

I. Introduction

A. Connecting IP with Climate Change

The case of Tuvalu symbolizes the graveness of climate change. Only three meters above average sea level, the South Pacific island nation is susceptible to the serious adverse effects of global warming. Its Prime Minister has described the situation as follows: “for a highly vulnerable small coral atoll nation like Tuvalu, the consequences of the impacts of climate change are frightening. The survival and security, along with fundamental human rights, and the cultural identity of our entire nation is under threat.”¹

Not only Tuvalu but the entire world is facing the impact of climate change. The Intergovernmental Panel on Climate Change (IPCC), a scientific body jointly organized by the World Meteorological Organization (WMO) and the United Nations Environmental Programme (UNEP) to assess the risk of climate change, reported that “warming of the climate system is unequivocal” as observed in the increase of global average temperature, melting of glaciers and sea level rise.² Such observed change is “very likely due to anthropogenic” (*i.e.*, originating in human activity) greenhouse gas concentration.³

The broad implementation of relevant technologies will be essential to international efforts to address climate change. In this context, the question for the IP community is: “what is the role of intellectual property in this scenario?”⁴

B. Purpose of Research

In connection with climate change, IP is often perceived as a double-edged sword.⁵ While IP is broadly regarded as a necessary incentive to innovate, such temporary exclusivity is also questioned, especially when the access to technology is essential for public policy purposes, such as combating climate change.⁶

1 H.E. Apisai Ielemia, Prime Minister of Tuvalu, General Debate at the 63rd U.N. General Assembly (Sept. 26, 2008) (transcript available at http://www.un.org/ga/63/generaldebate/pdf/tuvalu_en.pdf).

2 IPCC, CLIMATE CHANGE 2007: SYNTHESIS REPORT 30 (2007).

3 *Id.* at 39.

4 Francis Gurry, Director General, WIPO, WIPO’s Role in Green Technology, Speech at the WIPO Conference on Intellectual Property and Public Policy Issues (July 13, 2009).

5 WIPO, CLIMATE CHANGE AND THE INTELLECTUAL PROPERTY SYSTEM: WHAT CHALLENGES, WHAT OPTIONS, WHAT SOLUTIONS? 3, at http://www.wipo.int/export/sites/www/patentscope/en/life-sciences/pdf/ip_climate.pdf.

This paper does not take a position on the desirability of the IP system as such. Rather, taking the existence of the system as a foundation, it aims to provide a comprehensive review of pragmatic IP-based options for promoting innovation and diffusion of technologies related to climate change. Among the various types of IP relevant to climate change,⁷ patents are mainly discussed. In terms of structure, Chapter II starts with the meaning of ‘green’ technology, and, as background, describes facts and trends on relevant patenting activity and technology transfer. Chapter III summarizes technology development and transfer commitment within the framework of major multilateral environment agreements (MEAs) and discusses compatibility of such MEA commitments with the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement).⁸ As the core of this paper, Chapter IV reviews the role of the patent system, subdivided into patent law, policy and information. Chapter V surveys technology transfer initiatives by IP communities and related IP issues. Chapter VI briefly explores complementary means of balancing IP and competition potentially relevant to climate change solutions, through a variety of angles that include patent litigation and standard-setting.

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- 6 Cf. IP is not the only barrier to wide dissemination of climate change technology. See COPENHAGEN ECONOMICS AND THE IPR COMPANY, ARE IPR A BARRIER TO THE TRANSFER OF CLIMATE CHANGE TECHNOLOGY? 30-32 (Jan. 19, 2009) (commenting that non-IP barriers such as lacking capital, trade barriers such as tariffs, poor infrastructure and the level of education are also significant).
 - 7 *Id.* at 9-10 and 32-47; see also Antony Taubman, WIPO, The Climate of IP and the IP of Climate: an Overview of the Policy Issues, Speech at the Side Event UNFCCC COP 14 (Poznan, Dec. 1-12, 2008) (explaining that climate change mitigation and adaptation initiatives will utilize a broad spectrum of IP tools including trade secrets, certification and collective marks, geographical indications, undisclosed information and regulatory data, traditional knowledge, plant variety protection and unfair competition), at http://www.wipo.int/patentscope/en/lifesciences/ip_climate.html; see also Hee-Eun Kim, *Charting the Development of the Trademark Industry through INTA*, WORLD TRADEMARK REVIEW 46 (June/July 2010) (“mirroring general global developments, enhancing the role of trademarks in developing and marketing environmentally responsible goods and services is an item for tomorrow’s trademark practice agenda”); see also Hee-Eun Kim, *Changing Climate, Changing Culture: Adding the Climate Change Dimension to the Protection of Traditional Cultural Expressions* (on file with author, forthcoming).
 - 8 Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, LEGAL INSTRUMENTS – RESULTS OF THE URUGUAY ROUND Vol. 31, 33 I.L.M. 81 (1994) [hereinafter TRIPS or the TRIPS Agreement].