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Innovation in the Least Developed Countries: Going Beyond Intellectual Property Rights

The anticipated benefits of harmonized intellectual property rights regimes under the Agreement on Trade-Related Aspects of Intellectual Property Rights have bypassed most least developed countries (LDCs). These countries need to build at least a critical minimum level of productive and technological capacity to make full use of both proprietary and non-proprietary mechanisms to foster innovation.

A key challenge facing policymakers in LDCs is to integrate a catch-up growth strategy into their development policy. In so doing, they need to consider the various options available to better manage and benefit from their own and other knowledge resources. Establishing proprietary intellectual property rights (IPR) systems and creating property rights are but one of the various responses to a more generic challenge, which is to create and improve their knowledge systems and to develop their productive capacity by accelerating learning and enhancing the knowledge intensity of their productive base. This challenge goes beyond fine-tuning their existing IPR regime.

As knowledge becomes an increasingly important productive asset in the knowledge economy, intellec-

tual property is likely to play a more prominent role in the organization of economic activity. But that role is not necessarily "development-neutral". Indeed, expanded intellectual property protection is associated with the proliferation of legal monopolies and related barriers to entry, making it harder for developing countries to compete in innovation-based markets. These trends are accentuating the asymmetrical economic processes stacked against weaker participants in an increasingly globalized economy.

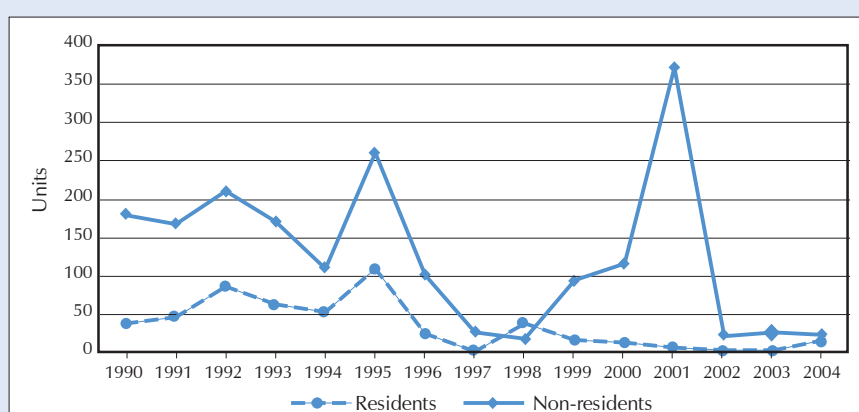
The stated fundamental objective of the Agreement on Trade-Related Aspects of Intellectual Property Rights (the TRIPS Agreement) is to encourage domestic innovation and international technology diffusion. However, the evidence indicates that since 1995 the North-South technological gap has continued to grow and the knowledge divide between LDCs and

others has increased rather than decreased. One reflection of this gap has been the low and decreasing number of patent applications by LDC residents since 1990 (see chart).

Another indication of the growing knowledge gap between LDCs and other countries is evident in the stagnating trend in the licensing of foreign technology. Licensing is considered to be directly related to the income level and technological sophistication of economies. As a proportion of gross domestic product, total licence payments of the LDCs remained stagnant at 0.02 per cent between 1996–1999 and 2000–2005, while those of other developing countries tripled, to reach 0.36 per cent.

Consequently, the traditional consensus on the benefits of stronger IPRs is breaking down. It has been argued that, in the early stages of technological development, the *absence* of intellectual property protec-

Patent applications in LDCs by residents and non-residents, 1990–2004



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tion may be necessary in order to allow learning through imitation and reverse engineering. Strong IPR regimes that choke opportunities for such learning may inhibit, rather than facilitate, technological development in LDCs. It is clear that, in respect of IPR regimes, one size does not fit all. In countries with weak scientific and technological infrastructure, IPRs play little, if any, role in stimulating innovation. Similarly, the findings of a study commissioned for *The Least Developed Countries Report 2007* on the impact of IPRs on innovation in Bangladesh point to an absence of any observable positive impact of intellectual property rights on licensing, technology transfer or technology-sourcing through foreign subsidiaries in any of the three sectors analysed, namely, textiles and ready-made garments, agro-processing, and pharmaceuticals (though with sectoral variations).

Developing countries are increasingly concerned that strengthened intellectual property protection, by restricting access to knowledge and inhibiting imitation, will undermine their ability to adapt catch-up strategies to face the increasing pressures of an interdependent global economy and may even reverse previous technological advances. This view is reflected in the discussions on the Development Agenda launched by the World Intellectual Property Organization (WIPO) in 2004 in response to the recognition of the unequal distribution of knowledge among countries and the need for greater integration of a development dimension into global policymaking in the field of intellectual property. The fundamental rationale underlying the Development Agenda is that intellectual property protection should be enacted in accordance with the level of development of each country and that protection of private interests should be balanced against the broader public interest.

Options for reform and innovation in international IPR regimes

There are five basic — and by no means mutually exclusive — approaches to addressing the short-

comings of the current intellectual property regimes from the viewpoint of the technological development of LDCs through catch-up growth.

1. *Reforming intellectual property standards*

The first approach calls for reform of the growing trend towards international harmonization of national IPR regimes, irrespective of a country's level of development and technological capacities (the one-size-fits-all principle). This strategy implies fine-tuning and calibrating minimal, universal intellectual property standards and norms to better suit LDCs' needs and conditions.

- UNCTAD recommends that the international community should reconsider the development dimension of the TRIPS Agreement, with a view to granting LDC-specific norms and standards, especially in regard to intellectual property standards for novelty, the nature of inventions, the terms of protection and calibrated disclosure.

2. *Full use of TRIPS flexibilities*

The second approach calls for full utilization of the flexibilities contained in the TRIPS Agreement (compulsory licenses, parallel imports, fair-use exceptions). If utilized, these flexibilities would allow LDCs to use TRIPS-compatible norms in a manner that enabled them to pursue their own public policies, which support their economic development objectives. While these flexibilities are principally defined in terms of more generous implementation times, they also include exemptions from full compliance in some areas such as public health, where the rules on compulsory licensing, parallel imports and experimental use are less stringent.

However, LDCs face many barriers to the utilization of these flexibilities, including: (a) the absence of flexibility provisions in their national legislation (LDCs generally lack the relevant expertise and administrative capacity to implement these); (b) their membership of regional intellectual property organizations, such as the Organisation Africaine de la Propriété

Intellectuelle (OAPI) and the African Regional Intellectual Property Office (ARIPO), which precludes their use of many of the flexibilities; and (c) intellectual property-related provisions in free trade agreements or regional and bilateral trade commitments that contain more stringent requirements than those negotiated under TRIPS ("TRIPS-plus" clauses).

Another flexibility contained in the TRIPS Agreement regards the grace period given to LDCs prior to full TRIPS compliance, which lasts until they have reached "a sound and viable technological base". The grace period includes the extension of the transition period granted to all LDC members of WTO, and lasts until 2013 (or 2016 in the case of pharmaceutical products and related processes). Although, the TRIPS Agreement recognizes the difficulties faced in implementing high standards of intellectual property protection in LDCs, the pressure to broaden the scope of intellectual property protection in LDCs is intensifying, thanks to the intellectual property-related provisions in the fast-growing number of regional free trade agreements, bilateral investment treaties and other international trade agreements.

- UNCTAD recommends that the transitional period for LDCs should not be subject to a single arbitrary, predetermined deadline. Instead, timescales for implementation should be commensurate with the threshold levels of technological development at which a TRIPS-compliant IPR regime can support, rather than hamper, local innovation.
- LDC Governments would be well advised to resist proposed restrictions on the use of TRIPS flexibilities when negotiating bilateral trade and investment agreements.
- UNCTAD recommends that LDCs should fully utilize existing flexibilities and take greater advantage of the current extensions of the transition period.
- UNCTAD furthermore recommends that the international community should make the current intellectual property regime more

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flexible by increasing both the scope and the duration of special and differentiated treatment for LDCs, for example by increasing the scope of limitations and exceptions for LDC users.

3. Capacity-building through enhanced technology transfer

The third approach involves improved and scaled-up channels for technology transfer to LDCs. If LDCs are to benefit fully from the TRIPS Agreement, technology transfer to them needs to be clarified and enhanced, in accordance with article 66.2 of the TRIPS Agreement, which requires developed countries to grant incentives such as tax breaks and subsidies to promote technology transfer to LDCs. However, concrete measures to facilitate access to technologies by LDCs are either non-existent or inadequate. Consequently, there are concerns that this obligation cannot be met merely through cooperation by public agencies if the type of technical assistance provided to LDCs by their development partners does not meet the requirements contained in the TRIPS Agreement. So far, the composition and quality of the technical assistance provided to LDCs has focused on the design and implementation of intellectual property legislation consistent with the Agreement. As such, it responds far more to the interests of intellectual property rights holders than to development concerns.

- UNCTAD recommends that technology transfer should be enhanced through direct technical assistance to LDC enterprises. Economic incentives, such as subsidies and tax breaks, for firms based in developed countries should be designed specifically for this purpose.

4. Alternative mechanisms

The fourth approach to reform entails the use of non-intellectual property modalities for inducing innovation that could better accommodate LDCs' needs.

In the LDC context, the tendency at the international level to focus on

patents is, perhaps, misplaced. It has been argued that, with the exception of pharmaceuticals and some high-tech industries, patents are only a small part of the "tool box" used to capture rents from innovation. This has been confirmed by the most important surveys of United States firms and by other recent empirical studies (including the above-mentioned study on Bangladesh). Competition, rather than an IPR-based monopoly, can be an even more powerful incentive for innovation, as illustrated by the success of the Indian semiconductors industry.

Other studies suggest that intellectual property protection is not usually the driving force behind research and development. In the area of software in particular, non-proprietary models such as open-source schemes have been very effective in supporting a vibrant process of innovation. The open-source mechanism is perhaps the most promising model for LDCs

collaborative mechanisms may include:

Joint research initiatives involving various firms and research institutions, which could enable LDCs to put together the human and financial resources needed to undertake well-defined projects;

Technology-sharing consortia at the country level, which could boost the transfer and dissemination of technology. Members of the consortia who receive technology from suppliers can offer each other mutual support in absorptive efforts and reduce the costs of incorporating new technologies;

Patent pools organized by technology suppliers in particular fields, which could help provide access to the technologies required. A patent pool is an agreement between two or more patent owners to license their patents to third parties;

Patent buyouts, which allow a consortium or single entity (the latter

The open-source model

A shift in the nature of the innovation process is currently taking place in the most developed innovation systems. The open-source option involves a fast collaborative and incremental process, operating without patents but in a legally structured environment. The mechanism is mainly based on voluntary contributions from innovators, who solve a problem collectively and share the solution openly. While such models are not new, the Internet has greatly increased their productivity. As a result, this model has been widely diffused in many fields, such as software, biomedical technologies and consumer products, as illustrated by unprecedented incremental rates of innovation in software development, where high rates of innovation are correlated with rich information spillover. The open nature of these projects emphasizes collaboration over price-based competition and externalities resulting from collective efficiency.

to engage with international innovative activities (see box).

In order to stimulate learning and knowledge governance, LDCs, in collaboration with their international partners, should also explore a whole range of other mechanisms such as: patent buyouts, price discrimination mechanisms, public-private partnerships, subsidized research, tax credits, fiscal measures to support research and development and other types of innovative activities, prizes, government-based advanced market commitments, open-source collective mechanisms, information and knowledge commons, joint research ventures and licensing agreements with technology transfer clauses. Other

would normally be a Government or international organization) to purchase the patent rights of a specific innovation on behalf of one or more beneficiaries.

5. Capacity-building for innovation

The fifth approach consists of enhanced capacity-building for innovation that goes beyond IPRs. LDC firms tend to rely on informal learning mechanisms for knowledge access and learning, such as imports of capital goods and equipment, imitation and reverse engineering. This reliance implies that any policies aimed at increasing the transfer and dissemination of technologies should

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be actively supplemented by complementary measures aimed at strengthening the firms' capacity to effectively absorb new knowledge. Institutional support for innovation among firms with low technological capacity may include hybrid public-private "bridging institutions" that support innovation, specialized non-governmental organizations, business and farmers' associations, public extension services and technology support services.

In LDCs, building capacity to implement a suitable IPR regime that can fully exploit the scope of TRIPS flexibilities is crucial. Since the institutional capacity of national intellectual property offices is critical, UNCTAD recommends that national patent offices should develop their legal competences so that they can use those mechanisms more effectively as well as strengthen their domestic innovation capacities.

LDCs should bear in mind that IPRs cannot boost innovation without complementary essentials in place that entail a critical level of skills, information, capital and markets. Broad-based science, technology and innovation policies that promote and facilitate capacity-building for the enhanced absorption of new technologies at the enterprise level are therefore a prerequisite for more effective international regulatory regimes that could support development.

This issue of *LDCR Highlights* is based on UNCTAD, *The Least Developed Countries Report 2007: Knowledge, Technological Learning and Innovation for Development*, chapter 3. The Report is available on the UNCTAD website (www.unctad.org).