The Legal Barriers to Technology Transfer under the UN Framework Convention on Climate Change:
The Example of China

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Chapter 1 Introduction

1.1 A study of climate change-related technology transfer and the legal barriers
1.1.1 Overview

Climate change is an unequivocal threat to humankind which is taking place more rapidly than many people expected.1 To a large extent, the situation as regards the climate today is the result of the technological choices we made in the past; similarly, the climate in the future will largely be determined by the technology we choose now. The changes taking place in technology are particularly important over the long-term time scales that are characteristic of climate change.2 As the term indicates, climate change technologies include climate mitigation technologies aimed at reducing GHG emissions and climate adaptation technologies for coping with the impact of climate change.3 The more rapid and widespread transfer of them requires an inclusive set of processes in which equipment, know-how, experience and human resources flow from foreign suppliers to end-user recipients.4

As a positive measure to tackle climate change, technology transfer has both economic and environmental benefits. It is expected to improve efficiency in the use of energy, introduce less carbon-intensive sources of energy, develop renewable energy sources and thus achieve the transition to a low-carbon economy.5 From a legal perspective, it has been recognized as an avenue for international cooperation in relation to the „common concerns of humankind",6 particularly cooperation between developed countries and developing countries. It is certainly true that a collective endeavour with regard to climate control and technological advance will benefit all nations more than any unilateral strategies.7
(p. 4)

Recognizing that technology transfer is an integral part of the international dialogue on environment and development, the intergovernmental community has adopted a wide variety of provisions in multilateral environmental agreements (MEAs), including climate change agreements. Complementing the targets of GHG emission reductions, the transfer of technology serves to assist states to fulfil their regulatory commitments under the international climate framework, with developed countries taking the lead.8 The broad institutional arrangements that consider technology transfer to be a crucial tool for achieving specific environmental objectives provide a solid foundation for the best possible global result in this interdisciplinary area, with varying degrees of success in practice. The increasing importance of technology transfer is even more apparent now in the light of the current post-Kyoto agreement negotiations.

"Despite the renewed efforts of the international community and the growing recognition of the importance of technology, the full potential for the development, deployment and transfer of these technologies remains unfulfilled."9 In fact, the transfer of technology is not happening fast enough to aid developing countries in

mitigating and adapting to their climate crisis.10 In this respect, both suppliers and recipients are actually responsible for this. To a certain extent, they both fail to provide a favourable environment for an effective technology transfer in which the key players are sufficiently incentivised and potential barriers are efficiently eliminated.11
(pp. 4-5)

… Chapter 3 Instrumental Barriers to Supplying Climate Sound Technology

… As regards technology, there is no single paradigm for the flow of technology.1 In the context of the UNFCCC, technology most often flows North-South. The owners of climate technology offer their advanced technologies on the international market to make it available to recipients worldwide. Up to now it has been generally recognised that technology transfers from developed countries to developing countries are and continue to be important in many industries which can make significant contributions to tackling global warming.2 However, these transfers are not occurring at a sufficient rate to assist these countries to mitigate and adapt to the impact of climate change, because of a number of potential barriers.

According to the IPCC, barriers are "any obstacle to reaching a potential that can be overcome by policies and measures."3 They can be either subjective, such as obstacles in codes, standards and procedures, or objective like obstacles in social infrastructure and resources capacity. Barriers at the legal level are generally seen as the main obstacles caused by human factors.4 In fact, they are context-specific and vary depending on the stakeholders concerned. When it comes to climate technology transfer, legal barriers can be classified predominantly into supply-related and demand-related barriers.5

The identification, evaluation and removal of legal barriers is an integral part of creating an enabling environment for technology transfer in the international climate framework.
(p. 58)

… 3.1.1.1 Governmental obligations to supply climate sound technology

The international law on climate sound technology originates from the UNFCCC, but the commitment of governments to transfer technology is at the heart of the controversy.12
(1) The compliance system

Although many states have actually ratified the climate change agreements, the mere act of ratification is not sufficient to ensure strong compliance. The lack of strong compliance is due to the fact that there is no basic enforcer in international law as there is in domestic law.13 The attempts to balance different interests in combating climate change are faced with many political difficulties which destroyed efforts made in the past, even though the UNFCCC and the Kyoto Protocol are to some extent seen as a result of great political compromise.14

Substantive law

The term "shall"15 adopted in the Articles indicates a stronger sense of duty than the mere moral aspirations put forward in the Declaration on the New International Economic Order (NIEO) in the late 1970s.16 Under the UNFCCC, developing countries may suspend some obligations if developed countries do not transfer technology to them or provide financial support.17 Therefore it could be argued that the violation of technology transfer provisions would constitute a material breach of the convention in that it hinders the accomplishment of the objectives of the convention.18 To determine when violations occur, the UNFCCC must specify the minimum amount of assistance to be provided in order to comply with the convention. There is no international consensus on this as yet. **In legal terms, the extent to which the commitment on technology transfer is legally binding remains problematic**.

In addition to this, there is an inherent deficiency in the implementation and enforcement of climate change-related technology transfer commitments, particularly compared to the Montreal Protocol. The scope of climate-related technologies is vast and their applications span many sectors.
(p. 60)

… 3.1.1.2 Intellectual Property Rights (IPRs)

3.1.1.2.1 Background: IPRs and climate change

Following the Declaration of NIEO and the Havana Charter, IPRs re-entered the domain of public policies with a focus on bioethics, public health and sustainable development.65 The empirical analysis of the economic value of innovation and the utilitarian rationale for IPRs is now confronted with challenges raised by climate sound technologies.66 Is this just another IPR and technology transfer debate? Or do climate change mitigation and adaptation present distinctive challenges for IP law, policy and administration?

In the technology transfer negotiations, the North and South hold rather different opinions on the obligations of governments to transfer technology and on the costs of technologies.67 Their diverging views reflect the very nature of climate change-related technologies: because they are for the public good, governments responsible for overcoming the global climate crisis must make them publicly available; as the fruit of innovation most climate technologies are actually generated in the private sector by independent commercial entities with legitimate cost/benefit requirements.68 These technologies are characterized by interrelated interests – the technology suppliers commit to providing advanced technologies and have an interest in their widespread dissemination.

In practice, there are striking differences regarding the role and application of IPRs. The developing countries regard IPRs as a formidable barrier which impedes access to affordable climate technologies. As discussed below, they proactively appeal for a reform of the international IPR regime and have put forward several solutions, while the developed countries do not devote as much attention to IPRs in climate technology as the developing countries.69 IPRs are generally favoured in these countries‟ public policy because they are likely to reward innovation and create a predictable investment climate.70 So far, different positions seem to be hardening. The US Congress issued a directive stating that no new climate treaty can limit the scope or application of American IP rights.71 Meanwhile, developing countries strongly insist on compulsory licensing or even excluding ESTs from being patented.72 **Because of these divisive views, the 2009 Copenhagen Summit failed to arrive at any uniform agreement on the subject of IPRs and technology transfer.73**

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69 World Resource Institute, “Key Functions for a UNFCCC Technology Institutional Structure: Identifying Convergence in Country Submissions,” Working Paper, November 2009, p. 14.

(p. 66)

Instead, the difference of opinion resulted in two options presented in the Draft Decision on Enhancing Actions on Technology Development and Transfer. No reference was made to IPRs in option 1, while Option 2 confirmed the technology needs of developing countries, favouring a reform of the current IPR regime.74

… The correct use of IPR is important for ensuring technology transfer, especially in high-tech industries. **The IPRs related to climate technology transfer are confronted by a potential paradox:**

balancing exclusivity and openness and harnessing private interests against the benefits of innovation for the public. Two forums, the WIPO and the WTO, are particularly involved in this issue.

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74 Draft decision -/CP.15, Enhanced Action on Technology Development and Transfer, FCCC/AWGLCA/2009/L.7/Add.3, 15 December 2009.

(p. 67)

… **B. The WTO and TRIPS**

In relation to trade, IPRs were framed in the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS).83

… To date, it has been modified several times, resulting in the Doha Declaration.85 The Doha Declaration adopted a set of references to technology transfer, which directly led to the creation of the Working Group on Trade and Technology Transfer (WGTTT) that is responsible in particular for negotiations on technology transfer.86 As regards the TRIPS recently developed in Doha, formulations influence the transfer of climate sound technology can be basically found in the preamble, principles and specific provisions.
(p. 68)

The preamble and principles

TRIPS presents its concern with the public interest87 and the special needs of least developed countries (LDCs)88 at the very beginning, setting the basic tone for the development and management of IPRs. Three technology transfer-related principles are stipulated in response to this preamble, respectively in Article 6, Article 7 and Article 8.
(pp. 68-69)

Technology transfer provisions

The WIPO Secretariat enumerated the ESTs [environmentally sound technologies] transfer-related provisions in the TRIPS agreement, including Article 29.1 (disclosure requirement), Articles 30 and 31 (exceptions and limitations), Article 8 and Article 40 (anti-competitive practices in contractual licenses).

By defining the scope of patents and exceptions that have been granted, TRIPS imposes mandatory obligations on the standardized IPR protection for its Members.
(p. 69)

… Environmental and climatic sound technologies are considered to be exempt from general patentability because they are exceptions on the grounds of protecting the "public order" or "morality" and to avoiding "prejudice to the environment".97 On this basis, TRIPS allows several exceptions for unauthorised use: the exception for the legitimate interests of third parties, the security exception and the public health exception.

… Last but not least, **the public health exception introduced by Article 31 leaves the door open for an exception that could be made for climate change-related technology transfer. There are three preconditions for this: there is an emergency, the use is non-commercial use and the domestic market requirement must to be met for the public health exception to be exercised.101 Members of**

the TRIPS are allowed to determine the specific terms of the public health exception clause,102 which raises the most controversial issue in this respect – the compulsory licensing of climate sound technologies.

Article 31 is commonly referred to as the compulsory licensing clause. In general, compulsory licensing is authorised in emergencies. Once a situation has been determined as an emergency, best effort licensee must immediately inform the IPR holder of the exception allowing unauthorized use. As this license is statutorily-created, Article 31 has primarily been applied in national law. There are a number of specific environmental laws allowing licences for technological applications which meet public health needs, such as 42 USC, Section 7608.
(p. 70)

In this case, the US government issued compulsory licences for inventions that prevent air pollution under Title 42 (Public Health and Welfare) of the Clean Air Act.103

It is well known that compulsory licensing can be used in the public pharmaceutical field, although its application has led to a great deal of controversy. According to the domestic market requirement, members must have sufficient manufacturing capacities in the pharmaceutical sector to make effective use of licensed medicines. It causes problems with regard to compulsory licensing.104 For this reason, the General Council of the WTO amended Article 31 in 2005.105

Despite the similarity with public pharmaceuticals, **it remains unclear whether compulsory licensing can be extended to climate mitigation and adaptation technologies**. In this respect, **there is a big difference of opinion between developing and developed country Parties. The group of 77 developing countries led by China, India and Brazil propose compulsorily licensing for patented technologies in the private domain.107 In their view, the rationale of the public health exception which applies for pharmaceuticals protected by patents is also appropriate for addressing the global climate crisis. On the other hand, compulsory licensing meets strong resistance from developed counties, especially OECD countries.108**

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107 G77 & China for A Technology Mechanism under the UNFCCC, 2007, available at http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/technology_proposal_g77_8.pdf.

108 The major reasons they reject a special waiver of IPRs in climate mitigation and adaptation are: (1) deterrent to inward EST innovation; (2) high implementation cost; (3) already exercises compulsory licensing at national and international level; (4) ineffectiveness due to the lack of local capacity; (5) waste of negotiation resources. See Lawrence A. Kogan, Esq., "Climate Change: Technology Transfer or Compulsory License?" American National Standards Institute (ANSI) Monthly Caucus Luncheon, National Press Club, Washington, DC, January 15, 2010. Also Maskus 2010, (no. 71), pp. 9-26.

(p. 71)