

# Overcoming the Impasse on Intellectual Property and Climate Change at the UNFCCC: A Way Forward

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## Introduction

The global spotlight is once again focused on the challenges of climate change with the annual United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties kicking off this week (November 28<sup>th</sup>-December 7<sup>th</sup>) in Durban, South Africa. With the international community looking to Durban for results, an important opportunity exists to address one of the most contentious - and misunderstood - issues in the climate change debate: the role of intellectual property rights in the production of and access to mitigation and adaptation technologies. The rapid development and diffusion of these technologies is a key component of the global response to climate change.

Intellectual property rights have traditionally been the primary policy mechanism for encouraging private investments in innovation, including for the production of mitigation and adaptation technologies. Yet while global climate change negotiations have made some progress in the area of technology transfer, as reflected in last year's agreement in Cancun to establish a Technology Mechanism under the UNFCCC, the role of intellectual property rights has remained a particularly divisive issue. Not only has no agreement been reached in this area, but even the path to a constructive and meaningful discussion seems elusive. Unless the role of intellectual property is addressed in a constructive and balanced manner, the potential for achieving sustainable and realistic outcomes from the climate talks could be compromised.

In this policy brief, we seek to untangle the issues that lie behind this impasse. We also suggest a possible course for action that, while taking into account a diversity of perspectives, also challenges countries - and other stakeholders - to go beyond entrenched negotiating positions.



## Technology Transfer and Intellectual Property Rights in the Climate Change Negotiations: State of Play

### Progress on technology

Technology transfer is one of the pillars of the UNFCCC, the overall framework under which international climate negotiations have taken place in recent years. Article 4.5 of the Convention requires developed countries to “take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to environmentally sound technologies and know-how to other Parties, particularly developing country parties to enable them to implement the provisions of the Convention”.

In 2007, the Bali Action Plan, agreed to at the 13th Conference of the Parties (COP) of the UNFCCC, reaffirmed the centrality of technology development and transfer. The Bali Action Plan made it one of the four priority areas to be addressed in discussions aimed at the “full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012”. It called for:

Enhanced action on technology development and transfer to support action on mitigation and adaptation, including, inter alia, consideration of: (i) Effective mechanisms and enhanced means for the removal of obstacles to, and provision of financial and other incentives for, *scaling up* of the development and transfer of technology to developing country Parties in order to *promote access to affordable* environmentally sound technologies (emphasis added).<sup>1</sup>

The 2010 Cancun conference sought to implement this objective in concrete terms when parties to the UNFCCC agreed to create a new Technology Mechanism for enhancing the transfer of climate-friendly technologies, particularly to developing countries. The Mechanism is composed of two main bodies: the Technology Executive Committee (TEC) and the Climate Technology Centre and Network (CTCN).

The Technology Mechanism is not expected to be fully operational before 2012; meanwhile, a number of important questions still remain unanswered, such as its institutional set-up and its linkages with the Green Climate Fund. Nevertheless, the agreement

to establish the Technology Mechanism represents an important milestone in the ongoing efforts to implement the technology transfer provisions of the UNFCCC and the Bali Action Plan. It has the potential to become a springboard for developed and developing countries to work together in order to accelerate the deployment and transfer of technologies for climate change mitigation and adaptation.

### Impasse on intellectual property rights

Despite these encouraging developments, one issue has remained a constant source of controversy and disagreement among UNFCCC parties and stakeholders: the role of intellectual property rights (IPRs) in the transfer of climate-friendly technologies. Since the current cycle of negotiations began in Bali (2007), negotiating texts on IPRs have remained bracketed, reflecting the lack of agreement on the issue.<sup>2</sup> Nonetheless, the issue continues to resurface. In early September, it was raised at the first meeting of the TEC. India has proposed that IPRs be added to the agenda of the Durban conference, arguing that “many of the technologies that can help it and other developing countries achieve a lower carbon growth are out of their reach due to IPRs and prohibitive costs”.<sup>3</sup>

What lies behind this impasse, particularly when the international community is faced with the ever-pressing need to tackle bigger climate change issues? There are several possible answers. One might be the strategic negotiating postures of countries and the overall dynamics of the negotiation process. IPRs may be viewed by some as a possible bargaining chip in a wider package of agreements and commitments that are still under negotiation, especially given the intense discussions surrounding the fate of the second commitments period by Annex I countries under the Kyoto Protocol.

Another reason for the impasse may arise from the inadequately framed debate over IPRs per se. In effect, two opposing viewpoints have come to dominate this debate, holding meaningful dialogue ‘hostage’ to categorical affirmations, with little room for discussion over IPRs’ actual merits. This ideological “face-off” has, in effect, prevented the emergence of a workable middle ground in the discussions.

On one side, intellectual property (IP) is considered an uncompromising essential for fostering innovation

1 Paragraph 1(d), *Bali Action Plan*, UNFCCC (2007), FCCC/CP/2007/6/Add.1, available at: <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>

2 Ultimately, there was no reference to IPRs in the final text of Cancun agreements.

3 India, *Proposals for Inclusion of Additional Agenda Items in the Provisional Agenda of the Seventeenth Session of the Conference of the Parties - Addendum* (2011), FCCC/CP/2011/INF.2/Add.1, available at <http://unfccc.int/resource/docs/2011/cop17/eng/inf02a01.pdf>

in the clean energy sector. This, in turn, makes IPRs a pre-condition for any subsequent technology transfer and diffusion. From this perspective, IPRs can only be a ‘facilitator’ of technology transfer.

On the other side of the spectrum, intellectual property rights are perceived as an ‘inherent’ barrier for ‘scaling up’ the transfer of climate change technologies and the ‘affordable’ access to these technologies in a rapid time frame. A range of measures and options have been advanced to that effect. These include the expanded use of flexibilities in international intellectual property instruments; the exclusion of climate change technologies from patentability; and the consideration of arrangements such as patent pools to facilitate access to these technologies. Some of these options may even entail changes to existing global intellectual property rules.

These two viewpoints make repeated references to the debate on patents and access to medicines, either to draw parallels between access to medicines and access to climate change technologies or, on the contrary, to refute the relevance of such a comparison. Those highlighting the essential role of IP in fostering innovation in clean energy fear a ‘slippery slope’ phenomenon, where opening any formal discussion on IPRs could inevitably result in a ‘Doha’ type solution that impinges upon global IP rules.<sup>4</sup> Other parties see IPRs as an important factor impacting technology transfer and diffusion, one that has traditionally been raised in international discussions on technology transfer and thus merits consideration in the particular context of climate change negotiations.

## Untangling the Issues

The first step in untangling the issues is to acknowledge all viewpoints in the debate. The second is to recognize that the complexity of the debate calls for a nuanced approach that goes beyond categorical affirmations. The third is to point out that some of the affirmations made on both sides raise valid points which, when properly and substantively evaluated, reflect important factors that must be accommodated when constructing a viable and effective regime for encouraging robust markets for green technologies.

## The parallel with access to medicines

As has been pointed out in ICTSD-sponsored research,<sup>5</sup> the wide range of climate change mitigation and adaptation technologies contrasts with the pharmaceutical sector, where one single patent over a molecule can give the patent owner significant market power to set high prices, particularly in the absence of generic competition. In the clean energy sector, renewable technologies compete with each other and with traditional sources of fossil fuel energy, which tends to drive prices down. Basic features of some clean energy technologies have also been known for a long time, such as in the case of wind energy. And, as evidence appears to suggest, proprietary technologies do not enjoy protection in a number of jurisdictions, particularly in the most vulnerable economies.

However, do these significant differences between the clean energy and pharmaceutical sectors mean that there should be no discussions at all of IP and climate change? We do not believe this to be the case. Rather, these differences only mean that the type of discussions and possible issues that could be examined may differ, especially given the relatively great diversity of climate technologies and of the circumstances prevailing in different jurisdictions.

There is also one element of similarity that cannot be ignored: in both public health and climate change, there is a sense of moral urgency to address public policy objectives that requires going beyond the ‘status quo’ and ‘business as usual’ practices, including in the IP system. This is particularly acknowledged in leading industrialized countries as reflected, for instance, in the procedures put in place by a number of patent offices (US, UK, Japan and Korea) to accelerate the examination of green patents.

Finally, concerns about the role of IPRs with regards to the transfer of environmentally sound technologies are not new and actually predate the patents and access to medicines debate. For example, chapter 34 of Agenda 21, on the transfer of environmentally sound technologies, which was adopted at the first Earth Summit (1992) deals with IPRs, among other issues, and even includes a reference to the possible use of compulsory licensing. Challenges relating to

<sup>4</sup> Doha Ministerial Declaration on the TRIPS Agreement and Public Health (2001).

<sup>5</sup> J. Barton *Intellectual Property and Access to Clean Energy Technologies in Developing Countries: An Analysis of Solar Photovoltaic, Bio-fuel and Wind Technologies*, Trade and Sustainable Energy Series, Issue Paper Number 2, ICTSD, December 2007, available at: <http://ictsd.org/i/publications/3354>; F. Abbott, *Innovation and Technology Transfer to Address Climate Change, Lessons from the Global Debate on Intellectual Property and Public Health*, Intellectual Property and Sustainable Development Series, Issue Paper Number 24, ICTSD, June 2009, available at: <http://ictsd.org/i/publications/50454/>

the role of IPRs were also raised in the context of the implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer (1987).

### Innovation and technology diffusion: The dual role of intellectual property

Intellectual property has a dual role in fostering technological innovation and in contributing to the dissemination and transfer of technology. The TRIPS Agreement - the main international instrument that sets minimum standards in IPRs - captures this duality well. Article 7 states as an Objective that: “the protection and enforcement of intellectual property rights *should* contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations (emphasis added)”. Discussions during the climate change negotiations often confuse and juxtapose these two different aspects of the role of intellectual property rights.<sup>6</sup>

Intellectual property plays an important role in fostering innovation in clean energy by providing incentives to technology developers, particularly in sectors where major investments in R&D are required, such as wind, solar, carbon capture and storage, and biofuels. In this regard, proprietary incentives should be recognised and encouraged. As many commentators observe, however, the role IP in the dissemination and diffusion of technology is more complex because it varies from one technology to another, and is often difficult to isolate from a variety of other economic and institutional factors. Licensing practices, for example, are important in the dissemination and diffusion of technology; however, there is still relatively little information about these practices. Similarly, as the experience of several OECD countries demonstrates, the use of non-voluntary or public use licenses (or their mere availability) also plays an important role in ensuring access to public goods on terms that are fair and reasonable in light of government policies and mandates.

The international IP system has, for much of its history, consistently acknowledged a role for both private and public mechanisms to address issues of access to proprietary technologies, and the TRIPS Agreement is no exception to this globally mandated balancing act.<sup>7</sup> The subject of optimal access to climate technologies needs to be examined in light of available empirical evidence, taking into consideration the parameters defined in the Bali mandate on technology transfer, namely, the *scaling up* of technology development and transfer and the promotion of *affordable* access.

### Available empirical evidence

Since the 2007 Bali conference, a growing body of empirical evidence has emerged that can provide the foundation for better informed discussions in the context of climate change negotiations. This evidence mainly consists of patent landscape reports, licensing surveys, and sector- and country-specific studies.

### Patent landscape reports

The patent landscape reports undertaken in the clean energy sector concur in three key findings. First, the rate of patenting in the clean energy sector has substantially increased in recent years. According to a joint UN Environment Programme (UNEP), European Patent Office (EPO), and ICTSD report, patenting in clean energy generation technologies has increased at a rate of 20 percent annually since the adoption of the Kyoto Protocol (1997), outpacing traditional energy sources of fossil fuels.

Second, patenting is dominated by a handful of OECD countries with a number of emerging economies showing increasing specialisation in some individual sectors. The same report found that six industrialised countries - Japan, the United States, Germany, the Republic of Korea, the United Kingdom, and France - accounted for almost 80 percent of patent filings in clean energy generation technologies.<sup>8</sup> Another study indicates that in some of these emerging economies, such as Argentina, Brazil, China, India, Russia, the Philippines, and the Ukraine, patent applications on green technologies could reach 4,000 annually.<sup>9</sup> Third, patents on clean

6 K. Maskus and R. Okediji, *Intellectual Property Rights and International Technology Transfer to Address Climate Change: Risks, Opportunities and Policy Options*, Intellectual Property and Sustainable Development Series, Issue Paper Number 32, ICTSD, December 2010, available at: <http://ictsd.org/i/publications/97782/>

7 For example, the TRIPS Agreement provides that: “Appropriate measures ... may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology”. (Article 8.2)

8 UNEP, EPO and ICTSD Report (2010). *Patents and Clean Energy, Bridging the Gap Between Evidence and Policy*, p.64 available at: <http://ictsd.org/i/publications/85887/>

9 A. Dechezleprêtre, M. Glachant, I. Haščič, N. Johnstone, and Y. Ménière, *Invention and Transfer of Climate Change Mitigation Technologies on a Global Scale: A Study Drawing on Patent Data*, Cerna, Mines Paris Tech and Agence Française de Développement (2009), at 16.

energy technologies in low income countries are relatively rare.

Patenting trends must also be viewed in the context of government efforts to internalize the costs of greenhouse gases by finding ways to put a price on GHG emissions.<sup>10</sup> It is surely no accident that Germany, whose legislators have taken major steps to implement the Kyoto Protocol, is also currently among the top three innovators in green technologies. By the same token, governments that invest heavily in funding relevant R&D, including Germany, Japan, China, and India, have compiled impressive patent portfolios in numerous sectors.<sup>11</sup>

The increase in patent applications and the concentration of patent ownership in the clean energy sector are not in themselves surprising, as they mirror overall global trends in a variety of technology sectors. The evidence shows that there has been a general surge in international patent applications in recent years, with global patent ownership concentrated in a few industrialised countries. Further, emerging economies, particularly China, are playing an increasing role in the global patent system. According to 2010 World Intellectual Property Organization (WIPO) statistics, 71 percent of PCT applications originate from five countries - the United States, Japan, Germany, China, and the Republic of Korea.<sup>12</sup>

#### Licensing surveys, country and sector specific studies

These patent landscape reports, while important, should also be viewed in the light of recent licensing surveys and sector- and country-specific studies. Notably, the above-mentioned joint UNEP, EPO, and ICTSD study - which marked the first major global survey of licensing practices in the clean energy sector, and was conducted using the assistance of international business and licensing organizations - yielded interesting insights.

Most respondents (58 percent) indicated that, in the past three years, they had not entered into licensing agreements with entities based in a developing country. China, Brazil, India, and Russia were the main beneficiaries of licensing flows to non-OECD countries.

At the same time, 70 percent of technology holders were supportive of providing more flexible terms when licensing to entities based in developing countries with limited financial capacity. Notably, academic institutions and public bodies were slightly more willing to do so than private enterprises.

This global licensing survey also found that IP protection in the country of the licensee was an important consideration when determining whether to enter into a licensing agreement. However, respondents attached slightly more weight to factors such as scientific infrastructure, human capital, favourable market conditions, and investment climates. Licensing-intensive respondents attached somewhat greater importance to IP protection than to these other factors.<sup>13</sup>

Country and sector studies show that although there is some technology diffusion taking place in the market, this is only in a limited number of developing countries - particularly China and India.<sup>14</sup> In a number of cases, companies from developing countries are facing some difficulties in obtaining technologies, whether it is the high cost of licensing or having to obtain technologies from second-tier technology holders.<sup>15</sup>

Clearly, licensing conditions and the cost of licensing could come into play when UNFCCC parties are confronted with the parameters of *scaling up* and *affordability* set by the Bali Action Plan. In any event, this rapid overview of available empirical evidence should be approached with caution. Most patent landscape reports have focused on climate mitigation technologies in the energy generation sector. Other key mitigation sectors, such as buildings and transportation, remain to be more closely examined. More importantly, climate adaptation technologies have not been the subject of similar attention. The case of agriculture could be of particular significance, especially given signs of an increase in patenting of climate resistant seeds.

At least two important lessons emerge from this body of empirical studies. First, there is an urgent need for increased availability of reliable and objective data on climate technologies, particularly on IPR-

10 Reichman, Rai, Newell and Wiener (2008), *infra* note 16.

11 Jerome H. Reichman, Intellectual Property Rights and Environmentally Sound Technologies: Strategies for a Transnational System of Green Innovation (draft 2011), presented at Temple University Law School, Conference on IPRs and Green Technologies, March 2010.

12 *PCT Yearly Review: The International Patent System* (2010), p.12 available at: <http://www.wipo.int/ipstats/en/statistics/pct/>

13 UNEP, EPO, ICTSD Report (2010), *op cit.* chapter 4: the Licensing Survey, pp.50-58

14 See *Low Carbon Technology Transfer: Lessons from India and China* Sussex Energy Group Policy Briefing No. 9 (November 2010); J. Lewis, *A Comparison of Wind Power Industry Development Strategies in Spain, India and China*, (2007), Center For Resource Solutions.

15 UNEP, EPO, ICTSD Report (2010), *op cit.*, p.23

related aspects. One difficulty in achieving this goal stems from the fact that current patent classification schemes do not contain classes in which patent data for clean energy technologies can easily be grouped and analysed. To address this gap, the EPO developed, in the context of the joint project with UNEP and ICTSD, a new classification scheme for patents in clean energy generation technologies that provides continuous, accurate, and user-friendly patent information.<sup>16</sup>

The EPO scheme is one example of a concrete measure that can make the IP system provide a more favourable environment for technology diffusion by facilitating patent searches. However, a major international effort is needed to retrieve and analyse this information. It could be led by the UNFCCC with the contribution of a variety of stakeholders and international and regional specialised institutions, such as WIPO and the EPO, as well as other relevant UN agencies, such as UNEP, the United Nations Industrial Development Organization (UNIDO), and the United Nations Conference on Trade and Development (UNCTAD).

Second, encouraging technology licensing options to middle income countries requires special attention. Licensing terms vary considerably in accordance with the nature and purpose of the commercial transaction between the parties and with market conditions. It appears difficult to envisage stringent or uniform rules to regulate such dealings. However, a number of measures could be considered to help lower prospective licensing costs - especially transaction costs - and to facilitate licensing of clean energy technologies to developing countries, particularly those resulting from publicly-funded research.

### Narrowing down the options

As previously mentioned, a number of options have been suggested for addressing IP-related matters in the climate change discussions. It is time to narrow down these options in order to set the stage for a more focused and meaningful discussion, that could replace the divisive and inflexible debate that has so far characterized these deliberations.

### Challenges to international IP rules

Certain measures proposed would clearly entail changes to existing global IP rules, particularly those of the TRIPS Agreement. These measures include, for instance, the exclusion of climate change technologies from patentability in developing and least developed countries. Such proposals are a non-starter for many countries and would fuel significant controversy. The available empirical evidence does not provide a basis for a strong case favouring such measures, at least for the moment.

More importantly, any discussions or statements about this matter at the UNFCCC have little impact, as the TRIPS Agreement actually falls under the aegis of the WTO. If countries advocating these measures are determined to push them forward, the relevant course of action should thus be undertaken at the global trade body.

### Options within the framework of existing inter-national IP rules

The premise that options and measures to address IPRs in the climate change context should be considered within the framework of existing international IP obligations paves the way for a more structured and even-handed discussion under the UNFCCC. Within this framework, a wide range of useful options and measures can be considered.<sup>17</sup> Such options can include: better availability of patent information on clean energies, improved licensing conditions for developing countries, procedures to expedite the examination of 'green' patent applications by patent offices, capacity-building in the area of technology licensing agreements for developing countries, patent pools, pooled procurement strategies,<sup>18</sup> and the use of existing flexibilities in accordance with international obligations.

Existing flexibilities in international IP instruments - in particular the TRIPS Agreement - are equally applicable to climate change technologies. Such flexibilities are an integral part of the balance of rights and obligations within existing international IP rules. Past experience has shown that developing countries have been selective

16 The classification scheme is available on the EPO's public patent information service [www.epo.org](http://www.epo.org). For more information see UNEP, EPO, ICTSD Report (2010), op cit. chapter 5: pp.65-66

17 See Maskus and Okediji, op cit and Reichman, Jerome H.; Rai, Arti K.; Newell, Richard G.; and Wiener, Jonathan B., "Intellectual Property and Alternatives: Strategies for Green Innovation" (2008). Chatham House Energy, Environment and Development Programme Paper No. 08/03, December, 2008 available at: <http://www.chathamhouse.org.uk/research/eedp/papers/view/-/id/691/>

18 See Jerome H. Reichman, *Compulsory Licensing of Patented Pharmaceutical Inventions: Evaluating the Options*, 37 J. LAW, MEDICINE & ETHICS 247 (2009); Frederick M. Abbott & Jerome H. Reichman, *The Doha Round's Public Health Legacy: Strategies for the Production and Diffusion of Patented Medicines under the Amended TRIPS Provisions*, 10 J. INT'L ECONOMIC LAW 921 (2007).

in using some of these flexibilities, such as compulsory licensing, as they are well aware of the need to carefully gauge their potential benefits against their possible drawbacks. More worrisome in this respect, are new initiatives outside the multilateral system, such as bilateral or plurilateral agreements, that could limit the use of existing IP related flexibilities.

Ultimately, if some countries feel a necessity to clarify some legal aspects regarding the use of TRIPS flexibilities in the context of facilitating access to green technologies, this would fall, once more, within the explicit purview of the WTO.

### III- Principles and Parameters for a Meaningful and Balanced Discussion on IPRs to be Set at Durban

The creation of the Technology Mechanism at Cancun, along with the Green Climate Fund, makes the UNFCCC the appropriate forum to address issues impacting the diffusion of climate change technologies, including intellectual property rights, from a holistic perspective. If adequately endowed and operationalized, such mechanisms and bodies could contribute to greatly increased public investments in both basic and applied research pertaining to green technologies. They could also ensure that all countries have access to environmentally sound technologies, whether patented or not, at affordable costs.<sup>19</sup>

However, it is unlikely that in-depth substantive discussions on IPRs and climate change can take place at the Durban conference. What the Durban gathering can do instead is to define the parameters and principles for a more technical and expert-level discussion, which could then take place under the UNFCCC framework. These discussions could take the form, for example, of a contact group on intellectual property with suitable representation of all stakeholders, including the private sector and civil society. Such a group can focus attention on specific problems that need to be addressed.<sup>20</sup>

Discussions on the range of options and measures mentioned above should be approached on an incremental basis. Policymakers should start with non-controversial technical solutions, later moving on to options that involve the use of IPRs and licensing as well as pooled procurement strategies. There could also be some consideration given to sector-specific options.

What might be the procedural parameters and principles to guide these technical discussions? What further measures could be taken up? The following are some suggestions:

#### Procedural parameters

- a) Discussions should be informed to the extent possible by empirical evidence and concrete examples.
- b) The outcome of discussions should not be prejudged.

#### Principles

- a) Recognition of the importance of IP protection in promoting clean energy innovation;
- b) Emphasis that the global IPRs regime should facilitate the transfer and diffusion of climate technologies and ensure affordable access to them;
- c) Balance between these twin goals of IPRs - protection and dissemination - in discussion outcomes, with an explicit focus on the unique role of IPRs in the context of public goods;
- d) Recognition of any IPR-related barriers to the transfer of climate technologies to developing countries in specific cases;
- e) Call for more empirical evidence regarding possible impact of IPRs on the transfer of climate technologies to developing countries by technology, sector, and country;
- f) Consideration of *all* options within the framework of existing international instruments, including the rights, obligations, and flexibilities contained therein.

#### Towards an incremental and gradual approach

- a) Discussions could begin by examining a first package of “practical” and “technical” measures to build trust, such as:
  - i. Improving availability of patent information on climate-related technologies;
  - ii. Improving availability of technological information in the public domain;
  - iii. Encouraging more favorable licensing terms of climate technologies to developing countries,

<sup>19</sup> See Jerome H. Reichman, IPRs and Environmentally Sound Technologies, *supra* note 11.

<sup>20</sup> See *id.*

including those resulting from publicly funded research;

iv. Fast tracking of 'green' patent applications.

b) A second stage of the discussions could follow that would focus on exploring possible options for addressing the complexity and diversity of policies, mandates, and concerns that feature in the climate negotiations. Some suggestions in the literature include:

- i. open innovation in green technologies;
- ii. patent pools based on voluntary licensing and other sharing arrangements;
- iii. creative uses of existing flexibilities in international instruments, including the possibility of pooled procurement strategies;
- iv. consideration of alternative intellectual property regimes, especially liability rules, for possible use in stimulating both local innovation in developing countries and the adaptation of green technologies available on the world market.<sup>21</sup>

## Conclusion

During the last decade, a consensus has emerged on the need for a balanced intellectual property system that is responsive to the public interest and to development

concerns. This need has already been reflected in past discussions on protection and access to public goods that have taken place in international intellectual property forums such as the WTO and WIPO. The parameters and principles that have been suggested above attempt to delineate a middle ground upon which future work on the IPR-related aspects of climate change technologies can proceed under the auspices of the UNFCCC.

A few vocal countries and stakeholders on both sides of the debate seek to prevent the emergence of a conciliatory middle ground on the role of IP in relation to climate change technologies. If these voices prevail, unresolved contests over the scope and effect of intellectual property will obscure the important commitments that countries must make to address pressing climate change issues. Legal uncertainty and frustration will only fuel controversy and undermine the prospects for meaningful action by both developed and developing countries.

We believe it is time to overcome the current impasse and establish the premises for a reasonable and balanced discussion about intellectual property and green technologies, in the interest of effective international action to address greenhouse gas emissions and the serious climate change challenges they have produced.

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21 See Jerome H. Reichman, *Intellectual Property in the Twenty-First Century: Will the Developing Countries Lead or Follow?*, 46 HOUSTON L. REV. 1115 (Symposium Issue, 2009); Jerome H. Reichman & Tracy Lewis, *Using Liability Rules to Stimulate Local Innovation in Developing Countries: Application to Traditional Knowledge*, in INTERNATIONAL PUBLIC GOODS AND TRANSFER OF TECHNOLOGY UNDER A GLOBALIZED INTELLECTUAL PROPERTY REGIME (K.E. Maskus & J.H. Reichman eds., Cambridge U. Press, 2005), Ch. 13

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ICTSD has been active in the field of intellectual property since 1997, among other things through its Programme on Innovation, Technology and Intellectual Property. One central objective of the programme has been to facilitate the emergence of a critical mass of well-informed stakeholders in developing countries that includes decision-makers and negotiators, as well as representatives from the private sector and civil society, who will be able to define their own sustainable human development objectives in the field of intellectual property and advance these effectively at the national and international level.

For further information visit: [www.ictsd.org](http://www.ictsd.org) and [www.iprsonline.org](http://www.iprsonline.org)

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