TRANSFER of CLEAN TECHNOLOGY and UNITED NATIONS FRAMEWORK CONVENTION on CLIMATE CHANGE[1]

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ABSTRACT

Today, promoting clean technology and its transfer into developing countries deemed as the best solution for the climate change battle. Technology and its transfer includes more than buying and selling a new product it also includes learning skills and adapting this new technology to local conditions. Many international conferences and multilateral environmental agreements have the unified purpose of increasing usage, development of clean technology. The main ones include the United Nations Framework Convention on Climate Change (UNFCC) the Agreement on Trade- Related Aspects of Intellectual Property Rights and World Intellectual Property Organizations. This article only focuses on the UNFCCC and their conference specifically include transfer of technology debates and criticizes these meetings and provides suggestions to promote transfer of technology.

Keywords: *Technology, Transfer, Transfers Of Technology, Climate Change, United Nations Framework Convention on Climate Change.*

BİRLEŞMİŞ MİLLETLER İKLİM DEĞİŞİKLİĞİ ANLAŞMASI ve TEKNOLOJİ TRANSFERİ İLİŞKİSİ

ÖZ

Çağımızın en acil çözülmesi gereken sorunu olan iklim değişikliğine karşı en etkili çözümün gelişmiş ülkelerden gelişmemiş yada gelişmekte olan ülkelere teknoloji ve teknoloji transferi olduğu kabul edilmektedir.Teknoloji ve transferi yeni bir ürünün alınıp satılmasından daha geniş bir kavramdır. Bu kavramlar günümüzde öğrenme yöntemlerini ve bu yeni teknolojilerin yerel koşullara adapte edilmesini geliştirilmesini üretilmesini ve insan gücü eğitimini de kapsar. Bir çok uluslararası konferans ve uluslararası çevre anlaşması teknoloji transferini teşvik etmek ve artırmak amacıyla yapılmıştır. Uluslararası teknoloji transferindeki en önemli rolü Dünya Fikri Haklar Örgütü, Dünya Ticaret Orgütü'nün TRIPS Anlaşması ve Birleşmiş Milletler İklim Değişikliği Anlaşması (UNFCCC) oynamaktadır. Bu makale sadece UNFCCC ve onun toplantı ve protokollerindeki temiz teknoloji transferi ile ilgili hükümleri ve tartışmaları incelemekte ve sonuç bölümünde teknoloji transferini arttırmak için öneriler sunmaktadır.

Anahtar Kelimeler: *Iklim Değisikligi, Teknoloji, Teknoloji Transferi, Birleşmiş Milletler İklim Değişikliği Anlaşması*

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INTRODUCTION

Climate change is the biggest threat of our era. Promoting the clean technology and clean energy technology transfer into developing countries are recognized as the most effective solutions for this problem. Since the end of the 1970's many international conferences and multilateral environmental – trade agreements have been united with the similar goals of increasing usage, development and transfer of clean energy technology.[3] The most extensive legislation on the transfer of technology is the Agreement on Trade Related Aspects of Intellectual Property Rights (hereinafter "TRIPS). The World Intellectual Property Organization (hereinafter "WIPO") also has various mechanisms to promote clean technology transfer; however, since this, too, is an intellectual property organization. However, this article focuses on transfer of clean technology and, United Nations Framework on Climate Change Conference's that include clean technology transfer provisions will be addressed.

This article comprised of four parts. First one introduces the study and it determines scope and outline of this article. Part two focuses on importance and scope of the transfer of technology. Also provides different perspectives of developing and developed countries on this issue. Part three of this article examines UNFCCC Agreement and its conferences such as Kyoto Protocol. Bali Action Plan, Copenhagen Accord, Cancun Agreements, Durban Platforms, Doha Climate Gateway, Draft of the Climate Change Treaty. Specifically transfer of technology related provisions are examined. Last part of this study contains conclusion and recommendations for this article.

1.TRANSFER OF TECHNOLOGY

In 1985, the Draft International Code on the Transfer of Technology defined the transfer of technology as *"*a transfer of systematic knowledge for the manufacture of a product for the application of a process or for the rendering of a service.*"*[4] Technology transfer also requires technical and commercial information and human skills to understand and use it properly.[5] Technology transfer includes hard technology (patent) and soft technology (know- how).[6]

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[3]For Instance, UNCTAD Draft of International Code of Technology Transfer, UNFCCC Meeting and Protocols. *Draft International Code of Conduct on the Transfer of Technology [1985 version] Available at* http://www.unctad.info/en/Science-and-Technology-for-Development---StDev/Science--Technology-on-the-UN-Agenda/UN-Programmes-and-Agencies/Compendium/Index/Themes/International-code/Transfer-of-Technology-code/ Last visited in 3/31/2015)

[4] *Id.*

[5]*See,* Int'l Centre for Trade and Sustainable Development [ICTS], (2008). Climate Change, Technology Transfer and Intellectual Property Rights, at 2-3, Trade and Climate Change Seminar Copenhagen, *Denmark Background Paper* at 2,3.

[6]*See,* Hutchison, C. (2006). Does TRIPS Facilitate or Impede Climate Change Technology Transfer into Developing Countries?, *University of Ottawa Law & Technology Journal,* 3, 517, 520.

The dynamic and controversial term "technology" has various descriptions, according to the scholars of international law and intellectuals of science policy.[7] Scholars and countries define technology and its transfer in conjunction with their political, social economic, historical, legal views.[8] Although there is not a single definition for technology transfer, it is not a new issue for international law. Until the 1970's, technology and its transfer were generally deemed as any other product to sell and buy.[9] Local new learning skills training was not given enough attention because cooperation was assumed to function with full knowledge of technology, along with purchasing technologies selected by their conformity to local conditions.[10]

Currently technology transfer is no longer deemed as a product to sell and buy because the globalization of the markets with rapid technological advances changed the dynamics of comparative advantage and the view of the process of technology transfer.[11] Events occurring after the technology transfer became more important than the transaction itself and adoption of technology and local technology knowledge required more attention.[12] The United Nations Conference on Trade and Technology noted that the knowledge factor is the most important element of the technology transfer.[13] The knowledge factor led a learning economy that created a need of special attention to the protection of the intellectual property rights and foreign investments in international negotiations.[14] Therefore, the technology transfer definition evolved in conformity with the development of the technology and the needs of the respective societies.

Since the 1970's, developing countries have expressed their desire to remove technology transfer barriers; accordingly, developed countries also articulated their wish to have stronger intellectual property rights. In 1985, the first international efforts to codify technology transfer, including the United Nations Convention on Trade and Development's (hereinafter "UNCTAD's") Draft International Code on the Transfer of Technology failed.[15]

The Intergovernmental Panel on Climate Change describes Transfer of Technology as:

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[7] Prof. Dr. Okeke divides approaches on terminology of technology into two major group as: puristic (technistic) and dimensional approaches. For further reading on the approaches and different definitions of technology. *See*, Okeke, C. (1992). Science, Technology and the Law, Lectures & Speeches Paper, *2*, 22.

[8] For further reading, *Id* at, 22, 23.

[9] *See,* Roffe,P. (edited by Keith E. Maskus and Jerome H. Reichman 2005). *Comment Technology Transfer on the International Agenda, International Public of Goods and Transfer of Technology Under a Globalized Intellectual Property Regime*, Cambridge: Cambridge University Press, 257-260.

[10] *Id.*

[11] *Id.* at 258; UNCTAD, (1996). Fostering Technological Dynamism: Evaluation of Thought on Technological Development Process and Competitiveness: A Review of Literature. U.N. Sales No. E.95.II.D.21.

[12] *Id.*

[13] *Id* at 259, R. Ricupero, Trade and Technology Issues at Stake for Developing Countries in UNCTAD, Technology Trade Policy and The Uruguay Round, U.N. Doc. UNCTAD /ITP/23 (1990).

[14] *Id.* at 259.

[15] *Supra* note *2*.

> "The broad set of processes covering the flows of knowledge, experience and equipment amongst different stakeholders such as governments, private sector entities, financial institutions, NGO's and research/educational institutions. The broad and inclusive term "transfer" encompasses diffusion of technologies and technology co-operation across and within countries. It comprises the process of learning to understand, utilize and replicate the technology, including the capacity to choose it and adapt it to local conditions."[16]

The Third World Organization created a comprehensive definition of technology transfer as not only the acquisition and purchase of equipment and hardware, but also the transfer of know-how and skills necessary to operate, maintain and fully understand the technology to allow for further innovation and development to be carried out by the recipient corporations.[17] It also includes enabling the recipient to imitate or reverse engineer the technology to be adapted to local conditions that could eventually lead to designing and manufacturing original products.[18]

Developing countries are in need of technology transfer for their development level and to eliminate the technological gap between industrialized nations; thus, technology transfer generally flows from developed countries to developing countries.[19] Technology transfer which took forms including machines, turn-key plants, technology licenses, technological consulting and assisting have provided a vital source for the development of the developing countries.[20]

Generally, technology transfer occurs in the private sector by means of market-based and informal methods. Some technology transfers also occur by means of the public sector.[21] There are market-based, informal and governmental methods applicable for transfer of technology.[22] Trade, foreign investment and technology licensing are the market-based mechanisms of technology transfer.[23] Informal methods include imitation and the movement of the technical or executive staff. Legal and policy incentives are

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[16] *See,* Intergovernmental Panel on Climate Change (2000). *Methodological and Technological Issues in Technology Transfer*, UK: Cambridge University Press.
[17] *See,* Third World Organization, Climate Change & Technology Transfer: Addressing Intellectual Property Issues, Available at http://www.twnside.org.sg/title2/climate/pdf/TWN_submission_to_TECfinal.pdf) Last visited in 4/1/2014)
[18] *Id.*
[19] *See,* Correa, C. (2005). Can the TRIPS Agreement Foster Technology Transfer to Developing Countries, in Maskus K. & Reichman J, International Public Goods and Transfer of Technology Under a Globalized Intellectual Property Regime, Cambridge: Cambridge University Press e 227–256 at 227,228.
[20] *Id* at 229.
[21] *Supra note 4*. For further reading on methods and forms of the transfer of technology *See,* Haug, D. (1992). The International Transfer of Technology: Lessons That East Europe Can Learn from the Failed Third World Experience, *Harvard Journal of Law and Technology,* 5, 209.
[22] *Id.*
[23] *Id.*

given by the public sector to reach the most effective rate for international and national objectives.[24]

2.UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

The United Nations Framework Convention on Climate Change (Hereinafter UNFCCC)[25] is the most important environmental convention to reduce global warming, a very significant step in the development of climate change law. The UNFCCC Convention highlights the usage of climate change friendly technologies, while promoting and facilitating transfer of technology into developing countries. Article 4 (5) of The UNFCCC requires countries to facilitate clean energy technology transfer as:

> "Developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and knowhow to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention. In this process, the developed country Parties shall support the development and enhancement of endogenous capacities and technologies of developing country Parties. Other Parties and organizations in a position to do so may also assist in facilitating the transfer of such technologies."[26]

Article 4 of the UNFCCC regulates the commitments of the parties; therefore, with the above-mentioned provision, developed countries are obligated to promote, facilitate, finance and transfer clean technologies and knowhow to the other countries, especially developing ones.

Since the UNFCCC was established in 1992, it has hosted dozens of crucial meetings up until today.[27] The roles of technology and intellectual property in avoiding climate change have increasingly become the central focus of all these meetings.[28] Gradually, over the course of its annual meetings, UNFCCC adopted new mechanisms for developing and promoting clean energy technology transfer. The UNFCCCC established technology mechanisms, along with the Technology Executive Committee, the Climate Technology Centre and Network Technology Information and cleaning house to promote clean technology transfer.[29]

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[24] *Id.*

[25] *See*, United Nations Framework Convention on Climate Change, *771 U.N.T.S. 107*, 165; *S. Treaty Doc No. 102-38* (*1992*); *U.N. Doc*. A/*AC.237/18* (*Part II*)/*Add.1*; *31 I.L.M. 849* (*1992*).

[26] *Id. article 4.*

[27] *See*, the meeting list United Nations Framework on Climate Change- Meetings, available at http://unfccc.int/meetings/items/6240.php (Last visited Oct. 7, 2015)

[28] *See*, World Intellectual Property Organization, (2009). IP and Climate Change Negotiations from Bali to Copenhagen via Poznan, Wipo Magazine, 2, 3.

[29] *See*, UNFCCC, Focus Technology. Available at, ttps://unfccc.int/focus/technology/items/7000.php#intro (Last visited in 4/20/2015).

2.1.Kyoto Protocol

Kyoto Protocol[30] is the first adopted protocol of the UNFCCC that functionalized the convention and set binding emission targets for developed countries.[31] Article 10 of the Kyoto Protocol recommended its parties to promote, facilitate and finance the transfer of environmentally sound technologies in particular to developing countries as follows;

> "Cooperate in the promotion of effective modalities for the development, application and diffusion of, and take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies, know-how, practices and processes pertinent to climate change, in particular to developing countries, including the formulation of policies and programmes for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain and the creation of an enabling environment for the private sector, to promote and enhance the transfer of, and access to, environmentally sound technologies.."[32]

Moreover, Article 3 (15) of the Protocol calls for the establishment of funding for insurance and transfer of technology.[33] In 2001, detailed rules for the implementation of the Kyoto Protocol and establishment of a technology transfer framework were adopted with the Marrakesh Accords.[34]

The Kyoto Protocol introduced a Clean Development Mechanism (hereinafter "CDM")[35] to reduce greenhouse gasses emission by encouraging the private sector to invest in developing countries.[36] The Department of Economic and Social Affairs of the United Nations Secretariat conducted a survey whether CDM has supported the technology transfer into developing countries.[37] The survey indicated that the CDM was insufficient in promoting the technology transfer due to its limited scale and geographic concentration in just a few countries.[38]

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[30] *See*, Kyoto Protocol to the United Nations Framework Convention on Climate Change, *opened for signature* Mar. 16, 1998, 2303 U.N.T.S. 148 (*entered into force* Feb. 16, 2005)

[31] *See*, Grubb M. & Vrolijk C. & Brack D. (1999), *The Kyoto Protocol, A Guide and Assessment*: Royal Institute for International Affairs / Chatham House, 61.

[32] *See*, Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc. FCCC/CP/1997/L.7/Add.1, 37 I.L.M. 22 [hereinafter Kyoto Protocol] Article 10

[33] Id at Article 3(15)

[34] *See*, Conference of the Parties of the Framework Convention on Climate Change, Marrakesh, MORROCO, Oct. 29-Nov. 10, 2001, *The Marrakesh Accords*, 17, U.N. DOC FCCC/CP/2001/13/Add.2 (2002).

[35] *See*, Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc. FCCC/CP/1997/L.7/Add.1, 37 I.L.M. 22 [hereinafter Kyoto Protocol] Article 12.

[36] See, Rimmer, M. (2011). *Intellectual Property and Climate Change Inventing Clean Technologies Intellectual Property and Environment*, Massachusetts: Edward Elgard Publishing Ltd, 43.

[37] Id. The Department of Economic and Social Affairs of the United Nations Secretariat (2009), Promoting Development, Saving the Planet: World Economic and Social Survey 2009, New York: United Nations 34.

[38] *Id.*

2.2.Bali Action Plan

The Bali Action Plan[39] distinguishes five main topics, including long-term goals, enchanted mitigation, adaptation, financing, and technology Research Development and diffusion.[40] Development and transfer of the technology is a significant issue recognized in the Bali Action Plan.[41] Article 1) d) of the Bali Action Plan stated that,

> "(d) 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;
>
> (ii) Ways to accelerate deployment, diffusion and transfer of affordable environmentally sound technologies; Advance unedited version 3
>
> (iii) Cooperation on research and development of current, new and innovative technology, including win-win solutions;
>
> (iv) The effectiveness of mechanisms and tools for technology cooperation in specific sectors;
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> (e) Enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation, including, inter alia, consideration of:
>
> (i) Improved access to adequate, predictable and sustainable financial resources and financial and technical support, and the provision of new and additional resources, including official and concessional funding for developing country Parties;
>
> (ii) Positive incentives for developing country Parties for the enhanced implementation of national mitigation strategies and adaptation action;

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[39] *See, Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007FCCC/CP/2007/6/Add.1* (March 14, 2008).

[40] *See,* Barrett, S. (2008), Climate Treaties and the Imperative of Enforcement, *24 Oxford Review of Economic Policy*, 250-257.

[41] *See, Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007FCCC/CP/2007/6/Add.1* (March 14, 2008).

(iii) Innovative means of funding to assist developing country Parties that are particularly vulnerable to the adverse impacts of climate change in meeting the cost of adaptation;

(iv) Means to incentivize the implementation of adaptation actions on the basis of sustainable development policies;

(v) Mobilization of public- and private-sector funding and investment, including facilitation of carbon-friendly investment choices;

(vi) Financial and technical support for capacity-building in the assessment of the costs of adaptation in developing countries, in particular the most vulnerable ones, to aid in determining their financial needs. "[42]

The Bali Action Plan regulated technology transfer into developing countries on a broader basis than the Kyoto Protocol. Bali Action stated the importance of the innovation, research and development of environmentally sound technologies and their subsequent transfer into developing countries. The Plan also discusses removing the barriers on the transfer of technology. Developing countries labeled intellectual property rights as a barrier to the technology transfer; thus, they hesitated to accept any commitments to reduce the emission without a guarantee on technology transfer from the developed nations.[43] The Plan also promotes the financing, mitigation and adaption of the clean technologies into developing countries in more detail than in the Kyoto Protocol.[44]

2.3.Copenhagen Accord

In 2009, the Report of the Conference of the Parties on the UNFCC's fifteenth session was held in Copenhagen to discuss and enforce an international agreement post the Kyoto Agreement.[45] Although the Copenhagen negotiations were initiated with the goal of a binding climate change agreement, it did not deliver one.[46] Technology transfer posed a main dispute issue during negotiations,[47] with the effect of intellectual property rights on the technology transfer serving yet another vital point on which the parties of the convention could not agree.[48] Developing countries[49] advocated that intellectual

[42] *Id.*
[43] *See,* Barton, J. (2008). Mitigating Climate Change Through Technology Transfer: Addressing the Needs of Developing Countries, Energy, Environment, and Development Programme, Chatham House: Rimmer, *Supra* Note 35 at 45.
[44] I*d.*
[45] *See,* Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009 [Hereinafter Copenhagen Accord]. Symbol: UFCCC/CP/2009/11/Add.1 30 March 2010. Available at http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf (Last visited in 10/23/2012).
[46] *See*, Derclaye, E. (2010). Not Only Innovation but Also Collaboration, Funding, Goodwill and Commitment: Which Role for Patent Laws in Post-Copenhagen Climate Change Action, *John Marshall Review of Intellectual Property Law* 657, 657.
[47] Rimmer, *supra* Note 35 at 45-47.
[48] *Id.*

property, particularly green technology-related patents, created a significant barrier to technology transfer.[50] Meanwhile, developed countries advocated that intellectual property rights were not barriers; instead, they provided incentives to the private sector to engage with technology transfer.[51] Moreover, the United States and the European Union declared that intellectual property rights issues should be excluded from the Copenhagen negotiations because WTO's TRIPS Agreement had already been dealing with these issues.[52]

The 7th Report of the Ad Hoc Working Group on Long Term Co-Operative Action[53] under the UNFCCC, held two months before the Copenhagen Conference, addresses main issues related to intellectual property and technology transfer as follows :[54]

"Removing barriers associated with intellectual property

> the Parties shall ensure that intellectual property rights and agreements shall not be interpreted or implemented in a manner that limits or prevents any Party from taking any measures to promote mitigation of climate change. The Parties agree to undertake a range of measures including:…
>
> (b) Use of the full flexibilities contained in the Trade Related Aspects of Intellectual
>
> Property Rights (TRIPS) agreement, including compulsory licensing….
>
> (d) Reviewing all existing relevant intellectual property rights regulations in order to provide certain information to remove the barriers and constraints affecting environmentally sound technologies;
>
> (e) Promoting innovative intellectual property rights sharing arrangements for joint
>
> development of environmentally sound technologies;
>
> 74. The developed country Parties and other developed Parties included in Annex II shall take all practicable steps to ensure that intellectual property rights are interpreted and applied in a manner that

[49] *See,* Developing countries gathered under the name of Group 77 list of the countries are available at http://www.g77.org (Last visited in 09/23/2015).
[50] *Id*.
[51] *Id.*
[52] Derclaye, *supra* note 45 at 658.
[53] See, Report of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention on its seventh session, held in Bangkok from 28 September to 9 October 2009, and Barcelona from 2 to 6 November 2009. Available at http://unfccc.int/resource/docs/2009/awglca7/eng/14.pdf FCCC/AWGLCA/2009/14
[54] *Id.*

> promotes, and ensures the cost-effectiveness, of mitigation actions in developing country Parties."[55]

The above-mentioned report provides options to recognize intellectual property rights as a barrier to the technology transfer into developing countries, also requiring their urgent removal of barriers of intellectual property and sharing the right of intellectual property for the wellness of mankind.[56] This report supported the developing countries' perspective. Brazil, India, China and South Africa founded the BASIC[57] group; they emphasized that importance of the technology transfer, flexible licensing mechanisms, compulsory licensing, and institutional mechanisms.[58] Developing countries also suggested including climate-friendly technologies in the public domain, along with joint development of climate friendly technologies, the efficiency and full flexibilities of the TRIPS Agreement, a fund for the inventory of the clean technologies fee from intellectual property rights, and patent sharing.[59]

During the Copenhagen negotiations, a secret group named "Circle of commitment," including developed countries, prepared the Danish text. This text requires transfer of the technology respecting Intellectual Property regimes including the protection of the legitimate interests of public and private innovators.[60] The head of G-77[61] has identified the Danish text as a serious violation affecting the negotiation process and destroying both the United Nations and the Kyoto Protocols.

At the end of the discussions, the Parties of the Copenhagen Accord[62] agreed that developed countries would provide adequate, predictable and sustainable financial resources, technology and capacity-building to support the implementation of adaptation actions in developing countries.[63] After all the reports, drafts and discussions, intellectual property rights issues were excluded from the Copenhagen Accord. The Copenhagen Green Climate Fund[64] and a technology mechanism[65] including Technology Executive

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[55] *Id*. at. 112.
[56] *Id*.
[57] *See*, Dasgupta, S. Copenhagen conference: India, China plan joint exit, The Times of India, Available at http://timesofindia.indiatimes.com/india/Copenhagen-conference-India-China-plan jointexit/articleshow/5279771.cms?referral=PM (Last visited in 5/5/2015)
[58] Rimmer, *Supra* note 35 at 47,48.
[59] *Id.*
[60] The Danish Text, Draft Negotiating Text on the Adoption of the Copenhagen Agreement under the United States Framework Convention on Climate Change Decision 1/CP,15, 8 December 2009 Id 62.
[61] *See*, Ingham, R. & H. hood. (2009). G 77 says Danish climate text threatens success of the UN talks. AF December. Rimmer, *Supra* Note 35 at 66.
[62] *See,* Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009 FCCC/CP/2009/11/Add.1 30 March 2010. Available at http://unfccc.int/resource/docs/2009/cop15/eng/11a01.pdf
[63] *Id.*
[64] *See,* Id article 7. *Decides* that the Global Environment Facility should continue to provide and enhance support for the implementation of adaptation activities, including the implementation of national adaptation plans of action, through the Least Developed Country Fund and Special Climate Change Fund.
[65] See, *Id. Article* 11 In order to enhance action on development and transfer of technology we decide to establish a Technology Mechanism to accelerate technology development and transfer in support of

Committee and a network of Climate Innovation Centers are the new outcomes of the Copenhagen Accord. The Copenhagen Accord is criticized as being a political agreement rather than being a binding agreement. [66]

2.4.Cancun Agreements

The UNFCCC describes the Cancun Agreements[67] as the *largest collective effort a*gainst climate change, containing *the most comprehensive package* ever decided by parties in assisting developing countries.[68] The Cancun Agreements affirmed that climate change is the greatest challenge of the era and objects to the mobilization of the development and transfer of clean technology to improve efforts to address climate change.[69]

According to the Cancun Agreements, developed countries committed to transfer public and private funds rising to USD 100 billion per year by 2020 to promote specific mitigation action by developing countries.[70] The Cancun Agreement also established the Cancun Adaption Framework, Adaptation Committee, Green Climate Fund and a technology mechanism including a Technology Executive Committee and a network of Climate Innovation Centers that were introduced with the Copenhagen Accord.[71]

The Cancun Agreement did not address intellectual property issues; accordingly, patent systems and technology transfer relation issues remained unsolved.[72] Only Bolivia rejected the Cancun Agreements because it did not include intellectual property rights.[73] By excluding intellectual property issues, parties implicitly agreed that the WTO's TRIPS Agreement legislation would continue to apply to the technology and technology transfer issues which has advocated by global companies and developed countries.[74]

2.5.Durban Platform

In 2011, the Conference of Parties ("CoP") accepted the Durban Platform for Enhanced Action[75] and the CoP decided the Ad Hoc Working Group on the Durban

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action on adaptation and mitigation that will be guided by a country-driven approach and be based on national circumstances and priorities.

[66] *See,* Feng, L. & Buhi, J. (2011). The Copenhagen Accord and the Silent Incorporation of the Polluter Pays Principle in International Climate Law: An Analysis of Sino-American Diplomacy at Copenhagen and Beyond, 18 *Buffalo Environmental Law Journal*. L.J. 1, 19-20.

[67] *See,* Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010. Symbol: FCCC/CP/2010/7/Add.1 15 March 2011. *Also available at* http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf (Last visited in 10/23/2012).

[68] *See,* UNFCCC Key Steps to Cancun Agreement, available *at* http://unfccc.int/key_steps/cancun_agreements/items/6132txt.php (Last visited in 10/23/2012).

[69] *Id.*

[70] *See,* Sarnoff, J. (2011) The Patent System and Climate Change, *Virginia Journal of Law and Technology*, 301, 303.

[71] *See*, International Institute for Sustainable Development (IIS D). (2013). *Earth Negotiations Bulletin Vol. 12 No. 594, 2.*

[72] *Supra note 69 at* 303.

[73] *Id.*

[74] *Id.*

[75] *See,* Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011[Hereinafter Durban Platform], Symbol: FCCC/CP/2011/9/Add.1, 15 March 2012 Available *at:*http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf (Last visited in 10/23/2012).

Platform for Enhanced Action shall plan its work in the first half of 2012. This work included, inter alia, on mitigation, adaptation, finance, technology development and transfer, transparency of action and support, and capacity-building, drawing upon submissions from Parties and relevant technical, social and economic information and expertise.[76]

The most important Durban outcomes include a second commitment period under the Kyoto Protocol, implementing the Cancun Agreements and establishing a process for an international climate agreement by 2015 applicable for all parties.[77] CoP agreed that this future climate change agreement would be applicable to all parties, unlike the Kyoto Protocol, which was mandatory only for developed countries.[78]

India suggested having global intellectual property rights supporting clean technology transfer into developing countries with reasonable costs.[79] The discussion regarding intellectual property rights as barriers to technology transfer continued during negotiations; they still remain unsolved.[80] Similar to the Copenhagen Accord and Cancun Agreements, Durban did not include intellectual property rights.[81]

2.6.Doha Climate Gateway

In 2012, the Conference of Parties amended the Kyoto Protocol and adopted the Doha Climate Gateway.[82] The CoP decided to found Clean Climate Fund that started functioning in 2013. The CoP also agreed to take the necessary steps to prepare the future climate Agreement to sign in 2014.[83]

The European Union and the United States continued to advocate that intellectual property law and climate issues should be discussed at the World Trade Organization (TRIPS Agreement) and World Intellectual Property Organization. The UNFCCC Conference in Doha lacked an outcome related to the intellectual property rights effect on technology transfer into developing countries.[84]

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[76] *Id* at, 2.
[77] *See,* Moncel, R. (2012) . Unconstructive Ambiguity in the Durban Climate Deal of Cop 17 / Cmp 7, *Sustainable Development Law and Policy*, 6.
[78] *Id. at* 8.
[79] *See,* TV Padma, News India Pushes for Tech Transfer at Durban Climate Change Talks, (22/11/2011) Available at http://www.scidev.net/global/climate-change/news/india-pushes-for-tech-transfer-at-durban-climate-talks.html, (Last visited in 10/23/2012)
[80] *Id.*
[81] *Id.*
[82] *See,* UNFCCC, At U.N. Climate Change Conference in Doha, Governments Take Next Essential Step in Global Response to Climate Change (Dec. 8, 2012), available at http://unfccc.int/files/press/press_releases_advisories/application/pdf/pr20120812_cop18_close.pdf. For a list of decisions, see Doha Climate Change Conference - November 2012
[83] *See,* UNFCCC, The Doha Climate Gateway, available at http://unfccc.int/key_steps/doha_climate_gateway/items/7389.php Last visited in 05/23/2015)
[84] *See*, Rimmer, M. (2012) The Doha Deadlock Intellectual Property and Climate Change , Available at http://theconversation.com/the-doha-deadlock-intellectual-property-and-climate-change-11244 (Last visited in 4/22/2015)

2.7.Draft of the Universal Climate Change Treaty

In May 2015, the Conference of Parties will be held in Paris, with discussions to include an international binding climate change agreement.[85] In February 2015, the Ad Hoc Working Group on the Durban Platform for Enhanced Action and negotiation text for the climate change treaty submitted.[86] In the negotiation text, articles are coming in different variations such as a, b, c, d. Transfer of technology into developing countries is emphasized in different portions of the articles.[87]

The negotiation text has different options on adaption, mitigation, capacity-building, and additional financial sources for the transfer of technology into developing countries, patent pools and Climate Change funds to provide to pay for intellectual property rights of green technology.[88] The final draft of the Climate Change treaty is supposed to be finalized in December 2015 and should enter into force in 2020.[89]

CONCLUSION

Renewable energy sources, and clean technology transfer into developing countries are the most effective weapons against climate change. There is no common definition of technology or technology transfer in the international arena. Although, technology transfer usually moves from developed countries to developing countries, both types of countries are under the threat of climate change. Collective action and strict measures should be taken by all countries. In particular, small islands[90] do not have 20 years to wait for an international climate change agreement to get en force or to get a free patent related to clean technology.

The international arena has agreed that technology development and technology transfer are required for reducing climate change. However, the articles of the international agreements are still abstract and hollow. The UNFCCC Conferences technology transfer related articles all repeat themselves.[91] The UNFCCC does not give any definition of technology or its transfer. As the parties are not implementing the articles, this raises a common question regarding the effectiveness of the international law and the United Nations.

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[85] See, Warsaw outcomes, Available at http://unfccc.int/key_steps/warsaw_outcomes/items/8006.php (Last visited in 4/22/2015)

[86] See, UNFCCC/ADP/2015/1Ad Hoc Working Group on the Durban Platform for Enhanced Action, Work of the Contact Group on Item 3 Negotiating text Advance unedited version 25 February 2015 Available at http://unfccc.int/resource/docs/2015/adp2/eng/01.pdf (Last visited in 4/22/2015)

[87] *Id.*

[88] *Id.*

[89] *Supra Note at 89.*

[90] *See,* IPCC Working Group II: Climate Change Impacts, Adaptation and Vulnerability 2001 Chapter 1, p 935 available at http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=671 (Last visited in 05/05/2015)

[91] *See*, UNFCCC Reports Available at http://unfccc.int/meetings/bonn_jun_2015/meeting/8856/php/view/reports.php (Last visited in 4/20/2015)

During the UNFCCC Conferences, developing countries stressed the significant effect of intellectual property rights on clean technology transfer. There are many propositions suggested for climate change and intellectual property issues, such as compulsory licensing, full use of TRIPS Agreements flexibilities, public domain, patent sharing and other exceptions.[92] Developing countries declared that intellectual property rights are the barriers to clean technology transfer.[93] On the other hand, developed countries advocated strong intellectual property legislation and they wanted intellectual property issues to discuss with the WTO (TRIPS)[94] and WIPO.[95] However, the intellectual property rights effect on climate change-friendly technology transfer still remains as an unsolved issue. The final draft of the Climate Change treaty has not been finalized. Final draft will be effective on 2020. It should be binding for all countries to be more effective then Kyoto Protocol. Even if the final draft includes effective technology transfer provisions for developing countries, additional measures should be taken to improve transfer the clean technology. Last but not least WIPO, WTO and UNFCCC should work together to promote transfer of technology.

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[92] See, Report of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention on its seventh session, held in Bangkok from 28 September to 9 October 2009, and Barcelona from 2 to 6 November 2009. Available at http://unfccc.int/resource/docs/2009/awglca7/eng/14.pdf FCCC/AWGLCA/2009/14

[93] Hutchison, *Supra* Note 5 at 520.

[94] *See*, TRIPS Agreement, Agreement on Trade-Related Aspects of Intellectual Property Rights is Annex 1C to the MarrakeshAgreement Establishing the World Trade Organization, 14 April 1994, 1869 U.N.T.S. 299; 33 I.L.M. 1197 [hereinafter "TRIPS Agreement"].

[95] *See*, World Intellectual Property Organization http://www.wipo.int/portal/en/index.html (Last visited in 4/20/2015)

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UNFCCC United Nations Framework Convention on Climate Change http://newsroom.unfccc.int

WIPO World Intellectual Property Organization http://www.wipo.int/portal/en/index.html

WTO World Trade Organization https://www.wto.org