals at WIPO: in the Standing Committee on the Law of Patents for a work programme on patents and public health; on the WIPO Marrakesh treaty; on limitations and exceptions in the Standing Committee on Copyright and Related Rights work programme; on the work plan for the Intergovernmental Committee on Genetic Resources, Traditional Knowledge and Folklore (box 4.2); on geographical indications; and on an external review of WIPO's development agenda and of its technical assistance programme.

Africa's engagement with the global intellectual property regime throws into relief the need to ensure that intellectual property rules are development friendly and that mercantilist forces are brought under control. It also shows that this policy area requires capacities to deal with technically complex issues. A comprehensive and functional intellectual property system is expensive to put in place, and would include an intellectual property governance framework (institutions, policies, strategies, laws, regulations), intellectual property administration, intellectual property adjudication (to interpret and enforce entitlements), and intellectual

Box 4.1.

The Doha Declaration on the TRIPS Agreement and Public Health

The Declaration addresses concerns that patent rules restrict access to affordable medicines for populations in developing countries in their efforts to control diseases of public health importance, including HIV, tuberculosis and malaria.

The Doha Declaration affirms that "the TRIPS Agreement does not and should not prevent Members from taking measures to protect public health," enshrining the principles that the World Health Organization (WHO) has advocated over the years, namely the reaffirmation of the rights of WTO Members to fully use the safeguard provisions of the TRIPS Agreement to protect public health and enhance access to medicines for poor countries.

The Doha Declaration refers to several aspects of TRIPS, including the right to grant compulsory licences and the freedom to determine the grounds upon which licences are granted, the right to determine what constitutes a national emergency and circumstances of extreme urgency, and the freedom to establish the regime of exhaustion of intellectual property rights.

Source: World Health Organization: http://www.who.int/medicines/areas/policy/doha_declaration/en.

property enforcement agencies. African countries have much further scope for cooperation at national and regional levels to pool resources (discussed below under "Reforming Africa's regional intellectual property cooperation"). At global level, African countries have developed a well-honed system of engagement through the various initiatives of the African Group in Geneva.

International agreements on benefit sharing,[65] such as the Nagoya Protocol,[66] have not helped Africa much, and only a meagre fraction of the patent-holding company's profits find their way back to the nation whence the resource is derived. In the case of *Swartzia madagascariensis*, for example, the revenues accruing to Zimbabwe amount just 0.75 per cent of profits from the exploitation of its natural resource (Mutandwa and Moyse, 2003).

Innovation policy in developing countries should support traditional knowledge-based innovations in two ways. On the one hand, it should consider how to support innovation within traditional knowledge systems for the benefit of the local communities and indigenous peoples that hold—and depend on—such knowledge. On the other, it should consider how to promote and build capabilities to use traditional knowledge as a source of modern innovation for growth in a way that empowers traditional knowledge holders. In both contexts, connections need to be made among related and at times conflicting policies (development, public health, industrial, trade, IP, and so on) and institutions.[67] It is critical to build appropriate institutions to manage the interactions among both traditional knowledge holders and the diversity of users of traditional knowledge so as to reduce the uncertainties that surround knowledge sharing.

Cooperation issues on regional intellectual property reforms

Turning from cooperation among African countries with like-minded allies in engaging the global intellectual property regime, at regional level we see that cooperation has been less close.

Developing countries have followed at least three approaches for generating local intellectual property expertise. In the first—most commonly among regional economic communities in Latin America and the Caribbean, best exemplified by the Andean Community—IP issues are a component of broad regional economic integration and related shifts.

The second is looser, typified by Association of Southeast Asian Nations. intellectual property action plans covering science, technology and innovation (STI)policies (and flexibilities in the global regime) are adopted consensually, with implementation the responsibility of each member State. This allows for different levels of development.[68] The Association of Southeast Asian Nations nevertheless has a strong record on coordinating intellectual property negotiations for bilateral trade and investment agreements and on promoting intellectual property policy dialogue with the EU, United States, Japan, and China, and so on (chapter 6).

In the third approach, regional intellectual property organizations are established as independent entities

Box 4.2.

Traditional knowledge

Traditional knowledge is invaluable. It includes how to use natural resources for health and food in local livelihoods and rural development, and may also have modern applications in pharmaceuticals and biotechnology, but is rarely integrated with innovation policies. Nor do global intellectual property regimes protect these valuable African assets, creating a loophole for bio-prospecting and bio-piracy among other forms of abuse (as seen in the two cases below).

Bio-prospecting refers to the search for naturally occurring chemical compounds and biological material, and, for Africa's biological resources by big pharmaceutical companies and research institutions, has witnessed an upsurge, largely because therapeutic moieties based on medical plants used in traditional medicine offer a relatively high success rate for developing new medicinal agents (Mposhi et al., 2013).

Bio-piracy is theft that involves the illegal collection of indigenous plants by corporations who patent them for their own use without fair compensation to the indigenous people in whose territory the plants were discovered (American Heritage Dictionary, 2009).

Case 1: Zimbabwe

Swartzia madagascariensis is a leguminous tree found throughout tropical Africa and producing phytochemical compounds used in medicine. Its leaves can cure scabies and cutaneous infections, its bark, toothaches. Its roots contain a very strong anti-fungal ingredient, and extract from the flowers is used as an insecticide against transmission of dengue fever.

In Zimbabwe, knowledge of this tree and its medicinal value have been kept by indigenous communities and passed from generation to generation. But in 1999 a patent on a powerful fungicidal ingredient based on the tree was granted to a research professor at the University of Lausanne, Switzerland, in violation of the Convention on Biological Diversity, which states that: "Access to genetic resources shall be subject to *prior informed consent* of the contracting party providing such resources" (Mutandwa and Moyse, 2003). Some years ago *Swartzia madagascariensis* had an estimated market value of over $1 billion (Mutandwa and Moyse, 2003).

Source: Mposhi, Manyeruke and Hamauswa (2013).

Case 2: Madagascar

The rosy periwinkle, having the botanical name *Cathrarantusroseus* (or *Vincarosea*), is an herb native to Madagascar. Traditionally it has been used as an anti-diabetic but, after testing, the American pharmaceutical company Eli Lilly discovered that it had anti-cancer properties too. In 1954, the firm extracted two alkaloids, vinblastine and vincristine, from the herb and subsequently patented drugs made from the rosy periwinkle, making millions of dollars from them. The people of Madagascar never received any compensation for their traditional knowledge of the herb's healing abilities.

Source: Mposhi, Manyeruke and Hamauswa (2013); Case Western Reserve University (2012).

with little or no linkages to regional economic communities and the broader regional integration agenda. This scenario obtains mostly in Africa, although in recent years efforts have been made to overcome this problem.

Issues stemming from Africa's fragmented regional approach. Most African countries are members of one of two, separate regional intellectual property bodies: The African Regional Intellectual Property Organization made up mainly of Anglophone countries, and the Organisation Africaine de la Propriété Intellectuelle incorporating mainly Francophone countries (boxes 4.3 and 4.4).

Africa's inconsistent approach presents four main difficulties.

First, unlike the practice in Latin America and the Caribbean and in the Association of Southeast Asian Nations, the two intellectual property bodies generally operate outside the broad policy framework on research, technology development and innovation that should inform intellectual property policy formulation (Musungu et al., 2004). Linkages with policy frameworks at national, regional and continental levels are tenuous. In particular, cooperation between African Regional Intellectual Property Organization and Organization Africaine de la Propriété Intellectuelle with the regional economic communities is weak (Musungu et al., 2004). In recent

Box 4.3.

African Regional Intellectual Property Organization and Organization Africaine De La Propriété Intellectuelle

African Regional Intellectual Property Organization

Catering to 19 countries,[69] African Regional Intellectual Property Organization was established by the Lusaka Agreement in 1976 and is based in Harare, Zimbabwe.[70] Of the 19 countries, Liberia, Sao Tome and Principe, Somalia and Sudan are least developed countries but not WTO members and thus are under no obligation to implement any aspect of the TRIPS Agreement. Nine countries (Gambia, Lesotho, Malawi, Mozambique, Sierra Leone, Rwanda, Tanzania, Uganda and Zambia) are WTO Members but fall within the LDC category and thus are exempted from TRIPS implementation, except for Articles 3, 4 and 5 of the Agreement for as long as the LDC transition period remains in force (Shashikant, 2014).[71]

In 1982 the African Regional Intellectual Property Organization Member States adopted the Protocol on Patents and Industrial Designs[72] (the "Harare Protocol"), which empowers African Regional Intellectual Property Organization to grant patents and register utility models and industrial designs in the contracting states. This protocol allows African Regional Intellectual Property Organization to grant patents on behalf of the contracting states. Applications to African Regional Intellectual Property Organization have to designate the contracting states in which a patent is sought. The African Regional Intellectual Property Organization system operates on an opt-out basis, that is, it is not mandatory for contracting states (Drahos, 2010).

Examination capacity at the African Regional Intellectual Property Organization office is minimal. (The Kenyan Industrial Property Institute alone has 16 examiners, against African Regional Intellectual Property Organization's handful.) The office arranges for the patent applications to be examined by foreign patent offices, such as the European Patent Office and those in the Republic of Korea or Mexico. In 2007 it signed a cooperation agreement with China's State Intellectual Property Office (Drahos, 2010). Essentially, it has to rely on reports generated by the Patent Cooperation Treaty system. According to African Regional Intellectual Property Organization officials, the office is finalizing its own guidelines on examining applications (Shashikant, 2014).

The operation of the Harare Protocol is fully integrated with the Patent Cooperation Treaty. Direct national filing is another approach for most African Regional Intellectual Property Organization members, which can also file at African Regional Intellectual Property Organization itself. Claiming formats for first and second medical indications are standardized under the implementing regulations to the Harare Protocol, the regulations specifying the phrases to be used. It is a good example of regulatory information, but whether a regional patent organization in Africa should open the door to pharmaceutical patenting is another matter.

Where the African Regional Intellectual Property Organization Office determines that the application is deserving of a patent, it notifies the applicant and each designated state. Discussions with officials at African Regional Intellectual Property Organization and some national intellectual property offices revealed that apart from Kenya, which occasionally objects, contracting parties rarely object to the granting of a patent (Shashikant, 2014).

According to African Regional Intellectual Property Organization officials, it is not uncommon for the African Regional Intellectual Property Organization office to grant pharmaceutical patents that contravene national law (national intellectual property offices often fail to communicate their written objection, as they are required to do, in a timely manner).[73]

In 2010 African Regional Intellectual Property Organization Member States adopted the Swakopmund Protocol on the Protection of Traditional Knowledge and Expressions of Folklore.[74] This landmark African Regional Intellectual Property Organization achievement is yet to gain recognition in the global intellectual property regime. African Regional Intellectual Property Organization Member States are also consid-

Continued

Box 4.3.

African Regional Intellectual Property Organization and Organization Africaine De La Propriété Intellectuelle (continued)

ering a draft African Regional Intellectual Property Organization Legal Framework for the Protection of New Varieties of Plants, which would empower African Regional Intellectual Property Organization to grant and administer breeders' rights.[75]

Organization Africaine de la Propriété Intellectuelle

Organization Africaine de la Propriété Intellectuelle is a regional intellectual property office for 17 countries.[76] Organization Africaine de la Propriété Intellectuelle replaces the African and Malagasy Industrial Property Organization (better known under its French acronym, OAMPI), set up in 1962. Organization Africaine de la Propriété Intellectuelle was established in 1977 under the Bangui Agreement Relating to the Creation of an African Intellectual Property Organization,[77] Constituting a Revision of the Agreement Relating to the Creation of an African and Malagasy Office of Industrial Property.[78]

Organization Africaine de la Propriété Intellectuelle grants one patent valid in all members of the Bangui Agreement. As with the Harare Protocol, the Agreement is integrated with Patent Cooperation Treaty procedures (Drahos, 2010).

years, efforts have been made to bridge the gaps but policy and institutional coherence remain challenges.

Second, the focus is overwhelmingly on patent management, also often a source of lucrative fees for patent grants. Indeed, the mandates of African Regional Intellectual Property Organization and Organization Africaine de la Propriété Intellectuelle are mostly limited to matters of patent grants, examination and registration. They generally do not work on issues relating to the exercise of patent rights. This has the effect of limiting the help that these organizations can offer member States in the use of TRIPS flexibilities for development and public health purposes (Musungu et al., 2004). A key implication is that the majority of the patent applications granted in these countries are examined and decided on by regional intellectual property offices, but if a patent is wrongly granted, it is very difficult for these countries to invalidate it.

Third, regional intellectual property organizations tend to take a "one size fits all" approach in attempting to harmonize rather than coordinate. Organization Africaine de la Propriété Intellectuelle, for example, harmonized the rules on compulsory licensing by requiring that no compulsory licence be issued before the end of three years from the date the patent was issued or four years from the date of application, under the Bangui Agreement, which also provides that compulsory licences do not extend to acts of importation— defeating the purpose of the provision on compulsory licences. This goes beyond the requirements of TRIPS and limits the policy space of the member States to use compulsory licensing.

Fourth, organization Africaine De La Propriété Intellectuelle and African Regional Intellectual Property Organization do not provide an intellectual property cooperation framework for negotiating bilateral trade and investment agreements. The free trade agreements and bilateral investment treaties signed by African countries often contain provisions that curtail their policy space to make maximum use of the TRIPS flexibilities.

For example, the economic partnership agreements refer to protection and enforcement of IP—specifically to intellectual property as a subject of further discussions in the "rendezvous clause." African countries that are parties to these negotiations must be cautious about the possibility of the European Union demanding the adoption of standards of intellectual property protection and enforcement that are above the requirements of the TRIPS Agreement and that can significantly diminish the scope of TRIPS flexibilities for these countries (South Centre, 2007).[82] For instance, the Egypt-EU Partnership Agreement, which entered into force in 2004, requires Egypt to join international intellectual property conventions including the Patent Cooperation Treaty and the 1991 Act of the UPOV Convention. The Algeria-EU Association Agreement requires Algeria to implement the WIPO Internet Treaties, negatively affecting access to knowledge. Similarly, African country parties to the economic partnership agreement could be required to accede to international intellectual prop-

Box 4.4.

REC policies: COMESA and SADC

Some African regional economic communities have undertaken their own strong intellectual property initiatives. COMESA, for example, has developed an intellectual property policy that seeks to put intellectual property rights at the centre of a competitive growth strategy.[79] The draft intellectual property policy requires member States to facilitate intellectual property rights through protection of intellectual property and the mainstreaming of IP. However, this suggests an emphasis on protection and enforcement rather than exploring how intellectual property policy can be tailored to complement, and not constrain, development policies. The draft policy makes only general reference to flexibilities under TRIPS and does not lay down how they can be fully used in specific situations in different sectors.

Similarly, SADC, independent of Organization Africaine de la Propriété Intellectuelle or African Regional Intellectual Property Organization, has taken policy steps to facilitate full use of TRIPS flexibilities for regional production of medicines and to ensure access to affordable medicines. SADC has developed a Pharmaceutical Business Plan that requires SADC member States to coordinate the implementation of TRIPS flexibilities.[80] EAC has adopted a regional policy on the use of TRIPS flexibilities for public health and has developed a regional pharmaceutical manufacturing plan of action that stresses the need to make full use of the TRIPS flexibilities by EAC member States.[81] The African Union Commission also has an initiative developing pharmaceutical manufacturing capacity, but neither Organization Africaine de la Propriété Intellectuelle nor African Regional Intellectual Property Organization are members of the technical committee.

erty agreements that may not benefit their development interests and may curtail their intellectual property policy space.

In some bilateral investment treaties and trade cooperation agreements concluded by African countries with the United States and the European Free Trade Association, intellectual property rights are included within the definition of investments protected by such agreements. This could greatly curtail the ability of these governments to use TRIPS flexibilities to address public policy needs, including those in health.

Reforming Africa's regional intellectual property cooperation. The African Union has undertaken two initiatives that could help to bring coherence to regional intellectual property cooperation: Continental Free Trade Area negotiations (launched in June 2015), which cover IP; and efforts to establish a Pan-African Intellectual Property Organization, with headquarters in Tunisia.

A Continental Free Trade Area agreement on intellectual property would provide an opportunity to set common rules on intellectual property protection and use of flexibilities in the global intellectual property regimes, based on a common approach. It would also provide a framework for subregional cooperation, given that COMESA, EAC and SADC are committed to cooperating on intellectual property policy under the Tripartite Free Trade Area. As in The Association of Southeast Asian Nations, intellectual property cooperation among the Continental Free Trade Area parties could provide the basis for policy dialogue with development partners to advance development and economic integration objectives. Given a similar range of diversity in levels of development within Africa as in the Association of Southeast Asian Nations, enough flexibility should be maintained for African countries—within the framework of global intellectual property commitments—to adopt intellectual property policies that advance development priorities.

A statute for Pan-African Intellectual Property Organization has been drafted.[83] In 2014, the African Union Assembly adopted a decision requesting the African Union Commission to present it for further consideration and recommendations to the Specialized Technical Committee on Justice and Legal Affairs. It also requested the African Union Commission to prepare a roadmap for implementing Pan-African Intellectual Property Organization. The decision recognized African Regional Intellectual Property Organization and Organization Africaine de la Propriété Intellectuelle as Pan-African Intellectual Property Organization's building blocks,[84] opening an opportunity to ensure better collaboration—between the two bodies, with the regional economic communities and with Tripartite Free Trade Area and Continental Free Trade Area, among others.

Box 4.5.

Mercantilist patent filing

The *Economist* in its 8 August 2015 issue showed how patents can be abused: "patents are supposed to spread knowledge by obliging holders to lay out their innovation for all to see; they often fail because patent lawyers are masters of obfuscation." Mercantilist patent-filing practices illustrate this.

Trivial patents. Patent applications that do not reflect genuine innovation have increased alarmingly. Rather, IPR owners seek to obtain registrations for patents on trivial developments with little or no inventive step, to gain a competitive advantage in markets—the "ever-greening" of patents (Correa, 2014).

Patents of questionable validity. This effort pays off for some IPR owners because the legal proceedings delay the entry of potential competitors to the market. Around 28 per cent of current patents have been found to be invalid by US courts (Correa, 2014).

Divisional patent applications. These are patent applications that include some part of a subject matter claimed in a prior ("parent") application. Because they claim the priority from the parent application's filing date, they fulfil the novelty or inventive step requirement. They can be misused to keep pending the decision on grant of a patent for long periods, making it difficult for competitors to know whether they might infringe any patent (Correa, 2014).

Critics have pointed out that the draft Pan-African Intellectual Property Organization statute promotes a narrow vision of intellectual property that focuses on promoting intellectual property rights as an end in itself and harmonizing intellectual property laws across Africa without considering differences in development and socio-economic conditions. The draft statute also fails to address or facilitate the full use of TRIPS flexibilities, reinforcing the obstacles in African Regional Intellectual Property Organization and Organization Africaine de la Propriété Intellectuelle. In light of these concerns, the draft statute should be reviewed (Kawooya, 2012; Baker, 2012). Furthermore, the Pan-African Intellectual Property Organization mandate and statutes should be fully consistent with Agenda 2063.[85]

It follows that a Continental Free Trade Area agreement on intellectual property and the proposed pan-African Intellectual Property Organization should consider the implications of an IP-oriented approach divorced from development concerns. These two initiatives should use mechanisms to prevent TRIPS flexibilities from being further eroded through "TRIPS-plus" provisions (conditions more restrictive than are required by the TRIPS Agreement) in trade agreements. They should also seek to further regional cooperation on maximizing the use of the TRIPS flexibilities to address development concerns for industrial development, public health, education and environmental protection. African countries need to establish intellectual property policies and laws at national level and should therefore consider adopting differential standards of intellectual property protection within the flexibilities available under the TRIPS Agreement. In particular, national legislation should adopt strict standards of patentability criteria in chemicals and pharmaceuticals, to pre-empt mercantilist patent-filing practices (box 4.5). The proposed Pan-African Intellectual Property Organization provides an institutional basis to manage these complex issues.

National laws should also require mandatory disclosure of country or source of origin of genetic resources used in patent applications. African countries should develop robust systems for examination of patent applications. The approach of regional patent offices like African Regional Intellectual Property Organization and Organization Africaine de la Propriété Intellectuelle and of the proposed Pan-African Intellectual Property Organization should be revised to accommodate the flexibilities available under TRIPS, such as the transition period for least developed countries and application of strict criteria of patentability.

These reforms will help to ensure that an intellectual property system emerges in Africa that is fit to support the continent's regional integration growth model. A strategic approach to intellectual property policy can also provide the basis for cooperation and pooling of resources among African countries and regional economic communities in building capacities required for intellectual property governance, given the onerous capacity needs.

Conclusions and policy messages

The TRIPS Agreement removed much of the policy space open to developing countries under WIPO treaties, but still contains flexibilities that developing countries should use when designing their intellectual property regimes. Least developed countries in particular have an extendable transition period they must exploit to construct national intellectual property policies that may fall below the bar set by TRIPS. Intellectual property rules and policies should, after all, be adaptable to the changing needs of African—not just developed-country—societies.

All African countries—least developed countries and non-least developed countries alike—should adopt strategies to maximize policy space in agriculture, manufacturing and public health, and more broadly on access to knowledge, following differential standards of intellectual property protection within the flexibilities allowed under TRIPS. African countries should remain active on operationalizing the two targets (17.6 and 17.7) on intellectual property rights under the Sustainable Development Goals.

African countries have been active at WTO and WIPO in pursuing intellectual property rule-making—the Doha Declaration on the TRIPS Agreement and Public Health is a rare example of success. Conversely, initiatives on global intellectual property rules for protecting traditional knowledge and countering bio-piracy are yet to bear fruit.

If African countries have been proactive in engaging with the global intellectual property regime, they have not been as strategic in harnessing intellectual property to enhance innovation and competitiveness for driving structural change. Regional arrangements for cooperation on intellectual property policy require reform. Africa's intellectual property bodies—African Regional Intellectual Property Organization and Organization Africaine de la Propriété Intellectuelle—have in recent years attempted to work together but links to the regional economic communities (and broader regional integration objectives) are still weak. Operationally, ties between these two bodies with science, technology and innovation policy frameworks at national, regional and continental levels are tenuous, while their mandates touch mainly on granting, examining and registering patents rather than exercising patent rights, thus undercutting their help to states in identifying and using TRIPS flexibilities. Moreover, African Regional Intellectual Property Organization and Organization Africaine de la Propriété Intellectuelle are largely disconnected from free trade and bilateral investment agreements with external partners.

Two current African Union initiatives—Continental Free Trade Area negotiations and efforts to establish Pan-African Intellectual Property Organization—present the chance to cohere Africa's approach to regional intellectual property policy cooperation. Both initiatives should use mechanisms open to them to safeguard TRIPS flexibilities to address development needs. A Continental Free Trade Area agreement on intellectual property could be the basis for a common approach to negotiating intellectual property trade and investment agreements with external partners. A strategic approach to intellectual property policy at continental level can also provide a basis for pooling resources among African countries and regional economic communities to build the heavy capacities required for ensuring intellectual property protection.

Annex 4.1. Status of subscription by African countries to multilateral intellectual property treaties

African states	W	P	B	PCT	PLT	MI	MM	MP	H	GH	N	LI	RO	LO	IPC	PH	VC	BP	S	NOS	TLT	WCT	WPPT	BEIJING	WAS	SG	MARRA	UN	U	WTO
Algeria	●	●	●	●		●	●				●	●	●							●		●	●					●		
Angola	●	●		●																								●		●
Benin	●	●	●	●					●		●											●	●			●		●		●
Botswana	●	●	●	●				●	●	●												●	●	●				●		●
Burkina Faso	●	●	●	●								●	●			●					●	●	●					●		●
Burundi	●	●	●																									●		●
Cape Verde	●	●	●										●															●		●
Cameroon	●	●	●	●																								●		●
Central African Republic	●	●	●	●																								●		●
Chad	●	●	●	●																								●		●
Comoros	●	●	●	●																								●		
Congo	●	●	●	●								●	●							●								●		●
Côte d'Ivoire	●	●	●	●					●																			●		●
Democratic Republic of the Congo	●	●	●													●												●		●
Djibouti	●	●	●																									●		●
Egypt	●	●	●	●		●	●	●	●	●	●				●	●				●	●				*			●		●
Eritrea	●																											●		
Ethiopia	●																			●								●		
Gabon	●	●	●	●					●			●										●	●					●		●
Gambia	●	●	●	●																								●		●
Ghana	●	●	●	●				●	●	●												●	●					●		●
Guinea	●	●	●	●							●			●	●		●				●	●	●					●		●
Guinea-Bissau	●	●	●	●																								●		●
Kenya	●	●	●	●			●	●								●			●	●								●	●	●
Lesotho	●	●	●	●			●	●					●															●		●
Liberia	●	●	●	●			●	●					●			●												●		
Libya	●	●	●	●																								●		
Madagascar	●	●	●	●				●														●	●					●		●

African states	W	P	B	PCT	PLT	MI	MM	MP	H	GH	N	LI	RO	LO	IPC	PH	VC	BP	S	NOS	TLT	WCT	WPPT	BEIJING	WAS	SG	MARRA	UN	U	WTO
Malawi	●	●	●	●							●			●	●													●		●
Mali	●	●	●	●					●													●	●			●	●	●		●
Mauritania	●	●	●	●																								●		●
Mauritius		●	●	●																								●		●
Morocco		●	●	●	●		●	●	●	●		●							●	●	●	●	●	●				●	●	●
Mozambique		●	●	●	●			●	●			●																●		●
Namibia		●	●	●	●			●	●	●	●																	●		●
Niger		●	●	●	●					●				●														●		●
Nigeria		●	●	●	●	●								●														●		●
Rwanda		●	●	●	●				●	●	●									●								●		●
Sao Tome and Principe		●	●		●				●	●	●																	●		
Senegal		●	●	●	●					●											●		●	●				●		●
Seychelles		●	●		●																							●		●
Sierra Leone		●	●		●			●	●																			●		●
Somalia		●																										●		
South Africa		●	●	●	●														●									●	●	●
South Sudan																												●		
Sudan		●	●	●	●			●	●																			●		
Swaziland		●	●	●	●			●	●																			●		●
Togo		●	●	●	●								●	●			●			●	●		●	●				●		●
Tunisia		●	●	●	●		●		●	●	●	●	●					●	●		●							●	●	●
Uganda		●	●	●	●																●							●		●
Tanzania		●	●	●	●							●																●		●
Zambia		●	●	●	●				●																			●		●
Zimbabwe		●	●	●	●				●																			●		●

Note: B, Berne convention; BEIJING, Beijing treaty on audio-visual performances; BP, Budapest treaty; GH, Geneva Act of Hague; H, Hague agreement; IPC, Strasbourg agreement; LI, Lisbon Agreement; LO, Locarno agreement; MARRA, Marrakesh treaty to facilitate access to published works for persons who are blind, visually impaired or otherwise print disabled; MI. Madrid agreement (indications of source;, MM, Madrid agreement Marks; MP, Madrid protocol; N, Nice agreement; NOS, Nairobi treaty; P, Paris convention; PCT-Patent Cooperation Treaty; PH, Phonograms convention; PLT, Patent law treaty; RO, Rome convention; S, Brussels convention; SG, Singapore treaty; TLT, Trademark law treaty; U, UPOV convention; UN, United Nations; VC, Vienna agreement; WAS, Washington Treaty; WCT, WIPO copyright treaty; WPPT, WIPO performances and phonograms treaty; WTO, Agreements establishing the World Trade Organization.

Source: Authors' compilation based on various WIPO and WTO sources.

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