United Nations Conference on Trade and Development

World Investment Report

2005 Transnational Corporations and the Internationalization of R&D

CHAPTER VIII
THE INTERNATIONAL FRAMEWORK

United Nations
New York and Geneva, 2005

CHAPTER VIII

THE INTERNATIONAL FRAMEWORK

As shown in Chapter VII, national policies are critical for strengthening the NIS, as well as for encouraging and facilitating foreign investment in R&D and maximizing the benefits from it. However, in an increasingly integrated global economic system, national policies cannot be pursued in isolation. Their reach and impact are often influenced by legal and regulatory arrangements at the international level. In fact, most of the recent international investment agreements (IIAs) contain specific provisions governing FDI in R&D.[1] Other international regulatory frameworks that have a direct bearing on FDI in R&D include those that address intellectual property right (IPR) regimes and the generation, transfer and diffusion of science, technology and innovation, agreements that encourage home-country measures and corporate social responsibility, and international cooperation agreements in science and technology.

This chapter examines these various agreements in turn, and identifies issues of special relevance to FDI in R&D, both in terms of facilitating national policies to encourage FDI in R&D or restricting the policy space available to countries to design and implement such policies. These issues include entry and establishment of investment in R&D, performance requirements, use of incentives to encourage FDI in R&D, free movement of key personnel, protection of investment in R&D, home-country measures and corporate social responsibility, protection of IPRs and international cooperation in R&D.

A. International investment agreements

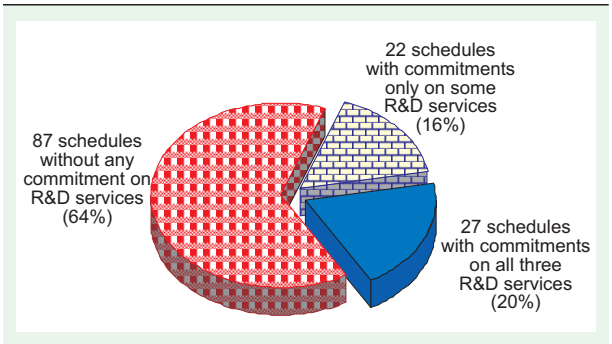
1. Entry and establishment

In general, IIAs do not impose restrictions on the entry and establishment of R&D-related investment, unless, for example, reasons of national security are involved.

Of special significance in relation to the entry and establishment of FDI in R&D is the WTO General Agreement on Trade in Services (GATS). The GATS addresses market access for R&D services through commercial presence (akin to FDI) if scheduled in a member country's list of commitments. It applies to any measure affecting trade in services (if supplied on a commercial basis), and R&D is defined and considered as one of the many services.[2] Under its positive list approach, countries indicate the industries they want to liberalize – with or without conditions. A number of countries have undertaken liberalization commitments in R&D services, some of them with partial limitations attached.

As of March 2005, 49 out of 136 members' schedules included commitments on R&D services (i.e. about 36% of WTO members have undertaken commitments in this area).[3] The majority of these (27 schedules) included commitments in all three categories of R&D: natural sciences, social sciences and humanities, and interdisciplinary R&D (figure VIII.1).

Figure VIII.1. Schedules with commitments on commercial presence in R&D services



Source: UNCTAD, based on GATS schedules of specific commitments (as of March 2005).

Twenty-six developing-country members, including two LDCs (Gambia, Nepal), 11 developed countries and 12 transition economies (including 6 new EU members) had undertaken commitments on FDI in R&D.[4]

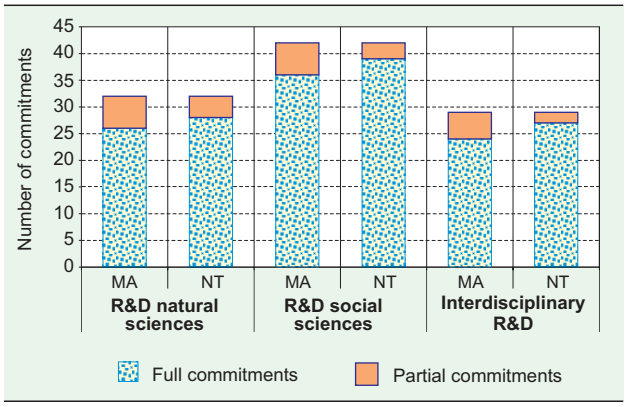
In terms of the number of commitments in different fields,[5] more countries undertook commitments on R&D in the social sciences and humanities than in the natural sciences and interdisciplinary R&D (figure VIII.2). A little more than half of the commitments made by developed countries were related to R&D in the social sciences and humanities; the rest were distributed equally between the natural sciences and interdisciplinary R&D. Commitments by developing countries, on the other hand, were evenly distributed across all three fields. Countries formerly classified as transition economies scheduled two-fifths of their commitments in relation to R&D in the social sciences and humanities, with the remainder being distributed equally between the natural sciences and interdisciplinary R&D.

Most commitments have no limitations attached. However, developing countries undertook more partial commitments with respect to market access, while developed countries undertook more partial commitments regarding national treatment. Countries formerly classified as transition economies made no partial commitments (figure VIII.3).

Partial limitations relate mainly to the ownership and control of enterprises involved in R&D services. Typical restrictions on FDI in R&D listed in the GATS schedules include requirements to have a local partner in joint ventures, a limit on the shares of foreign capital, nationality requirements for members of the board of directors and key personnel, and various licensing and registration requirements. Most limitations reflect the desire to maintain some degree of national control, while at the same time creating an enabling framework for the inflow of investments into R&D. This is the main effect of limitations on the participation of foreign capital, particularly in those cases in which the limit is set at 49% of the equity share or below. The combination of limits on foreign participation with the requirement to conduct R&D through a joint venture with local partners may be intended to ensure that spill-over of technological innovation to local partners takes place. A similar objective may also be sought by the requirements to employ nationals as key personnel and as members of the board of directors.

Some WTO members have included licensing and registration requirements as limitations in their schedules. In principle, prior licensing and registration requirements are not necessarily contrary to the GATS, and it is not mandatory to list them as limitations in the schedules of commitments, unless a country wishes to use them as instruments to discriminate against the establishment of a foreign commercial presence. This may be done to ensure that only such R&D that meets national policy

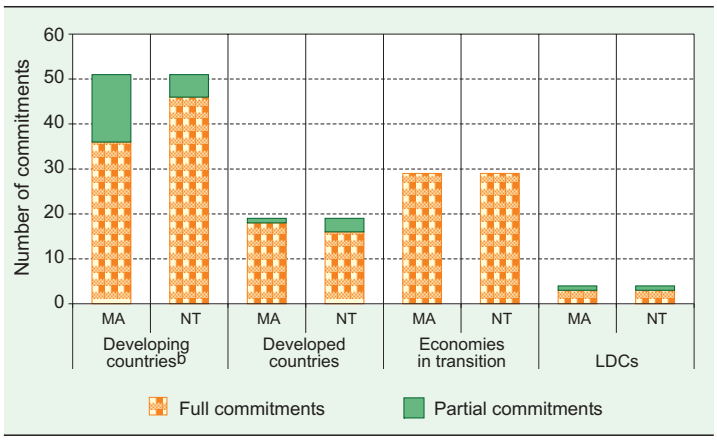
Figure VIII.2. Level of commitments under commercial presence for R&D activities



Source: UNCTAD based on GATS schedules of specific commitments (as of March 2005).

Note: MA = market access (Article XVI); NT = national treatment (Article XVII). Figures on "full commitments" relate to schedules' entries where WTO members have committed to apply no MA or NT limitations (i.e. "none" entries, in terms of GATS). "Partial limitations" count those services in which only particular listed restrictions apply, as listed in members' schedules of specific commitments.

Figure VIII.3. Level of commitments of R&D services, by group of countries[a]



Source: UNCTAD, based on the GATS schedules of specific commitments (as of March 2005).

[a] Based on former United Nations geographical classification; see footnote 4.

[b] Excluding LDCs.

Note: MA = market access (Article XVI); NT = national treatment (Article XVII). Total commitments of developing countries (excluding LDCs) amount to 51, those of developed countries to 19, those of countries formerly classified as transition economies to 29 and those of LDCs to 4. All of these cover both market access and national treatment.

requirements is permitted, and to protect national R&D development against external competition.

In sum, R&D is generally not a restricted activity in IIAs. Rather, international agreements confirm the predominance of policies seeking to encourage and facilitate FDI in R&D. However, as the experience of GATS suggests, countries may restrict liberalization in this area in order to increase the likelihood of reaping the full benefits from FDI in R&D.

2. Performance requirements

BITs generally do not address performance requirements with regard to the entry of FDI. As to the post-entry treatment of FDI, national treatment and other standards of treatment and protection apply across the board.

A small number of IIAs contain specific provisions prohibiting the use of performance requirements that mandate investment in R&D activities as a condition for entry and operation, unless they are attached to the receipt or continued receipt of an advantage. For example, the 1998 BIT between Bolivia and the United States (as well as 12 other BITs concluded by the United States) prohibits countries to "mandate and enforce, as a condition for the establishment, acquisition, expansion, management, conduct or operation of a covered investment, any requirement (including any commitment or undertaking in connection with the receipt of a governmental permission or authorization)" to "[...] (f) carry out a particular type, level or percentage of research and development in the Party's territory" (Article IV).[6] Similar prohibitions can be found in the 2002 BIT concluded between Japan and the Republic of Korea[7] and in the 2002 New Age Economic Partnership Agreement between Japan and Singapore.[8]

This approach limits the possibility for countries to devise policies to mandate R&D activities by foreign investors as a condition for their entry and operation, and therefore narrows their policy space, or at the least the mandatory character of such policies. They will have to be used only in connection with an encouragement to foreign investors (i.e. an incentive) but not as a self-standing obligation.

A different approach has been taken by NAFTA, where there is no prohibition of performance requirements attached to the entry and operation of FDI that mandate R&D activities in the territory of the host country (Article 1106(1)). Moreover, NAFTA explicitly allows their use as a condition for the receipt or continued receipt of an advantage (Article 1106(4)).[9] This approach implies that countries are free to attach conditions to the entry and operation of investments in the form of mandatory involvement in R&D activities, provided other core disciplines of the applicable agreements (such as national treatment, MFN, protection against expropriation) are adhered to. It also implies that countries are specifically allowed to apply such conditions by attaching them to an incentive.

Following the NAFTA approach, the 2004 version of the United States model BIT[10] and all investment chapters in subsequent FTAs concluded by the United States, the 2004 Canadian Foreign Investment Protection and Promotion Agreement model (hereinafter the Canada BIT model), the 2004 Japan-Mexico New-Age Economic Partnership Agreement, and the 2004 BIT between the United States and Uruguay do not prohibit the use of performance requirements relating to the establishment and operation of FDI in R&D.

3. Incentives

As stated above, R&D performance requirements relating to the entry and operation of FDI may be expressly and specifically allowed when they are a *quid pro quo* for investment incentives (i.e. when they are a condition for the receipt or continued receipt of an advantage). This further illustrates the importance countries accord to R&D policies and encouragements at the international level.

In a number of countries, R&D has traditionally been undertaken or encouraged and supported by the government. Of key importance here is the protection or denial of access by foreign investors to government-funded R&D programmes. This practice has been identified as a barrier to investment by the 2005 *United States National Trade Estimate Report on Foreign Trade Barriers*.[11] It is a sensitive issue for countries that grant substantial support to public and private research, but also for developing countries wishing to foster indigenous R&D capacity. Some countries have seen the need to safeguard flexibility for targeted encouragement and support policies at the international level by introducing reservations and exceptions to their core commitment on non-discrimination.

One approach for achieving this objective is to list a specific reservation relating to R&D subsidies. This approach has been favoured, for example, in the 2004 Agreement between Japan and the United Mexican States for the Strengthening of the Economic Partnership, in which the schedule of Japan under Annex 7 (Reservations for Future Measures) provides that "National Treatment may not be accorded to investors of Mexico and their investment with respect to subsidies for research and development".[12]

In other cases, countries do not single out R&D incentives, grants or government programmes, but have adopted general reservations and exceptions to national treatment, MFN, and provisions on entry of personnel relating to "subsidies or grants provided by a Party or a state enterprise, including government-supported loans, guarantees and insurance" (Canada BIT model, Article 9.5 (b)), with a view to denying foreign investors access to such subsidies. This approach also applies to any subsidies, grants or government programmes in the area of R&D. It may be added that a preferred avenue for dealing with incentives for an investment in R&D activities is the conclusion of individual investment or State contracts, whereby a government enters into an agreement with an investor that can also include provisions on subsidies for FDI in R&D (UNCTAD 2004d).[13] General standards of treatment still apply across the board, however, including to State contracts.

At the multilateral level, the WTO Agreement on Subsidies and Countervailing Measures (SCM) deals specifically with subsidies, including R&D subsidies. It aims at reducing and eventually eliminating subsidies that distort international trade in goods. Although it regulates subsidies related to trade in goods only, R&D subsidies could be challenged under the SCM Agreement if they are provided for services that are used in the production of exported goods, and hence can be considered a cross-subsidy on goods. This is also relevant in the case of subsidies for R&D services that form an input into traded goods.

The GATS is directly relevant to subsidies for FDI in R&D. Fifteen WTO members have lodged horizontal limitations (i.e. measures that affect all services listed in the schedule) to national treatment as far as access to R&D programmes is concerned,[14] thus ensuring against access of foreign investors to such subsidies. If such limitations are not scheduled, it may be that national treatment and MFN treatment apply to subsidies in industries that have been liberalized. On the other hand, unlike the General Agreement on Tariffs and Trade (GATT), which is supplemented by the SCM in the field of trade in goods, the GATS does not have specific disciplines on subsidies in relation to services. However, Article XV of the GATS envisages future negotiations to develop disciplines in this area.

Some WTO members have also introduced broader limitations to national treatment with regard to government subsidies through horizontal restrictions in their schedules, which apply across the board to all sectors and types of subsidies, including those in R&D. Specific horizontal limitations on subsidies may follow from national policies that reserve government assistance only to *national* research institutions and/or firms. Finally, a few limitations concerning subsidies may also be found in WTO members' schedules dealing with particular industries. In these, restrictions on subsidies may apply also to public assistance to R&D.

4. Key personnel

To ensure the effective operation of an investment, TNCs may wish to employ key foreign personnel with relevant technical skills, including R&D personnel, while host countries may wish to ensure that their nationals have the advantage of working in foreign affiliates so as to facilitate the transfer of knowledge and skills. To this end, a host country may impose restrictions on the employment of key foreign personnel. While a majority of IIAs have no specific provisions dealing with the movement of key personnel,[15] some treaties include provisions related to the admission of individuals or employees of an investor in connection with an investment so as to facilitate the employment of key personnel, including R&D personnel. These provisions apply to investors of the other contracting party, and, specifically, to personnel employed by an investor, for the purpose of establishing, administering or advising on the operation of an investment (see, for example, the United States-Romania BIT of 1992, Article II.3). The Canadian BIT model (Article 6) specifically seeks to facilitate the entry of foreign nationals employed in a capacity that requires specialized knowledge. The Australia-Thailand FTA, like many recent FTAs, has a separate chapter on the "Movement of natural persons" that covers natural persons employed by an investor in respect of an investment, with a separate entry for "specialists".[16] The same approach is taken by the GATS mode 4 ("Presence of natural persons") where countries have specifically scheduled commitments on market access concerning "intra-corporate transferees", including specialists.

Two approaches prevail in IIAs. One consists of an obligation by the host country to permit entry and sojourn subject to its laws and regulations on the entry of aliens (e.g. the 1992 BIT between the United States and Kazakhstan and the 2004 Canadian BIT model). Another approach provides for an obligation by the contracting parties to "give sympathetic consideration to applications" for the entry and sojourn of persons (e.g. the 2003 China-Germany BIT).

5. General protection of FDI in R&D

In terms of protection, most IIAs do not address the issue of FDI in R&D specifically, but refer to the protection of investment in general. Three issues are particularly relevant to the protection of FDI in R&D: the protection of IPRs by including them in the definition of investment; provisions on the free transfer of returns arising from R&D activities; and the application of the national treatment/MFN standard to foreign investors investing in R&D activities.

By using a broad definition of the term "investment", IIAs provide protection to both tangible property (e.g. research and test laboratories) and intangible assets such as IPRs that form part of the assets of an investor (e.g. patents or test data on R&D results). The inclusion of IPRs in the definition of assets takes into account their economic value. This has come to be of critical importance and central to investment protection (UNCTAD 1998, p. 35). The vast majority of IIAs define IPRs broadly. For example, the 1999 BIT between Croatia and Finland states in Article 1 that:

> ''The term 'investment' means every kind of asset established or acquired by investors of one Contracting Party in the territory of the other Contracting Party in accordance with its laws and regulations and shall include in particular, though not exclusively:
>
> …
>
> d) intellectual property rights including, but not limited to, copyrights and neighbouring rights, industrial property rights, trademarks, patents, industrial designs and technical processes, rights in plants [*sic*] varieties, know-how, trade secrets, trade names and goodwill;''

This emphasis on IPRs forming part of the protected assets signifies that their economic value will be taken into account in case of compensation. This may provide additional comfort for investment in R&D where IPRs are crucial – both the ones that form part of the assets contributed by the investor when making the investment, and the ones that derive from the operation of the investment (i.e. the carrying out of R&D activities by TNCs in a host country).

Furthermore, by including IPRs in the definition of protected investment, the protection against direct and indirect expropriation offered by an agreement could potentially also encompass protection against compulsory licensing, where it can be shown that this has an expropriatory purpose and that it is carried out in breach of the protective standards of treatment contained in the applicable IIA and in disregard of the relevant provisions of IPR agreements (UNCTAD 2001).

To avoid such a far-reaching interpretation of the expropriation provision, several agreements, such as the recent United States and Canada model BITs, explicitly carve out from the scope of expropriation "the issuance of compulsory licenses granted in relation to IPRs in accordance with the TRIPS Agreement" (United States model BIT, Article 6.5; see also the Canada model BIT, Article 13.5).

When it comes to the free transfer of funds – licence fees, "royalties, technical assistance and technical fees … accruing from any investment of the investors" (Article 6 of the 1997 Malaysia-Ghana BIT) – relevant provisions in IIAs also apply to FDI in R&D, as the proceeds of such investment generally take the form of licence fees and other royalties.

As indicated above, countries have to be careful when designing and implementing their national policies if they want to reserve some special treatment to local R&D companies, and if they do not want to give to foreign investors access to all their available incentives or support packages.

Finally, investors can also benefit from the general protection provided by national treatment and MFN standards. A direct implication for investment projects in R&D is that (unless exceptions apply) any subsidies, grants and government funds are available to foreign investors on the same conditions as they are for national companies performing R&D. But, as indicated earlier, several treaties seek to "carve out" access to such programmes from the scope of the provision on national treatment. A more general carve-out, as far as taxation issues are concerned (e.g. as in the Canada model BIT of 2004), may also provide for the possibility to give special treatment to domestic firms when government policy takes the form of tax incentives.

6. Home-country measures and corporate social responsibility

Some international agreements encourage the use of home-country measures in the area of R&D. For example, Article 66 (2) of the WTO Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS) states that "[d]eveloped country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least developed country Members in order to enable them to create a sound and viable technological base".

In addition, home countries of TNCs can also encourage their firms to participate actively in international cooperation on R&D by investing in R&D activities and establishing linkages with local and regional firms. Such encouragement is also sought by international agreements (box VIII.1).

Even when provisions are hortatory (i.e. non-binding), some of these instruments provide an enabling framework within which TNCs are encouraged to operate and invest in R&D-related activities in developing countries.

Box VIII.1. The OECD Guidelines for Multinational Enterprises

Chapter VIII ("Science and Technology") of the 2000 OECD Guidelines for Multinational Enterprises provides that corporations should:

"1. Endeavour to ensure that their activities are compatible with the science and technology (S&T) policies and plans of the countries in which they operate and as appropriate contribute to the development of local and national innovative capacity.

2. Adopt, where practicable in the course of their business activities, practices that permit the transfer and rapid diffusion of technologies and know-how, with due regard to the protection of intellectual property rights.

3. When appropriate, perform science and technology development work in host countries to address local market needs, as well as employ host country personnel in an S&T capacity and encourage their training, taking into account commercial needs.

4. When granting licenses for the use of intellectual property rights or when otherwise transferring technology, do so on reasonable terms and conditions and in a manner that contributes to the long term development prospects of the host country.

5. Where relevant to commercial objectives, develop ties with local universities, public research institutions, and participate in co-operative research projects with local industry or industry associations."

Source: OECD.

B. International rules relating to IPRs

International rules on IPR protection are increasingly setting parameters for national policies in the area of the generation, transfer and diffusion of technology.[17] Such rules may provide incentives for TNCs to undertake FDI in R&D,[18] but at the same time they may also restrict a country's freedom to implement national policies concerning IPRs and R&D development.

Most relevant here is the TRIPS Agreement. That Agreement recognizes in its preamble "the underlying public policy objectives of national systems of intellectual property, including developmental and technological objectives". Furthermore, in Article 7 (entitled "*Objectives*"), it states as objectives of IPR protection and enforcement to "contribute to the promotion of technological innovation and to the transfer and dissemination of technology, [...] in a manner conducive to social and economic welfare, and to a balance of rights and obligations". It also recognizes the authorization of WTO members to control the abuse of IPRs.[19] The TRIPS Agreement establishes international minimum standards of protection and enforcement for R&D-relevant IPRs such as patents and undisclosed information (trade secrets).[20] These standards may contribute to making host countries safer destinations for FDI in R&D by obliging the provision of effective protection of IPRs (box VIII.2; see also chapters V and VII). A number of recent IIAs have extended the TRIPS minimum standards, thus setting further disciplines on the national regulation of IPRs ("TRIPS-plus") (box VIII.3),[21]

Box VIII.2. TRIPS minimum IPR standards of relevance to FDI in R&D and TRIPS flexibilities of relevance to host-country R&D

Minimum standards

- The TRIPS Agreement contains provisions on national treatment and MFN. Both apply to natural and juridical persons with regard to the protection of intellectual property. These provisions remove any discrimination between domestic and foreign firms in the protection of intellectual property.
- The Agreement extends protection to both product patents and process patents in all fields of technology, including, with certain qualifications, pharmaceutical and biotechnological products.[a]
- It also obliges members to make patents available, without discrimination as to the place of invention, the field of technology or whether the products are imported or produced locally.[b] The latter may be interpreted as prohibiting the imposition on foreign investors of "local working" requirements for patents (providing compulsory licensing or revocation of the patent if the protected product is not produced locally but imported).[c] The protection of foreign investors' R&D assets is thereby made less dependent on a particular performance.

Flexibilities

- The TRIPS Agreement leaves members the freedom to define criteria of patentability, namely novelty, inventive step and industrial applicability (Article 27.1).
- It appears not to contain obligations to make patents available for new uses of known products ("second uses") (although there is no WTO practice on this matter).
- It contains no obligation to provide patents on "plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes" (Article 27.3(b)).
- The TRIPS Agreement gives WTO members the discretion to include in their patent laws the obligation for a patent applicant to indicate the best mode for carrying out the invention known to the inventor at the filing date or, where priority is claimed, at the priority date of the application (Article 29). This complements members' obligations under the same provision to require a patent applicant to disclose his/her invention in return for obtaining a patent. This information is usually published 18 months after the filing of the application. The repository of patent information is perhaps the single largest existing source of technological information available for developing countries.
- The Agreement also allows limited exceptions to exclusive patent rights "provided that such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests

/...

Box VIII.2. TRIPS minimum IPR standards of relevance to FDI in R&D and TRIPS flexibilities of relevance to host-country R&D (concluded)

of the patent owner, taking account of the legitimate interests of third parties" (Article 30). This provision has been used in most jurisdictions to establish exceptions to patent rights for some forms of experimental or research uses. The scope of such exceptions varies by country.

- The Agreement leaves members the freedom to issue compulsory licences to third parties, provided a number of conditions are met (Article 31), as confirmed in the Doha Declaration on TRIPS and Public Health. In order to facilitate the use of compulsory licensing by members lacking sufficient domestic pharmaceutical manufacturing capacities, the General Council Decision of 30 August 2003 (WT/L/540) on "Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health" waived certain requirements under Article 31 on a temporary basis. Members of the WTO have so far failed to replace this transitional waiver with a permanent amendment to the Agreement.
- The TRIPS Agreement also gives members discretion to choose their own regime of exhaustion of IPRs (Article 6), equally confirmed in the Doha Declaration on TRIPS and Public Health.
- The Agreement authorizes the control of IPR abuses through competition laws and policies, in particular in licensing agreements (e.g. between local researchers and TNCs) (Article 8.2 and Article 40).
- LDC members have been allowed extendable transition periods for the implementation of the TRIPS minimum standards (1 January 2006 in general;[d] 1 January 2016 for the application of patent rights and rules on the protection of undisclosed information to pharmaceutical products).[e]

Source: UNCTAD, based on UNCTAD-ICTSD 2005.

[a] Article 27.3(b), TRIPS Agreement, contains optional exemptions from patentability in the area of biotechnology products. Article 65.4, TRIPS Agreement, authorized for developing countries a transition period until 1 January 2005 for products not protectable under national patent law on 1 January 2000. This applies mainly to pharmaceutical products.

[b] Article 27.1, TRIPS Agreement.

[c] According to some views in the literature, the non-discrimination obligation under Article 27 TRIPS does not apply to *bona fide* distinctions between local and foreign production, in particular in the area of public health and the promotion of affordable access to essential medicines. For details, see UNCTAD-ICTSD 2005, chapter 25 ("Patents: Non-voluntary Uses (Compulsory Licenses)").

[d] Except for some basic obligations such as national treatment and MFN, see Article 66.1. The TRIPS Agreement also provides that this transition period has to be extended by the WTO Council for TRIPS upon duly motivated request by an LDC. The Maldives is the first LDC to have been granted such an extension (Decision of the TRIPS Council on 15 June 2005, IP/C/35).

[e] See paragraph 7 of the Doha Declaration on the TRIPS Agreement and Public Health, WT/MIN(01)/DEC/W/2, and the Decision of the Council for TRIPS of 22 June 2002, IP/C/25.

assuming that this may provide an additional incentive for FDI in R&D.

At the same time, these international obligations restrict national policy space within which IPRs and R&D development policies can be implemented. One example is the TRIPS provision that denies WTO members the right to exempt certain fields of technology from patent protection or to limit the latter to processes only (which would leave all new products in the public domain).[22] Also, the potential prohibition of local working requirements (box VIII.2) could reduce a host country's possibilities of promoting access by local researchers to foreign technologies. Moreover, TRIPS-plus agreements make it more difficult for local R&D actors to access first-generation inventions (due to some TRIPS-plus obligations to extend the patent term for unknown uses of already patented products). As a result, some countries have resisted the inclusion of the full range of provisions noted in box VIII.3.

The effects that limitations of national policy space may have on technological development often depend on a country's level of domestic technological capacity (chapter VII). In the past, some countries have used lax IPR

protection to encourage development in some industries, and strengthened their IPR protection policies once these industries had prospered. The Indian pharmaceutical industry and its interaction with patent regimes is one example. This industry has attained its high level of development partly because the Indian Patent Act of 1971 denied patent protection to pharmaceutical products. This gave the domestic industry an opportunity to build up capabilities in imitative product innovation. Some Indian companies developed their own expertise and technological capacity, reflected in sharply increased R&D expenditures in the 1990s, from $36.5 million in 1990/91 to $73.6 million in 1999/00 (UNCTAD 2003d, p. 109). The introduction of patent protection from 1 January 2005, in fulfilment of India's TRIPS obligations, corresponds with calls from Indian pharmaceutical companies for enhanced protection of their new assets. Existing firms can now enjoy patent protection for their earlier technological innovations.

For these and other reasons, it is essential for countries, in particular developing countries and LDCs, to understand and make use of the flexibilities contained in the TRIPS Agreement (box VIII.2). There is also a need for additional technical assistance and capacity building, as provided for in Article 67 of the TRIPS Agreement, with a view to facilitating the development-oriented implementation of IPRs for the promotion of local R&D capacities.

C. International cooperation in R&D

Several international agreements also aim to encourage international cooperation in the area of R&D. They do so by establishing cooperation among the State parties to the agreements, thereby providing an enabling framework for private-sector R&D projects and FDI in R&D. Such cooperation can either take place in a broader context, for example at the regional level, or be encouraged through specific science and technology cooperation agreements. Given the will of the parties to do so, both approaches can help build domestic innovatory capacity and provide a framework in which national policies aimed at encouraging FDI in R&D can be developed to benefit from the greater impact and/or stronger support of the international community.

As far as the broader cooperation context is concerned, some IIAs, particularly some recent FTAs, contain provisions promoting R&D collaboration in scientific and industrial endeavours. This may involve joint research projects in fields of common interest, the exchange of scientists and researchers and the fostering of relations between research centres.[23] Several agreements extend this to the promotion of FDI in R&D (box VIII.4). International cooperation in the area of R&D is particularly pertinent at the regional level within the context of regional economic integration. Here, it could

Box VIII.3. TRIPS-plus provisions of potential relevance to FDI in R&D and local R&D

A number of recent IIAs require their parties to:

- Extend the patent term in cases of delays in the granting of the patent caused by the regulatory approval process (mainly in the field of medicines).
- Provide patents for new uses of known products ("second uses"), as opposed to the TRIPS Agreement.
- Extend patent protection to plants and animals.
- Provide for exclusive rights in pharmaceutical test data (Article 39.3 of the TRIPS Agreement may be interpreted as leaving Members the freedom to protect such data through non-exclusive rights only).[a]

These provisions make R&D activities more expensive and complicated than before for competitors. For example, a system of data exclusivity prevents regulatory authorities responsible for granting marketing approval from relying on test data first submitted by the data originator. In order to receive marketing approval, the competitor has to carry out the same tests as already undertaken by the data originator. The competitors are thus obliged to focus their R&D activities on the reproduction of expensive testing, instead of concentrating efforts on follow-on R&D that could improve the existing products or adapt them to particular local needs.

Source: UNCTAD.

[a] There is no WTO jurisprudence or authoritative interpretation on this matter.

Box VIII.4. The promotion of R&D investment in regional agreements

Several regional IIAs address investment in R&D. For example, Article 46 of the Association Agreement between the European Community and Egypt (which came into effect in 2004) – entitled "Investments and promotion of investments" – states that: "Cooperation shall aim at increasing the flow of capital, expertise and technology to Egypt through, inter alia: appropriate means of identifying investment opportunities and information channels on investment regulations. [...] Cooperation may extend to the planning and implementation of projects demonstrating the effective acquisition and use of basic technologies". In addition, the agreement includes specific clauses on cooperation in science and technology (Article 43) and industrial cooperation, including in R&D (Article 45). In this case, the agreement seeks to promote R&D and facilitate FDI and technology transfer to the developing partner, thereby strengthening its R&D capacity.[a]

Some regional groupings of developing countries place emphasis on cooperation among their members in the area of science and technology, identifying R&D as a specific area for cooperation. This approach has been taken in Protocol III on Industrial Policy Amending the Treaty Establishing the Caribbean Community: "Mindful of the imperatives of research and development and technology transfer and adaptation for the competitiveness of Community enterprises on a sustainable basis" (Preamble), the contracting parties seek to adopt measures to promote market-led research, technological development, encourage public/private sector cooperation in research and technological development activities and facilitate cooperation between private sector enterprises to integrate the results of research and technological development (Article VIII, replacing Article 44 with Article 43.1 and 2(a) and (c)).

Within the broader ASEAN cooperation framework, the Agreement on ASEAN Energy Cooperation of 1986 (as amended in 1995) specifically identifies private sector participation in the cooperation among ASEAN member countries in the area of technological research, development and demonstration (Article 1.2(iii)).

Similarly, the Treaty establishing the Common Market for Eastern and Southern Africa (COMESA) includes specific clauses that seek to promote industrial R&D, the transfer, adaptation and development of technology, and linkages through the provision of investment incentives to industries (Treaty Establishing COMESA, Article 100d).

Source: UNCTAD.

[a] Similar provisions can be found in other agreements entered into by the European Community; see for example the Association Agreements with Algeria (art. 51), Chile (art. 36), Jordan (art. 64, 73), and the Palestinian Liberation Organization (art. 38, 49), the Cooperation Agreements with Armenia (art. 51, 56), Brazil (art. 10, 16), the Lao People's Democratic Republic (art. 10), Sri Lanka (art.4, 9), and South Africa (art. 55); and the Partnership Agreements with Georgia (art.53) and the Russian Federation (art. 62, 77).

lead to the development of competitive industries, in which members can pool their resources, share the costs and risks and enhance opportunities for regional or local enterprises.[24] However, where this approach ignores foreign investors from outside the region, it may risk excluding a significant source of technology and cooperation (UNCTAD 2001).

Science and technology cooperation agreements are another avenue of international R&D cooperation that has a direct bearing on FDI in R&D. These agreements focus specifically on international R&D cooperation, and offer a framework within which countries can develop policies encouraging local and foreign investors to participate in specific R&D projects. Frameworks established by such agreements can facilitate the flow of information, the formation of alliances, the pooling of financial resources, the joining of technological expertise and endowments, the financing of technology matchmaking and the creation of public-private sector partnerships. These global approaches are important for promoting FDI in R&D and, more broadly, the internationalization of R&D.

* * *

Within a globalized world economy, national policies aimed at the development of R&D capabilities are increasingly being complemented by rule-making at the international level. As this overview of international agreements has shown, R&D activities are given special attention in a number of international treaties, ranging from IIAs to international IPR regimes to international cooperation agreements in the field of science and technology. This

multifaceted framework imposes legal and regulatory measures and standards that affect the ability of countries to devise their own policies in this regard and to develop their innovative capabilities, including through the internationalization of R&D. The implications for R&D development vary by the level of development of countries and by the types of international agreements involved.

Notes

1 Unless referenced, all IIAs (for a definition, see chapter I, footnote 45) referred to in this chapter can be found in UNCTAD 2005e, 2004c, 2002b, 2000 and 1996b and at www.unctad.org/iia.

2 According to the Provisional Common Product Classification (CPC), used by most WTO members in the GATS context, the definition of R&D covers services relating to scientific progress achieved in the various fields of the natural sciences (CPC 851), social sciences and humanities (CPC 852) and interdisciplinary R&D (CPC 853) in three areas: basic research, applied research and experimental development. FDI in any of these fields is then covered by the concept of commercial presence.

3 Compared to commitments in other sectors and areas of activity, this number is quite modest.

4 One schedule represents one WTO member country, except for the case of the European Communities and its 12 members (at the time of the signature of the GATS), which are counted as one single WTO member. All other current EU members are counted separately, as they all have presented individual lists of commitments to the GATS. From that perspective, the total number of WTO members is therefore considered to be 136, instead of the official number of 148. The 12 transition economies include six countries of South-East Europe and the CIS (Bulgaria, Croatia, The former Yugoslav Republic of Macedonia, Georgia, Kyrgyzstan, the Republic of Moldova) and six new EU members (the Czech Republic, Estonia, Hungary, Latvia, Slovakia, Slovenia).

5 WTO members were mostly free to choose the scheduling technique of their preference; not all countries followed the CPC structure, or they modified it in certain aspects. Therefore, an interpretative effort was required in some cases to make the content of different schedules compatible. As a result, these data should be considered indicative in nature and may vary from those in other studies in this area.

6 The 12 other BITs concluded by the United States that include similar provisions are with: Georgia (1994), Trinidad and Tobago (1994), Uzbekistan (1994), Albania (1995), Honduras (1995), Nicaragua (1995), Croatia (1996), Azerbaijan (1997), Jordan (1997), Mozambique (1998), Bahrain (1999), El Salvador (1999). The texts of these BITs can be found at (www.unctad.org/iia).

7 See Article 9.1.h, expressly prohibiting the use of requirements to "(h) achieve a given level or value of research and development in its territory as a condition for investment and business activities in its territory".

8 See Article 75, stating similarly in connection with "the establishment, acquisition, expansion, management, operation, maintenance, use or possession of investments".

9 Some countries have chosen to go beyond this permissive approach by making specific reservations in this regard. For example, Canada has listed a reservation in Annex 1 of NAFTA stating that prohibiting the use of performance requirements (Article 1106(1)) does not apply to any requirement, commitment or undertaking imposed or enforced in connection with a review under the Investment Canada Act, to "carry out research and development".

10 The 1994 model BIT of the United States prohibited the use of R&D performance requirements (Article VI(f)), not including conditions for the receipt or continued receipt of an advantage

11 See www.ustr.gov.

12 See also Article 10, paragraph 8, of the Energy Charter Treaty, available at: www.unctad.org/iia.

13 Individual State contracts can provide more favourable conditions for the investor than a treaty. This is usually confirmed in BITs through a provision undertaking to respect all commitments made in specific agreements, including State contracts.

14 A typical horizontal measure concerning subsidies on R&D reads: "3) Unbound for subsidies for research and development". Australia, Brazil, Cambodia, Canada, Croatia, the EU (12), Finland, Iceland, Japan, the Republic of Korea, Mexico, Norway and Slovenia have recorded such a restriction. Kuwait and Qatar have similar horizontal measures listed in their limitations on market access.

15 BITs, for example, typically submit this issue to national laws and regulations.

16 Article 1002 of the FTA between Australia and Thailand states that: "… i. **"**specialist**"** means a natural person within an organisation who possesses knowledge at an advanced level of technical expertise, and who possesses proprietary knowledge of the organisation's service, research equipment, techniques, or management; or a natural person with high-level technical or professional qualifications and skills and experience.''

17 International IPR standards (as contained, for example, in the Paris Convention for the Protection of Industrial Property) lay out the main principles for the interaction of national IPR laws with foreign investors: national treatment, right of priority and the independence of patents obtained for the same invention in different countries. Another core principle of the international intellectual property architecture, the MFN treatment obligation, was only introduced with the WTO-TRIPS Agreement.

18 IPR protection may also help to build domestic R&D capacity and encourage domestic innovation – a matter not further explored here.

19 See Article 8.2: "Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology." Note that this provision does not allow members to deviate from their obligations, requiring that national measures be "consistent with the provisions of this agreement". Unlike other WTO Agreements such as the GATT, the TRIPS Agreement does not contain a general exception clause.

20 Other categories of IPRs covered under the TRIPS Agreement are copyright and related rights, trademarks, geographical indications, industrial designs, and layout designs of integrated circuits.

21 For an overview, see Fink and Reichenmiller 2005.

[22] Article 27.1, TRIPS Agreement; see also box VIII.1.

[23] For example, the Australia-Thailand Free Trade Agreement of 2004. In chapter 8 on "Trade in Services", "Part III: Cooperation", it spells out several areas of cooperation. Article 808 states that "1. The Parties shall strengthen and enhance existing cooperation efforts in service sectors and develop cooperation in sectors that are not covered by existing cooperation arrangements, through *inter alia*: (a) research and development..."

[24] R&D cooperation within the European Union illustrates the benefits of this regional approach (see Article 163 of the Treaty Establishing the European Community). Such cooperation among European countries in areas that are very sensitive to security and economic competitiveness was facilitated at an early stage by the Treaty Establishing the European Community.