

Diffusion of Climate Friendly Technologies: Can Compulsory Licensing Help?

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Countries often resort to compulsory licensing to promote diffusion of technologies, particularly when intellectual property rights (IPR) holder is considered to have abused its dominant position. However, use of this instrument is often difficult due to legal, political and operational problems. In this context, this paper reviews global regimes as well as national regimes in major jurisdictions, governing use of compulsory licensing. It also examines functional requirements and market conditions for compulsory licensing to work. Based on these, it concludes that the global IPR regime under the WTO needs a mechanism similar to that has been developed for pharmaceutical products, and a more flexible regime even in that, as most countries do not have domestic manufacturing capabilities, if compulsory licensing has to work for the diffusion of climate friendly technologies. However, even such a flexible mechanism may not be adequately effective due to highly concentrated market structure of these technologies, particularly in developing countries.

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The Intergovernmental Panel on Climate Change has listed various hurdles in technology transfer including high capital costs, limited access to capital, poor access to information, institutional and administrative difficulties in developing technology transfer contracts, lack of infrastructure to absorb riskier technologies, absence of economic incentives and IPR¹ Sale or licensing of intellectual property is an important component of transfer of technology in the international context.

Technologies protected by IPR need to be licensed. The nature of IPR regime is an issue in so far as it can determine the terms of licensing. Therefore, there is more likelihood of production and usage costs going much higher because of payments made in order to obtain these licences. In some cases, the owner may just refuse to grant a licence altogether as such technologies are used as barriers to entry.² DuPont, for example, refused to grant licences for the production of chlorofluorocarbon substitutes to Korean and Indian firms that sought to meet phased out requirements of ozone depleting substance.³ Such refusal can further dampen diffusion of technology. Often production of relevant goods that embody such technology is cheaper in developing countries even after payments of royalties. Given this context, it has been suggested that issuance of compulsory license

can be a tool for faster diffusion of climate-friendly technologies.⁴

Compulsory License and International IPR Regimes

Compulsory License (CL), a statutorily created licence that allows others to pay a royalty and use an invention without patentee's permission is an important feature of IPR law. It also includes government authorizing itself to use an otherwise protected intellectual property without having to obtain permission or authorization of a patent holder in cases of national emergency or towards a public good. The issue of CL becomes a case for consideration when a patent holder is not willing to share technology with others voluntarily. CL introduces competition in the markets and hence makes relevant goods or services cheaper.²

The term CL does not figure as such in the TRIPS Agreement. However, it can be read into the provision of TRIPS Agreement on other use (of the patented subject matter) without authorization of the right-holder. Exceptions to rights of patent holders⁵ and principles on measures for preventing abuse of IPR by right-holders or resort to practices, which unreasonably restrain trade or adversely affect international transfer of technology also provide reasonable flexibility for resorting to the provision of CL as per the Article 8 of TRIPS.

Article 31 (c) of TRIPS also provides that a country can use such a measure 'to remedy a practice determined after judicial or administrative process to

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be anti-competitive'. Hence, countries can invoke their competition law where 'abuse of dominance' is included as one of the anti-competitive practices and the source of dominance is an IPR. However, Article 31 of the TRIPS Agreement provides that the possibilities of obtaining a voluntary license must be exhausted before a compulsory license is sought. Similarly, Article 40 of TRIPS dealing with control of anti-competitive practices in contractual licences provides, 'Nothing in this Agreement shall prevent Members from specifying in their legislation licensing practices or conditions that may in particular cases constitute an abuse of IPR having an adverse effect on competition in the relevant market'. Hence, refusal to give licence along with under-servicing of the market can also be included as an anti-competitive practice.

Rights of the member countries to make use of CL in the interest of public health have been explicitly recognized in the Doha Declaration on Public health and August 2003 Decision by WTO members. Pursuant to these, the General Council of the WTO amended the TRIPS Agreement on 6 December 2005.

A CL can be granted in cases such as meeting government requirements, abuse of patent rights, national emergency, public non-commercial use and technical advance of considerable economic significance over the existing patent. Further to this, Thailand issued a CL in late 2006 for five years on Efavirenz, a patented AIDS drug from Merck and more recently (4 May 2007) by Brazil for the same product.⁶

TRIPS has recognized the countries' freedom to determine what constitutes national emergency in their context. It is favourable that the flexibility rests with them to determine when and in which cases to make use of CL, in the absence of any specifications or directives there is bound to be some amount of confusion or conflict. To make use of the provisions of CL for diffusion of climate friendly technologies, first and foremost, climate change mitigation has to be treated as a public good. It is also important to lay down detailed guidelines and specifications to help a country identify a technology eligible for issuing a CL. Similarly, an eligibility criterion for the countries also may be specified.

Under the current Doha Round of negotiations, access to climate friendly technologies is not under consideration in the WTO IPR agenda. Even the WTO trade and environment agenda includes only issue of lower tariffs on such technologies or products, and IPR issues are not part of the agenda.

Nevertheless, issue of the role of IPR in access to environment-friendly technologies has been raised in the discussion in the WTO Committee of Trade and Environment. Most notably, Cuba has demanded shortening of patent protection period to facilitate transfer of clean technologies.⁷ However, as the issue of IPR is not explicitly mentioned in the Doha Agenda on trade and environment, it would be difficult to make any substantial progress on this at the WTO. Similarly, there is also a Working Group on Trade and Technology Transfer at the WTO wherein not much happened that can have bearing on this.

Under the WIPO Development Agenda, some developing countries have talked about use of compulsory licensing to promote greater access to technologies. However, developed countries, particularly, the US and EU have argued that compulsory licensing and its effects thereof would also send a strong signal to potential and current investors in a country that their investment was not safe and was not welcome.⁸ WIPO is also discussing the Substantive Patent Law Treaty, which can have implications for the compulsory licensing system.⁹

The IPR issue is generally included in most regional and bilateral trade agreement as well. However, by and large, they adopt higher standards of IPR protection meaning that, if at all they do anything, they will make compulsory licensing more difficult. The IPR related provisions in NAFTA are similar to those of TRIPS which allows the use of compulsory licenses without specifying the grounds for issuing them. It should also be mentioned that NAFTA has provided for detailed provisions on rights of patent owners in case of compulsory licensing and since coming into place of NAFTA, there has been a significant reduction of CL both in the US and Canada.¹⁰ However, some bilateral agreement signed by the US have more restrictive provisions. For example, four of the bilateral agreements (US-Vietnam, US-Jordan, US-Singapore, and US-Australia) limit the use of compulsory licensing to emergency situations, anti-trust remedies, and cases of public non-commercial use.¹¹

Compulsory Licensing in Major Jurisdictions

In the US, 28 USC 1498 is the seminal legal provision relating to the government use of patents and copyrights. The process provided under this provision empowers the US government to use and authorize the use of a patent without any requirement to seek a license or negotiate the use. It also entitles

Table 1—Fifteen factors in calculating reasonable royalty

1	The royalties received by the patentee for licensing of the patent in suit.
2	The royalty rates paid by the licensee for the use of other patents comparable to the patent in suit.
3	The nature and scope of the license (e.g., <i>exclusive v non exclusive</i> or <i>restricted v non-restricted</i>).
4	The licensor's established policy regarding the licensing (or non-licensing) of its patents
5	The commercial relationship between the licensor and licensee (eg: whether they are competitors). In case of them being competitors the license fee that would have been negotiated would have been much higher than in case on non-competitors.
6	The extent of derivative or convoyed (i.e., ancillary) sales.
7	The duration of the patent and the term of the license.
8	The established profitability of the patented product and its commercial success.
9	The utility and advantages of the patented product over other modes or devices.
10	The nature of the patented invention and the benefits to those who have used the invention.
11	The extent to which the infringer has made use of the invention and evidence of the value of that use.
12	The portion of the profit or selling price of the invention that may be customary to allow for the use of the invention or analogous inventions.
13	The portion of the realizable profit credited to the invention as distinguished from non-patented elements.
14	The opinion of qualified experts.
15	The amount a willing licensor and a willing licensee would have agreed upon at the time of the infringement if both had reasonably and voluntarily attempted to reach an agreement.

the patent right owner to compensation by filing a suit in the US Court of Federal Claims for recovery of his 'reasonable and entire compensation'.

The US has a long history of compulsory licensing which has been mostly used as an antitrust remedy in cases of patent abuses. In *Besser Manufacturing*, the Court quoted compulsory licensing as 'a well-recognized remedy where patent abuses are proved in antitrust actions and it is required for effective relief.'¹² Similarly, in the *Glaxo Group case*, the Court stated, 'mandatory selling on specified terms and compulsory patent licensing at reasonable charges are recognized antitrust remedies.'¹³ The *General Electric case* is an interesting case in which the Court required GE to issue 'free' licenses for light bulb patents to its competitors.¹⁴ In the *Microsoft Corporation Case*, the District Court endorsed the CL as 'a remedy closely connected with the theory of liability in this case To ensure that no practices likely to result in monopolization....provisions plainly fall within public interest.'¹⁵

There also exists a host of specific environmental and health legislations that provide for the targeted licensing of specific technological applications to meet public health needs and specific environmental objectives like air pollution control. 42 USC Sec 7608 provides for mandatory licensing of air pollution prevention inventions under Title 42 (Public Health and Welfare) under the Clean Air Act. Mandatory patent licenses have also been granted under Section 308 of the Clean Air Act.¹⁶ The defense sector has

also been one of the major consumers of the compulsory licenses issues by the US government.

In *George-Pacific Corp v US Plywood Corporation*, the Court laid down fifteen factors (Table 1), which may be taken into account while calculating 'reasonable royalty.'¹⁷ In case there is a lack of agreement between the patent owner and the government on the amount determined to be 'reasonable payment' negotiations is the preferred option of the government. Policy documents of both the Department of Energy (10 C.F.R. § 782.2) and the Department of Defense (48 C.F.R. §227.7001) support and stress on the settlement of disputes administratively.

In Europe, compulsory licensing has not been as frequent as in the US, the *IMS Health case* is considered to be a landmark case in this regard. In this case, the ECJ laid down certain conditions under which a CL can be granted.¹⁸ These include as follows:

- The IPR should constitute an upstream indispensable factor in the downstream supply of the product.
- Award of license should be with the intention to provide new goods and services not offered by the patent owner.
- Reasons for non-justification are not obvious.
- The refusal should be of such a nature that it reserves for the owner of the right, a market for provision of the product, by eliminating all competition on that market.

In the Regulation (EC) No. 816/2006 of the European Parliament and of the Council of 17 May 2006 on compulsory licensing of patents relating to manufacture of pharmaceutical products for export to countries with public health problems, prior negotiations in circumstances of national emergency and public non-commercial usage has been waived. In such cases payment for patent license has been fixed at 4% of the remuneration given by the importing country.

While the UK or continental European courts are yet to establish a clear set of relevant criteria for determining a reasonable royalty in a similar manner to the US courts, it is apparent that many of the same considerations apply – in particular, the focus on potentially comparable licenses and royalties, features of the invention itself and the profitability associated with its use. Companies and the courts in Europe are not particularly comfortable with intellectual property valuation concepts and, as a result, tend to rely heavily on comparable licenses whenever possible.

In Japan, patent law (Law No. 121 of April 1959, amended by Law 30 of 1990) is the seminal legislation on patents. Section 83 provides that in case of three years of non-working upon the grant of patent, a request to work the patent in terms of a grant of a non-exclusive license could be forwarded by the applicant to the patent holder for talks. If the talks fail, the applicant can approach the Patents Office to initiate arbitration proceedings.¹⁹ The Act also provides for a public interest clause that provides for a waiver of time limits in coming to an arbitration decision by the government.

Sections 84 and 92 of the Indian Patents Act 1970 (along with revisions) relate to the issuance of compulsory licenses. It states after three years from the date of sealing of a patent, an interested party may apply to the Controller for the grant of a CL alleging that the reasonable requirements of the public with respect to the invention have not been satisfied or that the invention is not available at reasonable price. If the Controller is satisfied that a *prima facie* case for an applicant for CL has been made out, he shall serve notice on the patentees who, if they so desire, may oppose the application for compulsory license. The process of grant of CL could also be initiated by the government (Section 88) through the endorsement of a 'licenses of rights'. This essentially enables any person to require the patentee to grant him a license to work the patent in India on mutually agreed terms and

conditions. In case of disagreement between the parties, the Controller can decide the terms on which the license shall be granted by the patentee.²⁰

Functional Requirements for Compulsory License

The real effectiveness of compulsory licensing to promote transfer of technology however will also depend on the market conditions in the relevant products and technology market. It is important that there will be capable and willing firms to receive a CL. This will require that there will be sufficient number of firms operating in the same or similar products. Markets for climate friendly products and technologies are unlikely to meet such conditions they are highly concentrated. Such concentration is even higher in particular segments of the industry.²¹ A firm remains a virtual monopoly for a sufficiently long period, then it becomes extremely difficult for any other firm to enter that industry. If there is no firm with adequate capability to receive a CL of some technology and use it, a mere legal provision of CL can be of little use.

The United States is the world's largest producer of environmental technologies and occupies about 33 percent share of the international market. The other major suppliers are EU, particularly Germany and Japan. The Office of Environmental Industries of the US proudly claims that the developing nations simply do not have the technologies.²² It is very likely that the situation would be quite similar in case of technologies that relate to climate change mitigation. In a recent study based on patenting between 1978 and 2003, it was found that innovation in climate change technologies is highly concentrated in three countries, namely, Japan, Germany and the USA, which accounts for two thirds of total climate innovations in thirteen technologies.²³ If developing countries need to make use of compulsory licensing to make these technologies better accessible, they will also need domestic companies with manufacturing capabilities. However, they are unlikely to have such capabilities in most of these technologies.

Developing countries will find it difficult to make CL work in climate friendly products and technologies, as they do not have much production capabilities. Indeed, production capacities are limited in developing countries also because they do not have access to the technologies. These products are very different from pharmaceutical products. For example, even a least developed country like Bangladesh has capabilities to produce pharmaceutical products, but

even a relatively advanced developed developing country like India does not have much capability in climate change mitigation technologies.

Given this, it would be difficult for developing countries to operationalize compulsory licensing arrangement to promote access to technology. A requirement in TRIPS [Article 31(f)] is that production under CL has to supply predominantly for the domestic market. In fact this came up as a major concern in the context of TRIPS and public health around the time of Doha Ministerial Conference of the WTO. To deal with this, an amendment was made in the TRIPS, so that countries without pharmaceutical manufacturing capability could issue compulsory license to foreign firms as well. So far only one country has used this provision of the WTO. Rwanda is the only country to notify the WTO that it intended to import the HIV/AIDS drug, TriAvir; manufactured in Canada by Apotex, a major generics producer. However, this exemption from Article 31(f) of TRIPS was allowed only for public health needs and the same cannot be used for climate friendly goods and technologies.

Conclusion

If TRIPS could severely restrict access to medicine endangering public health in developing countries, as it is universally accepted now, there is no reason to believe that it would not restrict access to environmental or climate friendly technologies. It would be useful to explore the idea of according protection of environment the same status as that of protecting the public health in the context of TRIPS. In case of national emergency as well as other urgencies, compulsory license can be issued even without trying a voluntary licence. Can climate change be treated at par with national emergency when the issue is actually a case of global or even civilization emergency?

However, compulsory licensing, though may be helpful in some cases, given the specific nature of the industry, cannot do much. Developing countries find it difficult to use the compulsory license provision due to political pressure from the developed world particularly the US even if that is allowed by TRIPS.⁶ Hence a political statement at the global level will certainly strengthen their position. A public health type exemption to issue compulsory license to foreign firms would certainly be a welcome move. However, the same should be allowed not only to LDCs but all developing countries. But even that may not go a long

way as the industry is highly concentrated even in the developed world. Hence the global community needs to explore other alternatives as well.

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References

- 1 Metz Bert *et al* (editors) , Methodological and Technological issues in Technology Transfer, IPCC Special Reports on Climate Change Cambridge, UK, 2000 (Cambridge University Press)for the IPCC. SL T174.3 M475 .
- 2 Aoki Reiko and Small John, Compulsory licensing of technology and the essential facilities doctrine, *Information Economics and Policy*, 16 (1) (2004) 13-29.
- 3 Technology transfer stops at paper promises, *South Bulletin*, 19- 30 August 2001, South Centre, Geneva.
- 4 Barton J, Intellectual property and access to clean energy technologies in developing countries: An Analysis of solar photovoltaic, biofuel and wind technologies, 2007, ICTSD Programme on Trade and Environment, Issue paper no 2; and Khor Martin, Note on access to technology, IPR and climate change, Briefing paper 1, Climate change subsidiary bodies sessions, 2-13 June 2008, Bonn, http://unfccc.meta-fusion.com/kongresse/SB28/down/080607_SB28_1_Martin%20Khor.pdf (15 February 2009)
- 5 Article 30 allows members to provide limited reasonable exceptions to the exclusive rights conferred by a patent, if it does not unreasonably prejudice the legitimate interests of the patent-owner and takes into account the legitimate interest of third parties.
- 6 Wise Jacqui, Access to AIDS medicines stumbles on trade rules, *Bulletin of the World Health Organization*, 84 (5) (2006) 337-424.
- 7 Communication from Cuba, Committee on Trade and Environment (08-3299), Special Session, 9 July 2008, World Trade Organization (TN/TE/W/73) (Original: Spanish).
- 8 Inter-sessional Intergovernmental Meeting on a Development Agenda for WIPO, Third Session, Geneva, 20- 22 July 2005.
- 9 World Intellectual Property Organization (WIPO), Report on the International Patent System, 2008, Standing Committee on the Law of Patents (SCP/12/3), WIPO, Geneva.
- 10 Kommerskollegium, The WTO decision on compulsory licensing, 2008, Swedish Government.
- 11 Fink Carsten and Patrick Reichenmiller , Tightening TRIPS: The intellectual property provisions of recent US Free Trade Agreements, *Trade Note*, 2005, World Bank, International Trade Department.
- 12 *United States v Besser Mfg Co* (1952); 343 US at 477.
- 13 *United States v Glaxo Group Ltd*, 410 US 52, 64 1973.
- 14 *United States v General Electric Co* (1953); 115 F. Supp. 835, 843-46 (D.N.J. 1953).
- 15 *United States v Microsoft*, 87 F. Supp. 2d 30 (D.D.C. 2000).
- 16 <http://www.epa.gov/fedrgstr/EPA-AIR/1994/December/Day-30/pr-251.html> (22 July 2008).

- 17 *George-Pacific Corp v US Plywood Corporation*; 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970) modified 446 F.2d. 295 (2d Cir. 1971).
- 18 *NDC Health v IMS Health*: Interim Measures, Case COMP D/338.044 (3 July 2001).
- 19 <http://www.cptech.org/ip/health/cl/japan1.html> (29 July 2008).
- 20 Options for Using Competition Law/Policy tools in dealing with Anti-Competitive Practices in the Pharmaceutical Industry and the Health Delivery System, CUTS, 2006, Report prepared for WHO and Ministry of Health and Family Welfare.
- 21 Sawhney Aparna, *Environmental Services*, edited by Rupa Chanda, The South Asian Conference, *Trade in Services and India: Prospects and Strategies*, held during 19-20 December 2006 in *New Delhi*, a book co-published by CENTAD and Wiley, India.
- 22 Nanda Nitya, *Expanding Frontiers of Global Trade Rules: The Political Economy Dynamics of the International Trading System*, (Routledge, London) 2008.
- 23 Antoine Dechezleprêtre, Matthieu Glachant, Ivan Hascic, Nick Johnstone, Yann Ménière, *Invention and Transfer of Climate Change Mitigation Technologies on a Global Scale: A Study Drawing on Patent Data*, 2008, http://www.cerna.enscm.fr/index.php?option=com_content&task=view&id=192&Itemid=288 (16 March 2009).