

## 2.5.7 DISCLOSURE OBLIGATIONS (ARTICLE 29)

### Article 29: Conditions on Patent Applicants

1. Members shall require that an applicant for a patent shall disclose the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art and may require the 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.
2. Members may require an applicant for a patent to provide information concerning the applicant's corresponding foreign applications and grants.

### 1. Introduction: terminology, definition and scope

A patent application has two main parts, the specification and the claims.

The *specification* (or description) of the invention is generally written like a science or engineering report describing the problem the inventor faced, the prior art and the steps taken to solve the problem. In some jurisdictions, the applicant must also provide a characterization of the "best mode" of solving the problem, in order to facilitate others' practicing the invention after the end of the patent term by revealing the best-known way (at the time of the patent application) of doing so.<sup>378</sup>

The essential goal of the specification is to substantiate the evidence of completion of the act of invention,<sup>379</sup> that is, whether the inventor has effectively made a patentable invention and, if the patent is issued, has brought the invention into the public domain by enabling others to re-create it.<sup>380</sup>

Disclosure has historically been one of the fundamental principles of patent law. It provided one of the early justifications for the granting of patents.<sup>381</sup> The justification of patent rights based on disclosure was in some cases put in the form of a "social contract" theory: "society makes a contract with the inventor by which it agrees to grant him the exclusive use of the

<sup>378</sup> See, e.g. Dratler (Jr.), Jay (1996), *Intellectual property law: commercial, creative and industrial property*, vol. 1, Law Journal Seminars-Press, New York, p. 2-85 [hereinafter Dratler, 1996].

<sup>379</sup> See, e.g., Janis, Mark (2000), *On courts herding cats: contending with the "written description" requirement (and other unruly patent disclosure doctrines)*, Washington University Journal of Law and Policy, vol. 2, p. 68 [hereinafter Janis].

<sup>380</sup> See, e.g., Merges, Robert and Nelson, Richard, (1994), *On limiting or encouraging rivalry in technical progress: the effect of patent-scope decisions*, The Journal of Economic Behaviour and Organization, No. 25, p. 129 [hereinafter Merges and Nelson].

<sup>381</sup> "In the absence of protection against imitation by others, an inventor will keep his invention secret. This secret will die with the inventor and society will lose the new art. Hence, a means must be devised to induce the inventor to disclose his secret for the use of future generations. This can best be done by granting him an exclusive patent which protects him against imitation" (Penrose, Edith T. (1951), *The economics of the international patent system*, The Johns Hopkins Press, Baltimore, p. 32 [hereinafter Penrose].

invention for a period and in return the inventor agrees to disclose technical information in order that it will later be available to society.”<sup>382</sup>

The second part of the patent application is a set of *claims* which should define, in precise terms, what the inventor considers to be the specific scope of the invention.<sup>383</sup> The patent claims serve a quite different function from the specification: they distinguish the inventor's intellectual property from the surrounding terrain,<sup>384</sup> that is, they define the technological territory that cannot be invaded by third parties without risking an infringement suit.

The specification and claims are closely related. There must be a correlation between the scope of the disclosure and the scope of the claims. The former should “support” the latter, in order to ensure that the exclusivity granted to the patent owner is justified by the actual technical contribution to the art.<sup>385</sup>

The TRIPS Agreement includes specific obligations on the disclosure of the invention, but leaves WTO Members the freedom to determine its relationship with the claims and, in particular, the complex issue of claims interpretation.<sup>386</sup>

## **2. History of the provision**

### **2.1 Situation pre-TRIPS**

While the specific requirements of the obligation to disclose the invention and their practical enforcement (by patent offices and courts) vary among countries, such obligation was a well established element in patent law at the time of the negotiation of the TRIPS Agreement.

The “best mode” requirement (which, as discussed below, is not mandatory under the Agreement) was well established under U.S. law, despite some ambiguities,<sup>387</sup> but it was not provided for in the legislation of most other countries, including in Europe and Japan. Moreover, the obligation (also non-mandatory) to provide information concerning the applicant's corresponding foreign applications and grants had no significant precedents, if any.

### **2.2 Negotiating history**

The draft provision on “obligations of the patent owner” was one of the most controversial in the whole TRIPS negotiations, since developing countries tried to incorporate an obligation to

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<sup>382</sup> Penrose, p. 32.

<sup>383</sup> The claims are the “metes and bounds” of patent rights, see *Markman v. Westview Instruments Inc.*, 517 US, 370, 372 (1996).

<sup>384</sup> See, e.g., Merges and Nelson, p. 129.

<sup>385</sup> For a discussion on this relationship under U.S. and European law, see Janis, p. 55-108.

<sup>386</sup> See, e.g., Duffy, John (2000), *On improving the legal process of claims interpretation: administrative alternatives*, Washington University Journal of Law and Policy, vol. 2, reproduced in Richard R. Nelson (1996), *The sources of economic growth*, Harvard University Press, Cambridge (USA)-London (UK), p. 109-166; Correa, Carlos (2000), *Integrating Public health Concerns into Patent Legislation in Developing Countries*, South Centre, p. 81 [hereinafter Correa, 2000a].

<sup>387</sup> See, e.g., Dratler, 1996, p. 2-85; Hauff, Charles, (1995), *The best mode requirement of the U.S. patent system*, in Lechter, Michael, (Ed.), *Successful Patents and Patenting for Engineers and Scientists*, IEEE Press, New York, p. 219.

work the patented invention. Developed countries strongly --and successfully -- opposed this proposal. Thus, the Brussels negotiating draft established obligations essentially similar to the current Article 29.1 and 2, but added the right of the Parties to impose on the patent owner the following obligations:

(a) To ensure the [working] [exploitation] of the patented invention in order to satisfy the reasonable requirements of the public. [For the purposes of this Agreement the term "working" may be deemed by PARTIES normally to mean manufacture of a patented product or industrial application of a patented process and to exclude importation.]

[(b) In respect of licensing contracts and contracts assigning patents, to refrain from engaging in abusive or anti-competitive practices adversely affecting the transfer of technology.]

According to the draft of July 23, 1999<sup>388</sup> the owner of the patent would have the following obligations:

1.1 to disclose prior to grant the invention in a clear and complete manner to permit a person versed in the technical field to put the invention into practice [and in particular to indicate the best mode for carrying out the invention];

(See also point [-] above)<sup>389</sup>

1.2 to give information concerning corresponding foreign applications and grants;

1.3B to work the patented invention in the territory of the Party granting it within the time limits fixed by national legislation;

1.4B in respect of licence contracts and contracts assigning patents, to refrain from engaging in abusive or anticompetitive practices adversely affecting the transfer of technology, subject to the sanctions provided for in Sections 8 and 9 below.

The working obligation disappeared from the final text of Article 29, as a result of the compromise struck in December 1991, which was reflected in the wording of Article 27.1 *in fine*. Article 29, as adopted, was finally limited to matters relating to the disclosure of the invention for purposes of examination and of execution of the invention after the expiry of the patent term.

### **3. Possible interpretations**

Article 29 contains one mandatory and two facultative elements. First, it requires Member countries to disclose the invention “in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art”. It, thus, unsurprisingly incorporates the “enablement” requirement, as usually established in national patent laws.<sup>390</sup> Such

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<sup>388</sup> See document W/76, quoted in Gervais, p. 156. .

<sup>389</sup> Reference was made to Article 27.3.

<sup>390</sup> Under current U.S. law, for instance, the enablement doctrine is codified in 35 U.S.C. No.112, para.1 (1984) which provides that “[T]he specification shall contain a written description of the invention, and of the manner

requirement aims at ensuring that patents perform their informative function, by demanding that the patent specification enable those skilled in the art to make and use the full scope of the invention, without undue experimentation.<sup>391</sup>

Second, Article 29.1 introduces, in a facultative manner, the “best mode” requirement inspired by U.S. law. This requirement aims at preventing inventors from obtaining protection while concealing from the public the preferred embodiments of their inventions. Unlike the enablement requirement, which requires an objective analysis, the “best mode” requirement is a subjective one: what constitutes the best mode of executing the invention depends upon what the inventor knew and considered to be the best way of executing his invention, at the time of the filing of the patent application<sup>392</sup> or the priority date.<sup>393</sup> This information rarely includes the actual know-how for the execution of the invention, since at the time of filing there is seldom production experience.

Third, Article 29 allows Members to require information concerning the applicant’s corresponding foreign applications and grants. Such information may be important, particularly for patent offices in developing countries, in order to improve and speed up the examination process. However, such requirement does not affect the basic principle of independence of patent applications.<sup>394</sup> The Agreement does not refer to the consequences of the failure to comply with this requirement. However, since this requirement may be a “condition” imposed on patent applicants, an application may be rejected if the applicant fails to provide the referred to information.

The Agreement leaves considerable room for the implementation of the standards provided for in Article 29. WTO Members could for example strictly implement these standards with a view to facilitating competitive innovation, adapting protected inventions to local conditions, or merely practicing them once the term of protection expires.<sup>395</sup>

Another aspect left to WTO Members is the extent to which the applicant would be obliged, if several embodiments of the invention were claimed, to provide sufficient information to enable the reproduction of *each* embodiment for which the applicant seeks patent protection.

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and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention”.

<sup>391</sup> The directions given in the specification for performing the invention must be such as to enable the invention to be carried into effect without an excessive number of experiments. See, for instance, the English case of *Plimpton v Malcolmson* (1876) 3 Ch D 531, 576.

<sup>392</sup> See, e.g., Dratler, 1996, p. 2-86.

<sup>393</sup> The priority date means the date on which the first application was made, in accordance with Article 4 of the Paris Convention. The purpose of this right is to enable someone who has filed a patent application in one country to file posterior applications for the same patent in the other countries of the Paris Union. In this scenario, it is possible that a third person in one of these other countries files an application for the same patent before the original applicant has a chance to deposit his application for that country. The priority date results in the recognition of the original filing in all the other Paris Union countries. Thus, any applications by third persons intervening between the original filing in one country and any subsequent filings by the original applicant in the other countries will be considered posterior to the original filing. The condition is, however, that the subsequent filings in the other countries be effectuated within 12 months from the date of filing of the first application. For details, see Article 4A, B, C of the Paris Convention.

<sup>394</sup> “Patents applied for in the various countries of the Union by nationals of countries of the Union shall be independent of patents obtained for the same invention in other countries, whether members of the Union or not” (Paris Convention for the Protection of Industrial Property, Article 4bis(1) (1967)).

<sup>395</sup> See, e.g., UNCTAD, 1996, p. 33.

A strict "enablement" requirement may mandate disclosure of each embodiment.<sup>396</sup> This approach would prevent excessively broad patents covering embodiments of the invention that have not been described by the applicant in a form that effectively allows their reproduction by a third party.

It may also be possible for Members to introduce a "written description" requirement, in order to determine whether patent disclosure reasonably conveys to one skilled in the art that the inventor possessed the claimed subject matter at the time of filing the application.<sup>397</sup>

Further, Members may define how the relationship between the specification and the claims is to be considered,<sup>398</sup> as well as the method of interpretation of claims. Moreover, WTO Members may decide whether such requirements would be applied during original examination of the application by the patent office and/or on occasion of post-grant opposition procedures.<sup>399</sup>

One important issue -- not addressed by the TRIPS Agreement -- relates to the disclosure of inventions relating to microorganisms<sup>400</sup> and other biological materials. In these cases, the written description is insufficient; access to the relevant knowledge is only possible through access to the biological material itself.<sup>401</sup> Such access may be permitted to third parties (for experimental purposes) after the publication of the patent application, as provided under European law, or after the patent grant, such as in the case of the U.S.

Finally, a controversial issue is whether national laws may require that the patent applicant inform the country of origin of the biological material, and/or demonstrate that the applicant has complied with the relevant rules with regard to access to such material. This requirement<sup>402</sup> would help to ensure compliance with the benefit sharing provisions of the Convention on Biological Diversity, and to avoid possible misappropriation ("bio-piracy") of genetic resources and associated knowledge.

The consistency of such additional requirement<sup>403</sup> with Articles 27.1 and 29 of the TRIPS Agreement has been questioned, particularly if non-compliance would lead to the rejection of

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<sup>396</sup> However, some patent offices, such as the European Patent Office, accept that, in order to be valid, the description need not include specific instructions as to how all possible variants within the claim definition can be obtained. See, e.g., Cook, Trevor, Doyle, Catherine, and Jabbari, David (1991), *Pharmaceuticals biotechnology & The Law*, Stockton Press, New York, p. 80.

<sup>397</sup> The negotiating history of Article 29.1 would indicate, however, that there was not intention to incorporate a "written description" requirement. See, e.g. Janis, p. 59 and 88, fn. 133.

<sup>398</sup> For instance, under the European Patent Convention the claims must be "clear and concise and be supported by the description" ("support requirement")(Article 84).

<sup>399</sup> This means that a third party may challenge a patent granted by arguing that the disclosure is not sufficient for a person skilled in the art to carry out the invention. See Janis, p. 89.

<sup>400</sup> The Budapest Treaty (1977) has created a system for the international recognition of the deposit of microorganisms that facilitates the tasks of patent offices and provides guarantees to the applicants/patent holders.

<sup>401</sup> It is important to ensure that the scope of protection for biological material patents corresponds to the material actually deposited. If there is no correspondence between the description and the deposited material, the patent (or claim) may be deemed void.

<sup>402</sup> An obligation of this type was incorporated in the draft of the European Union Directive relating to patents on biotechnology, as recommended by the European Parliament in July 1997. Though it was removed from the finally approved text, Recital 27 of the Directive mentions an obligation to provide information as to geographical origin of biological material where this is known, without prejudice to patent validity. See European Directive on Biotechnological Inventions No. 96/9/EC of March 11, 1996.

<sup>403</sup> Which has been established in some national laws (see Section 6.1 below).

the patent application or the invalidation of a granted patent.<sup>404</sup> According to the U.S. government, imposing such requirement would be

“an extremely ineffective way for countries that are the source of genetic resources or traditional knowledge... In addition, imposing additional requirements on all patent applicants only increases the cost of obtaining patents that would have a greater adverse effect on individual inventors, non-profit entities, and small and medium sized businesses, including those in developing countries.”<sup>405</sup>

For some WTO Members, this matter would require an amendment of the Agreement (see Section 6.4 below). It has also been suggested that the acquisition and enforcement of rights in inventions, knowingly derived directly or indirectly from an illegal act, such as the unauthorized acquisition of genetic resources, may be deemed abusive. As a result, patents so obtained may be deemed valid but not enforceable.<sup>406</sup>

#### **4. WTO jurisprudence**

There have been no cases under the DSU on this matter.

### **5. Relationship with other international instruments**

#### **5.1 WTO Agreements**

There are no other WTO Agreements relevant to this subject.

#### **5.2 Other international instruments**

Article 3 of the draft Substantive Patent Law Treaty<sup>407</sup> contains rules on disclosure and description of the inventions. Paragraph 1 of Article 3 establishes that:

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<sup>404</sup> “The origin of the genetic resources and of other circumstances related to their acquisition is not generally necessary for the invention to be carried out by a person skilled in the art”, Pires de Carvalho, Nuno, (2000), *Requiring disclosure of the origin of genetic resources and prior informed consent in patent applications without infringing the TRIPS Agreement: The problem and the solution*, Re-Engineering Patent Law, vol. 2, p. 380 [hereinafter Pires de Carvalho].

<sup>405</sup> See WTO DOC. IP/C/W/162 (Oct. 29, 1999).

<sup>406</sup> See, e.g. Pires de Carvalho, p. 395 and 399. This option would be based on the “fraudulent procurement doctrine”: “if patent applicants fail to be candid on matters that may have an impact on the final decision on patentability, such as novelty or inventiveness, then the patent may be invalidated. When the lack of candor regards matters that are not essential to the grant or rejection of the patent, then fraudulent procurement is sanctioned by non-enforceability. Enforceability is restored when the patent owner corrects the misrepresentations or other inequitable conducts-in other words, when *he cleans his hands*”. (ibidem, p. 397).

<sup>407</sup> Draft 5 of 19 December 2000, available at [http://www.wipo.org/scp/en/documents/session\\_5/pdf/splt\\_5.pdf](http://www.wipo.org/scp/en/documents/session_5/pdf/splt_5.pdf). Note that this draft has not yet turned into any legally binding agreement. Contrary to the TRIPS Agreement, which only sets up *minimum standards* for patents, this exercise aims at the international *harmonization* of substantive patent law. On an earlier draft of 1991 see WIPO, (1991), *Records of the Diplomatic Conference for the Conclusion of a Treaty Supplementing the Paris Convention as far as Patents are Concerned*, vol. 1: “First Part of the Diplomatic Conference, the Hague”, Geneva, p. 15-16 [hereinafter WIPO, 1991]. The draft Substantive Patent Law Treaty has to be distinguished from the WIPO “Patent Law Treaty”, adopted on 1 June, 2000. The latter constitutes a legally binding agreement, but it is limited to *procedural* provisions and does not make any attempt to harmonize *substantive* patent law. It is available at <http://www.wipo.int/clea/docs/en/wo/wo038en.htm>.

"[...] The disclosure of the invention in the application as a whole shall be adequate, if, as of the date of filing of the application, it sets forth the invention in a manner sufficiently clear and complete for the invention to be carried out by a person skilled in the art, as prescribed in the Regulations."

In addition, paragraph 2 of Article 3 establishes that

"[...] In respect of the disclosure, no requirement additional to or different from those provided for in paragraph (1) may be imposed."

## **6. New developments**

### **6.1 National laws**

In the Indian Patent (Second Amendment) Bill (as adopted in 2002), the grounds for rejection of the patent application, as well as revocation of the patent, include non-disclosure or wrongful disclosure of the source of origin of biological resource of knowledge in the patent application, and anticipation of knowledge, oral or otherwise. It has also been made incumbent upon patent applicants to disclose in their patent applications the source of origin of the biological material used in the invention.<sup>408</sup>

### **6.2 International instruments**

The Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure (1977), amended in 1980<sup>409</sup> constitutes a union for the international recognition of the deposit of microorganisms for the purposes of patent procedure. Contracting States allowing or requiring the deposit of micro-organisms for the purposes of patent procedure shall recognize, for such purposes, the deposit of a micro-organism with any international depositary authority.

It is also interesting to note that at the meeting of the WIPO Standing Committee on the Law of Patents on September 6-14, 1999, Colombia proposed the following language (not finally adopted) to be included in the proposed Patent Law Treaty:

1. All industrial property protection shall guarantee the protection of the country's biological and genetic heritage. Consequently, the grant of patents or registrations that relate to elements of that heritage shall be subject to their having been acquired legally.
2. Every document shall specify the registration number of the contract affording access to genetic resources and a copy thereof where the goods or services for which

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<sup>408</sup> According to Section 6 of the Indian Biodiversity Bill, in addition, anybody seeking any kind of intellectual property rights on a research based upon biological resource or knowledge obtained from India, needs to obtain prior approval of the National Biodiversity Agency (NBA). The NBA will impose benefit-sharing conditions. Section 18 (iv) stipulates that one of the functions of NBA is to take measures to oppose the grant of IPRs in any country outside India on any biological resource obtained from India or knowledge associated with such biological resource.

<sup>409</sup> With a membership of 53 countries as of November 21, 2001.

protection is sought have been manufactured or developed from genetic resources, or products thereof, of which one of the member countries is the country of origin.

### **6.3 Regional and bilateral contexts**

#### 6.3.1 Regional

Under the “Common Regime on Access to Genetic Resources” of the Andean Group patent applicants are obliged to provide patent offices with information concerning the origin of the genetic resource in question and some proof of prior informed consent from government authorities as well as traditional knowledge holders.<sup>410</sup> Any intellectual property right or other claims to resources shall not be considered valid, if they were obtained or used in violation of the terms of a permit for access to biological resources residing in any of the Andean countries, as regulated under that Decision.

The European Directive on Biotechnological Inventions<sup>411</sup> alludes in Recital 27 to an obligation to provide information as to the geographical origin of biological material where this is known, without prejudice to patent validity.

### **6.4 Proposals for review**

At the TRIPS Council meeting of July 7-8, 1999, the Indian delegation proposed that the objective of harmonizing the approaches to the utilization of living resources in the CBD and in the TRIPS Agreement

"could be operationalized if an obligation was imposed in the TRIPS Agreement to share benefits through material transfer agreements and transfer of information agreements... Such an obligation could be incorporated through inclusion of provisions in Article 29 of the TRIPS Agreement, which dealt with conditions on patent applicants, requiring a clear mention of the biological source of the material and the country of origin"<sup>412</sup>.

On its part, Brazil has considered that

“Article 27.3 (b) should be amended in order to include the possibility of Members requiring, whenever appropriate, as a condition to patentability: (a) the identification of the source of the genetic material; (b) the related traditional knowledge used to

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<sup>410</sup> See Common Regime on Access to Genetic Resource, Andean Decision 391 of 02 July 1999. See also in this context the Biodiversity Law (No. 7788) of Costa Rica, enacted on 27 May 1998.

<sup>411</sup> No. 96/9/EC of March 11, 1996.

<sup>412</sup> IP/C/M/24 pp. 82 (Aug. 17, 1999). The wish to harmonize the CBD and the TRIPS Agreement was expressed in the Council for TRIPS by those Members that consider these agreements to contain partially contradictory provisions, in particular in the area of the CBD benefit-sharing and disclosure of origin requirements and the TRIPS patentability criteria and disclosure obligations. Other Members have seen no inconsistencies between the two agreements and thus have not consider any harmonization to be necessary. For more details on these views as expressed in the Council for TRIPS, see Section 2.5.5 Biotechnological inventions: genetic resources, plant variety protection, traditional knowledge (Article 27.3 (b))/5.2.2 Convention on Biological Diversity, above. Note that, in the meantime, the WTO Ministerial Conference at Doha has instructed the Council for TRIPS to examine, *inter alia*, the relationship between the TRIPS Agreement and the CBD. See Ministerial Declaration, WTO document WT/MIN(01)/DEC/W/1 of 14 November 2001, at para. 19.

obtain that material; (c) evidence of fair and equitable sharing; and (d) evidence of prior informed consent from the Government or the traditional community for the exploitation of the subject matter of the patent."<sup>413</sup>

## **7. Comments, including economic and social implications**

The nature of the patent bargain requires the patent applicant to make a full disclosure of the matter claimed for his benefit.<sup>414</sup> This serves two purposes.

First, the information contained in patent specifications is an important tool for research and the advancement of technology. Access to this information – today facilitated by the availability of several on-line and off-line databases - provides a useful tool to industry and scientific institutions.

Second, the technical information carried in a patent has to be put at the disposal of the public at the expiry of the term of protection. The patent owner obtains a temporary monopoly, subject to the condition that the society at large may benefit from the invention once that term has elapsed.

The achievement of these two purposes critically depends on the completeness and quality of the patent description. If the applicant were able to conceal from the public the information necessary to execute the invention, the prospective patentee would defeat one of the essential objectives of the patent system.

Moreover, the grant of a right to exclude is only justified when the inventor can prove actual possession of the information claimed to be inventive. The description, therefore, may play the dual role of ensuring full disclosure as well as limiting the scope of protection to what the applicant has actually invented.<sup>415</sup>

Ensuring the completeness and quality of patent disclosure, in a manner accessible to local researchers and industry, is essential in developing countries. Patent offices should pay attention to the quality of translation into domestic language. However, the mere translation of patent applications as originally filed in other countries may not be sufficient in some developing countries to enable third parties to practice the invention.<sup>416</sup> Patent offices may, hence, adopt rules requiring the proper identification and description of inventions in a manner understandable to local people skilled in the art.

Compliance by Members with Article 29 does not seem problematic, since the mandatory elements contained therein are in line with well-established practice in patent law. Members are free to introduce into national laws the non-mandatory elements of that provision. They

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<sup>413</sup> Submission by Brazil "Review of Article 27.3 (b)", IP/C/W/228, 24 November 2000, p. 5.

<sup>414</sup> See, e.g. Groves, Peter, (1997), *Source Book on Intellectual Property Law*, Cavendish Publishing Limited, London, p. 202.

<sup>415</sup> The importance of this limitation of the scope of protection was also stressed by the CIPR in its report, in particular with respect to the patenting of genetic material. The Commission recommended (p. 118): "If developing countries allow patents over genes as such, regulations or guidelines should provide that claims be limited to the uses effectively disclosed in the patent specification, so as to encourage further research and commercial application of any new uses of the gene."

<sup>416</sup> See, e.g., UNCTAD, 1996, para. 132.

would in general benefit from incorporating the best mode requirement,<sup>417</sup> as well as the obligation to provide information about foreign applications and grants. In addition, Members enjoy considerable room to determine the specific contours of the disclosure obligations, as well as the relationship between description and claims and the form of interpretation of the latter.

Wherever this is possible, manufacturers prefer to keep processes secret. Indeed the sum total of know-how, both patentable and non-patentable, is often what gives the competitive edge, enabling the production of better products at affordable prices. Furthermore, trade secrets have the major advantage that they are unlimited in duration. For example, the secret process used for producing a well-known brand of Swiss spreading cheese goes back many generations, and the Swiss parent company goes to considerable lengths to ensure that its licencees around the world do not learn the secret. Thus, manufacturers will tend to disclose only to the extent that competitors could themselves reproduce the product were it not covered by a patent. It is this fact that weakens the utility of the patent systems as a source of information for developing countries.

As mentioned above, the disclosure of the origin of biological materials claimed in patent applications may have important economic implications. Such a disclosure would not be a necessary condition to but would facilitate claims of benefit sharing (under national access legislation in line with the CBD) by states from which the materials have been acquired. Many developing countries have significant expectations (albeit not confirmed in practice so far) about the income that compliance with benefit sharing obligations may generate.

Disclosure of the origin of biological materials may also facilitate the monitoring of patent grants in order to eventually challenge their validity, when states or other stakeholders consider that a misappropriation ("bio-piracy") has taken place. A critical issue in relation to the disclosure of origin is the extent to which such disclosure, if made compulsory, would be deemed compatible with obligations under the TRIPS Agreement, particularly if non-compliance may lead to the revocation of a patent.

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<sup>417</sup> See also the CIPR recommendation (on p. 117 of the report) that "Developing countries should adopt the best mode provision to ensure that the patent applicant does not withhold information that would be useful to third parties."