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Graduating with Momentum: Intellectual Property Issues, Challenges and Opportunities for Least Developed Countries

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Abstract

This paper explores the potential for LDCs, including those that will soon graduate from the category, to benefit from intellectual property rights (IPRs). It argues that a more pro-development intellectual property (IP) agenda is needed for LDCs, tailored to their specific context and development goals. The paper provides evidence-based analysis to assist LDCs to navigate potential IPR-related challenges upon graduation and to develop IP regimes and systems that support the development of productive capacities, technological upgrading and innovation as part of broader efforts to achieve inclusive growth and structural transformation. While acknowledging that there is no one-size-fits-all approach, the paper proposes a range of forward-looking solutions, innovations, capacity-building options, policy positions and legislative steps, which can be adapted to specific country contexts and circumstances as appropriate, to help LDCs attenuate the negative impact of the loss of LDC-specific flexibilities and possibly unlock IPR-related benefits both before and after graduation.

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Acronyms and Abbreviations

ARIPO	African Regional Intellectual Property Organisation
CBD	Convention on Biodiversity
CDP	Committee for Development Policy
CISAC	International Confederation of Societies of Authors & Composers
DLT	Design Law Treaty
ECOSOC	Economic and Social Council
EPO	European Patent Office
EU	European Union
EUIPO	EU Intellectual Property Office
FDI	foreign direct investment
FTA	free trade agreement
GCCPO	Gulf Co-operation Council Patent Office
GCI	Global Competitiveness Index
GDP	gross domestic product
GII	Global Innovation Index
GNI	gross national income
IGC	Intergovernmental Committee on IP and Genetic Resources, Traditional Knowledge and Folklore
IP	intellectual property
IPI	Swiss Federal Institute of Intellectual Property
IPR	intellectual property right
IT	information technology
Lao PDR	Lao People's Democratic Republic
LDC	least developed country
MFN	most-favoured nation
OAPI	Organisation Africaine de la Propriété Intellectuelle
PCT	Patent Cooperation Treaty
R&D	research and development
SMEs	small and medium-size enterprises
ToT	Transfer of Technologies
TRIPS Agreement	Agreement on Trade-Related Aspects of Intellectual Property Rights
UK	United Kingdom
UN	United Nations
UNCTAD	UN Conference on Trade and Development
UN DESA	UN Department of Economic and Social Affairs
UPOV	International Union for the Protection of New Varieties of Plants
US	United States
WCT	WIPO Copyright Treaty
WEF	World Economic Forum
WIPO	World Intellectual Property Organization
WPIS	WIPO's Patent Information Services for Developing Countries
WTO	World Trade Organization

Executive summary

A major stress test is looming for global IP rules and LDCs ...

Of the 46 countries currently in the least developed country (LDC) category,[1] over one-third (16) are currently on the pathway to graduation. Bhutan graduated in December 2023; Angola and São Tomé & Príncipe will follow in 2024; Bangladesh, Lao PDR and Nepal in 2026; and Solomon Islands in 2027. Of these 16 graduating LDCs, 10 are World Trade Organization (WTO) members and the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (the TRIPS Agreement) is of particular significance for them – because it sets out a binding set of global rules and minimum standards on intellectual property rights (IPRs) but also because it contains an important framework of special and differential treatment for countries in the LDC category that will fall away immediately upon the date of graduation of a country from LDC status.

Although most LDCs have some existing national regime for IPRs, however rudimentary, LDC WTO members currently enjoy wide flexibilities in global intellectual property (IP) rules by means of a waiver exempting them from implementing most elements of the WTO TRIPS Agreement until July 2034. In addition, a special transition period, currently running to 1 January 2033, has been granted with respect to IP protection in the pharmaceutical industry, which exempts LDCs from protecting patents and undisclosed information for pharmaceutical products. Some LDCs in the graduation pipeline, notably Bangladesh, have been able to make use of these flexibilities to develop pharmaceutical and other industries, and to benefit from lower-priced generic medicines, for example. LDC WTO members also benefit from special provisions in the TRIPS Agreement mandating WTO developed country members to establish domestic incentives for transfer of technology and to provide technical and financial assistance for upgrading national IP systems.

The framework of special and differential treatment for LDCs has served the WTO relatively well since 1995, and, with only six countries in total having graduated from LDC status (the first country being Botswana in 1994), it has facilitated a comfortable status quo whereby LDCs are not bound by global IP rules or subject to dispute settlement. However, with over one-third of the total LDC Group now on the path to graduation, this framework and status quo is increasingly being tested and upended, as graduating LDCs will lose their special and differential treatment on graduation, even though the criteria the UN uses for inclusion in, and graduation from, the LDC category do not take any account of levels of productive capacity and the scientific/technological base of LDCs.

... which will present important challenges for graduating LDCs and their partners

So, graduating LDCs face a complete sea-change in respect of their position within global IP rules. Countries will completely and suddenly lose the special provisions within the WTO TRIPS Agreement as they graduate out of the LDC category and are thereby required to implement all substantive provisions of the TRIPS Agreement at the time of graduation (or shortly thereafter), including provisions for patents on pharmaceutical products and processes. The loss of the special provisions, and the requirements for stronger patent protection in particular, will pose significant challenges for graduating LDCs in terms of accessing technologies and knowledge, given their weak scientific, technological and productive capacities as largely factor-driven, agrarian economies. Access to affordable medicines for public health will be at particular risk, both in terms of the end of exemptions from patent protection on pharmaceuticals and with regard to the scheduled graduation of Bangladesh (which has become an important low-cost producer and exporter of generic medicines for LDCs) from the LDC category in 2026.

To meet their obligations under the TRIPS Agreement, graduating LDCs will have to introduce or significantly enhance and update their national IP laws, policies and regulations, and improve IP standards and regulatory safeguards. Significant investment and capacity-building will be required to upgrade national

IP administration systems; in some cases (such as small island graduating LDCs like Solomon Islands, for example), these may not be feasible to establish or maintain beyond a rudimentary level. LDCs will also need to upgrade capacities to enforce IPRs, necessitating improvements to enforcement institutions (such as customs, police and judiciary) and procedures for the domestic market and at national borders.

While the TRIPS Agreement includes undertakings by WTO developed countries to provide (i) incentives for technology transfer and (ii) technical and financial assistance for upgrading national IP systems, the outcomes in terms of transfer of technology and delivery of assistance to LDCs have fallen a long way short of needs and expectations.[2] There have been regular efforts by the LDC Group to better operationalise these undertakings from developed countries. But even formal submissions of needs assessments to the WTO TRIPS Council by nine LDC WTO members since 2007 (including by Bangladesh and Senegal, who are now on the path to graduation) have made little difference. It is time to recognise these failures, learn the lessons and start on a new and different approach that is more likely to succeed.

… but also a new opportunity for a more pro-development IP agenda for LDCs

Economic theory tells us that IP regimes can help support technological innovation and investment; protect brands and distinctive origin products; and allow authors, artists and musicians to control and monetise their works. However, in LDCs, there is little uptake of the types of industrial property rights important in industrialised countries, with very low levels of applications for patents in particular, reflecting their weak science and technological base, their factor-driven economies and their small market size. Indeed, according to data compiled by the World Intellectual Property Organization (WIPO), between 2010 and 2018 the number of patent applications filed by residents of all LDCs was just 1,634, which, as a share of patents globally, is close to zero.[3]

There is potential for LDCs to benefit from IPRs. But a better approach, tailored to the context and development goals of graduating LDCs, is needed. Given the very low levels of patenting and formal industrial property registration in LDCs, there should be much less focus on building up patent systems in graduating LDCs[4] and much more emphasis on opportunities where it is more feasible for LDCs to use IPRs for development, such as leveraging trademarks and branding to capture more value from their exports. When it comes to IP, the key question that LDCs should be encouraged and supported to answer should be 'How can the national regime be best developed to promote the achievement of our development objectives?' rather than simply mirroring the requirements and standards appropriate in more advanced industrialised countries.

More time and focus from policy-makers and development partners is needed for graduating LDCs to adopt this tailored approach to developing their national IP systems and aligning them with their stage of economic development. At the same time, a step change will also be required in the delivery of support to LDCs for technology transfer and technical assistance for national IP and innovation system upgrading. Here the UN Technology Bank for LDCs and WIPO can play important roles but there is a need for a bigger, dedicated, funding stream for them to draw on in supporting graduating LDCs.

A way forward: five recommendations to go alongside the LDC Group's proposals and the Doha Programme of Action for LDCs

This report makes five principal recommendations that can be seen as complementary to the *Doha Programme of Action for LDCs 2022–2031* as well as the proposal from the LDC Group for a WTO Ministerial Decision on LDC graduation and maximising the benefits of smooth transition for graduating LDCs. The development of these recommendations has taken into account the particular strengths and convening power of the Commonwealth and its members as well as the needs of the wider group of LDCs as a whole, covering those countries already on the pathway to graduation and those that have not yet met the criteria.

As a working assumption, it is also taken that the proposal for a Ministerial Decision on LDC graduation tabled by the LDC Group at the WTO in December 2022, including the measures related to the WTO TRIPS Agreement in Annex 1 of the proposal (regarding the extension of the special and differential treatment

provided in Article 66.1 and Article 66.2 for graduating LDCs), will be substantially agreed by WTO members at the 13th Ministerial Conference in the United Arab Emirates.

- **Recommendation 1:** The international community should convene a network of *LDC Graduation and IP Support Groups* for each of the graduating LDCs, with priority for those graduating LDCs that are WTO members or in WTO accession. For each of the three Commonwealth LDCs that are WTO members and currently on the pathway to graduation, the Commonwealth Secretariat should serve as Facilitator, working together with interested LDC governments, development partners, WIPO and other UN agencies in the LDC Doha Plan of Action Task Force, to convene and backstop the Groups.
- **Recommendation 2:** All LDCs on the pathway to graduation should make particular efforts during their transitional period to ensure they have properly considered and evaluated the full range of flexibilities and options available to them within international IP rules, such as the WTO TRIPS Agreement, in designing their national legal and regulatory regimes for industrial property, copyrights and *sui generis* forms of IP protection (such as plant variety protection). Development partners should stand ready to provide such technical assistance as LDCs may require to complete this type of evaluation and consideration of their policy options and flexibilities during the relevant transitional period.
- **Recommendation 3:** As LDCs in the graduation pipeline modernise their national IP systems tailored to their development objectives, national governments and development partners, and look to establish balanced IP systems, they should give the highest priority to first upgrading the national trademarks system, so that it operates efficiently and on a full cost recovery basis, with appropriate incentives for small and medium-size enterprises (SMEs) to utilise the system for protecting their brands domestically and abroad. Key priorities for upgrading will be the automation and financial sustainability of trademarks administration, improving the capacity of enforcement agencies to track and tackle commercial-scale trademark infringement and better education/support services for SMEs on registering and using trademarks as part of brand-based strategies.
- **Recommendation 4:** To complement recommendations 1–3 in this study and to ensure LDCs graduate from the category with momentum, there needs to be a step-change in the delivery of technology transfer and technical assistance for national IP and innovation systems over the medium term, in line with obligations in the WTO TRIPS Agreement Articles 66.2 and 67 and the aspirations of the *Doha Programme of Action for LDCs 2022–2031*.
- **Recommendation 5:** The Committee for Development Policy should consider adding an additional indicator on technological and innovation capability to its assessment criteria for countries to be added to, and graduated from, the category of LDCs.

1. Introduction

Currently, least developed countries (LDCs) are largely outside of binding global intellectual property (IP) rules such as the World Trade Organization (WTO) Agreement on Trade-Related Aspects of Intellectual Property Rights (the TRIPS Agreement). This status quo has been maintained through providing extensive special treatment provisions and long transition periods for LDCs, which WTO members have already extended several times. However, with over one-third of the LDC category of countries now on the pathway to graduation, this status quo is being tested and is coming in for more scrutiny and debate. For such a large group of graduating LDCs facing a sea-change in their position within global IP rules, it is important that the implications and impacts related to intellectual property rights (IPRs) are well considered.

It is very timely, therefore, to unpack and analyse the key topics and issues around LDC graduation; global IP rules and the TRIPS Agreement; the current uptake of and infrastructure relevant to IPRs in graduating LDCs; the relevance of different IPRs for economic development in LDCs; and the framework of international support for technology transfer and upgrading domestic IP-related policies, institutions and systems in line with national development objectives and contexts.

The objective of this study is to provide evidence-based analysis to assist LDCs to navigate potential IPR-related challenges upon graduation and to develop IP regimes and systems that support the development of productive capacities, technological upgrading and innovation as part of broader efforts to achieve inclusive growth and structural transformation.

While acknowledging that there is no one-size-fits-all approach across countries, or even across sectors within countries, the study proposes a range of forward-looking solutions, innovations, capacity-building options, policy positions and legislative steps, which can be adapted to specific country contexts and circumstances as appropriate, to help LDCs attenuate the negative impact of the loss of LDC-specific flexibilities and possibly unlock IPR-related benefits both before and after graduation.

2. An overview of LDCs, trade and graduation

This section unpacks and precisely establishes the categorisation of LDCs, the approach to assessment for their inclusion in and graduation from the category, and the current pipeline of LDCs on the path to graduation. It also describes in outline the key socio-economic characteristics of LDCs and their position in global trade, and summarises findings relevant to IPRs from *ex-ante* LDC graduation impact assessment reports completed by the UN. For the 16 LDCs on the path to graduation, their Commonwealth and WTO membership status is also analysed. The author recognises that many readers will already be familiar with much of the information presented in this section. At the same time, it serves as a valuable reference and provides a number of important points of departure that are fundamental to the analysis and recommendations later in the report.

2.1 Who are the LDCs?

Every three years, the Committee for Development Policy (CDP), a group of independent experts who report to the UN Economic and Social Council (ECOSOC), undertakes a review of the list of LDCs.[5] Based on this review process, the CDP may make recommendations to ECOSOC regarding which countries should be added to the list or, alternatively, should graduate out of the LDC category. As of November 2023, 46 countries were designated by the UN as LDCs.

Criteria for inclusion in the LDC category

The criteria and the thresholds for inclusion in the LDC category and for graduation from the category applied by the CDP at the 2021 triennial review were as follows:

- **An income criterion.** This is based on a three-year average estimate of gross national income (GNI) per capita.[6] The threshold for inclusion and graduation is based on the thresholds of the World Bank's low-income category. At the 2021 triennial review, the threshold for inclusion in the list of LDCs was US$1,018 or below. The threshold for graduation was $1,222 or above.[7]
- **A human assets index.** The human assets index has health-related indicators on (i) the under-five mortality rate; (ii) the maternal mortality ratio; and (iii) the prevalence of stunting as well as education-related indicators on (i) gross secondary school enrolment ratio; (ii) adult literacy rate; and (iii) gender parity for gross secondary school enrolment.[8]
- **An economic and environmental vulnerability index.** This has economic vulnerability-related indicators on (i) share of agriculture, hunting, forestry and fishing in gross domestic product (GDP); (ii) remoteness and land-lockedness; (iii) merchandise export concentration; and (iv) instability of exports of goods and services and environmental vulnerability related indicators on (i) share of the population in low elevated coastal zones; (ii) share of the population living in drylands; (iii) instability of agricultural production; and (iv) victims of disasters.[9]

All countries in developing regions are reviewed against these criteria every three years. A non-LDC can become eligible for inclusion in the category if it meets the established inclusion thresholds for all three criteria in a single triennial review.[10] The country concerned must consent to inclusion, which then becomes effective immediately after the UN General Assembly takes note of the CDP's recommendation.[11] No recommendations to include additional countries in the LDC list were made at the CDP's 2021 triennial review.[12]

To graduate from LDC status, a country must meet or exceed the established graduation thresholds for a minimum of two of the three criteria mentioned above in two consecutive triennial reviews.[13] Those identified as highly vulnerable or possessing very low levels of human assets can only be eligible for graduation if they exceed the other two criteria by a suitably high margin.[14] In exceptional cases where the per capita income of a country is deemed to be sustainably above the 'income-only' graduation threshold, set at twice the graduation threshold (US$2,444 at the 2021 triennial review), that country will be eligible for graduation even if it fails to meet the established thresholds for the other two criteria.[15]

Exclusion of criteria on productive, technological or innovation capacities

In any country, optimising the set of national policies, institutions and systems for IPRs is a task inextricably linked with the assessment of national capacities for production, science/technology and innovation. However, currently, the CDP does not use any criteria or indicators linked to an index of productive, technological or innovation capacities as part of its assessment for LDC graduation. This is not to say that the current criteria the CDP uses are wrong but rather to observe that an assessment by the CDP indicating readiness for graduation using these criteria should not be taken as meaning a country has reached a certain benchmark in relation to building national capacities for production, science/technology and innovation. The assessment process is blind to these factors.

The CDP could include evidence on these capacities in the future within its assessment criteria for LDC graduation by using a suitable index, such as the World Intellectual Property Organization (WIPO) Global Innovation Index (GII). This has two sub-indices, one on inputs and one on outputs:[16]

- The GII **innovation inputs sub-index** has indicators on institutions, human capital and research, infrastructure, market sophistication and business sophistication.
- The GII **innovation outputs sub-index** has indicators on knowledge and technology outputs and creative outputs.

If we look at the GII for 2022, which ranks 132 countries, there is only limited convergence between those LDCs ranked as having the highest innovation capacity and the 16 that are currently on the LDC pathway to graduation. For example, Angola is ranked almost at the bottom of the index but is due to graduate in 2024, while two of the top five LDCs for 2022, Rwanda (105) and Madagascar (106), are not on the path to LDC graduation. Table 2.1 shows the positions in the GII 2022 of the 16 LDCs that are on the pathway to graduation.

Table 2.1 GII rankings of the 16 LDCs on the path to graduation, 2022

LDC	GII 2022 rank (out of 132 countries included)
Angola	127
Bangladesh	102
Cambodia	97
Djibouti	n/a
Lao PDR	112
Myanmar	116
Nepal	111
Senegal	99
Solomon Islands	n/a
Zambia	118
Comoros	n/a
Bhutan	n/a
Sao Tome & Principe	n/a
Timor-Leste	n/a
Kiribati	n/a
Tuvalu	n/a

Source: WIPO (2022).

For the GII to be included within the CDP assessment criteria for LDC graduation, there would need to be a commitment from WIPO to expand the coverage of LDCs within the index, as nearly half (seven out of 16) of the LDCs on the path to graduation are not yet included in the latest GII dataset of 132 countries. Equally, the CDP would need to determine the threshold measure (and calculation protocol) for graduation from LDC status from a country's performance in the GII over time.

2.2 Graduation from LDC status

State of play of graduated LDCs and those currently on the path to graduation

At the time of writing, six countries have graduated from LDC status, beginning with Botswana in 1994 and ending with Vanuatu in 2020.[17] The CDP has recommended graduation for several other countries. Among them, Bhutan is scheduled for graduation in 2023, São Tomé & Príncipe in 2024, Bangladesh in 2026 and Solomon Islands in 2027. Angola was slated for graduation in 2021; however, following a prolonged recession and the economic impact of the COVID-19 pandemic, it was granted an additional preparatory period of three years by the General Assembly in February 2021 and its graduation was deferred to 2024.[18]

A decision on the graduation from LDCs status of Kiribati and Tuvalu was also deferred by the CDP in 2018, after the two countries were initially recommended for graduation in 2018 and 2012, respectively.[19] In 2021, they were recommended for graduation again, but this time the CDP proposed a preparatory period of five years. In recognition of the unprecedented socio-economic impacts of the COVID-19 pandemic, ECOSOC opted to defer further consideration of their graduation until 2024 (Resolution 2021/11).[20]

Three other countries (Bangladesh, Lao PDR and Myanmar) were also considered for graduation during the CDP's 2021 triennial review, having met the graduation criteria for the second time, along with Nepal and Timor-Leste, both of which met the graduation criteria for the second time in 2018 but had a decision on their graduation deferred by the CDP.[21] Among these, Bangladesh, Lao PDR and Nepal were recommended by the CDP for graduation. However, owing to the impacts of the COVID-19 pandemic, it also recommended an extended preparatory period for these countries.[22] The CDP opted to defer its decision on graduation for Myanmar and Timor-Leste until its 2024 triennial review.

Also during its 2021 review of the list of LDCs, the CDP found that the following countries had met the graduation thresholds for the first time: Cambodia, Comoros, Djibouti, Senegal and Zambia. Djibouti met the 'income-only' criterion; Comoros, Senegal and Zambia met the thresholds for two of the three criteria – namely, income and human assets; and Cambodia met all three graduation criteria (income, human assets, and economic and environmental vulnerability). The CDP will review these cases again in 2024 and, should they meet the criteria for a second time, they could be recommended for graduation.

Ex-ante impact assessments on graduating LDCs

The UN Department of Economic and Social Affairs (UN DESA) has undertaken *ex-ante* impact assessments for 10 of the 16 LDCs on the pathway to graduation, and the reports briefly cover issued related to the WTO TRIPS Agreement. A summary of the findings from these country-by-country assessments is included in Annex 2 of this report. These include the following.

- The greatest impacts are assessed to be on those LDCs that are WTO members and party to the TRIPS Agreement. Non-WTO member LDCs (e.g. Kiribati, São Tomé & Príncipe, Tuvalu) are not seen as being directly affected except insofar as the terms of their ongoing WTO accessions may be affected (e.g. Bhutan, Timor-Leste).
- Significant investments and long-term reforms will be needed to modernise national IP regimes in LDC WTO members to bring them into line with the requirements of the TRIPS Agreement (e.g. Angola, Bangladesh, Solomon Islands); even with such efforts, it may still prove difficult or unfeasible to acquire the necessary institutional capacities.
- The most commonly cited economic impact is on access to and costs of medicines as a result of ending exemptions for patents on pharmaceutical products in WTO member LDCs upon graduation, particularly in the case of Bangladesh and the many LDCs that import medicines from Bangladesh (see Box 2). A secondary impact cited is on the potential for developed countries to offer reduced levels of incentives for technology transfer to graduating LDCs as called for in Article 66.2 of the TRIPS Agreement.

Box 1 presents a case study on the *ex-ante* impact assessment on Bangladesh and its

Box 1: The CDP ex-ante impact assessment on LDC graduation in Bangladesh

Bangladesh is scheduled to graduate from the LDC category in 2026. In its ex-ante assessment of the impacts of this, published in 2020, UN DESA highlights that exemptions from WTO TRIPS Agreement requirements have played an influential role in the development of the pharmaceutical industry in Bangladesh, the country's main high-technology industry, which has significant growth potential and plays a major part in providing drugs at low cost for both domestic use and export. Bangladesh's generic pharmaceutical industry supplies 98 per cent of the domestic market and is also important worldwide, exporting to 100 other countries, with one-third of exports going to other LDCs.

In preparation for graduation from LDC status and facing requirements to fully implement the WTO TRIPS Agreement, Bangladesh has been updating its patent law. Provisions on compulsory licensing, parallel imports, patentability criteria, research exceptions and high thresholds for protection – modelled on TRIPS-compliant reforms in Brazil, India and South Africa – have all been suggested as concrete examples of key flexibilities by organisations such as the South Centre. Bangladesh has also been encouraged to devise 'strict criteria' for patentability, with separate mechanisms for weak innovation, such as utility models or petty patents for minor inventions.

Without such flexibilities, the UN forewarns of consequences including but not limited to a significant increase in the price of medicines, the likelihood of rising production costs, protection that could hamper technology transfer by restricting imitation and reverse engineering, and a weakening of local producers, leading to consolidation of the industry. If adequate safeguards are put in place, there may be some potential upsides to patent reform, such as encouraging technology transfer and foreign direct investment (FDI) in the pharmaceutical sector and forcing local companies to invest in research and development (R&D) or perish. Another option, as proposed by the LDC Group at the WTO in Geneva, is for a further transitional period for implementation of the WTO TRIPS Agreement for graduating LDCs like Bangladesh, which would allow for the exclusion of pharmaceuticals from patentability for example.

Source: UN DESA (2020a).

findings regarding the significance of exemptions from the WTO TRIPS Agreement for the development of the local pharmaceutical industry.

2.3 Socio-economic characteristics of LDCs

LDCs are home to about 40 per cent of the world's poorest people. Most are suffering or emerging from conflict. LDCs account for 13 per cent of the global population but only about 1.3 per cent of global GDP and less than 1 per cent of global trade and FDI. Barely one-fifth of the population in LDCs has access to the internet, and LDC public sectors feature weak economic management and regulatory capacity, low domestic tax mobilisation and high debt burdens. COVID-19 hit LDC exports hard, with goods exports recovering more quickly than services exports.

With low levels of socio-economic development, LDCs are hamstrung by historically weak productive capacities, low and unequal income distribution and limited domestic financial resources.[23] Their economies typically rely on agrarian activities, which can be vulnerable to vicious cycles of low productivity and low investment, especially when pitted against wealthier countries that have the capabilities to develop and utilise more productive farming technologies and possess higher-quality rural infrastructure that can aid the reduction of post-harvest losses and support agro-processing and value addition.[24]

Generally, LDCs rely on a small basket of primary commodities, particularly oil and minerals, as major sources of exports and foreign exchange earnings, meaning they are highly vulnerable to external terms-of-trade shocks. Some LDCs, such as Bangladesh, Cambodia and Lao PDR, have succeeded in diversifying into manufacturing, although this is generally limited to products in labour-intensive industries such as textiles and apparel, with exports heavily concentrated in a few markets.[25] Exports from LDCs benefit from duty-free market access to most developed countries and several developing countries. This includes, for example, 100 per cent duty-free access to markets in Australia, New Zealand, Norway and Switzerland. In turn, over 99 per cent of LDC exports are eligible for duty-free market access in Chile, the EU, Iceland and the UK, and at least 97 per cent in Canada, Japan and China.[26]

These socio-economic characteristics have important implications in the context of IPRs. For example, LDCs' reliance on primary commodities and agrarian activities (i.e. they are factor-driven economies at the first stage of economic development within the definitions of the World Economic Forum's (WEF's) Global Competitiveness Index (GCI) described in Box 2) means that the types of IPRs that are most relevant are likely to be trademarks and geographical indications, rather than patents, which are relevant for more advanced economies. Equally, LDCs have severely limited domestic financial resources, making it difficult for them to invest significantly in building capacity and institutions to administer IPRs and national IP regimes, amid multiple competing priorities for public spending. This is particularly the case if there is very low uptake of IPRs by domestic firms and residents.

2.4 LDCs in the WTO and the Commonwealth

WTO membership is a critical factor in unpacking the potential IPR-related implications and

Box 2: LDCs in the WEF's Global Competitiveness Index – stages of development

The WEF's GCI assumes a model of stages in economic development of a country and classifies countries according to three main stages. In the first stage, the economy is factor-driven and countries compete based on their factor endowments – primarily unskilled labour and natural, unprocessed commodities.

As a country becomes more competitive, it moves into the second, efficiency-driven, stage: productivity increases and wages rise. More efficient production processes and higher product quality become of key importance. Finally, as countries move into the third, innovation-driven, stage, competitiveness depends on sustaining high wages through the most sophisticated production processes and technological innovation.

The WEF GCI in 2017–2018 included 137 countries. Of these, a total of 26 were LDCs. Of these, 25 were classified as being in the first stage of economic development (factor-driven) and only one (Bhutan) as being in transition to the second stage (efficiency-driven).

Source: WEF (2017).

impacts of graduation for LDCs. This is because LDC WTO members will have to comply with the requirements and minimum standards of the WTO TRIPS Agreement immediately from the date of graduation, and they will lose their rights to the special provisions under the Agreement that they currently enjoy as LDC members, such as extended implementation transitional periods and special incentives for technology transfer. Non-WTO member countries will continue to be outside of the obligations of the WTO TRIPS Agreement once they graduate from the LDC category and will only potentially be affected if they are in the process of WTO accession or commence an accession process soon after graduation.[27]

There are currently 46 countries classified as LDCs by the UN, of which 16 are on the pathway to graduation. Of these 16, 10 countries are WTO members: Angola, Bangladesh, Cambodia, Djibouti, Lao PDR, Myanmar, Nepal, Senegal, Solomon Islands and Zambia. Four are in the process of WTO accession: Comoros, Bhutan, São Tomé & Príncipe and Timor-Leste. The other two are Kiribati and Tuvalu.

Overall, just under one-third of all LDCs (14 of 46) are Commonwealth members: Bangladesh, The Gambia, Kiribati, Lesotho, Malawi, Mozambique, Rwanda, Sierra Leone, Solomon Islands, Tanzania, Togo, Tuvalu, Uganda and Zambia. Of these, five Commonwealth LDC members are on the pathway to graduation (Bangladesh, Kiribati, Solomon Islands, Tuvalu and Zambia), and three of these are WTO members (Bangladesh, Solomon Islands and Zambia).

LDC graduation issues have garnered growing interest at the WTO following the adoption of the LDC Ministerial Declaration in 2017, which called for decisive action to support successful LDC graduation.[28] Paragraph 3.4 of that declaration is particularly relevant to the topic of LDC graduation in the WTO:

> *We request that development and trading partners to extend to the graduated country, trade preferences previously made available as a result of LDC status or reducing them in a phased manner in order to avoid their abrupt reduction. We further invite all WTO Members to extend to a graduated country the existing special and differential treatment related to implementation of the WTO agreements available to LDCs for a period appropriate to the development situation of that country.*

In the years that have followed, several graduation-related proposals have been made by the LDC Group in various WTO bodies, including one seeking a Ministerial Decision on LDC graduation.[29] These proposals are currently

Table 2.2 WTO and Commonwealth membership of the LDCs on path to graduation

LDC	WTO	Commonwealth	Graduation date
Angola	Yes	No	2024
Bangladesh	Yes	**Yes**	2026
Cambodia	Yes	No	Not yet scheduled
Djibouti	Yes	No	Not yet scheduled
Lao PDR	Yes	No	2026
Myanmar	Yes	No	Not yet scheduled
Nepal	Yes	No	2026
Senegal	Yes	No	Not yet scheduled
Solomon Islands	Yes	**Yes**	2027
Zambia	Yes	**Yes**	Not yet scheduled
Comoros	In accession	No	Not yet scheduled
Bhutan	In accession	No	2023
São Tomé & Príncipe	In accession	No	2024
Timor-Leste	In accession	No	Not yet scheduled
Kiribati	No	**Yes**	Not yet scheduled
Tuvalu	No	**Yes**	Not yet scheduled

Source: WTO (2023), Commonwealth Secretariat (2024), UN DESA (2023).

Table 2.3 Proposals by the LDC Group for the WTO smooth transition process of graduating LDCs related to TRIPS

Provision in TRIPS Agreement	Description	Treatment under the WTO smooth transition for graduating LDCs
Article 66.1	Implementation of the TRIPS Agreement other than Articles 3, 4 and 5, extended until 1 July 2034, or until the date when they cease to be an LDC, whichever date is earlier.	Transition period shall be extended for a period of [X years] after graduation from the LDC category or until the end of the final extension period granted to LDCs, whichever date is earlier.
Article 66.2	Developed countries to provide Transfer of Technologies (ToT) incentives in favour of LDCs.	Provision of ToT incentives shall be extended for a period of [X years] after graduation from the LDC category.

Source: Communication by Djibouti on behalf of the LDC Group at the WTO (December 2022).

under active negotiation between WTO members and the LDC Group. The latest published version of the LDC Group's proposal, dated 6 December 2022, includes two main elements designed to promote a smooth transition in the WTO of countries graduating from LDC status.

The first main element consists of extending unilateral trade preferences granted to LDCs over a period of six years from the date of their graduation from LDC status. A second element, as part of the WTO smooth transition process, consists of specific special measures for graduating LDCs within WTO Agreements listed in Appendix 1 of Annex 2 of the submission. In relation to the WTO TRIPS Agreement in particular, the LDC Group's proposal identifies two such specific special measures for consideration, as Table 2.3 shows.

3. IPRs and the WTO TRIPS Agreement

3.1 Different forms of IPRs: features and economic rationale

IP protection comes in many different forms, and it functions through various mechanisms. It is therefore important not to group them all together and to discuss the specific features and important economic rationale of each of the main types (patents, trademarks, plant breeder's rights, industrial designs, geographical indications and copyrights).

First, there are **patents**. These give the exclusive rights to an inventor to exclude others from making, selling or using the invention for a period of time, usually 20 years.[30] Patents create a protected market advantage; in turn, businesses need to share their technical knowledge and publicly disclose information on their inventions, which is crucial for growing the overall body of public knowledge. Key fields for patents are pharmaceuticals, chemicals, software and industrial machinery. Patents can help businesses grow by capitalising on the market potential of their inventions.

Smaller businesses can also utilise patents to leverage financial backing. Patents encourage the development of national industry because national businesses that possess patents are able to attract capital and investment to develop products for local markets and export. The revenue patents make can then be used to further invest in R&D. Patents are also crucial for local businesses in offering a system for acquiring technology and knowledge internationally through licensing agreements and encouraging the commercial transfer of technology between firms. One type of IP that is very similar is **plant breeder's rights**. These have fixed terms, novelty requirements and disclosure rules, aimed at incentivising development and the use of new seed varieties for agriculture.

Utility models (sometimes known as petty patents) protect 'minor inventions' in a similar manner to the patent system.[31] They are

intended to protect minor improvements to existing products, which do not fulfil patentability requirements but nevertheless play an important role in a local innovation system.[32] They do so by granting an exclusive right that prevents others from using the protected invention commercially, without authorisation, for a limited period.[33] Utility model systems generally have less stringent compliance requirements (e.g. lower level of inventive step) and simpler procedures compared with patents, while offering shorter terms of protection.[34] They are intended mainly to meet the needs of local innovators; the requirements and procedures to obtain protection, as well as the duration of protection, vary across countries.[35]

Another important form of IP is **trademarks**. This is a distinctive sign that identifies certain goods or services produced or provided by an individual or a company. This allows consumers to buy and identify a service or product based on its specific quality and features to meet their requirements. Again, this type of IP rewards owners with recognition and financial profit. It is especially important in combatting counterfeiters and unfair competition, who would otherwise be able to utilise the same signs to sell inferior or different goods or services. By granting these rights, companies are incentivised to invest in product quality and name recognition. In addition, this encourages licensees to protect the value of assets by selling goods of guaranteed quality levels.[36]

Industrial designs protect the person or business that has registered the design by giving them exclusive rights and protection against non-authorised use of the design by others. This is important for economic development in LDCs like Bangladesh, as it incentivises creativity in the artisanal manufacturing and light industrial sectors. Industrial designs are often quite simple and not expensive to create and protect, and like trademarks are a very accessible form of IP protection for smaller companies, artists or crafts-makers.[37] Examples of industrial designs relevant for domestic industry in Bangladesh would include the textiles and clothing sector.

A **geographical indication** is a sign used on a good with a particular geographical origin that gives it specific characteristics or a certain reputation. This is especially used for agri-food products, which gain more value commercially by association with a particular place. Common examples are champagne and Scotch whisky. Geographical indications function as product differentiators and can be crucial for businesses to develop brands for quality-bound-to-origin products. They can be used as a marketing tool for obtaining price premiums, and as a means to preserve traditional knowledge and traditional cultural expressions.[38]

Copyrights offer protection to artists, creators and authors for their artistic creations and works. For actors, musicians, producers, broadcasting organisations and film-makers, they offer incentives in the form of protection and economic returns for their work.[39] Copyrights are used for but not limited to paintings, newspapers, movies, musical compositions, drawings, photographs, technical drawings, architectures, novels, plays, poems, choreography, maps and computer programs.

3.2 What is the uptake of IPRs in LDCs on the path to graduation?

Very low levels of industrial property applications in LDCs

As Tables 3.1–3.4 show, LDCs have extremely low levels of applications for patents and most other forms of IPRs compared with developed countries, reflecting their weak science, innovation and technological base and small market size.[40] The ratio of R&D expenditure in LDCs as a share of GDP was 0.6 per cent or less between 2011 and 2017, compared with some 2 per cent of developed countries' much larger GDP.[41] According to data compiled by WIPO, between 2010 and 2018 the number of patent applications filed by residents of LDCs doubled, from 835 to 1,634. However, as a share of patents globally, the figure is close to zero.[42]

Predominance of foreign IPR applications

For most LDCs on the path to graduation, the vast majority of patent applications are from foreign rights holders rather than from national firms, researchers and inventors. Angola is an exception, but typically patent applications from foreign rights holders make up 90 per cent of the total in graduating LDCs. In some graduating LDCs, such as Bangladesh, Cambodia, Lao PDR and Zambia, applications for trademarks are starting to reach significant levels, suggesting that, even for firms in LDCs, these are a valuable, relevant and accessible form of IP protection, unlike patents.

Table 3.1 Patent applications in the 16 LDCs on the path to graduation, 2020

Country	Total applications	Resident	Non-resident
Angola	85	85	0
Bangladesh	402	40	362
Bhutan	6	0	6
Cambodia	248	0	248
Comoros	n/a	n/a	n/a
Djibouti	n/a	n/a	n/a
Kiribati	n/a	n/a	n/a
Lao PDR	n/a	n/a	n/a
Myanmar	n/a	n/a	n/a
Nepal	n/a	n/a	n/a
São Tomé & Príncipe	n/a	n/a	n/a
Senegal	n/a	n/a	n/a
Solomon Islands	n/a	n/a	n/a
Timor-Leste	n/a	n/a	n/a
Tuvalu	10	0	10
Zambia	27	16	11
For comparison			
China	1,497,159	1,344,817	152,342
UK	20,649	11,990	8,659

Source: WIPO (2021c).

Table 3.2 Trademark applications in the 16 LDCs on the path to graduation, 2020

Country	Total applications	Resident	Non-resident
Angola	3,920	2,546	1,374
Bangladesh	13,691	9,782	3,909
Bhutan	2,362	255	2,107
Cambodia	12,918	n/a	n/a
Comoros	n/a	n/a	n/a
Djibouti	n/a	n/a	n/a
Kiribati	n/a	n/a	n/a
Lao PDR	5,599	n/a	n/a
Myanmar	n/a	n/a	n/a
Nepal	n/a	n/a	n/a
São Tomé & Príncipe	1,391	21	1,370
Senegal	n/a	n/a	n/a
Solomon Islands	n/a	n/a	n/a
Timor-Leste	n/a	n/a	n/a
Tuvalu	15	15	0
Zambia	5,280	1,993	3,287
For comparison			
China	9,345,757	9,116,509	229,248
UK	278,699	185,818	92,881

Source: WIPO (2021c).

Table 3.3 Industrial designs applications in the 16 LDCs on the path to graduation, 2020

Country	Total applications	Resident	Non-resident
Angola	n/a	n/a	n/a
Bangladesh	1,241	1,162	79
Bhutan	9	9	0
Cambodia	288	19	269
Comoros	n/a	n/a	n/a
Djibouti	n/a	n/a	n/a
Kiribati	n/a	n/a	n/a
Lao PDR	36	0	36
Myanmar	n/a	n/a	n/a
Nepal	n/a	n/a	n/a
São Tomé & Príncipe	n/a	n/a	n/a
Senegal	n/a	n/a	n/a
Solomon Islands	n/a	n/a	n/a
Timor-Leste	n/a	n/a	n/a
Tuvalu	n/a	n/a	n/a
Zambia	124	124	0
For comparison			
China	770,362	752,339	18,023
UK	32,731	21,361	11,370

Source: WIPO (2021c).

3.3 Principal international IP conventions

IP laws are almost always nationally focused. Nevertheless, some countries have agreed to provide minimum levels of IP protection and to protect IP created by nationals of other countries through international conventions and treaties.[43] WIPO administers over 20 treaties and conventions on the registration, classification and protection of IP; a selection of these are described briefly below. These international IP conventions are separate and independent from the WTO TRIPS Agreement, but a small number of them (principally the Berne Convention, the Paris Convention and the Rome Convention) are incorporated into the TRIPS Agreement by reference.

- The **Berne Convention**,[44] adopted in 1886, covers the protection of works and the rights of their authors. It is grounded in three basic principles and sets out minimum levels of protection as well as special provisions for developing countries.
- The **Paris Convention**,[45] adopted in 1883, applies to patents, trademarks, industrial designs, utility models, service marks,

Table 3.4 Geographical Indications in force in the 16 LDCs on the path to graduation, 2020

Country	Total
Angola	n/a
Bangladesh	3
Bhutan	n/a
Cambodia	7
Comoros	n/a
Djibouti	n/a
Kiribati	n/a
Lao PDR	n/a
Myanmar	n/a
Nepal	n/a
São Tomé & Príncipe	n/a
Senegal	n/a
Solomon Islands	n/a
Timor-Leste	n/a
Tuvalu	n/a
Zambia	n/a
For comparison	
China	8,476
UK	4,899

Source: WIPO (2021c).

geographical indications and unfair competition. Substantive provisions are national treatment, right of priority and common rules that member countries must adopt and follow (such as the right of inventors to be named in a patent application).

- The **Rome Convention**[46] provides conditions for the protection of performances, phonograms and broadcasts. It allows for usage-related limitations and exceptions in national laws, including with regard to private use, use of short excerpts for reporting current events, and use solely for the purpose of teaching or scientific research.
- The **Beijing Treaty**[47] on Audiovisual Performances was adopted in 2012. It deals with the IPRs of performers in audiovisual performances by affording them specific economic rights for their performances fixed in audiovisual fixations, such as motion pictures. These provide rights for: (i) reproduction; (ii) distribution; (iii) rental; and (iv) making available.
- The **Brussels Convention**,[48] or Satellites Convention, adopted in 1974, requires contracting states to implement appropriate measures to prevent any programme-carrying signal transmitted by satellite from unauthorised distribution on or from its territory.[49]
- The **International Union for the Protection of New Varieties of Plants (UPOV) Convention**[50] was established by the International Convention for the Protection of New Varieties of Plants, adopted in Paris in 1961 and revised in 1972, 1978 and 1991. Its objective is to provide an effective system for plant variety protection. This is achieved through the provision of blueprint regulation for implementation by its members in national law.
- The **WIPO Copyright Treaty (WCT)**[51] of 1996 is a special agreement under the Berne Convention covering the protection of works and the rights of their authors in digital settings. The Treaty also covers copyright protection for: (i) computer programs, whatever the mode or form of their expression; and (ii) compilations of data or other material ("databases").

In general, the membership of LDCs in international IP conventions is significantly lower than that of developing and developed countries, which largely reflects the lower policy emphasis on IP protection and institutional capabilities among LDCs governments rather than any particular barriers or constraints to joining. However, over time, membership of LDCs in international IP conventions has been increasing steadily. As Table 3.5 shows, most of the 16 LDCs currently on the path to graduation are members of several of these international IP conventions, predominantly the Paris Convention and the Berne Convention. Where a graduating LDC is already a member of these international IP conventions, their graduation from LDC status will not significantly affect or alter their membership terms. Myanmar and Timor-Leste are not members of any of the major international IP conventions. All of the 16 LDCs currently on the path to graduation are members of WIPO.

3.4 IP global systems and regional IP organisations

In addition to the global IP conventions discussed in Section 3.3 above, which set standards and rules for the protection of different forms of IPRs, there are also a number of IP global systems and regional co-operation organisations established to streamline and burden-share the tasks of administration of IPRs. Some of the main IP global systems, administered by WIPO, are discussed below, as well as regional co-operation initiatives of special interest to LDCs.

Regional and/or international co-operation in IP administration, even for developed countries, can play an important role in safeguarding the legitimacy of rights, reducing costs and raising efficiency in national IP administration.[52] In the case of patents, many countries rely to varying degrees on the European Patent Office (EPO) and the patent offices of the US and Japan, which are collectively responsible for the substantive examination for around 95 per cent of all applications globally.[53] It is important that graduating LDCs design their national IP regimes and institutions so as to take full advantage of the regional and international co-operation systems available, thereby allowing them to minimise costs and focus their scarce resources on priority national development objectives (e.g. expanding services that promote the use of IPRs by domestic firms, universities and small and medium-size enterprises (SMEs)).[54]

Table 3.5 Membership of selected international IP conventions by the 16 LDCs on the path to graduation (2023)

LDC	Berne	Paris	Rome	Beijing	Brussels	UPOV	WCT
Angola	No	Yes	No	No	No	No	No
Bangladesh	Yes	Yes	No	No	No	No	No
Bhutan	Yes	Yes	No	No	No	No	No
Cambodia	Yes	Yes	Yes	Yes	No	No	No
Comoros	Yes	Yes	No	Yes	No	No	Yes
Djibouti	Yes	Yes	No	Yes	No	No	No
Kiribati	Yes	Yes	No	Yes	No	No	Yes
Lao PDR	Yes	Yes	No	No	No	No	No
Myanmar	No	No	No	No	No	No	No
Nepal	Yes	Yes	No	No	No	No	No
Timor-Leste	No	No	No	No	No	No	No
Tuvalu	Yes	No	No	No	No	No	No
São Tomé & Príncipe	Yes	Yes	No	Yes	No	No	Yes
Senegal	Yes	Yes	No	Yes	Yes	No	Yes
Solomon Islands	Yes	No	No	No	No	No	No
Zambia	Yes	Yes	No	Yes	No	No	No

Source: WIPO (https://www.wipo.int/wipolex/en/treaties/summary).

IP global systems (administered by WIPO)

- The **Patent Cooperation Treaty (PCT) system** provides assistance to inventors seeking patent protection internationally, while also aiding the decision-making of patent offices regarding whether to grant patents and facilitating public access to technical information relating to inventions.[55] Through the PCT System, applicants benefit from only having to file one international patent application and can simultaneously seek protection for an invention in 157 PCT member countries, including 28 LDCs.[56]
- The **Madrid System**[57] enables the convenient and cost-effective registration and management of trademarks worldwide. Users can file one international trademark application and pay a single set of fees to apply for protection in up to 129 countries, including 18 LDCs.
- The **Hague System**[58] for the International Registration of Industrial Designs provides an international system for registering up to 100 designs in 94 countries by filing a single international application.
- The **Lisbon System**[59] sets a legal framework to facilitate the international protection of geographical indications in 38 contracting parties, covering 57 countries. Through a single registration procedure with WIPO, the Lisbon System grants registered geographical indications protection in several countries, based on an international register. To qualify under the Lisbon System, the geographical indications must be already protected as such in their contracting party of origin.

Regional IP organisations

- The **Organisation Africaine de la Propriété Intellectuelle (OAPI)** serves as a regional industrial property system to issue patent rights on behalf of, and in the name of, its mainly French-speaking member states (there is no system of country designations).[60] The members of OAPI do not have their own national industrial property administration systems and rely on the OAPI system for their industrial property law. OAPI effectively serves as a registering office for IPRs.[61]
- The **African Regional Intellectual Property Organisation (ARIPO)** serves as a regional industrial property system to facilitate the filing of applications for trademarks, patents or designs with effect in all of its mainly English-speaking member countries.[62] However, ARIPO members, retain their own national industrial property legislation and administration systems, with optional

membership of the protocols covering various forms of IPRs.[63]

- The **European Patent Office (EPO)** offers a patent validation system for patents that it has granted to developing countries and LDCs. Only Cambodia among the LDCs has operationalised this system, although there have also been discussions with other countries such as Angola and the African regional IP organisation OAPI. LDCs are able to impose conditions on the granting of rights under the EPO's validation system in line with their own national legislation (Cambodia has excluded patents for pharmaceuticals).[64]

In general, as with international IP conventions, the membership of LDCs in global IP systems is lower than that of developing and developed countries, which largely reflects the lesser emphasis on IP reforms rather than any particular barriers or constraints (although for some IP conventions there may be a need for updating of national IP regulations and for some specific upgrading of IP administration capabilities – e.g. of IT systems and staff training for membership of the PCT System and the Madrid System). However, over time, membership of LDCs in global IP systems has been increasing, albeit very slowly. For example, in the case of the PCT System, seven LDCs have joined over the past 20 years (Angola, Cambodia, Comoros, Djibouti, Lao PDR, São Tomé & Príncipe and Rwanda).

Of the 16 LDCs on the pathway to graduation, Cambodia is a member of the largest number of global IP systems (see Table 3.6), while seven countries are not members of any global IP system or regional IP organisation (Bangladesh, Kiribati, Myanmar, Nepal, Solomon Islands, Timor-Leste and Tuvalu).

3.5 Traditional knowledge, folklore and genetic resources

Access to and benefit-sharing from genetic resources

Genetic resources from developing countries and LDCs, such as plants, animals and micro-organisms, are valuable inputs into the life sciences, and traditional knowledge associated with them holds considerable scientific value as well as forming a key element of the economic

Table 3.6 Membership of IP global systems and regional organisations by the 16 LDCs on the path to graduation (2023)

LDC	IP global systems and organisations[a]					IP regional organisations		
	WIPO	PCT	Madrid	Hague	Lisbon	ARIPO[b]	OAPI[c]	EPO+[d]
Angola	**Yes**	**Yes**	No	No	No	No	No	No
Bangladesh	**Yes**	No	No	No	No	n/a	n/a	No
Bhutan	**Yes**	No	**Yes**	No	No	n/a	n/a	No
Cambodia	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	n/a	n/a	**Yes**
Comoros	**Yes**	**Yes**	**Yes**	No	No	No	**Yes**	No
Djibouti	**Yes**	**Yes**	No	No	No	No	No	No
Kiribati	**Yes**	No	No	No	No	n/a	n/a	No
Lao PDR	**Yes**	**Yes**	**Yes**	No	**Yes**	n/a	n/a	No
Myanmar	**Yes**	No	No	No	No	n/a	n/a	No
Nepal	**Yes**	No	No	No	No	n/a	n/a	No
São Tomé & Príncipe	**Yes**	**Yes**	**Yes**	**Yes**	No	**Yes**	No	No
Senegal	**Yes**	**Yes**	No	No	No	No	**Yes**	No
Solomon Islands	**Yes**	No	No	No	No	n/a	n/a	No
Timor-Leste	**Yes**	No	No	No	No	n/a	n/a	No
Tuvalu	**Yes**	No	No	No	No	n/a	n/a	No
Zambia	**Yes**	**Yes**	**Yes**	No	No	**Yes**	No	No

Note: EPO+ membership spans 39 EPO member states, one extension state (Bosnia and Herzegovina), four validation states where the agreement is in force (Cambodia, Republic of Moldova, Morocco, and Tunisia) and one future validation state in which the agreement is signed but not yet in force (Georgia).
Source: [a]WIPO (https://www.wipo.int/wipolex/en/treaties/summary); [b]ARIPO (https://www.aripo.org/member-states); [c]WIPO (https://www.wipo.int/wipolex/en/members/profile/OAPI); [d]EPO w

and cultural well-being of indigenous peoples and local communities across the world.[65,66] There are well-known examples of genetic resources and associated traditional knowledge having been used for the development of new medical treatments for cancer and diabetes, for example, leading to subsequent patent applications by firms in developed countries.[67] Some activities by companies hailing from developed countries have been criticised as 'biopiracy' – for instance, when they extract biological resources from developing countries rich in these resources without their permission, or acquire patents and attain profits through research based on those resources.[68]

The Convention on Biodiversity (CBD), which entered into force in 1993, vests the authority to determine access to genetic resources in national governments. However, international IP law is largely silent on control of access to genetic resources and traditional knowledge, and many developing countries and LDCs, particularly in Africa, regard this as a serious injustice. At the same time, within the CBD, there is flexibility and scope for countries to establish national *sui generis* protection systems.

Protecting traditional cultural expressions and folklore

Traditional cultural expressions and folklore are passed on over generations in communities through oral traditions and are collectively held. They can include music, dance, storytelling, myths, traditional designs, symbols, artworks and handicrafts. The protection of traditional cultural expressions/folklore is addressed to a certain extent in some international IP treaties, and a number of countries have established national *sui generis* laws for the protection of traditional cultural expressions or included provisions on these within their national copyright laws.

Among the 16 LDCs on the path to graduation, Nepal is an example of a country that has protected traditional cultural expressions in its main copyright legislation. Zambia is an example of a graduating LDC that has a combined *sui generis* law for the protection of traditional knowledge, genetic resources and traditional cultural expressions/folklore (see Box 3).

With developing countries and LDCs as the primary demandeurs, at the international level text-based negotiations have been underway for many years in the WIPO Intergovernmental Committee on IP and Genetic Resources, Traditional Knowledge and Folklore (IGC) towards the development of an international legal instrument or instruments that will provide effective protection for traditional knowledge and traditional cultural expressions. This work has included the consideration of flexibilities within conventional IP systems to allow for the enhanced protection of traditional knowledge and traditional cultural expressions, as well as *sui generis* adaptations to existing IP systems.

Box 3: Protecting traditional cultural expressions of indigenous peoples in Zambia

In Zambia, women of the indigenous Tongan community take part in basket-weaving, which presents a feasible and practical opportunity to generate an income. The baskets often serve a utilitarian purpose but the creative process draws upon generational knowledge and typically takes place in an open collaborative setting where innovative ideas, shapes, materials, tools and skills are shared among women.

The United Nations Declaration on the Rights of Indigenous Peoples states that indigenous peoples have the right to maintain control over their traditional knowledge and traditional cultural expressions as well as being recognised as IPR holders. The viability of IP systems to promote, protect and value the creative outputs of indigenous groups is debated, however. IP systems typically envisage a sole creator or inventor whereas the creative process and collaborative activities fundamental to cultural products like the Tonga baskets are indicative of collective ownership.

In Zambia, there has been a national effort to protect traditional cultural expressions through the Protection of Traditional Knowledge, Genetic Resources & Expressions of Folklore Act 2016. The legal framework addresses modes of protection and access to and use of traditional cultural expressions. Traditional cultural expressions are automatically protected from the point of their creation, as long as they are considered respective manifestations of cultural identity and heritage, meaning that formalities or registrations are not required. The Tonga baskets are de facto protected. The Act also outlines an extensive list of prohibited behaviours, including replication; publication; adaption; broadcasting; usage without credit to the traditional community; and distortion, mutilation or other modification in a derogatory manner.

Source: Musiza (2022).

Discussions are also underway within the IGC on the relationship between IP and access to and benefit-sharing in genetic resources, and the Committee is considering various options, including in relation to IP systems.[69] The IGC's negotiations are ongoing but have been effectively deadlocked for many years.

Diplomatic conferences scheduled in 2024 on genetic resources and traditional knowledge

In a move that came as a surprise to many who have been following the work of the IGC, in July 2022, at the initiative of the African Group, WIPO's General Assembly announced that two separate diplomatic conferences – on a proposed new Design Law Treaty (DLT), and on genetic resources and associated traditional knowledge – should take place by 2024.[70] The objective of the proposed DLT is to assist designers to secure easier, faster and cheaper protection for their designs, both domestically and abroad.[71] It seeks to achieve this by streamlining the global system for protecting designs through the elimination of red tape and faster protection procedures.[72] It is anticipated that the global community of designers could benefit from these changes, especially smaller-scale designers who have limited access to legal support to register their designs.[73] In this regard, a major contribution of the DLT would be to simplify the process for SMEs in low- and middle-income countries to obtain design protection overseas.[74]

In relation to genetic resources and associated traditional knowledge, text-based negotiations on a new international legal instrument in the area of IP have been ongoing in the WIPO IGC since 2010. The development of such an instrument within WIPO would help to tackle some of the IP-related questions and concerns raised by developing countries and LDCs in relation to access to, use of and benefit-sharing in these resources and knowledge systems. For example, one of the most widely supported ideas is for patent applicants whose inventions use genetic resources and associated traditional knowledge to disclose that and other related information in their applications.[75]

Many of the 16 graduating LDCs have interests in the area of improving national and international protection for genetic resources, traditional knowledge and cultural expressions. Hence, it is important that they participate actively in the negotiations leading up to the diplomatic conferences in 2024, mandated by WIPO's General Assembly. Equally, development partners, including the Commonwealth Secretariat and UN organisations such as the UN Conference on Trade and Development (UNCTAD), should stand ready to provide assistance to graduating LDCs (and LDCs and developing countries more broadly) to support their effective participation in such negotiations.

3.6 The WTO TRIPS Agreement and special provisions for LDCs

The WTO TRIPS Agreement covers the main categories of IPRs; incorporates certain other IP treaties; sets minimum standards of protection, enforcement and administration; and provides for the application of the WTO dispute settlement mechanism.

Special provisions for LDCs are outlined in the Preamble to the TRIPS Agreement, which recognises 'the special needs of the least-developed country Members in respect of maximum flexibility in the domestic implementation of laws and regulations in order to enable them to create a sound and viable technological base.'[76] LDC members enjoy specific flexibilities in implementing the Agreement, including through a general transition period and one specifically for pharmaceuticals, as well as provisions obliging developed countries to incentivise their enterprises and institutions to transfer technology to LDCs.[77] As with developing country members, LDC members also benefit from provisions requiring developed countries to provide technical assistance to them for implementation of the Agreement, and reinforcement and upgrading of national IP systems.

The special flexibility available to LDCs for implementing the TRIPS Agreement is enshrined in Article 66.1. This originally stipulated an 11-year transition period for LDCs, allowing them to delay the implementation of the Agreement's provisions – aside from those containing the core non-discrimination principles – until 2005. Thus far, the transition period has been extended three times (2005, 2013, 2021), with the latest extension valid until 1 July 2034 or the date on which a member ceases to be an LDC, whichever is earlier.[78]

As stated above, LDCs also benefit from a specific transition period for pharmaceutical products. Originally, the Doha Ministerial Declaration on the TRIPS Agreement and Public Health provided an exemption for LDCs from protecting patents and undisclosed information for pharmaceutical products until 1 January 2016.[79] The transition period was subsequently extended until 1 January 2033, or until the date on which a member ceases to be an LDC, whichever is earlier.[80] To complement the extension, the General Council also agreed a waiver that exempts LDCs from applying mailbox requirements and exclusive marketing rights during the transitional period.[81]

The TRIPS Amendment provides a permanent legal basis for the exclusive use of compulsory licensing for export to improve access to medicines in countries that have limited or no manufacturing capacity in the pharmaceutical sector.[82] It provides special dispensation for LDCs to capitalise on opportunities for regional exports and certain notification requirements.[83] The Amendment allows developing country members or LDCs that produce or import pharmaceuticals under compulsory licences, and that are party to a regional trade agreement in which half of the members are LDCs, to export pharmaceuticals to other parties to that trade agreement.[84]

There are specific notification requirements associated with using the special system of compulsory licensing.[85] A WTO member seeking to import a pharmaceutical product must submit notification of its intention to use the system and to confirm that it does not have sufficient manufacturing capacity in the pharmaceutical sector to produce the product domestically.[86] LDCs are deemed to be eligible importers and to possess insufficient manufacturing capacity in the pharmaceutical sector, and so do not need to fulfil these requirements.[87]

When the transition period comes to an end, graduating LDCs that are members of the WTO would not typically be expected to provide retrospective protection in the area of technology, as it is generally only necessary to extend patent protection to newly eligible subject matter.[88] As explained above, due to the transitional arrangements accorded to LDCs for the implementation of the TRIPS Agreement, they are exempt from applying most of its provisions (except for most-favoured nation (MFN) and national treatment obligations). This means that they are also exempt from most TRIPS notification requirements.[89]

The impact of graduation on the use of compulsory licensing for access to medicines will be mixed. According to a recent publication by the WTO Secretariat, on the one hand, graduated LDCs will still be allowed to use the system of special compulsory licensing to access medicines produced internationally.[90] On the other hand, however, once graduated they would be required to notify their intention to use the system and, in the case of notifications specifically concerning pharmaceuticals, they would need to provide evidence that they possess insufficient or no manufacturing capacity in the pharmaceutical sector.[91] The potentially cumbersome procedures may therefore limit the effectiveness of this mechanism as a solution for graduating LDCs compared with the special treatment and exemptions they currently enjoy for accessing low-cost medicines for public health.

3.7 Technology transfer and technical assistance for LDCs under the TRIPS Agreement

Technology transfer

Many patented technologies from industrialised countries could be useful in advancing economic and social development in LDCs. However, LDCs lack the financial resources to acquire and adopt these proprietary technologies and the small market size of many LDCs means firms from industrialised countries lack incentives to transfer them for purely commercial reasons. As global IP rules have been tightened up and made more uniform via the TRIPS Agreement, at the same time emphasis has been placed on measures to ensure that transfers to LDCs of proprietary technologies, protected by IPRs, are not unduly restricted as a result.

Article 66.2 of the TRIPS Agreement stipulates that developed country members of the WTO are obliged to incentivise enterprises and institutions in their territories to promote the transfer of technology to LDCs. Following a decision by the TRIPS Council in February 2003, these countries are obligated to submit annual reports detailing the actions they have taken or plan to take in order to meet their commitments under Article 66.2.[92] To support this process, the WTO Secretariat has organised annual workshops since 2008 with the

aim of highlighting and enhancing the benefits available through the transparency mechanism relating to technology transfer measures under Article 66.2, and to help promote co-ordination and dialogue between the developed countries reporting their actions and their intended LDC beneficiaries.[93]

LDCs have expressed disappointment over the operationalising of technology transfer by developed countries under Article 66.2 of the TRIPS Agreement, and there have been several initiatives within the WTO that have aimed to enhance performance on this obligation, albeit with limited success to date. Outside of the WTO, within the UN system, the importance of expanding technology transfer and upgrading national innovation systems for LDCs was recognised with the establishment of the UN Technology Bank for LDCs in 2018, following a commitment made in the Istanbul Programme of Action for LDCs 2011–2020 (see Box 4). All 46 LDCs are eligible for support from the Bank, including graduating countries for five years after their graduation. The Commonwealth Secretariat signed a Memorandum of Understanding in November 2020 to enhance co-operation with the Bank.

IP-related technical and financial assistance

Under Article 67 of the TRIPS Agreement, developed country members of the WTO have formal obligations requiring them to provide technical and financial assistance to developing countries and LDCs in support of their implementation of the TRIPS Agreement and to reinforce their national capacities for IP policy-making, administration and enforcement.[94] Therefore, even as they graduate from LDC status, the 16 countries currently on the pathway to graduation will still be eligible for technical and financial assistance under Article 67 from developed country WTO members.

As the annual submissions under Article 67 to the WTO TRIPS Council since 1995 reveal, most developed countries can be said to be, or to have been, providers of IP-related technical assistance to developing countries (e.g. the EU and its member states, the US, Australia, Canada, Japan, New Zealand, Norway and Switzerland), although there have been much lower levels of technical assistance activities reported where the beneficiaries have been LDCs. Such technical assistance is provided by developed countries either bilaterally (occasionally via national development co-operation agencies but principally through national IP offices) or multilaterally (via contributions to UN agencies and other international organisations, such as the European Commission in the case of the 27 member states of the EU).[95]

The principal international organisations involved in the provision of IP-related technical assistance to developing countries are WIPO, EU/EPO/EUIPO (the EU Intellectual Property Office), the Swiss Federal Institute of Intellectual Property (IPI), the World Bank and UNCTAD.[96] WIPO and EU/EPO/EUIPO are the most significant donor organisations involved in IP-related technical co-operation activities. Some developing countries in the process of accession to the WTO receive advice from UNCTAD regarding implementation of the TRIPS Agreement, and the organisation also produces research on IP and development issues. Several smaller organisations, including the South Centre in Geneva, also undertake IP-related research and provide technical assistance to developing countries.[97] Collection societies in Africa have benefited from assistance in the specific area of collective copyright

Box 4: UN Technology Bank for LDCs

The UN Technology Bank was established in 2016 by the UN General Assembly and became operational in 2018. The Bank works in all 46 LDCs and has three main programme activities: (i) technology needs assessments; (ii) technology transfer and capacity-building; and (iii) strategic partnerships and advocacy. The Bank promotes an enabling environment for technology transfer, sustaining local technological capability-building and the development of innovation capacities.

As of August 2022, the Bank was undertaking or had completed technology needs assessments for 24 LDCs, including eight of the 16 LDCs on the pathway to graduation (Bhutan, Bangladesh, Cambodia, Djibouti, Kiribati, Lao PDR, Senegal and Timor-Leste). It had also awarded over 80 scholarships in biotechnology and industrial engineering and provided access for over 4,400 researchers in LDCs to professional online digital resources on health, agriculture, environment and innovation.

Source: UN Technology Bank for the Least Developed Countries (2022).

management, funded by the Norwegian government and delivered by Kopinor, a Norwegian reproduction rights organisation.[98]

The types of technical assistance that donor organisations have provided fall into the following broad categories: (i) general and specialised training on IPR topics; (ii) legal advice and assistance with preparing draft laws to incorporate international IP conventions; (iii) support to modernising IPR administration offices (including automation and software for digital processing of IPRs) and collective management systems; (iv) access to patent information services (including search and examination); (v) strengthening IPR enforcement through capacity development with police, customs and judges; and (vi) promoting awareness and use of IP to support local innovation and creativity. Much of this has focused broadly on training and human resource development, including through support from the WIPO Academy.[99] Assistance to automate and digitise IP administration in developing countries, LDCs and regional IP organisations has also become increasingly significant.

Assessments of priority needs for IP-related technical and financial assistance in LDCs

As part of its November 2005 decision to extend the implementation period for LDCs under Article 66.1 of the TRIPS Agreement, the WTO TRIPS Council invited LDCs to prepare and submit assessments of their priority needs for IP-related technical and financial assistance. To operationalise this process, with assistance from the UK Government's Department for International Development, a diagnostic toolkit for completing the needs assessments was prepared and piloted in Sierra Leone and Uganda.[100]

In 2007, these two countries subsequently became the first LDCs to prepare and submit formal needs assessments to the WTO TRIPS Council for priority IP-related technical and financial assistance. In total, between 2007 and 2013, nine LDCs prepared and submitted such assessments (Bangladesh, Madagascar, Mali, Rwanda, Senegal, Sierra Leone, Tanzania, Togo and Uganda). Although there has not been any systematic review of the extent to which these priority needs have been met, an external review commissioned by the WTO Secretariat in 2013 found there had been only a very limited response and engagement by WTO developed country members, and in fact IP-related technical assistance flows to LDC WTO members in general had fallen dramatically between 2008 and 2012.[101]

WIPO Support Package for Graduating LDCs

More recently, to address this deficit, WIPO has launched a new initiative known as its *Support Package for Graduating LDCs* (see Box 5). While this offers a very good menu of support

Box 5: WIPO's Support Package for Graduating LDCs

WIPO's support package was developed in 2022 at the initiative of Director General Daren Tang in response to requests made by LDC member states and to provide more targeted support on their preparation for graduation. The package is in line with the spirit of the WIPO Medium-Term Strategic Plan, and its core elements are drawn from the framework initiative – WIPO Deliverables for LDCs for 2022–2031 – developed to contribute to the relevant goals of the Doha Programme of Action for the LDCs for 2022–2031, including those on assisting LDCs in their graduation.

In this spirit, the package aims to provide targeted, substantive and impactful technical assistance to the LDCs that are scheduled for graduation. It provides an overall framework with a list of available projects and activities, based on which a country-specific graduation support programme will be developed upon consultation with the graduating LDC. The projects and activities will be funded from the regular budget of WIPO assigned for technical assistance for member states.

In terms of target beneficiaries, it is planned to offer the graduation support package as a first step to the seven LDCs scheduled at present for graduation (Angola, Bangladesh, Bhutan, Lao PDR, Nepal, São Tomé & Príncipe and Solomon Islands), and later to the other nine LDCs that are on the path towards graduation. LDCs that are WIPO member states are eligible for support. Requests for IP-related technical assistance have so far been received from Angola, Lao PDR and São Tomé and Príncipe. WIPO is holding consultations with these countries to assist in identifying priority needs from both the IP and the development perspectives, in line with their respective national transition strategies or graduation preparation plans. The provision of assistance is expected to start in 2023, after the country-specific programmes are finalised.

Source: Communication from WIPO (January 2023).

for graduating LDCs, an important limitation is that it does not have an earmarked overall budget of significant new funding. Requests from graduating LDCs will have to be met from WIPO's regular budget and be balanced against other competing needs facing the organisation.

4. IP and development: a conceptual framework

4.1 IP and economic development: what does the theory tell us?

In any country, the IP system has two main economic development objectives. The first is to encourage investment in knowledge creation and innovation by granting exclusive rights to trade and use newly created goods, services and technologies. Without IP systems in place, rival firms can utilise economically valuable knowledge and information without paying any compensation, giving them little incentive to bear the costs of investing in research and commercialisation activities. The second objective is to encourage dissemination of new knowledge, products and technology by requiring IPR holders to share their ideas or inventions with society.

Applying this standard conceptual framework for IP protection is more complex for LDCs than it is for more advanced economies. As noted in Box 2, LDCs are typically factor-driven, agrarian economies that lack a strong industrial, scientific and technological base. Accordingly, there is very little uptake of industrial property rights,[102] and simply introducing stronger IP protection regimes will not alter these fundamental economic constraints and characteristics, or promote structural economic transformation. While there are grounds for expecting that LDCs can potentially utilise certain IPRs like trademarks and geographical indications to underpin business strategies aimed at capturing more value from their commodity-focused exports, weaker rather than stronger IP protection systems overall, which encourage wider, cheaper technology and knowledge diffusion, are likely to be more appropriate in LDCs given their stage of economic development.

Stronger IP protection systems become more appropriate once countries move towards the stage of innovation-driven economic development, where uptake of IPRs by domestic firms and residents increases substantially, and where there are much broader, deeper capacities for production, science, research and adoption/adaptation of technologies in economic sectors.

Balancing the trade-offs

There is often an inherent trade-off between the policy objectives in a national IP system. A weak IP system could lead to less innovation and deter businesses from investing in R&D, whereas a very stringent and overly protective IP system could hinder the social gains from innovation and invention by lowering the incentive to disseminate its benefits. An IP system that encourages economic development is therefore all about striking the right balance between the interests of innovators and the wider public interest.[103]

Too stringent levels of IP protection in LDCs is therefore not the optimum approach. Instead, LDCs should seek to tailor the strength of IP protection as much as possible to national factors such as their economic structure, export basket, stage of economic development, levels of science and education, and strength of R&D institutions, to ensure the promotion of domestic scientific and technological capability and technology diffusion that supports their development objectives.[104] In particular, there would be less emphasis on strengthening the patent regime and more on (i) strengthening protection of forms of IPRs like trademarks, geographical indications and copyrights and (ii) encouraging firms to make more use of these IPR types by improving administration, enforcement and education schemes.

Currently, the architecture of global IP rules allows the policy space and flexibility for LDCs to tailor their national IP systems to suit their national contexts (not all LDCs have chosen to treat this as a priority area of public policy of course). However, for graduating LDCs, although national economic factors and stage of economic development may be fundamentally unchanged following graduation, the uniform

requirements and minimum standards of the WTO TRIPS Agreement will greatly constrain their flexibility to tailor and adapt their domestic IP regimes to align with these national factors.

4.2 Sectoral considerations regarding IP protection

In any economy, the importance of IP protection, and the type of IP protection, varies by economic sector. In general terms, patents are important for high-tech manufacturing industry sectors; trademarks, geographical indications and industrial designs are important to agri-business, food and drink, ceramics, electronics, fashion, and textiles and clothing; and copyrights are important for the creative or cultural industries (such as music, film and publishing). IP protection for computer software industries is important but can take the form of various types of IPRs, such as patents, trademarks and/or copyrights.

Clearly, drawing on the earlier sections of this report, it follows from this sectoral analysis that the relevance of IPRs to LDCs as a tool for promoting economic development will be much more limited in scope than is the case in advanced, industrialised economies that are at the innovation-driven stage of development (see Box 2). For factor-driven economies with typically commodity-focused exports like LDCs, strengthening patent protection to encourage high-tech manufacturing, pharmaceuticals and electronics is simply not a relevant policy measure for their stage of economic development.

On the other hand, IPRs that will be more important are those such as trademarks, industrial designs and geographical indications, which can be relevant for the growth of agri-business, textiles and low-tech manufacturing (e.g. furniture and ceramics), particularly if these can be used as part of business strategies to capture more value from exports. Certain types of copyright can also be important elements in the development of creative industry sectors such as music, film and publishing in LDCs.

Industrial property

A recent study by the UK Intellectual Property Office provides an in-depth analysis of usage and value of IP by different sectors in the UK economy.[105] Patents were highly used and valued in sectors such as vehicles, pharmaceuticals, electronics, glass, machinery, engineering and life sciences. Trademarks, the largest category of registered IPRs in the UK, were highly used and valued in a large number of sectors, including food and beverages, wines and spirits, retail, computer games, information services, directories and website portals. Industrial designs were highly used and valued by sectors such as flooring, cutlery, furniture, toys, domestic electrical equipment, luggage, bottled drinks, clothing and textiles, and sports goods.

Obtaining patent protection is the least likely to be important for firms and R&D organisations in LDCs, given their low manufacturing base and weak innovation systems. As the case of Bangladesh's pharmaceutical industry shows (see Box 1), the absence of a strong patent protection regime is likely of more importance for technology acquisition and diffusion in LDCs.

Conversely, there is much more potential for LDCs from trademarks, industrial designs and copyrights. Geographical indications may offer significant economic opportunities for products of distinctive origin but there are still relatively few successful examples of LDCs using these forms of IPRs to generate significant enhanced revenues through higher prices. This suggests there is unexploited potential for LDCs to add value to their exports through these IP tools. Industrial designs are more widely used, for example in Bangladesh, as they incentivise creativity in the artisanal manufacturing, textiles, ceramics and light industrial sectors. Industrial designs are often quite simple and not expensive to create and protect, and like trademarks are a very accessible form of IP protection for smaller companies, artists or crafts-makers.[106]

In the agriculture sector, plant variety protection is an important form of IPR that can be established through either the patent system or another *sui generis* regime. For graduating LDCs with strong dependence on agriculture sectors and large numbers of people engaged in subsistence agriculture, there is a considerable literature on the importance of maintaining farmers' rights to save and reuse seeds for their own use, even if these are protected varieties, to ensure food security.

Copyright and related rights

Regarding copyright and related rights, as these subsist for artists, musicians, authors

or film-makers without formal registration, these can be valuable for graduating LDCs even if they typically lack productive capacity and a strong technology and innovation base. Creative goods exports, although still at low levels, have an increasing significance for LDCs. According to UNCTAD's Creative Economy Outlook for 2022, LDCs increased their creative goods exports more than 17-fold between 2002 and 2020, albeit from a low base in terms of the share of global creative goods exports.[107] At the same time, there is an extensive and established international practice in national laws of balancing copyright protection with limited exceptions for fair use, including usage of protected works in libraries, schools, universities and private homes. These fair use exemptions are therefore important for graduating LDCs to consider and evaluate when undertaking reforms to the copyright regime.

4.3 Capturing more value from IP-based export strategies

There is clear potential for graduating LDCs to seek to capture more value from their export value chains through IP-based strategies, particularly from trademarks and geographical indications. Trademarks and geographical indications are relatively simple to secure, and exporting firms can use them as part of a branding strategy to increase product recognition and loyalty from consumers. They can also be used to support licensing/franchising in overseas markets. As a related effect, exporting firms in graduating LDCs may therefore gain incentives to improve the quality management of their products and services, potentially further increasing prices and sales.

Boxes 6 and 7 present case studies from two LDCs, Cambodia and Ethiopia. In Cambodia, registration of a geographical indication helped boost prices and production of Kampot pepper exports, which again fed through to increased incomes for farmers and farm workers in the producing regions. In Ethiopia, trademark registration and licensing of fine coffee in export markets was used to successfully increase the value of coffee exports for producers in the country.

A report prepared by Light Years IP for the UK Department for International Development in 2008 drew on the experiences from the trademarking of Ethiopian fine coffee in export markets and sought to estimate the potential scope for LDCs in Africa to capture increased export income from other products using IP-based business strategies.[108] Table 4.1 presents the results from the study, which included some very significant increases in export income potential for mostly agri-food products in Ethiopia, Madagascar, Mozambique, Senegal, Sudan and Uganda.

4.4 Domestic innovation, FDI and technology transfer

IPRs potentially offer multiple economic benefits. One crucial benefit is that they encourage domestic product innovation and technological development. A lack of IP protection can slow technological development even in countries with low economic development, as much product innovation and invention is aimed at domestic markets; therefore, domestic IP protection can be highly beneficial.

Most often, 'new' inventions actually entail minor changes to existing products and technologies. The accumulated impacts of these small inventions are important for growth in knowledge and product activity. Companies increasingly have to use new management and organisational systems and techniques for

Table 4.1 Potential income gains for selected African LDCs from IP-based export strategies

Product	Export income (US$, 2008)	Potential income (US$, annual)	Increase in share (%)
Sudanese cotton	44,000,000	90,000,000	105
Senegalese tuna	31,200,000	100,000,000	221
Mozambican cashews	32,000,000	72,000,000	125
Ugandan vanilla	10,000,000	90,000,000	800
Madagascan cocoa	6,000,000	25,000,000	317
Ethiopian leather	90,000,000	500,000,000	456

Source: Light Years IP (2008).

Box 6: Geographical indications boost Cambodia's exports of Kampot pepper

Kampot pepper, which has been grown in Kampot and Kep in Cambodia since the 13th century, has been registered as a geographical indication since 2010. The geographical indication is now protected both in Cambodia and in the EU via the Lisbon System administered by WIPO. Kampot pepper is unique in that it maintains its colour when dried, is the sweetest of its kind and is also costly to produce since it demands a longer, more labour-intensive, growth period. It is distinguished by its jasmine-like aroma and grows best at the foot of the mountains owing to high levels of quartz in the soil.

Following its registration as a geographical indication, the product's export sales surged, with almost 70 per cent of output going to foreign markets. The average purchase price (at the farm gate) also tripled, going from an average of US$7.50 before registration to $22.70 10 years later. According to the Department of Intellectual Property of the Ministry of Commerce of Cambodia, the value of Kampot pepper production in 2019 reached more than $1 million, up from $70,000 in.2009. UNCTAD has also collected data on the direct economic benefits to rural communities as a result of the introduction of geographical indications to brand their products. After the registration of Kampot pepper as a geographical indication, the average take-home monthly pay of farm workers increased from $35 in 2010 to $100 in 2015.

Source: UNCTAD (2014) and WIPO (2021a).

Box 7: How trademarks helped Ethiopia capture more value from its fine coffee exports

Ethiopia is an LDC and is well known for its fine coffee, which is a superior product in high demand, recognised and respected by fine coffee drinkers for centuries.

Historically, prices were effectively set by five large European coffee importers possessing considerably more negotiating power than Ethiopian exporters. Consequently, Ethiopia's export earnings constituted just 5 per cent of the estimated US$2,000 million in retail value generated annually by the country's fine coffees. Moreover, owing to these inadequate price incentives, one million fine coffee farmers were deriving only half the potential value from their land.

To alter the balance of power, Light Years IP assisted Ethiopia to seize control of the fine coffee brands and their distribution. Ethiopia filed trademark registrations all around the world, with assistance from highly skilled trademark lawyers. The country licensed distributors across major global markets by invoking a trademark owner's authority to restrain trade. After 25 companies that bought and imported coffee had signed licences, the balance of negotiating power shifted in Ethiopia's favour and the export price rose by 275 per cent. This resulted in a more than US$100 million increase in export income, net of commodity price changes.

Source: Light Years IP (2008).

quality control to become competitive. These investments may be costly but often lead to increased social returns as they are essential to lift productivity to the level of global standards.[109]

Strong IP systems also help entrepreneurs and new businesses by incentivising risk-taking and rewarding creativity. For lower-income countries, one type of IPR that can be useful in terms of domestic product innovation is utility models (a type of mini-patent, requiring a lower standard of invention and providing a shorter term of protection) to improve productivity in countries with less advanced technologies. For example, in the Philippines, utility models were able to incentivise adaptive invention of rice-threshers. Likewise, in Brazil, utility models were instrumental in aiding domestic producers to obtain a large part of the farm machinery market by encouraging adaptation of foreign technologies to local conditions.[110]

IPRs and FDI

IPRs are also potentially important for countries to attract FDI and encourage technology transfer. Several studies show that the strength of IP protection and the ability to enforce contracts influence decisions by multinational firms on where to invest and whether to transfer cutting-edge technologies.[111] One study in the post-TRIPS era looked at the impact of national IP protections on FDI and imports. The empirical analysis shows a positive relationship: '*On average, the results indicate a one-point increase in the IPR score (about 10 percent) will increase a country's FDI by $1.5 billion (50 percent of*

the mean amount) and imports by $8.9 billion (40 percent of the mean amount).'[112] Similarly, another study shows that, overall, estimates suggest that a '*1% strengthening of patent rights is associated with a more than 2% increase in the stock of inward FDI.*'[113]

Strong IP protection can encourage both FDI and imports, which, in turn, can spur technology transfer: '*goods, services, and capital are a source of knowledge as well as a source of inputs with which to conduct innovation.*'[114] This positive relationship is especially apparent for high-tech products, such as chemicals, aerospace and computer services. This evidence suggests that improving the protection of IPRs could be an important opportunity for some emerging markets to increase the attractiveness of their investment climate, particularly for multinational firms and knowledge-based industries.

However, as most graduating LDCs are still in the factor-driven stage of economic development, it is unlikely that they will attract significant levels of FDI in high-tech sectors, even with very high levels of IP protection. Indeed, IP protection alone is not sufficient to unlock technology transfer from FDI. Rather, it often forms just one element of a more overarching and wider set of complementary economic, industrial and investment policies. Complementary factors include improving human capital and skill acquisition; encouraging flexibility in enterprise organisation; bolstering a strong degree of competition in local markets; and developing a transparent, non-discriminatory and effective competition regime.[115]

4.5 Institutional capacity for IP administration, enforcement and regulation

While there has been considerable debate about the economics of strong versus weak IP protection systems in developing countries, institutional capacity issues in IP administration, enforcement and regulation have received less attention. In fact, weak institutions are a major *de facto* limitation on the design and operation of IP regimes that are better aligned with economic development objectives in LDCs. A cross-cutting issue of IP institutional capacity for many countries is the need to have clear institutional focal points for IP-related policy and regulatory issues across government, but with a strong lead agency, such as a national IP office, that not only administers and manages IPR applications on a financially self-sustaining basis but also supports policy-makers with technical expertise and data; engages with the business, academic and legal community; and looks more broadly at supporting development and modernisation of the national IP and innovation system in the country over the long term.

IP administration

Receiving and formally examining applications, registering or granting rights, publication and handling potential oppositions all form part of the administration of industrial property rights.[116] Since IPRs have set expiration dates, additional steps must be taken to complete renewal procedures and document decisions.[117] The most difficult aspect of the administration process is the substantive review of patent applications, notwithstanding the reality that all procedures require properly trained staff and modern and automated information systems.[118] Some patent applications can contain thousands of pages of technical data in a wide range of technology fields, and substantive examination requires both highly specialised professional/technical competence in the relevant fields and access to sophisticated international patent information computer databases.[119] These levels of institutional capacity are out of the reach of most LDCs; and even if they could be established, the low volumes of patent applications received by IPR administration agencies in LDCs would make them very expensive and challenging to maintain. As Section 4.6 will discuss, LDCs can instead adopt a patent registration regime or choose to become a member of a system of regional or international co-operation.

Copyright and related rights require only minimal public administration.[120] Copyright subsists when a work is created or expressed, without the need for formalities such as examination for prior art or assessment for inventive step. Some LDCs (e.g. Angola, Bhutan, The Gambia, Kiribati, Nepal, Malawi, Mozambique, Sudan and Tanzania) have adopted some form of voluntary copyright registration system to facilitate the identification/recordation/transfer of legal ownership of creative works.[121] Similarly, some LDCs (e.g. Burkina Faso, Malawi, Nepal, Tanzania) have also established collective management societies, which enable the receipt of

royalties by licensing copyrighted works stored in their inventories by representing the rights of artists, authors and performers.[122,123] Overall, in the global digital economy, there is a need for a functioning 'copyright-related infrastructure' in LDCs, which helps manage rights across different platforms and ensures payment of royalties. In this way, it ensures that the national copyright regime supports the generation of jobs and revenues, and the long-term development of creative industries.

Enforcement

Enforcement of IPRs as private rights of inventors, creators, R&D organisations and firms is an integral part of a national IP system. Judicial independence, the speed at which injunctions can be obtained, judges' competence in IP matters, length of delays encountered in legal proceedings and the capacity of police and customs authorities to intervene in IPR cases all constitute key elements.[124] It is difficult to accurately assess the scale of IPR infringements in graduating LDCs as no reliable official statistics on the extent of IPR infringement in these countries are available. Nevertheless, it is evident that the most prevalent IPR infringement issues in most poor countries relate to copyright (counterfeiting of products such as computer software, music and films, which are easy to copy) and trademarks.[125]

The TRIPS Agreement sets out detailed minimum requirements for the enforcement of IPRs in Articles 41 through 61.[126] It provides a basic framework of measures for WTO members to ensure that legal remedies are accessible for all countries to enforce and protect IPRs.[127] For many graduating LDCs, meeting the requirements with these provisions of the TRIPS Agreement is likely to create a significant institutional burden for policing and judicial systems, civil and criminal procedures and customs authorities (in relation to border enforcement measures).[128] In many LDCs, existing judicial systems do not function effectively in any area of commercial law, much less for IP. Furthermore, close co-ordination between institutions responsible for IP administration and enforcement agencies is necessary to deliver an effective enforcement system.[129]

The private nature of IPRs suggests that it is important to resolve disputes between parties either out of court or using civil law.[130] Indeed, since state enforcement of IPRs requires significant resources, there is a strong case for graduating LDCs to design their national IP legislation to prioritise the use of a civil rather than a criminal justice system for enforcement, thereby lessening the burden of enforcement on the government (although state enforcement authorities would still need to intervene in the event of large-scale, wilful piracy and counterfeiting).[131]

Regulation

The regulation of IPRs by governments concerns matters of special public interest (as with compulsory licensing of pharmaceutical patents in public health emergencies, for example) or blocking and controlling anti-competitive practice by IPR holders (such as abusing their monopoly power or using restrictive contractual licensing).[132] Regarding the regulation of IPRs in cases of special public interest, Article 31 of the TRIPS Agreement sets out rules for the use of compulsory licensing that WTO members must observe. In practice, utilising these provisions may not be straightforward in LDCs, as the skills and judgements required in the administration of compulsory licences, such as deciding questions of 'reasonable commercial terms' and 'reasonable time period', are sophisticated.[133]

More widely, the economic case for countries to establish systems and instruments for the pro-competitive regulation of IPRs in domestic markets has been well documented since the coming into force of the TRIPS Agreement.[134] However, when considered from an institutional perspective, this area may present a significant challenge for policy-makers, administrators and enforcement agencies in developing countries:

> *Thus at the domestic level, the interface of antitrust law and IPRs has become a highly elaborate and specific area of competition law. It requires mastery of both general antitrust theory, such as the concepts of restriction, relevant market and market power, and intellectual property law. This complexity by itself and continuing divergence of views as to the relationship of intellectual property and competition explain why this area of the law has developed differently in various countries and why its application and enforcement pose so many problems.*[135]

To address the objectives of, *inter alia*, pro-competitive regulation of IPRs, many

developing countries and LDCs have adopted competition policies and laws. Some countries may have provisions within their existing IP legislation that deal with restrictive business practices related to IPRs.[136] However, it by no means follows that the existence of competition legislation in an LDC is a guarantee that there are competent, capable institutions able to implement the respective policies and legislation and conduct effective pro-competitive regulation of IPR issues.

4.6 Regional and international co-operation on IP administration

Regional and/or international co-operation in IP administration is used to ensure high validity of rights, reduce costs and increase efficiency in national IP administration, even by developed countries.[137] In the case of patents, many countries rely to varying degrees on the EPO and the patent offices of the US and Japan, which are collectively responsible for the substantive examination of the vast majority of applications globally.[138] It is important that LDCs design their national IP regimes and institutions in order to fully benefit from the regional and international co-operation systems that are available, especially for determining whether patent and trademark applications fulfil established standards and criteria for protection.[139] In practice, there are a number of options available for regional and international co-operation, some of which are already being used by LDCs.

Global IP systems such as PCT and Madrid

The first option is membership of the PCT System and the Madrid System. Under the PCT System, a small number of designated international search and examination authorities (among others the EPO and the national patent offices of Australia, Austria, China, Japan, Korea, the Russian Federation, Spain, Sweden and the US) perform technical search and examination.[140] Membership of the PCT System thus not only allows national patent offices to minimise the burden of search, examination and publication tasks but also enables domestic companies and inventors to obtain high-quality, international patent protection in all PCT members at relatively low cost since residents of developing countries receive a 75 per cent discount on all PCT fees.[141] At the time of writing, 157 countries were members of the PCT – the majority from developing countries, including more than half (28 of the 46) of the LDCs.[142] Membership of the Madrid System yields similar benefits for trademark administration.[143] At the time of writing, membership of the Madrid System (currently 129 countries) is considerably lower than that of the PCT and currently includes only 18 out of 46 LDCs.[144]

Use of international co-operation services for patent search and examination

An alternative option is to assign or contract out specific IP administration duties (essentially the substantive examination of patent applications) to another national or international patent office.[145] For example, the EPO offers a validation system for patents that have been granted by the EPO to developing countries and LDCs. The EPO would retain the initial fee for this additional designation to cover its expenses, but subsequent annual renewal fees (over up to 20 years) would be transmitted to the developing country in question.[146] Under the EPO's validation system, LDCs can impose conditions that must be met for the granting of rights that are in line with their own national legislation (Cambodia has excluded patents for pharmaceuticals).[147] In addition to these established co-operation mechanisms, developing countries can use WIPO's Patent Information Services (WPIS) for search and examination of individual patent applications.[148,149]

Regional IP administration organisations

The third option is to become a member of a regional IP administration system, where these exist.[150] There are currently four regional organisations of this nature spread across the developing world. The Eurasian Patent Office covering Eastern Europe and Central Asia has nine member states, including low-income countries such as Armenia, Azerbaijan, Kyrgyz Republic and Tajikistan. In the Arab region, the Gulf Co-operation Council Patent Office (GCCPO) comprises six member countries (but not Yemen, the only LDC in the region). Africa is home to two regional IP administration organisations: OAPI and ARIPO, which have 16 and 15 member countries, respectively. In addition, the six countries of the Andean Pact have adopted shared IP legislation (though this is administered separately by national governments) and there are ongoing efforts

to strengthen regional co-operation in the Caribbean (through regional collective management of copyright) and in Southeast Asia (via a common filing system for trademarks).[151]

Outside of these initiatives, there remain no regional IP administration organisations in Latin America, the Caribbean, Pacific, South Asia or Southeast Asia. The majority of the LDCs (27 of 46) do not currently belong to any regional IP organisations; however, 12 of the countries in the LDC group are within the African region and, hence, could join OAPI or ARIPO, and Yemen could join the GCCPO.[152] On account of their scope of membership, ARIPO and OAPI both play a significant role in the IP administration of a large number of the world's poorest countries.[153] Both organisations are also actively involved in training, harmonisation and the dissemination of patent information.[154]

5. Conclusions: strategic interests for graduating LDCs

5.1 Maintaining special and differential treatment within global trade rules

As reflected by the work of the LDC Group at the WTO, and its proposal for a Ministerial Decision on WTO smooth transition for graduating LDCs tabled in December 2022, graduating LDCs have clearly identified a strong strategic interest in maintaining special and differential treatment within international trade rules for countries after the point of graduation from LDC status. The central rationale is the concern that LDCs should not face immediate challenges upon graduation from LDC status that may undermine or disrupt their continued economic development and ability to meet key socio-economic policy objectives, such as ensuring affordable access to medicines for their populations.

The focus here with regard to IP has understandably been on the TRIPS Agreement, as this is subject to WTO dispute settlement and has been crafted to include a number of specific measures and flexibilities for LDCs, as described in Section 3, which currently would no longer be available to graduating LDCs at the point of their graduation from LDC status. As described in Section 2, in its December 2022 proposal for a Ministerial Decision on LDC graduation, the LDC Group has already included specific proposals for the continuation of two of these specific measures – namely, the implementation transition period for LDCs (provided by Article 66.1) and the obligation for developed country members to provide incentives for technology transfer to LDCs (provided by Article 66.2).

Less directly, but also of potential importance, the proposal by the LDC Group for the continuation of trade preference scheme benefits from developed countries for graduating LDCs is also significant here. This proposal is relevant because, without the continuation of these preference schemes, in practice graduating LDCs would face a pressing need to replicate the valuable export market access provided through the negotiation of bilateral or regional free trade agreements (FTAs) with developed countries. Through the negotiation of these FTAs with developed countries to replace the market access lost from trade preference schemes, there is the potential that graduating LDCs will by necessity be accepting undertakings for increasing national IP protection regimes (at the level of the WTO TRIPS Agreement or beyond), *even if* a continuation of the transitional period for implementation of the TRIPS Agreement for graduating LDCs has been agreed at the WTO. If this were to occur, it would mean that bilateral agreements would negate multilateral benefits.

Beyond the WTO system of trade rules, as noted earlier in this study there is also a strong case for the assessment of countries coming into/graduating out of the LDC category to take better account of levels of productive capacity and technological capability. The consequence of this would likely be that LDCs graduate more slowly from the category and have a longer

transitional period in which to benefit from special and differential treatment provisions available to them under global trade rules.

5.2 Utilising flexibilities to tailor national IP policy and legislation

Following on from this, at the national level graduating LDCs have a strategic interest in ensuring that they fully utilise flexibilities available to them within international IP rules when crafting national IP policy and legislation. While there is evidence that LDCs currently on the pathway to graduation have used some of these flexibilities (e.g. Bangladesh and Cambodia have excluded pharmaceutical products from patenting within their national patent regimes), there is scope for more work to be done in tailoring national IP policy and legislation by graduating LDCs. Here, there are three main areas of focus for graduating LDCs.

The first is the national patent regime, where there are well-established flexibilities within international IP rules such as the WTO TRIPS Agreement, such as exclusion of patents on plants; allowance of parallel imports; high standards for patentability and against patent ever-greening or very wide claims of patent applications; and compulsory licensing of pharmaceutical patents for public health emergencies.

The second area is the use of well-established educational, research and fair use exceptions with national copyright laws. Even Bangladesh, which has been active in IP-related legislative reform in recent years, has not fully utilised these types of flexibilities within its domestic copyright legislation for example.

The third area is utilising available policy space to align national IP policy and legal frameworks with national development priorities and to maximise benefits for economic growth from the local economic conditions. Examples here would include evaluation and choice of policy options on whether to establish a utility models regime; adopt protections for traditional knowledge, folklore and genetic resources; or join international IP conventions that are not formally incorporated within the scope of the TRIPS Agreement.

As part of its Development Agenda, in 2016 WIPO established an extensive database on utilisation by WIPO member countries – including coverage of 31 LDCs – of flexibilities within international IP conventions and agreements in their national laws and regulatory regimes.[155] This database, together with WIPO Lex, can provide an important resource for graduating LDCs and their development partners in identifying (i) the extent to which an individual graduating LDC is currently utilising available flexibilities within its national IP regime; and (ii) where there are gaps, highlighting those countries that have utilised the relevant flexibilities and making the corresponding piece of legislation readily available for study and reference.

5.3 Planning capacity upgrades of national IP systems strategically

As they progress along the path to graduation, LDCs have a strong interest in developing their national IP systems strategically and selectively in line with their socio-economic development objectives, rather than simply strengthening IP protection across the board or focusing only on compliance with obligations under global trade rules. The sequencing of reforms and capacity upgrading is also important to consider, as well as co-ordination across government ministries with responsibility for public health, industry, science and innovation, agriculture and creative industries. Establishing a well-resourced single national IP agency to take lead responsibility, under the supervision of a powerful sectoral ministry, is a pragmatic approach that developing countries like Pakistan and the Philippines have taken and that graduating LDCs can adopt.

Priorities for IP system upgrading

Within the national IP system, LDCs have a strategic interest in focusing their efforts on upgrading national systems for administration and enforcement of trademarks, industrial designs and geographical indications. These types of IPRs can be secured and utilised profitably even by SMEs in LDCs to capture more value from brands in domestic and export markets. As the case of Bangladesh shows, volumes of IP applications for these forms of IPRs can be substantial even in LDCs. Hence, with appropriate governance and autonomy of IP administration authorities, there is genuine potential for revenues from the administration of these systems to also be used to sustain and expand national IP systems for the future, rather than being a drain on public funds. At the same time, graduating LDCs should also plan to take maximum advantage of opportunities for

international and regional co-operation in IP administration, both to minimise costs but also to facilitate IP protection for exports in overseas markets.

Building capabilities for innovation, technology adoption and the creative industries

The final area where graduating LDCs should place emphasis is building national capabilities for innovation, technology adoption and the creative industries. Clearly, many initiatives for the development of creative industries and productive capacities in LDCs will need to go much wider than IP-related measures. IP-related interventions that can be considered to contribute towards accomplishing these objectives are awareness campaigns with industry and SMEs; establishing patent information services and technology transfer offices for the R&D sector; and providing a domestic regime of utility models for minor or follow-on innovations with lower requirements for demonstrating novelty and inventive step than patents. For the creative industries, IP-related interventions that can be given consideration include establishing collective management organisations to protect and manage rights in creative works and copyright registration services.

5.4 Operationalising technology transfer and IP-related technical co-operation

LDCs have a strategic interest in a better operationalisation of international commitments made to them in 1995 for technology transfer and building national IP and innovation systems. To ensure they graduate from the category with momentum,[156] graduating LDCs should seek a significant scaling-up in the delivery of technology transfer and technical assistance for upgrading their national IP and innovation systems over the medium term from developed countries and international organisations in line with obligations in the TRIPS Agreement Articles 66.2 and 67, and the aspirations of the Doha Programme of Action for LDCs 2022–2031.

Optimising technology transfer and adoption in LDCs

On technology transfer, the establishment of the UN Technology Bank for LDCs presents an important opportunity, and LDCs have a clear strategic interest in seeing the Bank deliver a full programme of activities and be well supported by development partners. In particular, it will be important that all graduating LDCs are able to work with the Bank to complete their technology needs assessments and technological capacity development action plans and communicate these to development partners as soon as possible. The LDC Group in the WTO should also seek to work with organisations like the UN Technology Bank and UNCTAD to document the extent to which successful technology transfers have been accomplished to LDCs based on incentives provided by WTO developed countries and to communicate these to the WTO TRIPS Council and ECOSOC.

Special mechanisms for IP-related technical and financial assistance to graduating LDCs

On IP-related technical and financial assistance, an important mechanism that graduating LDCs have a strategic interest in revitalising is the preparation and submission of needs assessments to the WTO TRIPS Council, using the diagnostic toolkit and approach adopted by the nine LDCs that have made submissions since 2007. To date, of the 16 LDCs on the path to graduation, only Bangladesh and Senegal have already completed and submitted such needs assessments to the TRIPS Council. In the case of these two countries, it is important to examine and engage with development partners on the extent to which the previously assessed needs for IP-related technical and financial assistance have been met or are still outstanding. More generally, it is vital that sufficient, dedicated funding streams be provided to deliver follow-on assistance programmes in graduating LDCs, particularly for those 10 graduating LDCs that are WTO members.

6. Recommendations

It is assumed that the proposal for a Ministerial Decision on LDC graduation tabled by the LDC Group at the WTO in December 2022, including the measures related to the WTO TRIPS Agreement in Annex 1 of the proposal, will be substantially agreed by WTO members at the 13th Ministerial Conference in the United Arab Emirates. Working on this basis, this study makes five principal recommendations that can be seen as complementary to the proposed Ministerial Decision and to maximise the benefits from it for graduating LDCs. These recommendations both leverage the particular strengths and convening power of the Commonwealth and its members and consider the needs of the wider group of LDCs as a whole, covering those countries already on the pathway to graduation and those that have not yet met the criteria.

Recommendation 1

The international community should convene a network of *LDC Graduation and IP Support Groups* for each of the graduating LDCs, with priority for those graduating LDCs that are WTO members or in WTO accession. Serving as a Facilitator, the Commonwealth Secretariat should work together with interested LDC governments, WIPO and other UN agencies in the LDC Doha Plan of Action Task Force and development partners to convene and back-stop the *LDC Graduation and IP Support Groups* for each of the three Commonwealth LDCs that are WTO members and currently on the pathway to graduation.[157]

- The Support Groups would bring together LDC governments and business groups with UN agencies and development partners, and provide a menu of support services, resources, experience-sharing and focus topics. This would include IP legislative reform models; international co-operation in IP administration; training for IP policy-makers, administrators and enforcement agencies; and needs assessments in relation to accessing and designing technical assistance programmes. WIPO would be a key partner, bringing its Support Package for Graduating LDCs initiative.
- The first Support Groups with the Commonwealth Secretariat acting as Facilitator should be established for Bangladesh, Solomon Islands and Zambia, as these countries are all on the pathway to graduation and are WTO members. Kiribati and Tuvalu are also on the pathway to graduation but, as they are not WTO members or in the process of accession, they would not be required to implement any obligations under the WTO TRIPS Agreement. It is recommended, however, that both countries be invited as observers to the Support Group for Solomon Islands at this time. Further, it is also recommended that Vanuatu be invited to join this Support Group, as a very recently graduated LDC and Commonwealth member country.[158] Similarly, even though Zambia is the only Commonwealth LDC member in Africa that is currently on the pathway to graduation, other Commonwealth LDC members, such as Rwanda, Malawi and Uganda, could be invited to join Zambia's Support Group as observers.[159]
- The role of the Commonwealth Secretariat as Facilitator would be to back-stop the work of the Support Groups, with a roster of Commonwealth technical expert consultants and a dedicated online resource on the Commonwealth website, providing information about each Group's activities, and curated links to knowledge products and contact points in partner organisations for specific IP-related issues (e.g., geographical indications) where LDCs can access further support.

Recommendation 2

All LDCs on the pathway to graduation should make particular efforts during their transitional period to ensure they have properly considered and evaluated the full range of flexibilities and options available to them within international IP rules, such as the WTO TRIPS Agreement, in designing their national legal and regulatory regimes for industrial property, copyrights and *sui generis* forms of IP protection such as plant variety protection. Development partners should stand ready to provide such technical assistance as LDCs may require to complete this type of evaluation and consideration of their policy options and flexibilities.

- There are a number of key areas to consider here linked to the interface between

a national IP regime and priority national development objectives such as public health, access to medicines, education and research. Examples of legislative flexibilities that LDCs can utilise with regard to industrial property regimes include exceptions to patentability for pharmaceuticals, compulsory licensing and parallel importing; with copyrights, flexibilities include fair use provisions and exceptions for schools, universities, news media organisations and research.

- Additionally, many LDCs will be concerned with ensuring they use available policy space to include evaluation of a wider range of IP legislative options such as establishing a utility models regime; adopting protections for traditional knowledge, folklore and genetic resources; and joining additional international IP conventions.
- Development partners, including UN agencies and the Commonwealth Secretariat, should expand and intensify their co-operation with graduating LDCs in this area, including through the initiative recommended above for the establishment of *Graduating LDCs and IP Support Groups*. There is a considerable body of existing international literature and a database of legal models available; rather than duplicating this work, the focus of co-operation with LDCs should be on signposting issues and resources, and providing practical technical assistance and capacity-building to LDC governments to utilise these effectively, considering advantages and disadvantages of different options, during their transitional periods.
- Careful attention also needs to be paid to the cases of LDCs that are negotiating accession to the WTO, such that flexibilities available to LDCs under the WTO TRIPS Agreement are not 'negotiated away' as part of the protocol of accession.

Recommendation 3

As LDCs in the graduation pipeline modernise their national IP systems tailored to their development objectives, national governments and development partners and look to establish balanced IP systems,[160] they should give the highest priority to upgrading the national trademarks system so that it operates efficiently and on a full cost recovery basis, with appropriate incentives for SMEs to utilise the system for protecting their brands domestically and abroad. Key priorities for upgrading will be the automation and financial sustainability of trademarks administration, improving the capacity of enforcement agencies to track and tackle commercial-scale trademark infringement and better education/support services for SMEs on registering and using trademarks as part of brand-based strategies.

- This emphasis is strategically important because the largest volumes of IP applications in LDCs are for trademarks, and typically a significant proportion of these applications come from IPR holders resident in the country, such as local firms and SMEs. Filing in an application for a trademark, supported by a local trademark attorney, is within the capabilities and means of firms and SMEs in LDCs. And, from the perspective of governments in LDCs, an administration of trademarks is much more feasible to establish and maintain compared with that of patents, and it is relatively straightforward to combine this with similar systems for the administration of industrial designs and geographical indications.
- National IP offices in graduating LDCs should set trademark application and renewal fees at the level of full cost recovery and review/update these regularly in line with administration cost increases and service improvements. As necessary, LDC governments can provide steep discounting on fees for trademark applications and renewals for SMEs (e.g. up to 95 per cent for firms meeting the criteria, such as level of annual turnover below a certain threshold), so as to provide an incentive for more domestic firms to protect their brands through the trademarks system.
- Membership of the Madrid System for Trademarks, administered by WIPO, would provide a cost-effective and efficient means for domestic firms from graduating LDCs to register their trademarks and protect their brands in international markets, thereby offering the potential to capture a much greater share of the value from exports.

- With efficient digital administration and improved awareness and enforcement regarding counterfeiting, national IP offices should retain revenues generated from trademark applications and renewals and reinvest them to finance subsequent upgrading priorities in line with national development objectives and to ensure sustainability of wider national IP and innovation systems over time.

Recommendation 4

To complement recommendations 1–3 in this study and to ensure LDCs graduate from the category with momentum, there needs to be a step-change in the delivery of technology transfer and technical assistance for national IP and innovation systems over the medium term, in line with obligations in the WTO TRIPS Agreement Articles 66.2 and 67 and the aspirations of the Doha Programme of Action for LDCs 2022–2031.

Two concrete and practical steps should be taken to facilitate this step-change rapidly for the 16 LDCs on the pathway to graduation and progress should be reviewed at dedicated high-level sessions at the 13th WTO Ministerial Conference in February 2024 in Abu Dhabi and the 14th WTO Ministerial Conference to be held in Cameroon (timing to be announced).

- First, LDCs on the pathway to graduation should work with the UN Technology Bank to complete their technology needs assessments and technological capacity development action plans. In addition, the LDC Group at the WTO should seek to work with the UN Technology Bank to document the extent to which successful technology transfers have been accomplished based on incentives provided by developed countries. Results from both work processes should be reported as soon as possible, and graduating LDCs should communicate requests to establish incentives for transfers of priority technology to WTO developed country members and the WTO TRIPS Council.
- Second, LDCs on the pathway to graduation should complete assessments of their priority needs for IP-related technical and financial assistance and submit these to the WTO TRIPS Council and WIPO (under its Support Package for Graduating LDCs initiative), using the diagnostic toolkit and approach adopted by the nine LDCs that have made submissions since 2007. As Bangladesh and Senegal have already completed and submitted such needs assessments to the TRIPS Council, the WTO Secretariat should organise a rapid review, in co-operation with both countries, of the extent to which the previously assessed needs for IP-related technical and financial assistance have been met or are still outstanding. Once completed, the reports of these reviews with lessons that can be learnt for improving the operation of Article 67 for graduating LDCs should be submitted to the WTO TRIPS Council.[161]

Recommendation 5

The CDP (a subsidiary organ of ECOSOC) should consider adding an additional indicator on technological and innovation capability for its assessment criteria for countries to be added to and graduated from the category of LDCs.

- The GlI developed and maintained by WIPO over 15 years represents a composite index measuring a number of technological and innovation capabilities for over 130 countries. WIPO measures these capabilities with a robust methodology on an annual basis and reports are published with datasets available online. WIPO's GII is made up of input indicators on institutions, human capital and research, infrastructure, market sophistication and business sophistication; as well as output indicators on knowledge and technology outputs and creative outputs.
- WIPO's GII would therefore be a good candidate source to be considered by ECOSOC for an additional indicator in its assessment criteria for countries to be added to and graduated from the category of LDCs.
- However, for it to serve as a viable indicator, WIPO would need to expand country coverage of the GII to all LDCs (at present only 21 LDCs are included in the index), overcoming existing data collection problems, and provide tailored reporting and insights for LDCs as a category within the index and its publications.

Notes

1 As this paper was written before Bhutan graduated from the LDC category in December 2023, it still refers to the group of 46 LDCs.
2 Moon (2008 and 2011); Saana Consulting (2013); Fox (2019).
3 United Nations (2022).
4 That said, after graduation these countries may have to address increased demand in patent applications primarily from foreign applicants, with potential impacts on their domestic industries.
5 UNCTAD (2023).
6 Ibid.
7 UNCTAD (2021).
8 Ibid.
9 Ibid.
10 UNCTAD (2023).
11 Ibid.
12 Ibid.
13 Ibid.
14 Ibid.
15 Ibid.
16 Cornell University et al (2016)
17 The full list is Botswana (December 1994), Cabo Verde (December 2007), Maldives (January 2011), Samoa (January 2014) Equatorial Guinea (June 2017) and Vanuatu (December 2020). Bhutan graduated from the LDC category in December 2023, after this paper was written.
18 UNCTAD (2021).
19 Ibid.
20 Ibid.
21 Ibid.
22 Ibid.
23 UN-OHRLLS (no date).
24 Ibid.
25 Ibid.
26 Ibid.
27 During WTO accession, detailed arrangements and terms for joining the WTO (including any transitional periods for implementation of the TRIPS Agreement, as in the case of Nepal, for example) are negotiated individually by the acceding country with existing WTO members then recorded in a protocol of accession.
28 WTO (2023).
29 Ibid.
30 Noli IP Solutions (no date).
31 WIPO (no date).
32 Ibid.
33 Ibid.
34 Ibid.
35 Ibid.
36 Maskus (2000).
37 Ibid.
38 Bramley (2011).
39 WIPO (2004).
40 It is worth noting, however, that there are limitations to using data on IPRs as a measure of innovation, and that numerical counts do not provide an indication of the quality of patents or other forms of IPRs.
41 UN-OHRLLS (2023).
42 United Nations (2022).
43 LexisNexis (2024).
44 www.wipo.int/treaties/en/ip/berne/
45 www.wipo.int/treaties/en/ip/paris/
46 www.wipo.int/treaties/en/ip/rome/
47 www.wipo.int/treaties/en/ip/beijing/
48 www.wipo.int/treaties/en/ip/brussels/
49 Non-authorised persons are permitted to distribute programme-carrying signals if they carry short excerpts containing reports of current events or, as quotations, short excerpts of the programme carried by the emitted signals or, in the case of developing countries, if the programme carried by the emitted signals is distributed solely for the purposes of teaching, including adult teaching or scientific research.
50 www.upov.int/portal/index.html.en
51 www.wipo.int/treaties/en/ip/wct/
52 Leesti and Pengelly (2002).
53 Ibid.
54 Limiting the duplication of effort in performing tasks such as searching the patent literature, can ensure the availability of up-to-date technical skills in individual countries. This could play a central role in facilitating access to national and international patent databases for researchers, industry and academics.
55 See www.wipo.int/pct/en/
56 Ibid.
57 www.wipo.int/madrid/en/
58 www.wipo.int/hague/en/
59 https://www.wipo.int/lisbon/en/
60 Leesti and Pengelly (2002).
61 Ibid.
62 Ibid.
63 Ibid.
64 Ibid.
65 Wendland (2022).
66 This section draws on an interview with Wend Wendland of WIPO carried out in January 2023.
67 Shimbo et al. (2008).
68 Ibid.
69 See https://www.wipo.int/ip-development/en/agenda/flexibilities/resources/tk_gr_tce_f.html
70 Wendland (2022).
71 Ibid.
72 Ibid.
73 Ibid.
74 Ibid.
75 Wendland (2022).
76 WTO (2022).
77 Ibid.
78 Ibid.
79 Ibid.
80 Ibid.
81 Ibid.
82 Ibid.
83 Ibid.
84 Ibid.
85 Ibid.
86 Ibid.

87 Ibid.
88 Ibid.
89 Ibid.
90 Ibid.
91 Ibid.
92 Ibid.
93 Ibid.
94 Leesti and Pengelly (2002).
95 Ibid.
96 Under the WTO–WIPO co-operation agreement, much of the WTO's role in the explanation of the TRIPS Agreement, etc. is delegated to WIPO. The WTO continues to provide specialist advice to WTO member states and observers on TRIPS.
97 Leesti and Pengelly (2002).
98 Ibid.
99 Ibid.
100 Leesti and Pengelly (2007).
101 Saana Consulting (2013).
102 Industrial property rights consist of patents, trademarks, industrial designs, utility models, integrated circuits and plant varieties (Leesti and Pengelly, 2002).
103 WIPO (2004).
104 Commission on Intellectual Property Rights (2002).
105 UK Intellectual Property Office (2022).
106 Maskus (2000).
107 UNCTAD (2022a).
108 Light Years IP (2008).
109 Maskus (2000).
110 Ibid.
111 Maskus (2002).
112 Lesser (2001).
113 Park and Lippoldt (2008).
114 Ibid.
115 Commission on Intellectual Property Rights (2004).
116 Leesti and Pengelly (2002).
117 Ibid.
118 Ibid.
119 Ibid.
120 Ibid.
121 WIPO (2021b).
122 Leesti and Pengelly (2002).
123 However, the TRIPS Agreement does not mandate voluntary copyright registration systems or collective management societies. In addition to copyright administration, such schemes could also be deployed in countries that seek to provide for *sui generis* protection of traditional knowledge and folklore (Leesti and Pengelly, 2002).
124 Leesti and Pengelly (2002).
125 Ibid.
126 Ibid.
127 Ibid.
128 Ibid.
129 For instance, administration systems can perform an effective enforcement role if they grant IPRs with a strong presumption of validity; maintain precise and easily accessible registries and records; and are able to rectify defects in IPR titles through administrative rather than judicial means, wherever feasible (Leesti and Pengelly, 2002).
130 Leesti and Pengelly (2002).
131 Ibid.
132 Ibid.
133 Ibid.
134 For example, see Correa (1999).
135 UNCTAD (1996).
136 Leesti and Pengelly (2002).
137 Ibid.
138 Ibid.
139 Ibid.
140 Ibid.
141 Ibid.
142 https://www.wipo.int/pct/en/pct_contracting_states.html.
143 Leesti and Pengelly (2002).
144 https://www.wipo.int/madrid/en/members/.
145 w.
146 Ibid.
147 Ibid.
148 Ibid.
149 According to Herce (2001): 'WPIS provides a conduit for channelling search requests from a wide range of users in developing countries and LDCs to the Industrial Property Offices of those countries that have agreed to assist in providing these searches. … The searches are free to those requesting them. For some search requests, e.g. those from ARIPO, examination is also carried out.' For more information, see www.wipo.int/patentscope/en/data/developing_countries.html
150 Leesti and Pengelly (2002).
151 Ibid.
152 Ibid.
153 Ibid.
154 Ibid.
155 www.wipo.int/ip-development/en/agenda/flexibilities/database.html
156 According to UNCTAD (2022b), graduating with moment involves a smooth transition out of the LDC category that builds on the development of productive capacities and enables LDCs to graduate in a manner in keeping with their long-term development needs and objectives. This involves three key processes: the development of productive capacities, structural transformation and catching up with other developing countries.
157 The Commonwealth Secretariat is well placed to play the role of Facilitator for the LDC Graduation and IP Support Groups for the graduating Commonwealth LDCs for a number of reasons. First, it has good convening power and strong networks among Commonwealth member countries, up to and including at the Head of State level via the Commonwealth Heads of Government Meeting summits. These networks cover capitals across the Commonwealth but also Geneva through the Commonwealth Small States Office. Second, Commonwealth member countries share a common legal tradition, and there are many similarities between the models and heritage of national laws and institutions involved in IP policy-making, administration and enforcement, and this facilitates learning and experience-sharing. Finally, the Secretariat has a capable International Trade Policy Section that can take the lead on its role as Facilitator, and benefits from existing established

working relationships with the WTO, the World Bank, WIPO, UN agencies like UNCTAD, the UN Technology Bank for LDCs and the International Trade Centre, and development partners such as Australia's Department of Foreign Affairs and Trade, Global Affairs Canada and the UK's Foreign, Commonwealth & Development Office.

158 Vanuatu graduated from LDC status in December 2020.

159 This should be logistically straightforward to organise, and would enable these countries to be well prepared and informed about opportunities, challenges and available support if and when they move onto the path to graduation.

160 A continuation of the transitional flexibilities for implementing TRIPS obligations after graduation would help LDCs to achieve these objectives.

161 If asked by Bangladesh or Senegal, UNCTAD, the Enhanced Integrated Framework and the Commonwealth Secretariat (for Bangladesh) should agree to provide suitable short-term technical experts to support their co-operation with the WTO Secretariat in the completion of their national rapid reviews.

References

Bramley, C. (2011) 'A Review of the Socio-Economic Impact of Geographical Indications: Considerations for the Developing World'. WIPO Worldwide Symposium on Geographical Indications, Lima, 22–24 June.

CDP (Committee for Development Policy) (2021) 'List of Least Developed Countries 2021'. New York: UN. www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/ldc_list.pdf

Commission on Intellectual Property Rights (2002) 'Integrating Intellectual Property Rights and Development Policy'. London: Commission on Intellectual Property Rights.

Commonwealth Secretariat (2024) 'Member countries'. https://thecommonwealth.org/our-member-countries

Cornell University, INSEAD, and World Intellectual Property Organization (WIPO) (2016). 'Appendix 1: Country/Economy Profiles'. *Global Innovation Index 2016: Winning with Global Innovation*. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2016-appendix1.pdf

Correa, C. (1999) *Intellectual Property Rights and the Use of Compulsory Licenses: Options for the Developing Countries*. Geneva: South Centre.

Dutfield, G. (2003) *Protecting Traditional Knowledge and Folklore. A Review of Progress in Diplomacy and Policy Formulation*. Geneva: ICTSD-UNCTAD Project on IPRs and Sustainable Development.

Fox, D.M. (2019) 'Technology Transfer and the TRIPS Agreement Are Developed Countries Meeting Their End of the Bargain?', *Hastings Science and Technology Law Journal*, 10(1).

Herce, J.L. (2001) 'WIPO patent information services for developing countries', *World Patent Information*, 23(3): 295–308.

Leesti, M. and T. Pengelly (2002) 'Institutional Issues for Developing Countries in Intellectual Property Policymaking, Administration & Enforcement', Commission on Intellectual Property Rights Study Paper 9.

Leesti, M. and T. Pengelly (2007) 'Assessing Technical Assistance Needs for Implementing the TRIPS Agreement in LDCs: A Diagnostic Toolkit'. Working Paper. Geneva: ICTSD.

Lesser, W. (2001) 'The Effects of TRIPS-Mandated Intellectual Property Rights on Economic Activities in Developing Countries'. WIPO Studies 1. Geneva: WIPO.

LexisNexis (2024) 'Intellectual property international treaties and conventions', Practice notes. https://www.lexisnexis.co.uk/legal/guidance/intellectual-property-international-treaties-conventions

Light Years IP (2008) 'Distinctive Values in African Exports'. Report to the UK DFID.

Maskus, K.E. (2000) 'Intellectual Property Rights and Economic Development'. *Case Western Reserve Journal of International Law* 32(2): 186–190.

Maskus, K.E. (2002) 'Benefiting from Intellectual Property Protection', Chapter 36 in Hoekman, B., A. Mattoo and P. English (eds.) *Development, Trade, and the WTO: A Handbook*. Washington, DC: The World Bank.

Moon, S. (2008) 'Does TRIPS Art. 66.2 Encourage Technology Transfer to LDCs? An Analysis of Country Submissions to the TRIPS Council (1999-2007)', ICTSD Policy Brief No. 2, December.

Moon, S. (2011) 'Meaningful Technology Transfer to the LDCs: A Proposal for a Monitoring Mechanism for TRIPS Article 66.2', ICTSD Policy Brief No. 9, April.

Musiza, C. (2022) 'Weaving Gender in Open Collaborative Innovation, Traditional Cultural Expressions, and Intellectual Property: The Case of the Tonga Baskets of Zambia'. *International Journal of Cultural Property* 29(1).

Noli IP Solutions (no date) 'Intellectual Property – PATENTS'. https://www.noliip.com/patents

Park, W.G. and D.C. Lippoldt (2008) 'Technology Transfer and the Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries'. Trade Policy Working Paper 62. Paris: OECD.

Saana Consulting (2013), 'Factual Overview on Technical & Financial Cooperation for LDCs Related to the TRIPS Agreement: Identifying and Responding to Individual Priority Needs of LDCs'. Report to Sida.

Shimbo, I., Y. Ito and K. Sumikura (2008) 'Patent Protection and Access to Genetic Resources'. *Nature Biotechnology* 26: 645–647.

UK Intellectual Property Office (2022) 'Use of Intellectual Property Rights across UK industries'. London: UK Intellectual Property Office.

United Nations (2022) 'Draft Doha Programme of Action for Least Developed Countries: Note by the Secretariat', 3 March. https://www.un.org/ohrlls/sites/www.un.org.ohrlls/files/dpoa.pdf

UNCTAD (UN Conference on Trade and Development) (1996) *The TRIPS Agreement and Developing Countries*. Geneva: UNCTAD.
UNCTAD (2014) 'Starling Farm Kampot Pepper', Geographic Indication – A Testimony, December. https://unctad.org/system/files/non-official-document/aldc2014-12-11_KampotPepper2.pdf
UNCTAD (2020) *The Least Developed Countries Report: Productive Capacities for the New Decade*. Geneva: UNCTAD.
UNCTAD (2021) *The Least Developed Countries Report: LDCs in the Post Covid World: Learning from 50 Years of Experience*. Geneva: UNCTAD.
UNCTAD (2022a) *Creative Economy Outlook*. Geneva: UNCTAD.
UNCTAD (2022b) 'Strategy for graduation with momentum: Bridging pre-graduation and post-graduation development processes in the least developed countries', Policy Brief No. 99, April.
UNCTAD (2023) 'What are the least developed countries?', Information Note, 7 November. https://unctad.org/press-material/what-are-least-developed-countries-9
UN DESA (UN Department of Economic and Social Affairs) (2015) 'Ex Ante Assessment of the Impacts of the Graduation of Angola from the Category of Least Developed Countries'. New York: UN DESA.
UN DESA (2018a) 'Ex Ante Assessment of the Impacts of the Graduation of Bhutan from the Category of Least Developed Countries'. New York: UN DESA.
UN DESA (2018b) 'Ex Ante Assessment of the Impacts of the Graduation of Kiribati from the Category of Least Developed Countries'. New York: UN DESA.
UN DESA (2018c) 'Ex Ante Assessment of the Impacts of the Graduation of Nepal from the Category of Least Developed Countries'. New York: UN DESA.
UN DESA (2018d) 'Ex Ante Assessment of the Impacts of the Graduation of Solomon Islands from the Category of Least Developed Countries'. New York: UN DESA.
UN DESA (2018e) 'Ex Ante Assessment of the Impacts of the Graduation of Timor-Leste from the Category of Least Developed Countries'. New York: UN DESA.
UN DESA (2018f) 'Ex Ante Assessment of the Impacts of the Graduation of São Tomé & Príncipe from the Category of Least Developed Countries'. New York: UN DESA.
UN DESA (2020a) 'Ex-Ante Assessment of the Impacts of the Graduation of Bangladesh from the Category of Least Developed Countries LDCs'. New York: UN DESA.
UN DESA (2020b) 'Ex-Ante Assessment of the Impacts of the Graduation of Laos from the Category of Least Developed Countries LDCs'. New York: UN DESA.
UN DESA (2020c) 'Ex-Ante Assessment of the Impacts of the Graduation of Myanmar from the Category of Least Developed Countries LDCs'. New York: UN DESA.
UN DESA (2023) 'Graduation from the LDC category'. https://www.un.org/development/desa/dpad/least-developed-country-category/ldc-graduation.html
UN-OHRLLS (UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States) (no date) 'About Least Developed Countries'. https://www.un.org/ohrlls/content/about-least-developed-countries
UN-OHRLLS (2023) *Doha Programme of Action for the Least Developed Countries 2022-2031*. New York: United Nations.
UN Technology Bank for the Least Developed Countries (2022) 'UN Technology Bank for Least Developed Countries: In a nutshell', 29 August. https://www.un.org/technologybank/sites/www.un.org.technologybank/files/untb_intro_brochure_29aug.pdf
WEF (World Economic Forum) (2017) *The Global Competitiveness Report 2017-2018*. Geneva: WEF.
Wendland, W. (2022) 'WIPO decides to hold two diplomatic conferences no later than 2024', Multilateral Matters, 30 August. https://infojustice.org/archives/44840
WIPO (World Intellectual Property Organization) (2004) *What Is Intellectual Property?* Geneva: WIPO.
WIPO (2021a) 'Lisbon Agreement's Geneva Act Receives First Geographical Indication: Kampot Pepper from Cambodia', 18 January. https://www.wipo.int/lisbon/en/news/2021/news_0001.html
WIPO (2021b) 'Survey on Voluntary Copyright Registration Systems'. Geneva: WIPO.
WIPO (2021c) *World Intellectual Property Indicators*. Geneva: WIPO.
WIPO (2022) *Global Innovation Index 15th Edition*. Geneva: WIPO.
WIPO (no date) 'Utility models'. https://www.wipo.int/patents/en/topics/utility_models.html
WTO (2022) *Trade Impacts of LDC Graduation: Pocket Edition*. Geneva: WTO.
WTO (2023) 'Graduating from status of least-developed country (LDC)'. https://www.wto.org/english/tratop_e/devel_e/graduation_ldc_status_e.htm

Annex 1. People consulted

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Annex 2. *Ex-ante* impact assessments on IP for graduating LDCs

This annex summarises findings from ex-ante impact assessment reports for graduating LDCs published by UN DESA. Findings have been summarised for 11 of the 16 graduating LDCs (Angola, Bangladesh, Bhutan, Kiribati, Lao PDR, Myanmar, Nepal, São Tomé & Príncipe, Solomon Islands, Timor-Leste and Tuvalu). Impact assessment reports were not available for Cambodia, Comoros, Djibouti, Senegal and Zambia, and as a result they have not been included in the data below.

Country	Summary of findings on IP and WTO TRIPS Agreement
Angola	Angola is scheduled to graduate in 2024. This will mean the extended implementation period for LDCs under the WTO TRIPS Agreement will no longer be applicable. This loss of eligibility will result in significant additional expenses and administrative challenges for Angola since it must set up national institutional and legal frameworks for IP that are compliant with the TRIPS Agreement's requirements.[162]
Bangladesh	Bangladesh will need to align its IP regime and sectoral rules for the pharmaceutical industry since it will no longer benefit from the extension granted to LDCs under the WTO TRIPS Agreement. This could ultimately lead to increases in drug prices for both consumers in Bangladesh and other nations, including other LDCs.[163]
Bhutan	Bhutan is scheduled to graduate in 2023 following UN reviews, in 2015 and 2018. Bhutan is not a WTO member but is in the process of accession. Its transition period to comply with WTO obligations will depend on its accession negotiations and LDC graduation timing. Bhutan previously requested a transition period until 2010 for the TRIPS Agreement, which has now expired. If it needs more time to align its IP laws with the TRIPS Agreement, it may request a brief transition period, as done by Lao PDR and Nepal.[164] Bhutan may also benefit from a transition period specific to the pharmaceutical sector if explicitly stated in its Accession Protocol or Report of the Working Party, but will eventually need to include the sector in its WTO-compliant IP regime after graduation.[165] The impact assessment report finds that, through the transmission channel of WTO obligations, the changes in TRIPS owing to graduating status are unclear. Implementing WTO obligations in full may elevate costs and reduce Bhutan's policy space, but the impact cannot be measured quantitatively at this stage because Bhutan is still in the process of WTO accession.[166]
Kiribati	Kiribati is scheduled to graduate in 2024. It is not a WTO member and is not in the process of accession. It is therefore not currently bound by any WTO rules, including the TRIPS Agreement, and there is very minimal coverage of IPRs in the impact assessment report. However, a modest increase is expected in its IP-related technical and financial assistance from WIPO.[167]
Lao PDR	Lao PDR is scheduled to graduate in 2026. Although preliminary research indicates that the practical ramifications of graduation on the TRIPS Agreement would be minimal, more research on this matter would be beneficial, particularly on possible costs to the health care industry. Although Lao PDR does not take advantage of the TRIPS public health waiver (on patents for pharmaceutical products), the government wants to maintain the option to enter this market since it might be advantageous for the country's economy. Therefore, Lao PDR will ask for this waiver to be extended until it expires in 2033 as part of the transitional steps. If Lao PDR plans to import medicines using the system of compulsory licensing allowed under Article 31bis after graduation, it must inform the WTO. The expense of notification administration is a possible impact and Lao PDR has also acknowledged the need to create industrialisation policy tools that are compliant with WTO requirements and has asked for technical support from WTO members in doing so.[168]
Myanmar	Myanmar met the graduation criteria in 2018 but the UN has deferred assessment until the 2024 LDC graduation review. One potential area of impact is under the WTO TRIPS Agreement. The required IP legislation, according to representatives of the Myanmar government, has been passed. However, given Myanmar's dependence on pharmaceutical imports from Bangladesh, the effects of Bangladesh's LDC graduation scheduled for 2026 may cause Myanmar some concern.[169]

(*Continued*)

Country	Summary of findings on IP and WTO TRIPS Agreement
Nepal	As part of its WTO Accession Protocol in 2005, Nepal committed to fully comply with the TRIPS Agreement by 2007, giving up the right to a general transition period. However, the country has asserted its right to the specific transition period for pharmaceuticals. Nepal's graduation status may result in a loss of access to the specific transition period for pharmaceuticals, negatively affecting its ability to produce and import generic medicines, as well as to benefit from special incentives for technology transfer from WTO developed country members under Article 66.2 of the TRIPS Agreement.[170]
São Tomé & Príncipe	São Tomé & Príncipe is scheduled to graduate in 2024. The country is not a WTO member but is in the process of accession. It is therefore not currently bound by any WTO rules, including the TRIPS Agreement, and there is very minimal coverage of IPRs in the impact assessment report. The country's WTO accession process is moving very slowly, and to date there have been no meetings of the Working Party.[171]
Solomon Islands	Solomon Islands is scheduled to graduate in 2024. It does not have any IP legislation to implement the TRIPS Agreement. The main legal instruments for IP rights are the Registration of UK Patents Act (1992), the Registration of UK Trademarks Act (1978) and the UK Designs (Protection) Act (1978), which are limited to previously registered patents, trademarks and designs in the UK. The 1987 Copyright Act contains up-to-date provisions for copyright infringement but there are no enforcement provisions for patents or trademarks. To remain WTO-compliant in its newly graduated status, Solomon Islands would need to draft new IP laws in line with TRIPS Agreement standards, establish or enhance IP institutions and strengthen IP enforcement mechanisms. Although the report states the implementation of the TRIPS Agreement after graduation is uncertain and the timeline and costs are unclear, Australia has assisted Solomon Islands in this regard.[172]
Timor-Leste	Timor-Leste met the criteria for graduating in 2015, 2018 and 2021 but the CDP deferred its graduation for consideration in 2024. Timor-Leste is not a WTO member but does have observer status, and a Working Party was established on 7 December 2016 to evaluate its membership application.[173] In June 2017, a memorandum was submitted on Timor-Leste's foreign trade regime.[174] Special and differential treatment covers various areas, including agriculture, investment, IPRs and rules of origin. Negotiations with WTO members will determine the conditions of accession, including whether any transitional period will be granted for implementation of WTO rules such as the TRIPS Agreement. [175]
Tuvalu	The CDP recommended Tuvalu's graduation in 2012 but ECOSOC has deferred it for consideration in 2024. Tuvalu is not a member of the WTO and therefore is not bound by WTO rules such as the TRIPS Agreement; nor does it benefit from special considerations for LDCs. On graduation and accession to the WTO in the future, it may be able to negotiate transitional periods for implementation of the TRIPS Agreement and will still be able to benefit from preferential treatment being extended to developing countries.[176]

Annex Notes

162 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/2015-cdp-plen-pre-5a.pdf
163 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/Bangladesh.pdf
164 https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2018-5a.pdf
165 Ibid.
166 Ibid.
167 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2018-5b.pdf
168 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/LaoPDR.pdf
169 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/Myanmar.pdf
170 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2018-5c.pdf
171 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2018-5d.pdf
172 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2018-5e.pdf
173 https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2018-5f.pdf
174 Ibid.
175 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2018-5f.pdf
176 www.un.org/development/desa/dpad/wp-content/uploads/sites/45/CDP-PL-2012-9a.pdf