



International Chamber of Commerce

The world business organization



INTERNATIONAL CHAMBER OF COMMERCE

Discussion Paper



Prepared by ICC Commissions on

Environment and Energy ■ **Intellectual Property**

Climate Change and Intellectual Property

Highlights

- Introduction
- Key points
- “The Intellectual Property System: An Established International Framework to Support Technological Innovation”

Climate Change and Intellectual Property

Governments are currently negotiating a post-2012 agreement under the UN Framework Convention on Climate Change (UNFCCC), guided by the Bali Action Plan (BAP), to set out medium and long term cooperative actions on adaptation, mitigation, finance and technology. With regard to technology, the BAP directs enhanced action on technology development and transfer for mitigation and adaptation, through:

- Effective mechanisms and means for the removal of obstacles to scaling up development and transfer of technology to developing countries to promote access to affordable Environmentally Sound Technologies (ESTs);
- Ways to accelerate deployment, diffusion and transfer of affordable ESTs;
- Cooperation on research and development (R&D) of current, new and innovative technologies;
- Effectiveness of mechanisms and tools for technology cooperation in specific sectors.

The 22 June 2009 version of the UNFCCC negotiating text¹ from the Ad-hoc Working Group on Long-term Cooperative Action (AWGLCA) includes numerous proposals focussed on R&D, innovation, investment, deployment and transfer of ESTs. In particular, it contains several proposals targeting intellectual property rights (IPR) as a major factor in the above. Some proposals underscore the importance of enabling frameworks for innovation and diffusion of technologies, with specific reference to the supportive role of IPR. Other proposals argue that IPR and patents are costly and pose a barrier to access for necessary technologies. These proposals suggest exempting ESTs from patent protection, and assert the need for compulsory licensing.

The International Chamber of Commerce (ICC) strongly believes that IPR protection is indispensable in supporting growth in technology innovation, development and dissemination envisioned by proposals for post-2012 action. ICC believes that the UNFCCC negotiations should not include recommendations that undercut or question existing IPR protections as this would be counter-productive to the shared goal of dealing with the threat of climate change.

Introduction

Technology cooperation and transfer occurs every day in the course of thousands of commercial transactions between private and public sector participants. Technology development and deployment involves more than just the transfer of hardware, but also best practices, information and improvement of human skills. A country's technical capacity and enabling environment are also key factors for implementation. The global development and deployment of advanced technologies to address climate change will require appropriate institutional frameworks, including intellectual property rights protection to accelerate promising technologies.

The international intellectual property system brings benefits to society as a whole, striking a balance to ensure that the needs of both the creator and the user are satisfied. In return for granting IP rights, society benefits in a number of ways, as IPR help maintain fair competition, encourage the production of a wide range of quality goods and services, stimulate economic growth and employment, sustain innovation and creation, promote technological dissemination, and enrich the pool of public knowledge and culture.

¹ Please see <http://unfccc.int/resource/docs/2009/awglca6/eng/inf01.pdf>

Key points

IP in the Global Discussion on Climate Change

- Intellectual property rights contribute to the development and diffusion of new and existing technologies for combating climate change, whether through mitigation, efficiency or adaptation.
- When governments consider potential mechanisms to foster transfer of technology in the context of the development of a United Nations Framework Convention on Climate Change (UNFCCC) post-2012 framework on climate change, they should avoid measures that would create additional burdens and legal uncertainty for intellectual property owners thereby compromising the essential role of patents and discouraging innovation and disclosure of technological developments.
- Numerous longstanding and broadly accepted inter-governmental institutions and agreements exist to address IPR in global markets and jurisdictions, notably the World Intellectual Property Organization (WIPO) and the WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement and their provisions should be respected.

Technology Development and Deployment

- A very broad range of technologies will play a role in the transition to more efficient and lower emissions economic and social activity. Attempting to define "ESTs," is unlikely to capture the fullest scope of technological options that will be required in different countries and for different purposes.
- IPR is relevant for all technologies. Moreover, in light of complicated value and supply chains, and the reality that technologies often work in complex interactions and assemblages (such as a power station, smart grid, or transport network), existing IPR protections should be maintained overall as indispensable in promoting the efficient transfer of technologies that will enable the successful implementation of UNFCCC agreements.
- Technologies are "transferred" in a variety of ways, ranging from government aid to commercial transactions. IPR plays a supportive role in all these channels.
- IPR give necessary legal clarity and certainty for the dissemination of technology. They provide the framework around which legal agreements can be structured and collaborative developments achieved.
- IPR encourage innovation by providing the means to generate a commercial return on investment in the development of technologies that can contribute to both adaptation and mitigation.

Enabling Frameworks

- IP protection is an integral part of the broader enabling frameworks that provide the private sector with the confidence needed to engage in direct foreign investment, joint ventures, partnerships and licensing arrangements with local partners, establish local operations and open new research facilities - so critical to the technology deployment needed to deal with climate change.

- IPR account for only a small fraction of the cost of development and deployment of low-carbon technologies when compared to, for example, raw material and labour costs. Consequently, the influence of IPR on product price is very limited. The adoption of regulations for compulsory licensing would result in deterring development and the disclosure of superior and more cost effective alternatives.
- IPR, capacity-building and essential support for the development of effective enabling environments are crucial components for the development and deployment of technologies to the poorest and most vulnerable countries. Substantial financing is needed, but so are measures to promote private sector investment and trade. Regional centres of excellence offer a viable model to enhance capacity building.
- Especially for small and medium sized enterprises (SME), IPR can support financing for research and development (R&D) activities in clean technologies as they can increase a company's asset value and ability to obtain credit².

Role of patents in stimulating innovation

- Published patent documents (patent databases and patent landscaping) offer a vast, freely accessible source of technological information on which others may build. Technology patented in developed and developing countries is becoming more and more accessible via existing online search engines and patent offices websites.
- IPR, in particular patent protection are increasingly being utilized in emerging markets to stimulate domestic innovation, particularly for low-carbon technologies. For instance, of the 215,000 patents registered for low emissions technologies, between 1998-2009, 10 percent were registered in emerging countries³.

² Some articles on IP financing can be found under http://www.wipo.int/wipo_magazine/en/2008/05/.

³ Are IPRs a barrier to the transfer of climate change technology, *Copenhagen Economics* (2009)

“The Intellectual Property System: An Established International Framework to Support Technological Innovation”

Climate change is one of the most pressing challenges of our times, associated with meeting real needs for energy, development and economic growth. The development and deployment of existing and advanced technologies, by both private and public sectors, is fundamental to successfully mitigate and adapt to climate change and must be accelerated to effectively meet future commitments to reduce greenhouse gas emissions.

Existing, more efficient, lower-emission technologies have the potential to significantly reduce global emissions and enabling frameworks are needed to support their rapid deployment in both developed and developing countries. The private sector is a primary developer and conduit for these innovative technologies.

Enabling frameworks for technology development and deployment should be developed by governments in conjunction with the private sector to address common concerns surrounding the evolution of climate change technologies. IPR is a critical element of such frameworks.

IPR provide the primary means for assuring necessary private sector investment in the development and deployment of the technologies needed to reduce greenhouse gas emissions now and in the future. When governments consider potential mechanisms to foster transfer of technology they should not resort to solutions that jeopardise this essential role of intellectual property.

ICC is concerned that various proposals incorporated into initial versions of the United Nations Framework Convention on Climate Change (UNFCCC) negotiating text could have a negative impact on the development and deployment of technologies to address climate change. We believe that these proposals do not belong in the UNFCCC, and that intellectual property rights issues are best addressed in the context of the World Intellectual Property Organization (WIPO) and with deference to internationally accepted TRIPS standards.

In this paper, ICC will detail how the intellectual property system spurs innovation and can only contribute to the development of innovative technological solutions to address the threat of climate change. It will also demonstrate the difficulty of defining ESTs, and underscore the extremely wide range of technologies that can make a contribution to emissions mitigation and which can play a role in adaptation. It should be noted that this discussion paper represents one in a series ICC contributions⁴ highlighting the role of both existing and new technologies to deal with climate change.

1. IP and climate change

Intellectual property rights are a key component to attracting investment in research and development, by both the public and private sector, to develop and deploy technologies to combat climate change. Technology development and deployment requires a suite of enabling frameworks at national and international levels, including market, regulatory, economic, and institutional standpoints. IP protection is a key element in such enabling frameworks and is a pre-requisite to technology development and transfer, not a barrier. Proposals in the UNFCCC post-2012 framework negotiations that enable broad recourse to compulsory licensing or that would otherwise undermine IPR are counter-productive.

⁴ Please see ICC Policy statement on “Energy Today and Options for Tomorrow” and ICC Discussion paper on “Technology development and deployment to address climate change” at <http://www.iccwbo.org/policy/environment/id1418/index.html>

2. Environmentally Sound Technologies

A very broad range of technologies will play a role in the transition to a more efficient and lower emitting economy. Climate friendly or “environmentally sound” technologies (EST) are not a discrete subset. Indeed, successful implementation of ambitious climate change actions will depend on greater efficiency, lower emissions, or improved climate resilience for nearly every technology. ESTs are as varied as a seed for a heat-resistant crop, a wind-energy turbine, or a more efficient computer technology. New technologies that have not even been conceived today could play important roles in longer-term climate change actions, thereby making a specific definition of an “EST” difficult.

Thus, defining a narrow list of “ESTs”, as the current UNFCCC text does not capture the fullest scope of technological options that will be required in different countries and for different purposes. IPR is relevant for all current and future technologies. Moreover, in light of complicated value and supply chains as well as the reality that technologies often work in complex interactions and assemblages (such as a power station, smart grid, or transport network), strong IPR protections should be maintained as they are indispensable for promoting efficient transfer of technology that will enable successful implementation of UNFCCC agreements.

3. Technology Development and Deployment

IPR are a key driver of investment in R&D, innovation, and dissemination. Effective IP protection allows innovators to capture the value of R&D activity, stimulating investment in innovation that might not otherwise occur and provides private companies a means to distinguish their products from those of their competitors.

Technology cooperation and transfer occur every day in the course of thousands of commercial transactions between private sector participants and are closely linked with capacity-building, particularly in developing countries. Public-sector (such as ODA, research partnerships, and others) and public-private sector (for example, the Asia-Pacific Partnership) channels also provide conduits for technology flows.

To accelerate technology innovation and cooperation, large-scale R&D efforts will be required, as well as pilot programmes to enhance awareness of available technologies in key countries in the developed and developing world.

Many companies have a global reach through markets, joint ventures or supply chains. Business can and does partner with governments and civil society to expand global and local dissemination of appropriate technologies and to identify and remove barriers.

The technology challenge is not limited to “hardware”, but should be understood to include the related management systems, know-how and expertise to operate industrial activities in the most energy efficient way. The provision of services, skills and associated technologies to operate and maintain new technologies is essential to ensure their long-term sustainability. Regional centres of excellence for example, are one avenue to provide capacity building and increased learning.

Evidence of the correlation between IPRs and the purpose of foreign direct investment (FDI) projects has been evident in Eastern Europe and the former Soviet Union where, according to the World Bank *“an increase in IPR protection shifts foreign investors’ preference away from projects focusing solely on distribution and towards setting up manufacturing activities”*⁵. The results (...) *“suggest that weak IPR have a negative effect on the likelihood of investments being made. In addition, the enforcement of IPR affects the type of investments made, companies tend to avoid investing in local production if IPR are weak and concentrate instead on distribution facilities. (...) These results are consistent with*

⁵ *The International Bank for Reconstruction and Development / The World Bank (2005). “Intellectual Property and*

*the notion that intellectual property protection stimulates formal technology transfer*⁶.

4. Innovation

The private sector is the prime developer and conduit for innovative energy production technologies, yet further government and multilateral financing, as well as expanded and more targeted public-private research cooperation are critical too. Leveraging resources and partnerships to develop breakthrough technologies in order to fundamentally change our energy future is an urgent priority. IPR protection provides the incentives to do this.

Innovation supportive policies should include developing national research programmes targeted at geography or technology-specific needs, and should recognize and support opportunities to collaborate and leverage shared resources. In addition, governments can support technological innovation through enabling policies and frameworks, including, tax incentives, effective patent systems, market mechanisms and other incentives for R&D.

5. Knowledge Dissemination

Global support for R&D will need to be put in place in order to increase the pace of change for certain technologies. National technology development strategies must cover fundamental research as well as emerging and near commercial areas in order to ensure a pipeline of new technologies. Governments play an essential role in the education continuously needed to replenish and expand the pipeline of qualified individuals with essential technical training.

Patent databases provide an important source of technological information as published patent documents offer a vast, freely accessible source of global technological information on which others may build. Patent “landscaping” can also be used, for example, to chart the pace and direction of innovation in alternative energy technologies and identify future directions.

As the vast majority of patents are not maintained for the maximum duration possible (renewal fees are usually required every year), a very large proportion of the information in patent databases is off patent protection. The European Patent Office (EPO) database for example had, in May 2006, 56 million of published patent documents (from 70 countries) of which only 4 million were patents in force, leaving a technical library of 52 million of technical documents which can be freely used⁷.

Patent databases contain a wealth of knowledge and technological information and the World Intellectual Property Organisation (WIPO) is creating tools to improve possibilities for searching these worldwide. There is however no point obtaining access to such information if the person accessing does not know how to use it. Training on the use of patent information and databases could therefore greatly help local researchers and scientists to use the information as a basis for their own research and to identify technological information that can be freely used.

6. Finance

Greenhouse gas emissions can be reduced by means of a variety of technologies of which some reduce emissions at a low-cost and others imply a high cost of emission reduction. In terms of cost

⁶ *The World Bank (2003). "Foreign Direct Investment, Technology Transfer and Protection of Intellectual Property Rights". Presentation from Javorcik, B. WIPO/WTO Joint Workshop on Intellectual Property Rights and Transfer of Technology.*

⁷ *Development, Lessons from Recent Economic Research*, New York : The World Bank and Oxford University Press. p. 13 and 8

per unit of carbon emission reduction, IPR covered technologies are not necessarily more expensive than those not covered by IPR rights. The high cost of some innovative carbon abatement technologies is more likely to be due to the immaturity of the technologies rather than to patent rights⁸. IPR account for only a small fraction of the cost of development and deployment of low-carbon technologies when compared to, for example, raw material and labour costs. Consequently, the influence of IPR on product price is very limited.

It is sometimes claimed that the exclusive ownership rights that patents bestow on their holders create a monopolistic market structure and drive up the price of the goods that embody these innovative technologies, thereby making these less affordable for low-income developing countries. In fact, patent rights are limited in scope and intellectual property portfolios for technologies to address climate change tend to be diverse, ensuring that no one company holds all patents or other proprietary rights to a particular product or solution. Competition among and between technologies, as well as across sectors is intense providing users a broad choice at competitive prices and allowing the benefits or innovation to flow to users.

In addition, a study commissioned by the European Commission found that “no single nationality” actually dominates the market for a particular technology. In the most important patent domains (by number of patents), China and Japan hold the largest market shares of respectively 38% (solar energy) and 28% (fuel cell), these are important but not monopolistic market shares⁹.

7. IP in developing countries

The gap between patent protection in developed and developing countries is rapidly closing in emerging economies such as China, India and Brazil. These countries are already at the forefront of the clean technology revolution and have become leaders in a range of low-carbon and environmentally sound technologies, from biofuels, to wind, to solar. The OECD notes that “this shift towards emerging countries is expected to continue, as demonstrated by the findings on future R&D investments in a survey by UNCTAD. China was the location mentioned most often, followed by the United States. India was in third place and Russia among the top ten target locations”⁹.

Greater use of patent protection in emerging markets will stimulate domestic innovation even further. In 1998, 1 in 20 patents for low-emitting technologies was protected in a developing country; in 2008 it was 1 in 5¹⁰. Even more striking than the gap between developed and developing countries is the gap between different groups of developing countries. There is a small group of emerging market economies (countries such as China, India, Brazil, Russia, Argentina, Ukraine and the Philippines) which accounts for nearly all patents protected¹¹.

The poorest and most vulnerable countries are in an altogether different position. They often face the most severe climate change challenges and risk losing out on many of the benefits of further technological innovation and deployment. As there is little to no patent protection in particularly vulnerable countries, the dilution of IPR protection will not assist in the development and deployment of technologies to these countries in need and instead could jeopardise investment. In fact, effective IPR protection, substantial and targeted funding, better enabling environments and capacity building will be key to enable further technology development and dissemination.

Private trade and investment activity, supported by IPR, typically involves local partners, the local

⁸ “Are IPR a barrier to the transfer of climate change technology”, *Copenhagen Economics*, January 2009

⁹ “Research and Development Going Global”, *OECD Policy Brief*, July 2008

¹⁰ *Are IPRs a barrier to the transfer of climate change technology*, *Copenhagen Economics* (2009)

¹¹ *Are IPRs a barrier to the transfer of climate change technology*, *Copenhagen Economics* (2009)

talent pool (as is the case for example in China, India, Brazil and other emerging economies), and local worker training, which is of particular importance in the poorest and most vulnerable countries. Private sector investment enables the development of local supply chains and the sharing and transferring of good business practices and technological know-how, each of which IPR helps to stimulate and enable. As mentioned earlier, regional centres of excellence offer a viable model to enhance capacity building and enable the development of targeted technology solutions and their effective and broad deployment.

The patent system naturally functions in a way that tends to place more technology in the public domain in developing countries, the less developed the country, the fewer patent applications are filed. Technology patented in developed countries is becoming more and more accessible with already existing online search engines and patent offices websites.

8. Conclusion

Far from being a barrier to the dissemination of the vast breadth of technologies needed to address the climate challenge, IPR assure necessary private sector investment in the invention, development and deployment of the technologies needed to reduce emissions.

When governments consider potential mechanisms to foster transfer of technology in the context of the development of a United Nations Framework Convention on Climate Change (UNFCCC) post-2012 framework on climate change, they should avoid measures that compromise the essential role of patents by creating additional burdens on intellectual property owners that discourage innovation and disclosure of developments. The TRIPS Agreement already includes provision for specific exceptions and limitations in special or exceptional situations and there is no need to impose additional exceptions and limitations that threaten to undermine the incentive effects of the IP system and upset the carefully-considered balance established by TRIPS and the current global international intellectual property regime.

ICC stands ready to work collaboratively with governments to develop solutions to the climate challenge. ICC has developed many tools in the area of intellectual property such as the Roadmap on Current and Emerging Intellectual Property Issues, the Intellectual Property tool kit for Chambers of Commerce, and ICC's Model International Transfer of Technology Contract which help support efforts by business and policy-makers to address these issues. In the area of climate change, ICC serves as business and industry focal point for UNFCCC negotiations, bringing wide range of business voices and expertise to help solve the climate challenge.

The International Chamber of Commerce (ICC)

ICC is the world business organization, a representative body that speaks with authority on behalf of enterprises from all sectors in every part of the world.

The fundamental mission of ICC is to promote trade and investment across frontiers and help business corporations meet the challenges and opportunities of globalization. Its conviction that trade is a powerful force for peace and prosperity dates from the organization's origins early in the last century. The small group of far-sighted business leaders who founded ICC called themselves "the merchants of peace".

ICC has three main activities: rules-setting, dispute resolution and policy. Because its member companies and associations are themselves engaged in international business, ICC has unrivalled authority in making rules that govern the conduct of business across borders. Although these rules are voluntary, they are observed in countless thousands of transactions every day and have become part of the fabric of international trade.

ICC also provides essential services, foremost among them the ICC International Court of Arbitration, the world's leading arbitral institution. Another service is the World Chambers Federation, ICC's worldwide network of chambers of commerce, fostering interaction and exchange of chamber best practice.

Business leaders and experts drawn from the ICC membership establish the business stance on broad issues of trade and investment policy as well as on vital technical and sectoral subjects. These include financial services, information technologies, telecommunications, marketing ethics, the environment, transportation, competition law and intellectual property, among others.

ICC enjoys a close working relationship with the United Nations and other intergovernmental organizations, including the World Trade Organization and the G8.

ICC was founded in 1919. Today it groups hundreds of thousands of member companies and associations from over 130 countries. National committees work with their members to address the concerns of business in their countries and convey to their governments the business views formulated by ICC.



International Chamber of Commerce

The world business organization

Policy and Business Practices

38 Cours Albert 1er, 75008 Paris, France

Tel +33 (0)1 49 53 28 28 Fax +33 (0)1 49 53 28 59

E-mail icc@iccwbo.org Website www.iccwbo.org