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**COUNTDOWN 2010, ALL EYES ON ORYZA: THE CURRENT
ACCESS AND BENEFITS-SHARING PROVISIONS OF
INTERNATIONAL INSTRUMENTS WILL KEEP THE 2010
BIODIVERSITY TARGET OUT OF REACH**

*Blake M. Mensing**

Abstract

The 2010 Biodiversity Target, which aims to significantly reduce the rate of biodiversity loss, will not be achieved. The Convention on Biological Diversity (“CBD”) and the International Treaty on Plant Genetic Resources for Food and Agriculture (“ITPGR”) lack strong enough access and benefit-sharing (“ABS”) provisions to facilitate the transfer of high yield seed varieties that have the potential to protect biodiversity. This article presents the historical origins of the CBD and its ABS provisions, as well as an outline of the ITPGR’s ABS system. High yield seeds can reduce the land needed for agriculture, which holds great potential for habitat preservation and the conservation of terrestrial species. The CBD and ITPGR need to be revised so that they may work in better harmony in regard to intellectual property rights. Harmonisation of the treatment of intellectual property rights in the plant genetic resources context is the first step in facilitating faster transfers of high yield seed varieties.

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* JD Candidate, American University Washington College of Law; MA Candidate, International Politics, Global Environmental Policy, American University School of International Service. I would like to thank Anna for her love and patience, my family for their limitless support, and Professor William Snape for his assistance during the writing process.

1. Introduction

On 19 January 2007, out of deep concern for the negative implications of biodiversity loss, the General Assembly of the United Nations declared 2010 to be the International Year of Biodiversity.¹ Our planet is home to a vast multitude of species and diverse and divergent ecosystems. Human beings are both a part of the diversity of this planet and its greatest threat.² As with all other anthropogenic problems, there are those who are working to curb the loss of biological diversity. E O Wilson, the famous Harvard biologist, has ascribed the loss of biodiversity to humankind's unintended enhancement of several natural phenomena.³ Habitat loss caused by landscape transformation is a major cause of biodiversity loss and is tangentially addressed in international agreements.⁴

The Philippines and Uganda are two developing countries with high levels of biodiversity that have recognised the potential to increase rice yields through the use of hybrid seeds.⁵ While hybrid seeds find support in the Philippines and Uganda largely on the basis of food security, their use may also help protect biodiversity.⁶ By increasing yields, hybrid seeds can reduce habitat destruction, one of the main drivers of biodiversity loss.⁷

The Convention on Biological Diversity ("Biodiversity Treaty" or "CBD") is the only legally binding treaty to produce and adopt a definition of biodiversity.⁸ The biodiversity of our planet is in a state of rapid decline and the rate of species loss is

¹ GA Res 61/203, paragraphs 1,2 UN Doc A/RES/61/203, 19 Jan 2007.

² Secretariat of the Convention on Biological Diversity, "Global Biodiversity Outlook 2" (2006) at 2-3, available at <http://www.cbd.int/doc/gbo/gbo2/cbd-gbo2-en.pdf> (accessed 22 Feb 2010) delineates several major causes of biodiversity loss including deforestation and human contribution of reactive nitrogen to ecosystems, and notes that the global demand for resources is twenty percent greater than the planet's ability to renew these resources.

³ See EO Wilson, *The Creation: An Appeal to Save Life on Earth* (New York: Norton, 2006) at 75, which suggests that the decline of biodiversity can be summarised by the acronym "HIPPO" listing the causes in descending order of destructiveness: Habitat loss, Invasive species, Pollution, Population - human overpopulation as a root cause of the other factors - and Over harvesting.

⁴ *Ibid.* See also S Meyer, *The End of the Wild* (Cambridge, MA: MIT Press, 2006) at 19, which implies that human manipulation of the environment is causing the biotic world to collapse.

⁵ X Lingui, "Hybrid rice gives hope of food self-sufficiency for Filipinos Faced with Rice Crisis" (2008), available at http://news.xinhuanet.com/english/2008-06/04/content_8311921.htm (accessed 22 Feb 2010); AfricaScienceNews.org, "NERICA boosts Uganda's rice yields", available at http://africasciencenews.org/asns/index.php?option=com_content&task=view&id=468&Itemid=1 (accessed 22 Feb 2010) and see further below at section 2.2.3, framing the analysis of plant material transfers by indicating the Philippines' and Uganda's ratification of both the CBD and the ITPGR.

⁶ See below at section 2.2.3.

⁷ *Ibid.*

⁸ The Convention on Biological Diversity, 5 June 1992, 1760 UNTS 79, Art 2 (hereafter "Biodiversity Treaty" or "CBD") defines biological diversity as "the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems".

accelerating.⁹ Treaties like the CBD and the International Treaty on Plant Genetic Resources for Food and Agriculture¹⁰ (“ITPGR”) have the potential to help the world significantly reduce the rate of species loss and attain the 2010 Biodiversity Target.¹¹

As the loss of biodiversity does not have one root cause, there are multiple international agreements that attempt to prevent it.¹² Without certain key textual modifications to the access and benefits-sharing (“ABS”) provisions of the CBD and the ITPGR, incompatibilities in intellectual property rights will prevent the rapid transfer of high-yield hybrid rice varieties that could reduce habitat destruction and the 2010 Biodiversity Target will not be attained.¹³

The second part of this article provides background on the origins of the CBD and the ITPGR and discusses the ABS provisions of each treaty. It describes one hybrid rice variety that is used to analyse how the treaties deal with intellectual property rights. The Philippines and Uganda are also discussed because both are good examples of developing countries that are very biodiverse and have recognised the value of hybrid rice varieties. Then the analysis focuses on the hypothetical transfer of a hybrid rice variety under the CBD and the ITPGR and highlights the possible reduction in biodiversity loss. The article concludes that despite interstices between the CBD and the ITPGR in regard to ABS, and progress towards the 2010 Biodiversity Target, textual amendments could facilitate the transfer of seeds that have the potential to slow biodiversity loss.¹⁴ The proposed changes might enable future biodiversity targets to be met, but it is not likely the world will achieve the 2010 Biodiversity Target.

2. Background

2.1 *The History of the Convention on Biological Diversity*

In 1987, the General Council of the United Nations Environment Programme (“UNEP”) convoked a series of meetings at which experts discussed sustainability and the economic value of biological diversity.¹⁵ The series commenced in November

⁹ Species Survival Commission, “The IUCN Red List of Threatened Species” (2008), available at http://cmsdata.iucn.org/downloads/the_iucn_red_list_a_key_conservation_tool_factsheet_en.pdf (accessed 22 Feb 2010). Of the 44,000 plus species that the IUCN has catalogued, approximately 38% are threatened.

¹⁰ International Treaty on Plant Genetic Resources for Food and Agriculture, 3 Nov 2001 (hereafter “ITPGR”), available at <ftp://ftp.fao.org/ag/cgrfa/it/ITPGRRe.pdf> (accessed 22 Feb 2010).

¹¹ See below at section 2.2.2. See generally, “Countdown 2010”, available at <http://www.countdown2010.net/> (accessed 22 Feb 2010), which provides a public information forum for governments that have committed to the target.

¹² E Louka, “Cutting the Gordian Knot: Why International Environmental Law is Not Only About the Protection of the Environment” (1996) 10 *Temple International & Comparative Law Journal* 79, at 105 cites treaties and agreements that deal with such wide ranging biodiversity issues as endangered and migratory species, polar bears, and wetlands that serve as important waterfowl habitat.

¹³ See below at section 4 and following.

¹⁴ See below at section 2 and following.

¹⁵ UN Environment Programme (“UNEP”), General Council, paragraphs 105, 106, UN Doc UNEP/GC14/L37 – E (17 June 1987). See also “From Conception to Opening for Signature: The Ad

1988 and became known as the meetings of the Ad Hoc Working Group of Experts on Biological Diversity.¹⁶ The second iteration of the working group of experts was known as the Intergovernmental Negotiating Committee (“INC”).¹⁷ Mostafa Tolba, UNEP’s Executive Director from 1975 to 1992, penned the first draft of the CBD.¹⁸ Its language was discussed at meetings of the INC between February 1991 and May 1992, the final text was adopted on 22 May 1992,¹⁹ and it entered into force in December of 1993. The United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992,²⁰ led the majority of sovereign nations to adopt the CBD.²¹ The CBD states three main goals: 1) conservation of biological diversity; 2) sustainable use of its components; and 3) fair and equitable sharing of benefits arising from genetic resources.²²

In preparation for the first Conference of the Parties (“COP”),²³ the Governing Council of UNEP created the Intergovernmental Committee on the Convention on Biological Diversity (“Intergovernmental Committee”). During the second meeting of this Intergovernmental Committee, the parties took concrete steps towards the creation of the Subsidiary Body on Scientific, Technical, and Technological Advice

Hoc Working Group of Experts on Biological Diversity, the Intergovernmental Negotiating Committee” Special Edition, CBD News (2004) at 4.

¹⁶ See e.g. CBD News note 15 above, at 4, intimating that the IUCN Environmental Law Centre’s work in the 1980s on sustainability and the economic value of biodiversity impacted UNEP’s decision to convene the series of expert group meetings.

¹⁷ Secretariat of the Convention on Biological Diversity, *Handbook of the Convention on Biological Diversity Including its Cartagena Protocol on Biosafety*, 3rd ed (Montreal: Friesen, 2005), at xxiii, pinpoints February 1991 as the date of this shift in nomenclature.

¹⁸ CBD News, note 15 above, at 3-4 including a hopeful message from Mostafa Tolba about the possible efficacy of the CBD.

¹⁹ *Ibid*, 4. For further details on the acceptance of the Nairobi Final Act of the Conference for the Adoption of the Agreed Text of the Convention on Biological Diversity see Secretariat of the Convention on Biological Diversity, note 17 above at 399-408.

²⁰ D Hunter et al, *International Environmental Law and Policy*, 3rd ed (New York: Foundation Press, 2007), 181-187 provides a brief history of the United Nations Conference on Environment and Development and discusses the persistent divide between the global north and south despite the hype surrounding the conference.

²¹ The Biodiversity Treaty has not been ratified by the United States, despite early signs of support.

²² *Ibid*, Art 1. See generally S Bragdon et al, “Safeguarding Biodiversity: The Convention on Biological Diversity (CBD)” in G Tansey et al (eds), *The Future Control of Food: A Guide to International Negotiations and Rules on Intellectual Property, Biodiversity and Food Security* (London: Earthscan, 2008), 82, at 84 identifying the origins of these objectives: the conservationist movement; advocates of incorporating sustainable use of biological resources into the framework of conservation policy; and the developing world’s insistence that the negotiations include access to technology, genetic resources, and benefits sharing.

²³ CBD News, note 15 above, at 8 details the Committee’s establishment of two working groups tasked with administering the conservation and sustainable use of biodiversity and the financial mechanisms of the CBD, respectively.

(“Subsidiary Body”).²⁴ The COP grants the Subsidiary Body authority to provide scientifically based advice on the implementation of the CBD at the COP’s request.²⁵

2.1.1 CBD Article 15: Access to Genetic Resources

Article 15 changed international intellectual property rights regarding genetic resources by shifting the right of control from the global commons to the sovereign State.²⁶ Article 15(2) requires that countries “...endeavour to create conditions to facilitate access to genetic resources for environmentally sound uses by other Contracting Parties and not to impose restrictions...” that contravene the purpose or objectives of the CBD.²⁷ Article 15 further mandates that countries²⁸ obtaining genetic resources from external sources must secure “prior informed consent” from the host country and conduct the exchange on “mutually agreed terms.”²⁹ In the final paragraph of Article 15, as follows, the purchasers of genetic resources are called upon to share the benefits derived from those genetic resources:

Each Contracting Party shall take legislative, administrative or policy measures, as appropriate, and in accordance with Articles 16 and 19 and, where necessary, through the financial mechanism established by Articles 20 and 21 with the aim of sharing in a fair and equitable way the results of research and development and the benefits arising from the commercial and other utilization of genetic

²⁴ *Ibid.* The meeting of the Intergovernmental Committee in Nairobi, Kenya took place from June 20-July 1. It also established some of the rules of procedure for the first COP.

²⁵ Biodiversity Treaty, Art 25(2), defines the scope of responsibilities of the Subsidiary Body including technology transfers for the sustainable use of biodiversity.

²⁶ *Ibid.*, Art 15(1). The text reversed widely held beliefs about intellectual property rights through the following language: “[r]ecognising the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation”. See also A Smagadi, “Analysis of the Objectives of the Convention on Biological Diversity: Their Interrelation and Implementation Guidance for Access and Benefit Sharing” (2006) 31 *Columbia Journal of Environmental Law* 243-284, at 244-46, which describes how countries flush with biodiversity were unable to benefit from the use of their resources by other countries because genetic resources were treated as part of the common heritage of mankind. Cf R Nwabueze, “Ethnopharmacology, Patents and the Politics of Plants’ Genetic Resources” (2003) 11 *Cardozo Journal of International & Comparative Law* 585-632, at 600-601, which misconstrues the CBD treatment of intellectual property rights as a sovereign right as a mere extension of existing international law.

²⁷ Biodiversity Treaty, Art 15(2) bolsters the goals of the CBD by clearly enunciating that the objectives of the Convention are to be respected by all parties.

²⁸ A Sharma, “The Global Loss of Biodiversity: A Perspective in the Context of the Controversy Over Intellectual Property Rights” (1995) 4 *University of Baltimore Intellectual Property Law Journal* 1-32, at 20 suggests that in practice the source countries are usually third world countries.

²⁹ Biodiversity Treaty, Arts 15(4)-15(6) envisions bilateral transfers as indicated by using “[e]ach Contracting Party” as the starting point of the subsequent paragraphs. Cf M Jeffery, “Bioprospecting: Access to Genetic Resources and Benefit-Sharing under the Convention on Biodiversity and the Bonn Guidelines” (2002) 6 *Singapore Journal of International & Comparative Law* 747-808, at 778 which finds that criticisms exist because of the vagueness of the phrases, “prior informed consent” and “mutually agreed terms”.

resources with the Contracting Party providing such resources. Such sharing shall be upon mutually agreed terms.³⁰

The CBD removed genetic resources from the commons.³¹ The CBD had a substantial impact on intellectual property rights because sovereign States gained rights and authority over access to States' natural and genetic resources.³²

2.1.2 CBD Article 16: Access to and Transfer of Technology

Within the CBD,³³ technology is understood to include biotechnology, and Articles 15 and 16 should therefore be read together in order to properly understand the full scope of the Convention.³⁴ The CBD envisioned that the flow of technology would be primarily from developed to developing nations and adopted, through COP 6, the Bonn Guidelines³⁵ on access and benefit-sharing.³⁶ Article 16 mandated that access to technology would be provided and/or facilitated under fair terms,³⁷ and while Article 16(5) makes an effort to preserve intellectual property rights,³⁸ the Article as a whole

³⁰ Biodiversity Treaty, Art 15(7).

³¹ R Kennedy, "International Conflicts Over Plant Genetic Resources: Future Developments?" (2006) 20 *Tulane Environmental Law Journal* 1-42, 21-22, compares the treatment of intellectual property rights by the CBD with that of the Agreement on Trade-Related Aspects of Intellectual Property, noting the diametrically opposed views of common property versus private property. Cf Report of the Conference of the FAO, UN Food and Agriculture Org, 22nd Session, UN Doc C 83/Rep (1983) (Rome, 5-23 Nov 1983) enunciating the "common heritage of mankind" doctrine which states that "plant genetic resources are a heritage of mankind to be preserved, and to be freely available for use, for the benefit of present and future generations".

³² R Kennedy, note 31 above, at 21, notes that developing countries signed onto the CBD because they anticipated benefits from the impact on intellectual property rights but that the benefits had not materialised as expected.

³³ Biodiversity Treaty, Art 16(1), recognises that access to and the transfer of technology between signatories is a crucial step towards the achievement of the goals of the CBD.

³⁴ C Tinker, "Introduction to Biological Diversity: Law, Institutions and Science" (1994) 1 *Buffalo Journal of International Law* 1-25, at 16 contends that Articles 15 and 16 "represent ... together the fundamental trade-off of the entire Convention and illustrating the political and economic strengths of both the biodiversity-rich developing nations and the technology-based developed nations".

³⁵ Report of the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity, The Hague, 7-19 Apr 2002, *Decision VI/24: Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization*, at 262-65, UN Doc UNEP/CBD/COP/6/20 (2002), available at <http://www.cbd.int/doc/decisions/COP-06-dec-en.pdf> (accessed 22 Feb 2010), reconciles any conflicts with the CBD in the CBD's favour and notes that compliance with the guidelines is entirely voluntary.

³⁶ Secretariat of the Convention on Biological Diversity, note 17 above, at 201, construes the decision of the COP to suggest that technology transfers operate as a mechanism to share benefits.

³⁷ Biodiversity Treaty, Art 16(2) elaborates on the scope of what is fair and instructs further that developing countries are to be given "most favourable terms, including on concessional and preferential terms where mutually agreed, and, where necessary, in accordance with the financial mechanism established by Articles 20 and 21".

³⁸ *Ibid*, Art 16(5) "recognizing that patents and other intellectual property rights may have an influence on the implementation of this Convention, shall cooperate in this regard subject to national legislation and international law in order to ensure that such rights are supportive of and do not run counter to its objectives".

makes it clear that free transferability and access to technology are of paramount importance to achieving the goals of the CBD.³⁹

2.2 ITPGR Access and Benefits-sharing

The ITPGR, which entered into force on 29 June 2004,⁴⁰ was the progeny of the International Undertaking on Plant Genetic Resources.⁴¹ It explicitly states that the Treaty seeks to work in concert with the CBD to achieve its goals for sustainable agriculture and food security.⁴² The Conference of the Parties of the CBD encouraged member states to sign and ratify the ITPGR⁴³ and committed to continued cooperation with its Governing Body.⁴⁴

2.2.1 Access and Benefits-sharing of Plant Genetic Resources: the Multilateral System

The Multilateral System of Access and Benefit-sharing, established by Article 10 of the ITPGR, recognised that sovereign nations have rights over their own plant genetic resources.⁴⁵ Under the Multilateral System, contracting parties are given free access⁴⁶ to plant genetic resources, listed in Annex 1 to the treaty, for food security purposes.⁴⁷ Article 12.3 enumerates the conditions under which access shall be provided and

³⁹ *Ibid*, Art 16(1). See also A Sharma, note 28 above, at 21-22, which implies that biotechnology transfers were envisioned as particularly important to Article 16.

⁴⁰ E.g. G Moore & W Tymowski, *Explanatory Guide to the International Treaty on Plant Genetic Resources for Food and Agriculture* (IUCN Environmental Law Centre 2005), at 1 available at <http://app.iucn.org/dbtw-wpd/edocs/EPLP-057.pdf> (accessed 22 Feb 2010) bemoans the lengthy seven-year negotiations but celebrates the adoption of the treaty.

⁴¹ *Ibid*, proffers that the ITPGR emerged out of an attempt to harmonise the International Undertaking with the CBD.

⁴² ITPGR, Arts 1.1 and 1.2, synergising the two treaties through a commitment to maintain a close link between the CBD and the ITPGR.

⁴³ COP 6 Decisions, *The International Treaty on Plant Genetic Resources for Food and Agriculture*, note 40 above, at paras 2-3, recognises the important role the ITPGR will have, in conjunction with the CBD, for conserving agricultural biodiversity and for facilitating access and benefits sharing of plant genetic resources.

⁴⁴ Cf Report of the Ninth Meeting of the Conference of the Parties to the Convention on Biological Diversity, Bonn, 19-30 May 2008, *Decision IX/1: In-depth Review of the Programme of Work on Agricultural Biodiversity*, 7, para 19, UN Doc UNEP/CBD/COP/9/29 (2008), available at <http://www.cbd.int/doc/decisions/COP-09-dec-en.pdf> (accessed 22 Feb 2010) which hearkens back to COP 6 decision VI/6 and urges parties to support the implementation of the ITPGR.

⁴⁵ ITPGR, Art 10 affirms, in part, the rights recognised by CBD Article 15.

⁴⁶ *Ibid*, Art 12.3(b) announces that if there is a fee it may not exceed the minimal cost involved.

⁴⁷ *Ibid*, Arts 11.1 and 12.3(a). See also K Aoki, "Distributive and Syncretic Motives in Intellectual Property Law (With Special Reference to Coercion, Agency, and Development)" (2007) 40 *University of California Davis Law Review* 717-801, at 797, citing Annex I and asserting that the sixty-four crops and forages on the list are given common heritage treatment.

Article 12.4 mandates that facilitated access shall occur pursuant to a standard material transfer agreement (“MTA”).⁴⁸

ITPGR Article 13 obliges the parties to share benefits arising from any material received under an MTA.⁴⁹ Article 13 covers technology access and transfers and also encompasses genetically modified plant resources.⁵⁰ Article 13.2(d) requires that any party deriving a benefit from the commercialisation of any plant material accepted under a standard MTA must pay an equitable share to an international fund.⁵¹

2.2.2 *The 2010 Biodiversity Target*

The meeting of COP 6 yielded the Strategic Plan for the Convention⁵² and bound the parties through decision VI/26 to the 2010 Biodiversity Target.⁵³ The 2010 Biodiversity Target indicates that the

[p]arties commit themselves to a more effective and coherent implementation of the three objectives of the Convention, to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth.⁵⁴

After its adoption by the CBD, the 2010 Biodiversity Target gained international significance by its incorporation into the Millennium Development Goals and its endorsement by the World Summit on Sustainable Development.⁵⁵ The need to

⁴⁸ ITPGR, Arts 12.3 and 12.4 which charge the Governing body with setting standards for access to plant genetic resources when national legislation has not been enacted and stress that the MTA must “contain the provisions of Articles 12.3a, d and g, as well as the benefit-sharing provisions set forth in Article 13.2d(ii) and other relevant provisions of this Treaty”.

⁴⁹ *Ibid*, Arts 13.1 and 13.2 which emphasise fairness as a primary goal.

⁵⁰ *Ibid*, Art 13.2(b)(i), noting that some technology can only be transferred as genetic material and committing the parties to respect applicable property rights.

⁵¹ *Ibid*, Art 13.2(d)(ii) orders parties that place restrictions on materials received through the Multilateral System to pay an equitable share, but also notes that in the absence of restrictions the payment is not mandatory. See also ITPGR Guide, note 45 above, at 16, which clarifies that parties imposing no restrictions on access to material for research and breeding are encouraged to merely contribute to the mechanism referred to in ITPGR Article 19.3(f).

⁵² Secretariat of the Convention on Biological Diversity, note 17 above, at xv, 362, comments on the four strategic goals of the Plan which are: 1) to improve the CBD’s leadership role in biodiversity issues; 2) improve the capacity of the Parties; 3) implement the objectives of the Convention through the framework of national biodiversity strategies and action plans; and 4) to enhance the importance of understanding biodiversity and of the Convention to get broader societal engagement in implementation).

⁵³ COP 6 Decisions, note 35 above, at 317-319, lauds biodiversity as the foundation of all human civilisation.

⁵⁴ *Ibid*, 319, declaring in the Strategic Plan for the Convention on Biological Diversity the basic steps needed to achieve the 2010 Biodiversity Target.

⁵⁵ E.g. CBD Secretariat, *Setting National Biodiversity Targets, making use of the CBD’s Framework for the 2010 Biodiversity Target Module B-4* (2007), at 5, available at <http://www.cbd.int/doc/training/nbsap/b4-train-national-targets-en.pdf> (accessed 22 Feb 2010) accepts the target as inspirational and presents several sub-targets. See further: “Welcome to the United Nations Millennium Development Goals”, available at

measure progress towards the achievement of the 2010 Biodiversity Target also had the benefit of increasing scientific input into the CBD.⁵⁶

2.2.3 The Potential of Hybrid Rice Varieties

Rice has served as a staple food for humanity for more than 7,000 years and today is a major dietary component for three billion people.⁵⁷ The number of people that depend on rice makes it uniquely situated even among the three staple plant varieties that provide sixty percent of the world's food energy intake.⁵⁸ From 1963 to 2003, the area of land used for rice cultivation grew from 120 million hectares to nearly 160 million hectares.⁵⁹ The potential of hybrid rice varieties for higher yields per acre creates the possibility of reducing the number of arable acres necessary for cultivation.⁶⁰ By reducing the demand for land, hybrid rice varieties could help to mitigate the destruction of habitat and protect biodiversity.⁶¹ One such hybrid, listed in Annex I to the ITPGR, has been created using two subspecies of *Oryza*.⁶²

<http://www.un.org/millenniumgoals/envIRON.shtml> (accessed 22 Feb 2010) which presents Goal 7's target 2 which incorporates the 2010 Biodiversity Target; J Speth and P Haas, *Global Environmental Governance* (Washington, DC: Island Press, 2006) at 76, lamenting the summit's overall lack of specific plans of action and bemoaning the fact that only general agreements were reached.

⁵⁶ E.g. M Vierros, "The Convention on Biological Diversity: Moving from Policy to Implementation" (2006) 7 *Sustainable Development Law & Policy* 17-20, at 20, predicts that even if the 2010 Biodiversity Target is not achieved, the attention it has drawn in terms of both scientific input and in solidifying biodiversity in the collective mind of humanity makes the target worthwhile.

⁵⁷ UN Food and Agriculture Org, *Dimensions of Need* (Tony Loftas ed, 1995) available at <http://www.fao.org/docrep/u8480e/u8480e00.HTM> (accessed 22 Feb 2010) compares the main staple foods for Africans and Western Europeans in terms of caloric energy. See also D Normile, "Archaeology: Yangtze Seen as Earliest Rice Site" (1997) 275 *Science* 309-310 which claims that rice cultivation began in the Yangtze River basin and predates archaeological evidence from the Yellow River; S Harrington, "Earliest Rice" (1997), available at <http://www.archaeology.org/online/news/rice.html> (accessed 22 Feb 2010) reports evidence that rice cultivation originated as early as 11,500 years ago.

⁵⁸ See UN Food and Agriculture Org, note 57 above, distinguishing rice from maize and wheat.

⁵⁹ Gramene.org, *Oryza Maps and Statistics*, available at http://www.gramene.org/species/oryza/rice_maps_and_stats.html (accessed 22 Feb 2010) includes a chart that presents the estimated number of hectares used for rice cultivation and lists world rice production for 2005.

⁶⁰ D Duvick, "Heterosis: Feeding People and Protecting Natural Resources" in J Coors et al (eds), *Genetics and Exploitation of Heterosis in Crops* (Madison, WI: American Society of Agronomy, 1999) 19, at 19 credits heterosis, the tendency of a crossbred individual to show qualities superior to those possessed by its parents, with the preservation of large areas of land due to the increase in yield.

⁶¹ Cf E Wilson, note 3 above, at 75, which states that habitat destruction is a major driver of species loss.

⁶² A Mahmoud, et al, "Interspecific Rice Hybrid of *Oryza sativa* x *Oryza nivara* Reveals a Significant Increase in Seed Protein Content" (2008) 56 *Journal of Agriculture and Food Chemistry* 476-482, at 477-81, proclaims that the hybrid variety not only had a higher protein content than either of the parents, but also noting that hybridisation of the wild rice variety with the rice variety typically used for agriculture resulted in the potential for a higher yield. See also ITPGR, Annex I.

The Philippines and Uganda are parties to both the CBD and the ITPGR.⁶³ Each of these developing countries has recognised the value of hybridised high-yield seeds and has taken actions to continue their use.⁶⁴ Hunger and the closely related need for agricultural land are issues in both the Philippines and Uganda.⁶⁵ The need to balance the feeding of their citizens with the protection of their significantly rich biodiversity makes the Philippines and Uganda ripe for analysis.⁶⁶ The final portion of the analysis section will examine the use of hybrid high-yield rice varieties by the Philippines and Uganda.

3. Analysis

With the 2010 Biodiversity Target fast approaching, the terms of the CBD and the ABS provisions of the ITPGR are not likely to have significantly reduced the rate of biodiversity loss by the target date.⁶⁷ Though some smaller scale sub-targets might be met, it will be impossible without Herculean effort to meet the overarching 2010 target.⁶⁸ One path towards a reduction in the rate of species loss is through the use of synergistic treaty provisions like CBD Articles 15 and 16, and ITPGR Articles 12 and 13.⁶⁹ Reconciliation of the treatment of intellectual property rights under the CBD and

⁶³ Convention on Biological Diversity, available at <http://www.cbd.int/information/parties.shtml> (accessed 22 Feb 2010) lists the Philippines and Uganda as countries that ratified the treaty by 1993. See also UN Food and Agriculture Org, “Legal Offices”, available at <http://www.fao.org/Legal/treaties/033s-e.htm> (accessed 22 Feb 2010), which presents the list of parties to the ITPGR, indicating both countries as in accession.

⁶⁴ Oryza.com, “Philippines to Continue Subsidy for High Yielding Rice Seeds”, available at <http://oryza.com/Asia-Pacific/Philippines-Market/8560.html> (accessed 22 Feb 2010) observes that the primary motivation of the Philippine Department of Agriculture in continuing the subsidy is achieving rice self-sufficiency by 2010. See further E Kasozi, “Uganda: New High Yield Rice Breed to Cut Rice Importation” (2008), available at <http://allafrica.com/stories/200806180503.html> (accessed 22 Feb 2010) which calculates that the increase in rice production will reduce imports and increase the self-sufficiency of smallholder farmers.

⁶⁵ M Palatino, “Worsening hunger in the Philippines” (2008), available at http://www.upiasia.com/Economics/2008/03/11/worsening_hunger_in_the_philippines/4820/ (accessed 22 Feb 2010) blames the high price of food commodities and the average Filipino’s income for the high rates of hunger. See also “The Hunger Project”, available at http://www.thp.org/where_we_work/africa/uganda/overview (accessed 22 Feb 2010) which voices the concern that even though over eighty percent of Ugandans are involved with agriculture, nearly forty percent live below the poverty line.

⁶⁶ “Like-Minded Megadiverse Countries”, available at <http://lmmc.nic.in/> (accessed 22 Feb 2010) lists the Philippines as one of the seventeen most biodiverse countries; “World Resource Institute”, available at <http://earthtrends.wri.org/text/biodiversity-protected/country-profile-186.html> (accessed 22 Feb 2010) gives information on Ugandan biodiversity and protected areas in numerical terms.

⁶⁷ World Wildlife Fund, *Living Planet Report 2008* (Chris Hails ed) (Gland, Switzerland: WWF 2008), at 1, presents the findings of the Living Planet Index—one of two indices used by the report—and states that there is a rapid and continuing loss of biodiversity. See also J Speth and P Haas, note 55 above, at 40: “species loss today is estimated to be perhaps 1,000 times the natural or normal rate species go extinct. Many scientists believe we are on the brink of the sixth great wave of species loss on Earth, and the only one caused by the human species”.

⁶⁸ Convention on Biological Diversity, note 2 above, at 59, notes that “it appears highly unlikely that all the targets aimed at addressing threats to biodiversity could be achieved globally by [the end of] 2010”.

⁶⁹ Cf Delegation of Antigua and Barbuda on Behalf of the Group of 77 and China in the Second Committee, on Agenda Item 49: Sustainable Development, Sub-Items (A)-(G), Statement by HE

the ITPGR would bring the achievement of the 2010 Biodiversity Target closer to fruition.⁷⁰

The access and benefit-sharing provisions of the CBD and the ITPGR are not currently structured to allow for the rapid transfer of hybrid high-yield seeds. Reconciliation of the conflicting provisions of the two treaties is important because it would permit land-sparing, high-yield seeds to be disseminated to developing countries with a high percentage of the world's biodiversity. Avoiding habitat destruction through higher yields would reduce the rate of biodiversity loss and uphold the goals of the CBD and the ITPGR.⁷¹ The potential internal conflict of the ITPGR in regard to the intellectual property treatment of plant genetic resources may be another obstacle to rapid transfers of plant genetic material, but its narrow focus may rectify this. Under the current international regime on access and benefit-sharing of plant genetic resources, several textual hindrances to the rapid transfer of hybrid high-yield seeds remain.

3.1 Reconciling the Access and Benefits-sharing Provisions of the CBD and the ITPGR is Necessary

The ITPGR has taken a stronger stance than the CBD on intellectual property rights, by putting the objectives of the Treaty before intellectual property rights claims.⁷² The CBD recognises the sovereign right of a state to control access to *in situ*⁷³ genetic resources and to derive benefits from any transfer, subject to the receipt of benefits in the event that the receiving entity uses the material for commercial profit.⁷⁴ CBD Articles 15 and 16 were drafted with the purpose of facilitating the transfer of genetic

Ambassador Byron Blake to the Second Committee of the General Assembly paragraphs 23-26 (27 Oct 2008). The Statement monitors the progress towards the 2010 Biodiversity Target paying special attention to access and benefits-sharing provisions and technology transfers. See also the Conference of the Parties to the Convention on Biological Diversity, Report of the Subsidiary Body on Scientific, Technical and Technological Advice on the Work of its Tenth Meeting, Brazil, 20-31 Mar 2006, *Recommendation X/5: Indicators for assessing progress towards, and communicating, the 2010 target at the global level*, paragraph 49, Annex 47, UN Doc UNEP/CBD/COP/8/2 (aligning the benefits-sharing provisions of the CBD and the ITPGR under Goal 10).

⁷⁰ See below at section 3.1.

⁷¹ See: below at sections 3.2-3.3; Biodiversity Treaty, note 8 above, Art 1 which aims to conserve biodiversity; ITPGR, Art 1.1 which harmonises the ITPGR with the CBD's objectives. Cf K Aoki, "Weeds, Seeds & Deeds: Recent Skirmishes in the Seed Wars" (2003) 11 *Cardozo Journal of International & Comparative Law* 247-331, at 257, which cautions that seeds designed through biotechnology—specifically terminator seed protection technology, which is very different than a standard hybrid seed—may lead to global monocropping and a reduction in agricultural biodiversity.

⁷² ITPGR, Art 12.3(d) prohibits any intellectual property claims that would limit facilitated access to plant material submitted to the Multilateral System.

⁷³ Biodiversity Treaty, Art 2 defines the factors of *in-situ* conditions: "where genetic resources exist within ecosystems and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties".

⁷⁴ L Helfer, "Regime Shifting: The TRIPs Agreement and New Dynamics of International Intellectual Property Lawmaking" (2004) 29 *Yale Journal of International Law* 2-84, at 50 notes that access under the CBD may only be granted on mutually agreed upon terms and with the prior informed consent of the providing state.

material between developed and developing nations.⁷⁵ The transfers that have occurred have not met the aspirations of the CBD because the lack of an international access and benefits-sharing regime⁷⁶ makes it difficult to arrive at terms that are truly mutually beneficial.⁷⁷

The unique treatment of plant genetic resources under the CBD and its access and benefits-sharing provision has created a direct conflict with the ITPGR.⁷⁸ The CBD vests intellectual property rights in sovereign states, while Article 12 of the ITPGR requires that recipients of materials claim no intellectual property rights that will limit access to plant genetic resources.⁷⁹ CBD Article 16 requires that countries must respect the intellectual property rights of any transferred technology.⁸⁰

This conflict is particularly apparent in the context of genetically modified germplasm and the intellectual property rights invoked during transfers of this type of material.⁸¹

⁷⁵ See below at sections 2.1.1 and 2.1.2. See further Biodiversity Treaty, Art 16(2), evincing that the transfers were to be from developed to developing countries with most favourable terms.

⁷⁶ See Press Release, Secretariat of the Convention on Biological Diversity, Governments Discuss Text of Protocol for the Sharing of Benefits from the Genetic Resources of the Planet, Santiago de Cali, Columbia, 22 Mar 2010, <http://www.cbd.int/doc/press/2010/pr-2010-03-22-abs9-en.pdf>, noting that 193 parties to the CBD have agreed to use a draft protocol text to begin deliberations on a regime for access and benefits sharing of the planet's resources and that any final text will be presented to the parties for adoption in October of 2010. Cf Report of the Eighth Meeting of the Conference of the Parties to the Convention on Biological Diversity, Curitiba, Brazil, 20-31 Mar 2006, *Item 17: Access and Benefit-Sharing (Article 15)*, paragraphs 140-52 UNEP/CBD/COP/8/31 (2006) available at <http://www.cbd.int/doc/meetings/cop/cop-08/official/cop-08-31-en.pdf> (accessed 22 Feb 2010), reporting on the steps the COP were to take to establish an international regime on access and benefits-sharing; A Djoghla (Executive Secretary of the CBD), "Statement at the Opening Meeting on Cities and Biodiversity: Achieving the 2010 Biodiversity Target" (2007), available at <http://www.cbd.int/doc/speech/2007/sp-2007-03-26-mayors-en.pdf> (accessed 22 Feb 2010), which pledges to reach an international agreement on an ABS regime by 2010.

⁷⁷ Secretariat of the Convention on Biological Diversity, *Technical Series No. 38 Access and Benefit-Sharing in Practice: Trends in Partnerships Across Sectors* (2008), at 36, says that "[t]here is a need to build capacity in many provider countries and amongst intermediary institutions to ensure that potential negotiating and other inequalities between parties are reduced; knowledge of business, law, and advances in science and technology is significant; and opportunities for long-term, mutually beneficial relationships are enhanced".

⁷⁸ K Aoki and K Louvai, "Reclaiming 'Common Heritage Treatment' in the International Plant Genetic Resources Regime Complex" 2007 *Michigan State Law Review* 35-70, at 57 expands on the conflict and notes that it creates a forum shopping issue—the ITPGR's Multilateral System forbids the claiming of intellectual property rights on any material taken from the system, whereas the CBD system of bilateral contracts under Article 15 is allowed because of the sovereign rights that States have over their natural resources—and that it undermines the international regime.

⁷⁹ Biodiversity Treaty, Art 15(1) chooses also to charge national governments with the task and authority of determining access to genetic resources. Also K Aoki and K Louvai, note 78 above, at 57, embraces the analysis by Michael Heller and Rebecca Eisenberg of the "anti-commons problem" which states that too many competing intellectual property claims leads to the underutilisation of a resource.

⁸⁰ Biodiversity Treaty, Arts 16(2)-16(5) articulates the Convention's commitment to cooperate with existing national and international law to ensure that intellectual property rights are supportive of and not counter to the CBD's objectives.

⁸¹ Secretariat of the Convention on Biological Diversity, note 87 above, at 16, 28-31 grapples with the seed industry's increased investment in modified germplasm and the unique position that intellectual property rights occupy because of the complex nature of cumulative plant breeding in the access and benefits-sharing process.

The definition of technology in CBD Article 16 includes biotechnology,⁸² which overlaps with the definition of genetic material in the ITPGR.⁸³ It has been suggested that subordinating CBD Articles 15 and 16 to ITPGR Articles 12 and 13 in the context of plant genetic resources would eliminate the conflict in some settings.⁸⁴ Primacy of the ITPGR access and benefit-sharing provisions would facilitate the sharing of seed varieties⁸⁵ that have the potential to reduce the amount of arable land used, thereby diminishing the effects of one cause of biodiversity loss.⁸⁶

Commentators have levelled criticism at the CBD as a whole because of its use of vague and obtuse language in areas of the Convention that could have been more efficacious.⁸⁷ Treaty language is generally watered down to satisfy all participating parties, which makes it difficult to find text that is strong enough to achieve the goals of the treaty.⁸⁸ In the case of the CBD, language such as “endeavour to”⁸⁹ has hamstrung its three main goals and has the unfortunate repercussion of reducing the likelihood of achieving the 2010 Biodiversity Target.⁹⁰ The shortcomings of the CBD can be partially rectified by the ITPGR’s stronger language on ABS.⁹¹ Lacunae would

⁸² Biodiversity Treaty, Art 16(1) insists that access to and transfers of technology between contracting parties are crucial to the achievement of the CBD’s objectives.

⁸³ ITPGR, Art 2, defines genetic material as any material of a plant that contains functional units of heredity and notably not excluding genetically modified plant germplasm.

⁸⁴ Cf K Aoki and K Louvai, note 78 above, at 57, which asserts that eliminating the textual conflicts would unify the international regime on the treatment of plant genetic resources in regard to species included in the ITPGR Annex.

⁸⁵ *Ibid.* Aoki and Louvai also enunciate that within the ITPGR Multilateral System a party must forgo any intellectual property claims to any materials received from a seed bank before they are granted access to it.

⁸⁶ “Center for Global Food Issues”, available at <http://www.highyieldconservation.org/declaration.html> (accessed 22 Feb 2010) extols the potential to protect biodiversity in a declaration supporting high-yield farming and forestry practices.

⁸⁷ E Asebey and J Kempenaar, “Biodiversity Prospecting: Fulfilling the Mandate of the Biodiversity Convention”(1995) 28 *Vanderbilt Journal of Transnational Law* 703-754, at 716-17 opines that the form of the CBD lends itself to being ineffective and that the treaty suffers from textual and conceptual deficiencies.

⁸⁸ *Ibid.* Asebey and Kempenaar also state that “...because international agreements require consensus among many nations, they ‘tend to reflect the lowest common denominator’ rather than the majority standard.”

⁸⁹ Compare the Biodiversity Treaty, note 8 above, Art 15, para 2, which mandates that Contracting Parties must ‘endeavour to’ create conditions suitable for the exchange of genetic resources, with D Rettig, “In Search of Pirate’s Treasure: The Control and Ownership of Genetic Resources in the MesoAmerican Barrier Reef System” (2006) 37 *University of Miami Inter-American Law Review* 261-296, at 270, stating that this type of language does not make good black letter law.

⁹⁰ Cf R Adam, “Waterbirds, the 2010 Biodiversity Target, and Beyond: AEWA’s Contribution to Global Biodiversity Governance” (2008) 38 *Environmental Law* 87, at 117-19. This notes that soft law provisions create obstacles to implementation and specifically attributes the problems of the CBD to its conditional and qualified commitments and its overly complex structure.

⁹¹ R Kennedy, note 32 above, at 41, advances the theory that an international ABS regime, based in part on the tenor of ITPGR’s facilitated access ideal and the standard MTA, would help to stave off an anti-commons.

however still remain in the ABS provisions of the CBD because of the ITPGR's relatively narrow focus on plant genetic material for food and agriculture.⁹²

3.2 The ITPGR's Narrow Focus and Possible Internal Conflicts Make a Widespread Distribution of Land-sparing, High-yield Seeds Unlikely

The strength of the ITPGR's treatment of intellectual property rights is tempered by its relatively narrow scope.⁹³ International dickering⁹⁴ during the lengthy ITPGR negotiations resulted in self-imposed categorical limits on the plant genetic material that is transferable from *ex situ* seed banks. It was the United States' goading during the negotiations that resulted in the narrow scope of the ITPGR.⁹⁵ The list of covered food crops⁹⁶ did however help to fill the fissures in CBD coverage of plant genetic resources.⁹⁷

The conflict between Articles 12 and 13⁹⁸ is an added complication that reflects on the efficacy of the access and benefit-sharing provisions of the ITPGR and their succour for the 2010 Biodiversity Target. Article 12.3(d) states that parties shall not claim intellectual property rights—to the form of the material as submitted to the Multilateral System—if that claim would hinder the facilitated access of plant genetic material.⁹⁹ In apparent contrast, Article 13.2(b) states that intellectual property rights must be respected in technology transfers.¹⁰⁰ Article 13 acknowledges that some technologies can only be transferred via genetic material,¹⁰¹ which falls under the purview of Article 12,¹⁰² but simultaneously mandates that intellectual property rights

⁹² ITPGR, Art 12.3(a) allows inclusion in the Multilateral System for crops that are used for both food and non-food purposes if their use for food is important to food security.

⁹³ *Ibid*, Art 3 limits the treaty to plant genetic resources used for food or agriculture.

⁹⁴ E.g, G Rose, "International Law of Sustainable Agriculture in the 21st Century: The International Treaty on Plant Genetic Resources for Food and Agriculture" (2003) 15 *Georgetown International Environmental Law Review* 583-632, at 616, postulates that the definitional conflicts slowed down negotiations and notes that the final list of plants has been criticised as "shameful" because it excludes such major crops as soybeans and sugar cane.

⁹⁵ *Ibid*, 614, attributes to US pressure the adoption by the Commission on Genetic Resources for Food and Agriculture of a list comprising only major food crops, in the context of the Multilateral System.

⁹⁶ ITPGR, Annex I.

⁹⁷ G Rose, note 94 above, at 614, asserts that despite this coverage being narrower than the original International Undertaking on Plant Genetic Resources, the conservation provisions of the ITPGR allow for non-listed plant genetic resources to be covered.

⁹⁸ ITPGR, Arts 12 and 13 contain slightly different stances on the treatment of intellectual property rights.

⁹⁹ *Ibid*, Art 12.3(d) stipulates that the plant genetic material must be intended for use for food or agriculture in accord with the objectives of the treaty.

¹⁰⁰ *Ibid*, Art 13.2(b)(i)-13.2(b)(iii) purports to conform with the provisions of Article 12.

¹⁰¹ *Ibid*, Art 13.2 b(i) expands the field of possible transfers to include genetic material that is developed from material within the Multilateral System.

¹⁰² *Ibid*, Arts 11.1 and 12.3(d) delimit the Multilateral System to those plants appearing in Annex I.

be honoured.¹⁰³ This conflict may hinder the transfer of hybrid plant varieties created using two sub-species of one of the genera listed in Annex I.¹⁰⁴

3.3 High-yield Hybridised Seeds could Face Insurmountable Obstacles to Transference

The Parties to the CBD, including the Philippines and Uganda, have acknowledged that the lack of an international intellectual property regime on plant genetic resources has hindered the attainment of CBD goals.¹⁰⁵ The conflicting treatment of intellectual property rights by the CBD and the ITPGR frustrates the transfer of plant genetic materials. Intellectual property rights have been, but should not remain, an impediment to the successful transfer of hybrid high-yield seeds, because they have the potential to protect biodiversity.

The transfer of the *Oryza* hybrid rice seed in the Philippines and Uganda¹⁰⁶ would be governed by CBD Articles 15 and 16. Though Article 15 requires that countries “endeavour to” facilitate access to genetic resources, access is limited by the vesting of intellectual property rights in the sovereign states. Article 15 uses language based in merit, attempting to create fair exchanges based on prior informed consent and mutually agreed terms. In practice, access to genetic resources is hampered by sovereign rights over them, and the necessity of protracted negotiations in order to reach consensus. The current CBD ABS provisions would not permit the *Oryza* hybrid to be rapidly transferred to biodiversity hot spots like the Philippines or Uganda.

The ITPGR treatment of intellectual property rights would facilitate faster transfer of the *Oryza* hybrid rice seed than that of the CBD. The fact that the regimes conflict in the plant genetic resources context has garnered some attention but action still seems far off.¹⁰⁷ *Oryza* is listed in the ITPGR Annex and the hybrid derived from this genus

¹⁰³ *Ibid*, Art 13.2(b)(i) and (iii) reaffirm Article 13’s commitment to respect intellectual property rights but also stating that it will conform with Article 12.

¹⁰⁴ *Ibid*, Annex I lists a limited number of crops and forages. This conflict could restrict the transfer of hybrid plant varieties that have the potential to reduce the amount of land needed because of their higher yield per acre, which would in turn help to reduce the rate of habitat loss, one of the main drivers of biodiversity loss. See generally A Mahmoud et al, “Interspecific Rice Hybrid of *Oryza sativa* × *Oryza nivara* Reveals a Significant Increase in Seed Protein Content” (2008) 56 *Journal of Agriculture and Food Chemistry* 476-482, at 476, available at <http://pubs.acs.org/doi/pdfplus/10.1021/jf071776n> (accessed 22 Feb 2010), which concludes that not only was yield increased but that the hybridisation of *Oryza sativa* and *Oryza nivara* led to rice with a higher protein content.

¹⁰⁵ COP 8 Decisions, note 76 above, Decision VIII/4. See also T Gerhardsen, “Decision on International Regime on Genetic Resources Postponed Until 2010” (2006), available at <http://ip-watch.org/weblog/index.php?p=260> (accessed 22 Feb 2010), which hypothesises that the delay regarding an international regime was disappointing to proponent governments, environmentalists, and indigenous groups but lauded by industry groups.

¹⁰⁶ Biodiversity Treaty, Arts 2, 15 and 16 encompass hybrid seeds because biotechnology—any technological application that uses biological systems or living organisms—is included under the purview of Article 16 and genetic resources are governed by Article 15.

¹⁰⁷ Cf A Djoghlaif “Statement at the Opening Meeting on Cities and Biodiversity: Achieving the 2010 Biodiversity Target” (2007), available at <http://www.cbd.int/doc/speech/2007/sp-2007-03-26-mayors-en.pdf> (accessed 22 Feb 2010), which acknowledges that in order to achieve greater conservation of

would benefit from the standard MTA.¹⁰⁸ Under ITPGR Article 12.3(d) parties may not claim intellectual property rights if such claim would hinder the facilitated access to plant genetic materials.¹⁰⁹ Given this protection, the *Oryza* hybrid would be easier to transfer in the multilateral system than in the bilateral CBD ABS scenario.¹¹⁰ Protection from overzealous invocations of intellectual property rights would not be a panacea, but it would allow freer transfer of the two strains of *Oryza* used in the high-yield hybrid.

As the Philippines and Uganda have recognised, hybrid high-yield varieties of rice have many benefits, including the potential to reduce the acreage of arable land used for agriculture. The current structure of international intellectual property rights in relation to plant genetic resources does not facilitate pragmatic or swift transfers. The conflict between the CBD and the ITPGR is a direct impediment to potentially beneficial transfers of plant genetic material.

4. Recommendations

The following recommendations are based on the recognition that the ABS provisions of the CBD and the ITPGR have certain incompatibilities that impede the exchange of hybrid seed varieties that have the potential to reduce land use. Textual amendments can improve the efficacy of the treaties by removing impediments that may hinder the achievement of the 2010 Biodiversity Target. The recommendations include: 1) subordinate the CBD's treatment of intellectual property rights to the ITPGR when plant genetic material is the subject of ABS or technology transfer; 2) reword ITPGR Article 13 to eliminate any possibility of incongruity with Article 12; and 3) renew a more concrete biodiversity target after the expiration and likely failure of the 2010 Biodiversity Target. By implementing these recommendations, the CBD and the ITPGR could be strengthened to the point where a future target would be more realistically attainable.

4.1 The ITPGR Should Reign Supreme when Plant Genetic Resources are Exchanged

The current ambiguity could be eliminated¹¹¹ by revising the discussion, in CBD COP Decision VI/24, of intellectual property rights under the ABS provisions.¹¹² If ITPGR

species there must be a standardised international regime on plant genetic resources but only commits to reach an agreement by 2010.

¹⁰⁸ ITPGR, Art 11, Annex I establishes Annex I as the definitive list from which parties may draw plant material from the Multilateral System while leaving open the possibility of transferring a hybrid of two subspecies of a listed genus.

¹⁰⁹ *Ibid*, Art 12.3(d) commands that no other rights may be claimed if that claim would interfere with access.

¹¹⁰ Compare Biodiversity Treaty, Arts 15 and 16 with ITPGR Arts 12 and 13 which construe the differing treaty language to mean an ITPGR transfer is a less labour intensive process.

¹¹¹ *Ibid*, Appendix I, para B(4) suggests that wording be included in material transfer agreements that asks "[w]hether intellectual property rights may be sought and if so under what conditions". The ambiguity is that if the provisions of the ITPGR ABS system are followed then such a question is redundant and potentially confusing in the context of plant genetic material.

Article 12.3(d)¹¹³ were given primacy in the CBD ABS context, then the exchange of high-yield seeds that have the potential to preserve biodiversity would become more frequent.¹¹⁴ The parties to the CBD should amend Article 15 to make it easier to access genetic resources that have the potential to slow the rate of biodiversity loss.¹¹⁵ The next meeting of the COP should make it a priority to add the following text to CBD Article 15(2): “within the context of plant genetic resources, ITPGR Article 12.3(d) shall govern access to plant genetic resources for food or agriculture and as such no intellectual property rights may be claimed that would hinder the transfer of such material.”¹¹⁶ The definition of technology within CBD Article 16, although it currently includes biotechnology, should be amended to specifically include hybridised or genetically modified seeds to increase transfers.¹¹⁷

4.2 ITPGR Article 13 should be revised to Eliminate Incompatibility with Article 12

While Article 13 includes a caveat that the parties will strive to conform to the provisions of Article 12, this aspiration is diluted by the requirement that intellectual property rights must be respected while access is being provided.¹¹⁸ Again, primacy of Article 12 would help to make transfers of high-yield seed varieties more fluid and would thereby increase the chances of reducing demand for agrarian clear-cutting. Article 12 governs genetic material specifically, and therefore should dominate Article 13. Article 13.2(b) states that technology transfers can include transfers via genetic material but requires that intellectual property rights be respected. Eliminating the minor discrepancy between Articles 12 and 13 would ensure that the transfer of hybrid plant varieties bred using genetic material listed in Annex I would not be delayed by intellectual property rights claims.

¹¹² COP 6 Decisions, note 35 above, Decision VI/24, para 10 states that the Bonn Guidelines should be applied in a manner that is mutually supportive of other relevant international agreements and notes that the Guidelines should not cancel the legal rights of the ABS provisions of the ITPGR.

¹¹³ ITPGR, Art 12.3(d) indicates that intellectual property rights may not be claimed if that claim would limit the facilitated access to plant genetic material to be used for food or agriculture.

¹¹⁴ Cf G Moore and W Tymowski, note 40 above, at 10, which explains that the CBD is not an implementation mechanism and fails to address the role of current international regimes and the special needs arising in the plant genetic resources for food and agriculture context. The high transaction costs of case-by-case bilateral negotiations required by the CBD “coupled with increased prevalence of intellectual property rights over genetic resources, has threatened to stifle the continued exchange of PGRFA on which modern agriculture depends.”

¹¹⁵ *Ibid*, favouring the ABS structure of the ITPGR for its efficacy in getting materials to developing countries that may be “both economically poor and relatively poor in genetic resources”.

¹¹⁶ ITPGR, Art 12.3(d) explicitly restricts claims on intellectual property rights that would interfere with access to material within the Multilateral System.

¹¹⁷ Biodiversity Treaty, Art 16(1).

¹¹⁸ ITPGR, Art 13.2(b)(i), contravenes the mandate of Article 12 that intellectual property rights shall not impede the facilitated access to the material.

4.3 A New Target should be Set and Implemented Using the Revised International Regime on Intellectual Property Rights

In less than a year, the 2010 Biodiversity Target will be upon us, and it is not likely that it will be achieved.¹¹⁹ The imminent failure of the 2010 Biodiversity Target does not render it an inconsequential blip on the radar of international governance.¹²⁰ The setting of a target itself indicates a global recognition that biodiversity is a fundamental building block on which human civilisation depends.¹²¹ Setting targets, no matter how ambitious, helps to draw needed attention to issues as complex as the continued survival of the human species and the preservation of ecological homeostasis.¹²²

If the above recommendations for textual revision are implemented, a new biodiversity target has a better chance of success. Facilitating the transfer of high-yield seed varieties has the potential to lead to a reduction in the need to clear land and thereby partially reduce habitat loss. If the CBD and the ITPGR can be revised as suggested above, one of the major drivers of biodiversity loss could be reigned in and a future biodiversity target would become more realistically attainable.

5. Conclusion

The CBD and the ITPGR have imperfect ABS provisions that are not currently capable of facilitating the rapid transfer of plant genetic material. In order to achieve the 2010 Biodiversity Target, a major overhaul of the ABS provisions and a rapid unification of international treatment of intellectual property rights would need to occur immediately. The proposed revisions to the CBD ABS provisions would more closely align the CBD with the ITPGR. This alignment of intellectual property rights treatment would make the transfers of hybrid high-yield rice varieties more efficient and more diffused. With the rapid transfer of high-yield rice seeds between developed and developing countries, there would be a decrease in habitat destruction. Preserving habitat and preventing the conversion of vast swaths of land for agrarian purposes would better position the improved CBD and ITPGR and help to reduce biodiversity loss.

By the end of 2010, the world will know if the rate of biodiversity loss has been significantly reduced. Without changing the current structure of the CBD and the ITPGR, and standardising the international regime on intellectual property rights over plant genetic resources, the 2010 Biodiversity Target will not be achieved. Recognition of the problem is not enough. If humans plan to remain a part of the great

¹¹⁹ E.g. WWF, note 67 above, at 1, determines that humanity's global ecological footprint exceeds by 30% the regenerative capacity of the earth, and that over the past thirty-five years wildlife populations have declined by a third. See further: Convention on Biological Diversity, note 2 above, at 59.

¹²⁰ R Adam, note 90 above, at 117-19, concludes that the passage of the target without its achievement will be the catalyst that causes humanity to fight harder to save biodiversity.

¹²¹ *Ibid*, reiterating that humans depend on biodiversity as an integral part of our continued existence.

¹²² M Vierros, note 56 above, at 20, stresses the importance of target setting as a method to focus attention on a problem but also cautions that the continued failure of targets may cause "disillusionment and target fatigue" in the long run.

and abundant biodiversity of this planet, action is required. Hopefully we are up to this and other seemingly impossible tasks.