

International Environmental Law Perspective on Climate Change and Sustainable Energy Development

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Abstract

In recent years, there has been a considerable international discussion focussing on the need for carbon-neutral, and renewable/sustainable energy development, and how it could and should be integrated into the discourse regarding climate change solutions. An outstanding question in this regard is; what are the necessary legal changes that are required for that to happen? In this article, the existing situation and necessary legal changes are assessed, from a perspective of international environmental law, using the lenses of a few but noteworthy national court's litigation (case law) and legislation, as well as some international energy agreements, environmental treaties and economic instruments. The present author argues for an international agreement to mandate an integrated approach to climate change and energy uses, suggesting also the need for harmonisation of the various national energy laws with international environmental law.

1 Introduction

A dual theme of this article encompasses the issues of anthropogenic greenhouse gas emission reductions and alternative energy development of fossil fuels. These issues fall within the purview of two distinct but interrelated sets of law, i.e. various national laws and international environmental law. As a part of the legal strategies for climate change mitigation solutions, the author aims to bring sustainable energy at the forefront of international legal discussion. The overarching idea of this discussion is to determine whether or not there is a harmonisation between the policies and laws relating the climate change solutions and sustainable energy development. The scope of the article is limited to and made from the legal science point of view, even though sustainable energy development is a multidisciplinary discourse.

1.1 Use of the Terms

In this discussion, we shall understand the term “sustainable energy” as the energy, which is carbon neutral and renewable resource-based and also referred to “green energy” as clean, efficient and affordable energy. The sources of sustainable energy include solar power, wind energy, geothermal energy, wave energy (from the oceans), tidal energy, hydroelectricity and biomass. The fossil fuel-based industrial emissions are well known as causes of global warming and anthropogenic climate change and the sources of this type of energy include natural gas, crude oil, gasoline, diesel and other fuel oils.¹

1 These terms are used in the current literatures of the law and policy relating to climate change mitigation and alternative energy development.

1.2 *Basis of the Discussion*

A discussion on the alternative energy development, in view of this author, should be based on the International Court of Justice (ICJ) decision on the *Gabcikovo-Nagymaros Project case*.² The underlying reason is that, the ICJ has examined the important aspects of sustainable development, considering whether it is a legal principle on its own standing, or it is an objective of the equitable utilisation of shared natural resources of states.³ The ICJ has not only established the authority of the equitable utilisation,⁴ but also recognised sustainable development as a criterion in implementing the principle. In addition, the ICJ has also recognised the principles of equitable utilisations and no-harm as customary norms.⁵ Furthermore, the then Vice President of the ICJ, Judge Weeramantry, has recognised the sustainable development as a legal principle of an *erga omnes* character.⁶

Arguably, *erga omnes* character of sustainable development implies that there is an obligation of a state(s) towards the community of states as a whole,⁷ which should include the obligation to put the sustainable energy into practice to the extent that could help mitigate climate change. The alternative energy related issues, however, remained in the background of the ICJ decision in the *Gabcikovo-Nagymaros Project case*. And, in view of the present author, a serious debate on the international regulations of the fossil fuels use has never been properly thought out.⁸ In this regard, it is considered necessary to discuss how the free trade rules should develop in fostering greener energy production. This question needs to be brought at the forefront of the international discussion, especially keeping in view the recent WTO panel rulings, which have created somewhat antagonistic situation between the green energy production and environmental protection goals of relevant treaties.

2 *GabcikovoNagymaros Project* (Hungary v Slovakia) [1997] ICJ Rep. 7.

3 World Commission on Environment and Development, *Our Common Future*, GAOR, 42nd Sess, Supp. No. 25, UNDoc.A/42/25 (1987), [27]; *Rio Declaration on Environment and Development*, Report of the United Nations Conference on Environment and Development, UN Doc. A/CONF.151/26 (1992), Principle 4.

4 Articles 5, 6 and 7 of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997.

5 ICJ Rep.1997, pp.1-72.

6 The separate opinion of the Vice President, Weeramantry, para, 88-89, 90), *GabcikovoNagymaros Project* (Hungary v Slovakia) 1997, ICJ Rep. 7.

7 The concept of *erga omnes* was recognised in the ICJ in the *Barcelona Traction case* (Belgium v Spain), (Second Phase) ICJ Report 1970, paragraph 33.

8 For example, there is no discussion in the international negotiations about the role and responsibility of the OPEC concerning carbon dioxide emission reductions, which was at the forefront of the international relations, when it imposed oil embargo against the West, especially the United States. As an international organisation, the OPEC must have some kind of legal or morale responsibility for reducing carbon dioxide emissions. A leading member of the OPEC, such as Saudi Arabia has a reputation for frustrating discussions at the climate treaty negotiations *see*, Meinhard Doelle, "The Legacy of the Climate Talk in Copenhagen: Hopenhagen or Brokenhagen", Volume 4 Number 1, *CCLR* 1/2010, pp.86-100, pp. 98-99.

1.3 *Energy at the Forefront*

In placing the alternative energy at the centre of the international legal discussion, the two important factors need to be considered: a) two-thirds of the world's electricity is generated from fossil fuels, which amounts to one-third of the fossil fuel industrial emissions, causing anthropogenic climate change and resulting in adverse impacts to the earth's ecosystem as well as to biodiversity; and b) according to the IPCC Report, 80 per cent of the world's energy needs could be met through the sources of alternative energy.⁹

The above-mentioned facts clearly suggest that there is not only a need for alternative energy exploration but also for viable prospect of sustainable energy development. In addition to the needs and prospects, the increasing impacts of climate change itself demands a transition from the current fossil fuel industrial activities towards a post-fossil fuel and low carbon industrial society. Thus, it seems necessary to examine whether or not the sustainable energy development is being put into practice through the various national and international laws and mechanisms, as a part of the climate change mitigation solutions. And, if not, what are the necessary legal changes that are required for the energy sector to be established as a part of the climate change mitigation solutions and vice versa? These are the key questions to be explored in this work.

1.4 *Dual Theme of Climate Change and Energy*

A clarification relating the theme of this article, relevant disciplines of law and distinction between the two sets of law is as follows. The author is aware about the difficulties dealing with the dual theme and its cross-disciplinary aspects. The main difficulty arises from the fact that climate change mitigation, or adaption for that matter, is not recognised as a tradable commodity (value) as the energy is a self-evident commodity. A cross-sectorial approach is, nonetheless, justifiable, as the emission trading is established especially with the 1997 Kyoto Protocol based mechanisms, under the 1992 UN Framework Convention on Climate Change (UNFCCC).¹⁰ The similar mechanisms are evolving in the energy sector, under the different national laws, including the economic instruments, e.g. white certificates, feed-in tariff, and renewable energy certificates etc.¹¹ An integrated legal approach is also justifiable, because of the increasing involvement of the commercial entities in emission trading and carbon finance, as well as development and transfer of technologies.

9 *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation* (IPCC 2011) Prepared by Working Group III of the Intergovernmental Panel on Climate Change [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1075 pp.

10 More in detail *see* in section 7 of this article.

11 More in detail *see* in section 8 of this article.

The fact that national legislations are increasingly becoming a necessity for the low-carbon economic growth, the author considers this development as a lynchpin of the climate change mitigation solutions through energy sectors. It is in this context, the distinction between international law and national laws is considered only in passing. The reason to avoid the distinction is that sustainable development has been incorporated into environmental laws, at the international, national and local level. Several national courts and tribunals have interpreted legislative provisions relating environmental protection that require the principles of sustainable development to be taken into account. Another reason for avoiding the distinction between the two sets of law is that climate change and energy policies are being integrated and put into practice in the various national legislations, in view of sustainable development.

On the whole, the discussion is presented through selected lenses, assessing the overarching issues of climate change and energy. Some clarifications must be made regarding use of the lenses, perspective and method of discussion. A short note about lenses and perspective is in order.

1.5 Lenses and Perspective

Climate change and energy use, when viewed globally, appears to suffer not only from the uneven distribution of energy sources among states, but also uneven consumption of energy within states.¹² Some sources are emitting carbon industrial emissions more than others and, at the same time, it is not only human species but also ecosystem, as a whole, is being affected by climate change. It is in this context, a crucial question arises, i.e. what is the necessary threshold of energy access per person and year that could be compatible with climate change mitigation?

To begin with, it is necessary to bear in mind that the IEA recognises a lack of agreement about universal thresholds for energy access, but it has, nonetheless, recommended “a threshold of 100 kWh per person per year minimum target for universal energy access”.¹³ According to the IEA expert’s opinion, in order to meet the threshold, it would demand the current “fossil fuel mix energy sources”.¹⁴

This presents a problem in itself because, according to the IEA estimate, the use of fossil fuel mixed energy sources would increase greenhouse gas emissions by around “1.3 per cent above the current levels”.¹⁵ This means that it would be an unsuccessful attempt to deal with climate change. From the legal

12 On average, one American consumes as much energy as 2 Japanese, 6 Mexicans, 13 Chinese, 31 Indians, 128 Bangladeshis, 307 Tanzanians and 370 Ethiopians, *see* “public.wsu.edu/~mreed/380 American%20Consumption.htm”.

13 THE SECRETARY-GENERAL’S ADVISORY GROUP ON ENERGY AND CLIMATE CHANGE (AGECC) Energy for a Sustainable Future REPORT AND RECOMMENDATIONS, 28 April 2010, New York.

14 *Ibid.*

15 *Ibid.*

point of view, fossil fuel mix sources has to be assessed in terms of the two-thirds of the world's electricity generated from fossil fuels, which amount one-third of the fossil fuel industrial emissions. Realistically, this means that the replacement of fossil fuel use is not possible all at once. It will require a planned strategy for reducing the use of fossil fuels in the short, medium and long term. Appropriate steps are, therefore, needed for transition towards a post-fossil fuel society. In this context, suffice to say that, the role of incentives, laws and policies is vital for encouraging communities to use alternative energy and limit their greenhouse gas emissions.

In presenting the overall discussion by using different lenses, a few noteworthy cases relating climate change and energy decided by some national courts (case law) are first viewed and analysed, including WTO rulings. This is followed by an overview of national legislations from a few selected countries on the relevant sectors. Afterwards, some exemplary energy agreements are taken into consideration, followed by a discussion on environmental treaties, focussing on contradictions and complementarities of approaches. This includes not only the climate change and energy sectors, but also in the wider context of natural resource use and management of ecosystem. Treaty analysis also includes principles and mechanisms, balancing environmental goals and ensuring access to sustainable energy. Furthermore, some economic instruments are presented, which have emerged as a result of the liberalisation of energy markets within national boundaries, and it is assessed whether those economic instruments are applicable among states. Finally, general conclusions are made.

1.6 Case Law

Some key pieces of litigation have been selected for review, including examples from Canada, India and the United States. A more careful study of the legal approaches of courts of Canada, India and the United States are important, which could help the EU and the developing countries to refine its policies for its longstanding support of the UNFCCC-based Conference Parties (COP) negotiations for a comprehensive treaty on climate change. After its withdrawal from the Kyoto Protocol, Canada's position has become more relevant pertaining to some of these questions. The case law from India and the United States are instructive because the former does not have the same obligation as the Annex 1 Parties to the Kyoto Protocol and the latter remains outside the Protocol. The fact that Canada, India and the United States have democratic form of governments, with independent judiciaries, examining the case laws from these countries can be a way of exploring questions relating to climate change harm and compensation. The selection is also based on the countries' conflicting position concerning the obligation of emission reduction,¹⁶ as well as the increasing production and use of fossil fuel of the countries and their rising greenhouse gas emissions.

¹⁶ For example, the EU—and its member states—has accepted the legal obligation of the greenhouse gas emission reduction. The United States has not and does not seem ready to

Some examples presented in the discussion are national court decisions and a few others are decisions made by various international legal bodies. One case study, for instance, is about Canada's obligation to reduce greenhouse gas emission under a Canadian federal law relating to the Kyoto Protocol, and another is about Canada's withdrawal from the Kyoto Protocol. Another case study is the WTO panel adjudication about Canada's renewable energy projects. Similarly, India's litigation deals with sustainable energy development. The United States case example deals with abatement of carbon dioxide emissions by fossil fuel-based utility companies.

1.6.1 Rationale, Risk and Benefit of Litigation

The rationale of reviewing and analysing the cases is that litigation may be a small dot in the wider environmental law context, but a combination of such dots may also lead to the development of environmental jurisprudence. For instance, a decision made by the Federal Court of Canada, determining who can represent whom to the court concerning the reduction of greenhouse gas emissions, may not be an authoritative decision to follow for the Supreme Court of India or the United States. When the independent courts of the various countries decide the same issue by reaching the same, or different, conclusions, helps jurists to form legal opinions and an evolution of the jurisprudence towards broader changes.

We should be mindful that legal experts have identified a number of difficulties and/or risk associated with climate change-related litigations (to be discussed in the later section of this article)¹⁷ at the national and international levels. Pursuing these types of lawsuits in various courts of law is problematic, mainly because of the difficulties of presenting causal links between greenhouse gas emissions and climate harm. However, some progress is slowly being made. This kind of litigation exercise has opened up some possibilities for the adjudication of climate change-related cases.

With regard to the litigation examples used in this context, we should be aware of the fact that in some situations, the outcome of litigation may have "deterrent effect on the expansion of production capacity for renewable energy if it spreads to uncertainty about the types of support that really is legally acceptable."¹⁸ In other situations, the litigation's outcome may "involve

accept a legal obligation, so long as the developing economic powers, i.e. China and India and Brazil and others countries are not ready to do so, whose fossil fuel industrial emissions have increased in recent decades. Currently, China, India and Brazil are the rising economic powers, whose respective capabilities have increased considerably, both in terms of emission and technological knowhow. These three countries still consider themselves as developing countries and, therefore, they insist on the developed countries' responsibility of the greenhouse gas emission reductions.

¹⁷ Sections 2, 3 and 4 of this article.

¹⁸ David Langlet, FÖRNYBAR ENERGI – DEN NYA KONFLIKTYTAN MELLAN MILJÖSKYDD OCH FRIHANDEL? –ANALYS, JP Miljönet 2013-03-12.

countermeasures of various kinds, or a desire to create ‘pawns’ to use in negotiations that do not necessarily involve the same substantive issues.”¹⁹

A specific research on litigation relating to climate change suggests that it “could be a useful tool to draw media attention.”²⁰ It is, thus, reasonable to assume that genuine media attention creates favourable national and international public opinion and, that in its turn influences the nexus between litigation and legislation, e.g. litigation by influencing public opinion and legislation, and vice versa.

Analysis of litigations of this sort is necessary, because it is possible that public opinion in favour of environmental protection result into national legislation. Similarly, the burden of litigation may also lead to legislation or conclusion of a new climate treaty. The mutual influence between litigation and legislation could be considered as means of accommodation with the competing interests, if not the convergence of contradictory interests.

A number of cases relating to climate change were initiated in different countries by using a variety of statutes under Common Law and international law. Public interest litigations, or class actions, are lawsuits relevant to climate change mitigations and sustainable energy. Public interest litigation means that an individual or a group of people (collectively or individually) could bring a claim to the court, involving the interests of not just to the parties of the case, but for the general public as a whole.²¹ How this type of litigation is used in Canada, India and the United States and in what ways they highlight the relevant issues raised in this discussion, is the focus in the following.

2 Canada

First, let us review and examine the case law from Canada to understand who is entitled to file a case and against whom and where (or which national courts), especially when the dispute is related to climate change mitigations and sustainable energy development. The Canadian case law example, together with a few of the WTO rulings, will also shed light on the complexities involving free trade and renewable energy development. In some contexts, free trade and climate change mitigation are in contradiction to each other, whereas renewable energy tends not to be so. Another case law example from Canada revolves around the question of whether or not non-governmental organizations (NGO) have a right to file a case against governments, demanding implementation of a particular national law that also relates to global common concern, i.e. climate change mitigation. If NGOs do have those

19 Ibid.

20 Laura Horn, *Is Litigation an Effective Weapon for Pacific Island Nations in the War Against Climate Change?*, *Asia Pacific Journal of Environmental Law*, Vol.12, issue 1 2009, 169-202. e.g. “the Pacific Island nations seeking to recover compensation from developed countries for the adverse effects of climate change”.

21 Litigation filed in a court of law for the protection of "public interest", e.g. pollution and hazards waste etc.

rights, does the litigation result in any tangible achievement towards mitigation?

2.1 *Friends of the Earth v Canada*

Despite difficulties of initiating a litigation relating to climate change at the national courts, a noteworthy attempt was made in the *Friends of the Earth v Canada* (2008).²² From the start, the legal issue at stake at the Federal Court of Canada was whether or not a non-governmental organization (NGO) could represent the general public interest. The plaintiff, Friends of the Earth, an NGO had challenged the Government of Canada for not fulfilling its obligations under the Kyoto Protocol Implementation Act (KPIA).

It should be noted that Canada had initially agreed to reduce their greenhouse gas emissions by six per cent from 1990 levels by 2012, under the Kyoto Protocol to the UNFCCC. The KPIA is a Federal Law of Canada, aiming for effective implementation of the Kyoto Protocol. The case is thus based on the KPIA that include Canada's legal obligations to ensure that the country takes effective and timely action to meet its international treaty obligations under the Kyoto Protocol.

It is noteworthy that in the *Friends of the Earth v Canada*, the Court recognised *locus standi* of the Friends of the Earth—a right to sue the Government of Canada. This needs to be seen with the international law context, whereby an NGO is recognised as the subject of international law. Whether Canada's Federal Court decision remotely recognised the Friends of the Earth as a subject of international law may be still debatable. The decision has, nonetheless, opened an avenue for NGOs to bring general public interest litigations to national courts of law. Except for some exceptional circumstances such as genocide, crime against humanity and the protection of human rights, individuals are not generally considered as the subjects of international law, but signatories to the 1998 Aarhus Convention have agreed to take a rights-based approach to environmental matters.²³ This convention grants the public rights regarding information, public participation and access to justice in governmental decision-making processes on matters concerning the local, national and trans boundary environment.

The NGO's right to engage in public interest litigation has, since 2008, been established by the Federal Court of Canada. That decision stands as an example for other national courts to follow, especially, in countries where NGOs can

22 *FRIENDS OF THE EARTH V. CANADA*, 2008 FC 1183, [2009] 3 F.C.R. 201, T-2013-07, T-78-08, 1683-07. The Court found that Parliament had, with the Act, "created a comprehensive system of public and Parliamentary accountability as a substitute for judicial review," see also *Emissions Trading and Climate Change Bulletin*, November 2008, McMillan LLP, "www.mcmillan.ca".

23 The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, See also, Jonas Ebbesson, *Public Participation and Privatisation in Environmental Matters: An Assessment of the Aarhus Convention*, *Erasmus Law Review*, Volume 4, Issue 2 (2011).

bring cases against governments for failing the international obligations. Such a possibility, however, may exist only in the countries where the court system is able to exercise judicial independence. Although the recognition of the NGOs rights to represent public interest through litigation at the court of law is an achievement of the case, the Federal Court of Canada did not recognise the plaintiff's claim that the Government of Canada should fulfil its obligations to reduce its share of emissions. Instead, it is concluded that "the Court has no role to play reviewing the reasonableness of the government's response to Canada's Kyoto commitments"²⁴ within the KPIA. The Court also concluded that, "while there may be a limited role for the Court in the enforcement of the clearly mandatory elements of the Act such as those requiring the preparation and publication of Climate Change Plans, statements and reports, those are not matters which are at issue in these applications."²⁵

Nonetheless, it must be noted that Canada's Federal Court neither ordered the Government of Canada to comply with the demands of the plaintiff, nor did the Federal Court hold that Canada is free from the commitments that the country has made under the Kyoto Protocol for its share of emission reductions.

A few years after the decision on *Friends of the Earth v The Gov't of Canada*, the Government of Canada notified the UN Secretary General (December 15, 2011) to the effect that the country has withdrawn from the Kyoto Protocol. In the aftermath of the notification, Law Professor Daniel Turp applied to the Federal Court of Canada, asking for the judicial review of the decision concerning the Canada's withdrawal from the Protocol. In the *Turp v Canada* (Minister of Justice), the Federal Court dismissed the application,²⁶ concluding that "the executive branch of the Government had the ability to withdraw from the treaty." Whether Canada's withdrawal from the Kyoto Protocol has violated the KPIA was not considered by the Court in *Turp v Canada*. The separation of powers between the branches of the government also remained unaddressed by the Court, i.e. is the executive branch of the government free to withdraw from a treaty without the consent of the legislative branch?

As a result of the lack of consideration of these legal issues involved in and its withdrawal from the Kyoto Protocol, the Government of Canada has become a subject to international criticisms. In response to the increasing international criticisms, the Canadian Minister for the Environment, Peter Kent, argued that he invoked his country's "legal right" to do so.²⁷ At the same time, UN Climate Chief Christiana Figueres commented that Canada had both

24 *FRIENDS OF THE EARTH V. CANADA*, 2008 FC 1183, [2009] 3 F.C.R. 201, T-2013-07, T-78-08, 1683-07.

25 *Ibid.*

26 *Turp v. Canada* (Minister of Justice) et al. 2012 FC 893.

27 Canada pulls out of Kyoto Protocol CBC News posted: Dec 12, 2011 4:00 PM ET; "www.bbc.co.uk/news/world-us-canada-16151310".

“a legal and moral obligation” to reduce emissions and lead efforts to fight climate change.²⁸

Whatever may-be the economic interests involved, Canada seems to have withdrawn from the Protocol in order to avoid the legal consequences of the breaches of its obligations. Especially, after the extension of the Kyoto Protocol for its second commitment period by the COP18, Canada’s withdrawal could be a point of further legal dispute domestically as well as internationally. It could be a matter of contention between Parties to the Protocol as well, especially under the rubric of the Vienna Convention on the Law of Treaties (VCLT). If/when any further disputes arise and a case is lodged in courts against Canada, the enforcement mechanisms established under the Kyoto Protocol²⁹ will take priority over the VCLT-based general international obligations of states, because the Protocol is a specific treaty instrument and the VCLT is a general treaty. As a rule, the Parties to the Protocol are required to demonstrate that they are within their assigned amounts of greenhouse gas emissions,³⁰ according to the first commitment period from 2008-2012. Whether Canada has a right to withdraw from the Kyoto Protocol at the end of the first commitment period is subject to legal judgment supposedly by a court of law. Thus, Canada’s withdrawal from the Protocol can be challenged from the point of view of *pacta sunt servanda*, which in this case may implies that nonfulfillment of the obligation during the first commitment, as a breach of the Kyoto Protocol.

So far, no further legal action has been taken against Canada’s withdrawal from the Kyoto Protocol, either by the Facilitative Branch or by the

28 Canada’s withdrawal from Kyoto Protocol regrettable – UN climate official
“www.un.org/apps/news/story.asp?newsid=40714#UhNGa5hvmfA”.

29 In case of the failure to meet these obligations, there are two branches established under the Kyoto Protocol’s compliance mechanism: the Facilitative Branch and the Enforcement Branch. The Enforcement Branch is entitled to determine if a Party (Annex I) is not in compliance with its emissions limitation. In that case, the Party is required to cut emissions by an additional 30 per cent and a Party can be suspended from the Clean Development Mechanism (CDM), thereby being prohibited from making transfers by way of the Emission Trading Mechanisms. The procedural non-compliance issues concerning Canada should have been dealt with during the commitment period by the oversight body. On the other hand, substantive non-compliance would require a Party that has exceeded its emission allocation to purchase equivalent carbon emission rights. If the Party refuses to comply, then economic measures such as fines or trade-related enforcement measures may be used.

30 According to Article 18 of the Kyoto Protocol, “The Conference of the Parties serving as the meeting of the Parties to this Protocol shall, at its first session, approve appropriate and effective procedures and mechanisms to determine and to address cases of non-compliance with the provisions of this Protocol, including through the development of an indicative list of consequences, taking into account the cause, type, degree and frequency of non-compliance. Any procedures and mechanisms under this Article entailing binding consequences shall be adopted by means of an amendment to this Protocol.” The negotiations over the establishment of a compliance system find their roots in the process leading up to COP-3 in Kyoto. At COP-6 Part II in July 2001 in Bonn, the compliance debate focused on three areas: functions of the compliance bodies; penalties for noncompliance; and the legally binding nature of the agreement... Parties are still debating the legally binding nature of the compliance agreement.

Enforcement Branch. None of the Parties to the Protocol, nor the EU, seems ready to bring a case in the ICJ against Canada concerning its withdrawal from the Protocol based on the VCLT.

2.2 *WTO Rulings*

Although there is no one seems bothering about Canada's withdraw from the Kyoto Protocol, it is, however, relevant to note that a related case from 2011, particularly dealing with energy and trade, has led to a new twist in Canada's position concerning climate change mitigation through alternative energy development. This started when Japan and the EU brought a complaint against Canada, concerning Ontario's renewable energy program. Canada has both federal and province-based energy laws, and one of them is Ontario's 2009 Green Energy and Green Economy Act (GEGEA). The GEGEA aims to ensure access to alternative energy, as well as energy conservation and efficiency. Japan and the EU consider that some rules of the GEGEA are contradictory to the WTO rule. Especially, because of the "local content requirement" under the GEGEA, Japan and the EU brought the subject to the WTO panel of adjudication against Canada.³¹ In 2012, the WTO ruled in favour of the plaintiffs. The WTO panel ruled that the renewable energy scheme had breached some WTO rules, but it failed to agree whether it constituted an illegality. The subsidy clause, which is intertwined with "local content requirements", is the core issue of disagreement. Canada had lodged an appeal over the WTO ruling, arguing that "Ontario's feed-in tariff (FiT) scheme aims to support renewable energy by guaranteeing electricity generators above-market rates on certain renewable sources of energy, such as wind and solar."³²

In response to Canada's appeal, the WTO ruling, in May 2013, found Canada's incentives offered to local companies against foreign firms, as discriminatory.³³ This ruling has made it clear that the use of quality, cost-effective technologies used for the sustainable energy development should not be hampered by protectionist measures. The ruling, in fact, has left no choice for Canada but to work with the provincial authorities to respond to the WTO appeal ruling. Some skepticism has, however, aroused, whether the situation after the ruling is spurring more WTO disputes. Such disputes are likely to be

31 World Trade Organization, DS412/R and DS426/R. Summer 2012 Argentina initiated dispute settlement proceedings against the EU at which it argue that Spain's implementation of the EU Directive 2009/28/EC on the promotion of the use of energy from renewable sources is contrary to WTO rules by improperly promoting EU-based producers and Certain Measures Concerning the Importation of Biodiesels. As negotiations in the autumn did not result in a solution called Argentina in December 2012 that a panel that is the first instance in the WTO dispute settlement process would be established (DS443). It is not EU law sustainability criteria for biofuels, which have been disputed by both political and scientific starting points, which are subject to review, but some national implementing measures.

32 On 5 November 2012, ICTSD Reporting; "ictsd.org/i/news/biores/154399/".

33 DS426.

among those countries that are desperate for economic growth. The other countries may also be doing so, who may be suspecting that their energy development projects are being locked out of foreign interest as a result of the WTO ruling.³⁴ One would assume, in any case, that alternative energy development that leads to greenhouse gas emission reduction should prevail over trade issues. The WTO panel ruling has not prohibited renewable energy incentives but incentives that favour local content products before products from other countries. Canada, or any other states, could to have a FiT as long as it treats foreign and domestic renewable energy components equally. It is relevant to note that China has filed a complaint to the WTO against the EU, requesting consultations regarding domestic content restrictions, affecting the renewable energy generation sector, including feed-in tariff programs.³⁵

3 India

3.1 Jurisprudence of India's Court

It is worthwhile to contemplate how independent courts in other countries would have decided *Friends of the Earth v Canada* and *Turp v Canada*. For instance, how would the Supreme Court of India have decided cases like *Friends of the Earth v Canada* and *Turp v Canada*, given that India does not have same obligations as Canada did under the Kyoto Protocol.

Because of its landmark decisions, India's Supreme Court is somewhat unique in its high level of judicial activism as it concerns environmental rights and principles. Legal experts believe that the Supreme Court of India "will continue to play a significant role in facilitating adaptation to climate change."³⁶ This has led to the Indian Parliament's creation of the National Green Tribunal (NGT)—a new court to deal with environmental cases. The Tribunal is empowered to render decisions against violators of environmental laws and enforce the payment of civil damages.

The Supreme Court of India is known for its judicial activism and exercise of public interest litigations. In this context, a few but noteworthy examples need to be taken into perspective. Greenhouse gas emissions have not yet been proven to be a toxin. If and when such emissions are eventually scientifically proven to be toxic, India's Supreme Court decision *M.C. Mehta v Union of*

34 For example, "the United States has already charged India with illegally favoring local producers in its solar sector and China has hit the EU with a claim that Greece and Italy favored solar power firms that bought local components. Other potential disputes are simmering, with Brazil, Indonesia, Nigeria, Russia, Ukraine and the United States all under scrutiny in sectors such as energy, mining, car making and telecoms", as reported by *Reuters*, Mon May 6, 2013 12:39pm EDT.

35 WTO, DS452, "www.wto.org/english/tratop_e/dispu_e/cases_e/ds452_e.htm".

36 Aitken Hem, *The Role of the Supreme Court in Facilitating Adaption to Climate Change Impacts in India*, *Journal of Environmental Research And Development*, Vol. 7 No. 1, July-September 2012, pp155- 165.

India,³⁷ in which the Court defined polluters' "strict and absolute liability", could be relevant. In this case, if an enterprise is engaged in a hazardous or inherently dangerous activity such as emitting toxic gasses, the Court held that the enterprise is strictly and absolutely liable to compensate all those who are affected by the toxic emissions. In terms of international agreements, the 1899 Hague Convention's prohibition of the use of asphyxiating gases can be invoked as one of the defining sets of rules on toxic substances.³⁸

The Supreme Court of India has also acknowledged the Polluter Pays Principle as the law of the land in the *Indian Council for Enviro-Legal Action v Union of India*,³⁹ a case involving an industrial chemical plant. In addition, in the *Vellore Citizens Welfare Forum v Union of India*, the Supreme Court held that the Precautionary Principle and the Polluter Pays Principle are part of the environmental law of the country.⁴⁰ This indicates that the jurisprudence of the Indian Supreme Court has evolved significantly, which has been useful for climate change mitigation through litigation.

The Supreme Court of India has also decided cases on sustainable energy development and electricity generation.⁴¹ In *Banwansi Sewa Ashram v UP*,⁴² the Court considered the claims of the people living within the forest reserves area and their case against the state's right to build hydroelectric facilities on their land. This case arose when the government-owned thermal plant of the National Thermal Power Corporation Ltd. considered acquisition of the forest reserves area with a scheme to generate electricity. The Court recognised that depletion of forests disturbed the ecology and the climate cycle and held that one "cannot lose sight of the fact that for industrial growth as also for the provision of improved living facilities there is great demand in this country for energy such as electricity."⁴³ The Court eventually held that "a scheme to generate electricity is of national importance and cannot be deferred"⁴⁴ and the thermal plant was allowed to build.

In the *Municipal Council, Ratlam v Vardhichand*,⁴⁵ the pollutants discharged by the big factories are detrimental to social justice, according to India's Supreme Court. The Court held that "public nuisance" of open drains, garbage, and pollutants being discharged by big factories to the detriment of those living nearby, is detrimental to "social justice."

37 M.C. Mehta v, Union of India AIR 1987SC (1965).

38 The 1899 Hague Convention, see D.Schindler and J.Toman, *The Laws of Armed Conflicts*, Martinus Nihjoff Publisher, 1988, pp.69-93, see also "www.britannica.com/EBchecked/topic/251644/Hague-Convention".

39 *Indian Council for Enviro-Legal Action v Union of India* 5 SCC 212 (1996).

40 *Vellore Citizens Welfare Forum v Union of India and others*, 5 SCC 647, (1996).

41 Sarbani Sen, *Public Interest Litigation in India: Implications for Law and Development*, 2012, Kolkata.

42 See, 3 SCC, 753, (1986).

43 Ibid.

44 Ibid.

45 AIR , SC 1622, 1980.

This is the current state of jurisprudence as defined by the Indian Supreme Court regarding nuisance and social justice. How the law of the nuisance is argued concerning the climate change mitigations and fossil fuel industrial emission reduction will be seen in the following case decided by the Supreme Court of United States.

4 The United States

Two relevant legal issues decided by the United States' Supreme Court stand out concerning the theme of this discussion: States and private parties are entitled under the public law of nuisance to bring a lawsuit against utility companies, demanding their share of carbon dioxide emission reductions; and cases involving greenhouse gas emission reductions are not only political issues but legal issue as well. What legal conclusion can be drawn from these decisions?

4.1 *Connecticut v. American Electric Power Co*

The *Connecticut v. American Electric Power Co* (2011) is a noteworthy case from the United States. The case was filed at the United States District Court for the Southern District of New York in 2004. Eight Federal States, as well as New York City and three non-profit land trusts, sued the five largest electric power companies in the United States. The plaintiffs claimed that emissions have created a "substantial and unreasonable interference with public rights" and it is being done "in violation of the federal common law of interstate nuisance."⁴⁶

The plaintiffs had asked for a permanent injunction order⁴⁷ from the Court, requiring each of the five defendants, the *American Electric Power Co*, to abate their share of carbon dioxide emissions. The United States District Court of New York initially dismissed the lawsuits, suggesting that greenhouse gas emission reduction is a political issue and therefore such a claim should be resolved by the legislature. The Court of Appeals for the Second Circuit, however, reversed the District Court dismissal of the lawsuits and held that the dispute is not restricted to resolution in the political arena and the Court considered that claim is valid under the federal common law of nuisance.

46 *Connecticut v. American Electric Power Co* 564, U. S., (2011). This is litigation against the fossil fuel electricity suppliers of the United States, emitting 650 million tons annually, which accounts for 25 per cent of domestic emissions, 10 per cent of domestic anthropogenic emissions and 2.5 per cent of global anthropogenic emissions. The full decision *see*, "www.supremecourt.gov/opinions/10pdf/10-174.pdf".

47 It should be noted that an injunction is a traditional writ of the Common Law courts, (which may be difficult to apply in the Continental or Civil law systems), where legislations are considered more appropriate than the writ petitions.

The question presented to the Court was whether federal common law public nuisance claims could be made against carbon dioxide emitters. The Supreme Court held that the plaintiffs of the *Connecticut v. American Electric Power Co* could not pursue their claims under the federal common law of nuisance. The reason given behind the decision is that in the Clean Air Act, the United States delegates the federal role in managing greenhouse gas emissions to the Environmental Protection Agency (EPA).

The Court held that the EPA is better equipped than federal judges to decide how strictly to regulate emissions. This was seen as a setback for those who had hoped to use federal common law to litigate against carbon dioxide emitters, but it says nothing about the “ability of states to use their own public nuisance laws to curb environmental harms.”⁴⁸ The outcome of the case suggests that attempts to limit emissions have to be done through the legislative and executive branches. Earlier on, in the *Commonwealth of Massachusetts et al. v EPA*, the United States’ Supreme Court also held that “carbon dioxide is an air pollutant under section 202(a) (1) of the Clean Air Act which provides that the EPA “shall by regulation prescribe...standards applicable to the emission of any air pollutant from...new motor vehicles...which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.”⁴⁹

The plaintiffs of *Connecticut v. American Electric Power Co* did not sought compensation for damage that may have resulted from the defendant’s share of carbon emissions that led to global warming and climate change. Had the plaintiff done so, expert argue that the burden of proof would have been higher should the plaintiffs had asked for compensation. Thus, outcomes of the United States case examples suggest that legislation, not litigation, is the basis for climate change mitigation.

A legislative bill on climate change, dealing with carbon emission reductions in the United States Senate, was abandoned in the face of opposition in 2010. The United States President Barack Obama, in his 2013 State of the Union Speech, made a pledge that “if Congress won’t act soon to protect future generations, I will. I will direct my Cabinet to come up with executive actions we can take, now and in the future, to reduce pollution, prepare our communities for the consequences of climate change, and speed the transition to more sustainable sources of energy.”⁵⁰ It remains to be seen if President

48 David R. Brody *American Electric Power Co v. Connecticut*, Harvard Environmental Law Review Vol. 36, 298-304.

49 The judgment of 2nd April 2007 is available at “www.climatelaw.org/media/Mass.v.EPA.USSC” Court of Appeals for the District of Columbia Circuit, Judges. A similar view was arrived at in *Australian Conservation Foundation v Minister for Planning*, which held that “greenhouse gas (GHG) emissions from burning coal must be taken into account in a planning decision to approve a coal mine extension, i.e. the use to which the coal would be put must be taken into account in determining the environmental effects.” Judgment of Justice Stuart Morris, available at; “www.austlii.edu.au/au/cases/vic/VCAT/2004/2029.html” It should be noted that the Renewable Energy (Electricity) Act of Australia (2000) has had a mandatory national renewable energy target.

50 President Barack Obama’s Speech that was directly broadcasted in the World’s visual media, February 13, 2013.

Obama's words will be matched by future actions that lead to combating climate change and ensuring sustainable energy access and supply.

4.2 *Legal Opinions*

Some relevant legal issues in relation to the climate harm and compensation have been thoroughly examined by Professor Daniel Farber; Who caused the harm? And should emitters of greenhouse gasses under obligation to compensate?⁵¹ Farber argues that from the start "some of this [emission] activity was innocent, because the reality of climate change was not known at the time."⁵²

An innocent act cannot be a subject to culpability without which liability for the compensation of damage cannot be ascertained. This is one important criteria for determining either a violation of international law or a violation of a duty of care (due diligence) towards the harmed state. There is no disagreement among jurists about these criteria.⁵³ Farber, thus, suggests that, "for those concerned about culpability, apportioning responsibility on the basis of emissions after some cutoff date would be an appropriate response."⁵⁴

What is the cutoff date, according to Farber? He considers that "one possible cutoff date is 1992, when the United States and other nations entered a (UNFCCC) framework agreement to reduce greenhouse gasses."⁵⁵ The reason given for this cutoff date is that "at that point, the international community had clearly identified the harm; any source of emissions after that date was at least on notice of the damaging nature of the conduct."⁵⁶

Farber's critics, specifically Raymond B. Ludwiszewski and Charles H. Haake, argue that "assuming such a cut-off date could be established, how

51 Daniel A. Farber, *Basic Compensation for Victims of Climate Change*, Environmental Law Institute®, Washington, DC. reprinted with permission from ELR®, "www.eli.org, 1-800-433-5120". Prof. Daniel Farber argues that compensation for harm caused by climate change is a moral imperative, and he surveys various mechanisms that have been used in other circumstances to compensate large numbers of victims for environmental and other harms. In response, Professor Feinberg cautions that significant hurdles remain before any realistic compensation system could be considered, but suggests that the most effective approach may be evolving parallel tracks of civil litigation and government action to address climate harm. Peter Lehner and William Dornbos argue that using common-law doctrines to find greenhouse gas (GHG) emitters liable for harm is a more pressing concern than creating a compensation system. Finally, Raymond Ludwiszewski and Charles Haake claim that the basic elements of liability are not readily discernable with climate change and that it would be more productive to invest in curtailing GHG emissions.

52 Ibid.

53 For example *see*, Richard S.J. Tol and Roda Verheyen, "State responsibility and compensation for climate change damages—a legal and economic assessment", *Energy Policy* 32, pp. 1109–1130, (2004).

54 Ibid.

55 Ibid.

56 Ibid.

would a court differentiate from a liability damages standpoint what is caused by post-1992 emissions— which would be actionable—and pre-1992 emissions—which would not be?”⁵⁷ Farber acknowledges that “it is obviously impossible to link any specific greenhouse gas emissions with any specific injury from a particular company or governmental entity due to the cumulative nature of the (GHG) effect.”⁵⁸

Ludwiszewski and Haake argue that “liability would require a finding that a putative defendant engaged in conduct that was unreasonable under the circumstances.”⁵⁹ A vital question against Farber’s arguments raised by Ludwiszewski and Haake is; “what constitutes unreasonable conduct when it comes to emissions?”⁶⁰ The two critics note that “Farber suggests that “it may have been unreasonable for manufacturers to not use environmentally friendly technologies or to reduce production to account for the impacts of global warming.”⁶¹ According to this line of reasoning, “Farber does not identify what viable alternative sources of energy could have been relied upon, nor does he provide any formula for determining what level of output is reasonable and what level is unreasonable; output after all, is dictated by the law of supply and demand.”⁶²

However, neither Farber nor his critics take into account that 80 per cent of the world’s energy needs can be met through alternatives to fossil fuels.⁶³ Thus, it would be unreasonable for states not to agree for the use of alternative energy of fossil fuels, especially to prevent further loss and damage from the climate change. The WTO ruling has to balance between environmental protections interests versus economic interests.⁶⁴ Even if states fail to negotiate an international agreement for sustainable energy, they will sooner or later, have to accommodate the competing interests, primarily as a result of nexuses

57 Raymond B. Ludwiszewski and Charles H. Haake, RESPONSE Comment on *Basic Compensation for Victims of Climate Change Basic Compensation for Victims of Climate Change*, Environmental Law Institute®, Washington, DC., reprinted with permission from ELR®, “www.eli.org, 1-800-433-5120”.

58 Ibid.

59 Ibid.

60 Ibid.

61 Ibid.

62 Ibid.

63 *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation* (IPCC 2011) Prepared by Working Group III of the Intergovernmental Panel on Climate Change [O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1075 pp.

64 There seems to be enough legal grounds to argue convincingly for the prioritisation of alternative energy development under the “local content requirement.” But, at the same time, importing goods and services essential for sustainable development is also equally valuable under the WTO rules of non-discrimination and the most favoured nation clause. Until that case is decided, it will have to be sufficient to rely on legislation and/or treaties to balance between economic and environmental interests.

between litigation arising from loss and damage caused by climate change, and legislation on sustainable energy development as a part of the climate change mitigations.

There are, however, certain limitations of climate change mitigation through litigations. The UNFCCC provides for dispute settlement, but it precludes legal redress avenues from the Convention process.⁶⁵ If a court of law is ever asked to decide the legality of greenhouse gas emissions, judges will have to rely on natural science-based evidence of what constitutes significant harm. It would require demonstration of clear linkage between cause and effect, as was done with the linking of tobacco use to lung cancer.⁶⁶ The seriousness of the damage (or injuries) becomes the prime matter of legal relevance in any case. An identification of a wrongful act is necessary to establish climate harm liability for compensation.⁶⁷ In contrast to trans-boundary air or water pollution cases, where it may be relatively easy to identify the victims and the sources of harm, it is much more complicated to demonstrate causality in the present context, where there can even be a dual identity of injured (victims) and emitters (wrongdoers). It is also difficult, if not impossible, to prove a case of climate harm, linking any specific anthropogenic emissions with any specific injury from a particular company or state due to the cumulative effect of the emissions. It remains difficult to prove the link between an act and its consequence, leading to climate harm and compensation. It is, however, argued by some that “harmful states are not bound to tolerate damage and liability that can be established according to the case facts at hand.”⁶⁸ Some other, therefore, consider climate harm mitigation as a part of the “prevention duties and state responsibility”⁶⁹ and still other consider climate change as a “wrongful harm to future generations.”⁷⁰ Yet, it remains difficult how to define greenhouse gas emission as a wrongful act. If this is so, what about *unjust enrichment*?

65 Article 14 of the UNFCCC.

66 One relevant case example how to prove link between human activities and climate change is the casual link between smoking and lung cancer. This link was initially proved by Richard Doll (in 1950) and nicotine substances were recognised as addictive by the United States District Court Judge Gladys Kessler and a federal appeals court in Washington upheld Kessler's findings and found large tobacco companies liable in the case in 2006, Source, news.bbc.co.uk, June 29th, 2010.

67 For example, according to Article 1 of the Draft Articles on Responsibility of States for internationally wrongful Acts (DASR), Article 2 suggest that —There is an internationally wrongful act when conduct of an action or omission: a) is attributable to the State under international law; and b) constitutes a breach of an international obligation of the State.

68 Christina Voigt, *State Responsibility for Climate Change Damages*, Nordic Journal of International Law, Vol. 77, No. 1-2, (2008).

69 Roda Verheyen, *Climate Change Damage and International Law Prevention Duties and State Responsibility*, Martinus Nijhoff Publishers, (2005).

70 Davidson, Marc D., Wrongful Harm to Future Generations: *The Case of Climate Change*, Environmental Values, Volume 17, Number 4, November 2008, pp. 471-488(18).

4.2.1 Unjust Enrichment

Harm and compensation are also part of the Common Law principles of equity and tort. Relevant to these concepts is *unjust enrichment*,⁷¹ which suggests that those benefiting disproportionately at the expense of others should compensate the victims, even if the use of the resources involved is not illegal. It follows from this principle that any person, natural or corporate, who unjustly obtains wealth or property, owes compensation to the injured party, even if the property was not obtained illegally. This suggests that even if greenhouse gas emissions may not be an illegal act as such, it is illegal to harm the common interest of humanity, while taking advantage of the situation, in order to fulfil individual interest by a state or individual. Thus, the principle of unjust enrichment scrutinises one party's right to use natural or human resources to optimise the fulfilment of its needs to the detriment of another party's pursuit of the same. In addition, the principle can be the basis for restitution, compensation for harm and introduction of global taxation, which can hold excessive greenhouse gas emitters directly responsible for global climate harm.

According to the current state of international environmental law, states and individuals (industries) have a certain responsibility relating climate change mitigation; yet, the current conventional legal approaches are based on the political nature of responsibility. The political obligation of states to reduce mitigate climate harm is recognised by the 2009 Copenhagen Accord (COP 15).⁷² The political obligation of states is important, perhaps even on par with legal obligations. In fact, the failure of political commitment may lead to more serious, legal, consequences.

An examination of the case law in Canada, India and the United States shows that the courts of these countries has been driven, in part, to guarantee of an individual's right to file climate-related cases against governments, individuals or corporations. Specifically, it has certainly put pressure on states and corporations to mitigate harm. However, compensation for climate harm

71 John Bede Donnelly (in a paper for the degree of Doctor of Juridical Science Deakin University February, 2004) suggests that, a like concept has had a place in the common law since its inception under several characterisations. It bears the mark of ancient Roman jurisprudence, but relates to independent principles. The jurisprudence was formed by special characteristics of its history. It is distinct from modern Roman/Dutch law but the doctrinal overtones of its foundational case law reflect the basis of reasoning, which in Continental law is founding the adopted ancient codes. It is this foundation of reasoning and the firm rejection of a normative general principle that makes Anglo/Australian law different in character and jurisprudence from unjust enrichment in USA and Canada... Stifled for centuries by quasi contract misconceptions, the law of unjust enrichment entered the modern law in the 20th C through the seminal judgements of Lord Wright in *Fibrosa Spolka Akcyjna v Fairbairn Lawson Coombe Barbour Ltd*, [1943 AC 32] and related cases and through the strong judicial and juristic following they inspired. That "...any civilised system of law is bound to provide remedies for ... unjust enrichment..." became an imperative across the common law world: it has long held a place in the Roman Dutch jurisdictions of South Africa and Continental Europe.

72 Decision 1/CP.15; Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention, *Report of the Conference of the Parties on its Fifteenth Session*, held in Copenhagen from 7 to 19 December 2009.

still remains difficult and the principle of compensation to the victims of climate change is still not recognised. Perhaps litigation and legislation could mutually help develop the law of climate change, including climate harm and compensation.

The COP18 decision, known as 'damage aid', seems to be a new version of the classic 'official development aid'. Other concepts along these lines are 'green climate funds' and 'long term finance'.⁷³ The least developed countries and the small Island countries may receive funds from the industrial states to repair or mitigate climate change, but not necessarily the 'loss and damage' incurred as a result of climate change. If future COP decisions are destined to be merely policy statements with no legal teeth, compensation for loss and harm due to climate change will just be an empty political obligation, with symbolic importance.

Finally, the concept of 'climate harm' seems to fall within the framework of injurious consequences arising out of acts not prohibited by international law. For example, when the ILC initially drafted articles on the "international liability for injurious consequences arising out of acts not prohibited by international law", they encountered enough difficulties that they ended up shifting their conceptual approach towards 'responsibility of states for internationally wrongful acts.' This illustrates clearly that serious obstacles remain, recognising greenhouse gas emissions as wrongful acts, requiring compensation for climate harm. The United States, from the very beginning, insisted that the ILC's draft articles should be devoted to crafting non-binding guidelines. In this context, future COP negotiations concerning climate change loss and damage might benefit by using the ozone treaty regime as a model, focusing on the control and reduction of sources of damage - with sanction for noncompliance of financial schemes- instead of concentrating on the consequential damage and compensation.

5 Legislation

There is an ongoing discussion as to how alternative energy-related legislation may boost alternative energy industry use, leading to further development of alternative energy infrastructure, which in effect could create greener sector jobs, and above all the adoption of new technologies. Favourable national laws and policies, as well international law, could certainly encourage people and communities to use alternative energy, e.g. influencing decision making processes, incentive programs including tax rebates, etc. By surveying the responses of various national legislatures—United States, China, India and EU—indications of changes in law and policy concerning climate change and energy can better understood.

⁷³ See, COP 18 at

unfccc.int/documentation/decisions/items/3597.php?such=j&volltext=/CP#beg".

5.1 *United States*

The governance of energy and climate sectors varies, depending on a variety of factors including geopolitical and strategic. Basically, it is the laws and political systems of a given country, which determines the character of resource governance. The energy sector in the United States, for instance, is regulated through the United States Department of Energy, the Secretary of Interior, alongside the powerful and lobbying influence of private corporations. In the sphere of climate change mitigation in the United States, the EPA is the agency charged with formulating and implementing environmental policies.

The United States emits 26 per cent of global greenhouse gasses, and over the years has taken some measures to reduce its emissions. These measures are rarely taken based on international obligations, as the United States tends towards voluntary limits instead of binding limits on its domestic industries.

The Energy Policy Act 2005 was ostensibly enacted to ensure a steadier energy supply, via tax incentives and loan guarantees for energy production of various types, including both fossil fuel-based and renewable energy. The Energy Independence Act of 2007 aims to increase the production of the clean renewable fuels in order to protect consumers and increase energy efficiency. Several states have adopted policies and legislation that goes beyond federal law, to support greater investment in renewable energy technologies.

A cap and trade system for SO₂ reduction has been in place since the 1990s, under the Acid Rain Program, which originated from the Montreal Protocol. The SO₂ allowance-trading program, as part of the Clean Air Act (Amendment of 1990) is designed to combat acid rain using market mechanisms, setting an overall limit or cap. Under the system the companies are allowed to buy and sell each other's pollution permits, or allowances certificates. The system is designed so that presumably caps would grow tighter over the years—pushing up the price of emissions and driving industries to develop greener technologies—therefore leading to cleaner ways of generating energy.

This program is not without flaws, but it is viewed by some as a success that is well suited to addressing the problem of climate change.⁷⁴ A similar cap and trade bill for CO₂ was passed by the United States House of Representatives in 2009, but the proposed legislation stalled and died in the Senate as a result of the opposition to the bill.

Underfunding for enforcement of EPA regulations was often the case during the 2000s. As a result, in spite of the laws on the books, many EPA laws remained under-enforced. That changed when the Obama Administration came to power in 2009. Still, because of opposition in the US House of Representatives, EPA funding is still a problem. This prompted Obama to caution the US Congress that he may go around them in order to enforce EPA regulations. Obama made a pledge at the State of the Union speech 2013 that “if Congress won't act soon to protect future generations, I will”, concerning

74 Gabriel Chan, Robert Stavins, Robert Stowe, and Richard Sweeney, *The SO₂ Allowance Trading System and the Clean Air Act Amendments of 1990: Reflections on Twenty Years of Policy Innovation*, see “www.hks.harvard.edu/fs/rstavins/Monographs_&_Reports/SO2-Brief.pdf”.

climate change and transition to more sustainable sources of energy. Through executive order, Obama can direct the EPA to take actions to fulfil the voluntary emission reduction pledges made by the United States under the 2009 Copenhagen Accord.

5.2 *China*

Even though the People's Republic of China has adopted a quasi-free market economy, the development of their renewable energy sources has happened through central planning. The democratic credentials of the Chinese legislative process seem dubious, given that it is a one party state. However, this has allowed China's government to bypass opposition to renewable energy and become, in a short time, the world's leading investor in green technology.

The Ministry of Environmental Protection is responsible for protecting and conserving the environment in China. The Renewable Energy Law was passed in 2004, and it directed the China's energy sector to funnel resources towards hydroelectricity, wind, solar, geothermal and marine energy. According to a report,⁷⁵ the country's renewable energy consumption in 2003 accounted for only 3 per cent of the country's total consumption, with the goal being to increase that to 10 per cent by the year 2020. The Renewable Energy Law (2009) Article 14 establishes mandatory purchase of China's renewable energy. It favours the renewable energy industry in terms of market entry, pricing and grid connection. China's renewable energy ambitions should be viewed in the context of its increasing global emissions. According to a report published in 2011, China's emits 29 per cent of the world's greenhouse gasses.⁷⁶

One research cited China's energy laws and policies as inadequate, suggesting that the government has prioritised energy supply security while ignoring appropriate environmental regulations.⁷⁷ The state policy encourages electricity generation via renewable and clean energy resources, the study says, but "due to the lack of specific implementation rules, the renewable energy sector had not developed much."⁷⁸

75 Xin Qiu and Honglin Li, *Energy Regulation and Legislation in China*, 2012 Environmental Law Institute 2012, Washington, DC. Reprinted with permission from ELR, "www.eli.org, 1-800-433-5120".

76 According to the annual report 'Trends in global CO2 emissions', released in 2011 by the JRC and the Netherlands Environmental Assessment Agency (PBL).

77 Xin Qiu and Honglin Li, *Energy Regulation and Legislation in China*, 2012 Environmental Law Institute 2012, Washington, DC. Reprinted with permission from ELR, "www.eli.org, 1-800-433-5120".

78 Ibid.

5.3 *India*

The Ministry of Environment and Forests is the central government agency that oversees India's environmental policies, and in recent years the Ministry has tried to expand the use of clean energy on the national grid. India's Prime Minister, Manmohan Singh said, in 2013, that "it is proposed to double the renewable energy capacity in our country from 25000 MW to 55000 MW" in a span of few years.⁷⁹ However, India's share of global greenhouse gas emissions is 6 per cent.

Among the laws and policies relevant to climate change and renewable energy in India, Section 86 of the Electricity Act (EA) 2003 aims to promote renewable energy through various methods, one of which allows consumers to sell their renewable electricity to the grid. There is also Energy Conservation Act (2001). The State Electricity Regulatory Commissions is required to specify percentages for renewable energy for purchased within the area of a distribution licensee. According to a report, both of the acts show some positive sign, they are, however, "inadequate to address short and long term issues of sustainability." Sections 61(h) and 86(1)(e) of the EA 2003 are the only real renewable electricity-related developmental provisions. A critical report, *Identifying Optimal Legal Frameworks for Renewal Energy in India*,⁸⁰ reads as follows:

"While national laws exist for electricity and energy conservation, there is no national level law for renewable energy. At a State level, regulatory and procedural orders and State and Central Government subsidy programs provide a framework for renewable energy development. However, at present solar thermal energy, biogas, bio-fuels and many other renewable energy sources are not under the purview of any law. Although India has had a ministry dedicated to renewable energy for many years, it still does not have a separate mandate to look at increasing renewable energy. Ad hoc policy changes in the past have also damaged the growth and health of the renewable sector."⁸¹

A national renewable energy law is in the process of development. This is expected to provide a comprehensive national program to promote renewable energy, including a system of the tradable energy certificates, feed-in tariffs for solar power, and feed-in tariffs for grid-connected wind power (see, later section economic instruments for alternative energy development).

79 This is from the 2012 to the year 2017 "www.thehindu.com/news/national/pm-india-to-double-renewable-energy-capacity-by-2017/article4626346.ece".

80 Baker & McKenzie and the World Institute of Sustainable Energy (WISE), *Identifying Optimal Legal Frameworks for Renewal Energy in India*, (2008).

81 *Ibid.*

5.4 *European Union*

The Directorate-General for the Environment is the entity within the European Commission (EC) that is charged with enforcing EU environmental laws. If a member state violates these laws, the DG for the Environment can ultimately refer the matter to the European Court of Justice.

The EU, in 1997, initiated a long-term goal of doubling their renewable energy output levels to 12 per cent of its total energy by 2010. Since 1997 renewable energy production has increased by 55 per cent in the EU, yet by 2010 the EU's share of renewable energy failed to exceed 10 per cent of its overall energy generation.⁸² Some have cited the reasons for this failure as “the lack of a coherent and effective policy framework throughout the EU and a stable long-term vision.”⁸³

The EU Energy Efficiency Directive obliges EU members “to establish energy efficiency schemes or policy measures in all Member States.”⁸⁴ This directive is expected to “drive energy efficiency improvements in households, industries and transport sectors.” It also emphasizes the “exemplary role to be played by the public sector and a right for consumers to know how much energy they consume.” The directive will, according to the EU, boost “the renewable energy industry” and will “encourage technological innovation and employment in Europe.” The EU has also set a goal to generate “20 per cent of its energy from renewable sources by 2020”, aiming also to “cut greenhouse emissions and make it less dependent on imported energy.” The EU has fulfilled its emission reduction goal of 6 per cent that it set for 2008-2012; currently the EU's share of global greenhouse gas emission is 11 per cent.

A drawback to the EU's energy laws and policies is that although member states are legally obliged to establish energy efficiency schemes or policy measures, its individual members have wide latitude in terms of specific policies on efficiency and the extent to which energy production and use is sustainable or carbon neutral. One example of this is the fact that the EU had to impose a prohibition on European energy companies reselling imported gas outside their home country under “destination clause,”⁸⁵ due to various national governments' disregard for voluntary limits on the practice. Under TFEU Article 101, “the territorial restrictions” and “preferential national

82 COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN COUNCIL AND THE EUROPEAN PARLIAMENT AN ENERGY POLICY FOR EUROPE, *see* “ec.europa.eu/energy/energy_policy/doc/01_energy_policy_for_europe_en.pdf”.

83 *Ibid.*

84 *Ibid.*

85 The “destination clause” is generally used in the gas-related contracts between the gas exporter and importer, under which the importer does not have a right to sell the purchased cargo except for in the detained area. The destination clause increases the seller's profit and also lead to market discrimination. Only in a situations where demand of gas and transportation cost of cargo are homogenous in two regions, seller can ignore the destination clause.

pricing”⁸⁶ are incompatible in the EU-wide liberalised market. According to a report, “from 2000 onwards the Commission has threatened legal action against European companies...it was unable to have any impact on the length of the member states’ agreements with third countries.”⁸⁷

Another energy-related development is the South Stream project,⁸⁸ which is already functioning. Several EU member states have concluded bilateral agreements with Russia to enable the construction of a natural gas pipeline between Russia and Germany. Due to environmental and free trade concerns, the pipeline agreements may contravene EU law.⁸⁹

6 Free Trade and Energy Agreements

Before the WTO came into existence, international trade and energy agreements were being negotiated on an ad hoc and piecemeal basis. Currently the WTO is the established venue for dispute settlement. Previously, it was General Agreement on Tariffs and Trade (GATT) that served as the mechanism for settling trade disputes. GATT has since evolved into a *de facto* international organization alongside the WTO. The GATT Members states have an obligation to ensure the implementation of the principles of non-discrimination. There are, however, several contradictions under the GATT and WTO rules when it is specifically concerned with climate change and energy.

6.1 Contradictions

One contradiction concerning renewable energy development pertains to the most favoured nation clause and national treatment. According to the most favoured nation (MFN) clause of the GATT, the country, which is the recipient of this status, must nominally, receive equal advantages, by the country conferring that status. National treatment prohibits discrimination between imported and domestically produced goods with respect to internal taxation or

86 The treaty of the European Union (TEU) and the treaty of the functioning of the European Union (TFEU) 2007.

87 P. Aalto, *The EU-Russian Energy Dialogue* (2008) Ashgate, p. 68, Cf., Bart Van Vooren, *Europe Unplugged, Progress, potential and limitations of EU external energy policy three years post-Lisbon*, Sieps, EPA,2012:5, p. 64.

88 Seita Romppanen, *Reflections on Environmental Responsibility – with an Emphasis on the Nord Stream Pipeline in the Baltic Sea Area*, Nordisk Miljörättslig Tidskrift, 2010:1, pp.23-48.

89 Bart Van Vooren, *Europe Unplugged, Progress, potential and limitations of EU external energy policy three years post-Lisbon*, Sieps, EPA 2012:5. In this report it is noted that “this is because agreements on pipelines should allow non-discriminatory access to booking capacity for transit, non-discriminatory tariffs and bi-directional flows. Economically, questions were asked about whether the project, which runs through the Baltic Sea, is the most cost effective, safe and environmentally-friendly route for gas deliveries from Russia to Germany,” *see, ibid*, p.64.

other government regulation. When foreign products or equipment have been imported, national treatment rules mandate that they not be treated less favourably than similar domestic products. With regard to the internal taxes and subsidies, discrimination continues to exist among states. Discrimination can take various forms, as discussed earlier in reference to WTO panel decisions DS412/R and DS426/R. It remains to be established whether or not some positive discriminations, e.g. for sustainable energy development, will ever be deemed necessary enough to allowed to override non-discrimination concerns.

Another contradiction relates the General Agreement on Trade in Services (GATS). This is about the very term energy “services”, as there is no clear definition of energy services, i.e. is it a product, is it a good, or is it a service? Traditionally, energy services constitute value added to energy goods produced, transported and distributed by the same supplier, where government owned companies run the business, and where private companies consider energy services as distinct from energy goods. At the same time, energy services need to be seen in context to the MDG as well.⁹⁰ Yet another contradiction is the Trade Related Investment Measures (TRIMs) Agreement, which in its current form reiterates the national treatment obligation and prohibits certain investment measures, such as requiring companies to buy a certain amount of goods of national origin, or impose conditions on imports and exports.

In addition, the Agreement on Technical Barriers to Trade (TBT) provides the WTO members with the right to implement measures to achieve legitimate policy objectives, such as the protection of human health and safety, and the environment.⁹¹ The WTO agreements applicable to energy are problematic and seem to be clashing with the national initiatives of sustainable energy development. Subsidies are often being granted to energy producers with fixed guaranteed prices.

Under the WTO’s Subsidies and Countervailing Measures Agreement (SCMA), two types of subsidies are prohibited. One type of subsidies that are contingent upon export performance, also known as export subsidies, or upon the use of domestic over imported goods and local content subsidy. This kind of subsidies is likely to cause adverse effects to the interests of other states. Another kind of subsidies prohibited are export related exemption, remission or deferral of direct taxes or excess exemption, remission or deferral of indirect

90 Millennium Development goals, the examples of energy services include heat for cooking, illumination for home or business use, mechanical power for pumping or grinding, communication, and cooling for refrigeration. Energy services can be derived from a variety of energy carriers. See “www.unmillenniumproject.org/documents/MP_Energy_Low_Res.pdf” “Energy services” should include the physical benefit, utility or good derived from a combination of energy with energy-efficient technology or with action, which may include the operations, maintenance and control necessary to deliver the service.”

91 The measure under Article XX(b) of the needs to be “necessary” to protect human, animal or plant life or health in order to be in line with the GATT. Article XX (g) allows measures “relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption.”

taxes or import duties are contingent on export performance. Within SCMA, states need to be devising its export incentives some of which could be given across the board to all exporters (with some exclusions perhaps), and at the same time incentives could be given selectively to industries, or renewable energy subsidies, where the country has a comparative advantage.

What is lacking under the WTO regime is a comprehensive international agreement, covering various aspects of energy co-operation and sustainable energy development, including international trade, investment, transit, and energy efficiency. In addition, there is a lack of a comprehensive approach to reduce industrial fossil fuel emissions and conserve biological diversity.

6.2 *Green Energy Pacts*

One model that could serve as a starting point for such a comprehensive approach is the Energy Charter Treaty.⁹² If the political will among states were strong enough, it would be possible to conclude a green energy “pact” between states on a regional and/or international basis. There is a recent agreement between Germany and India, referred to as the Green Energy Corridor, which may presage an emerging paradigm for such a pact.⁹³

If such a pact were to come into existence, its guiding principle should include, among other things, incentives to increase the supply and demand for renewable energy, disincentives that discourage environmental degradation and, overall, a substantial emission reduction in the energy sector. A green energy pact could benefit by mimicking some selected OPEC operational model, particularly their extensive deployment of resources devoted to technical assistance and economic aid among member states. This could prove effective in speeding the growth of renewable energy use and infrastructure.⁹⁴

7 **Environmental Treaties**

The approaches adopted by the current major environmental treaties are varied. The question is whether or not these approaches complement each other vis-à-vis environmental protection goals and economic interests of the parties. If

92 See, Energy Charter Treaty “www.encharter.org/fileadmin/user_upload/document/EN.pdf”.

93 See, Germany and India Green energy Pact, “www.business-standard.com/article/economy-policy/scindia-in-germany-to-finalise-pact-for-green-energy-corridors-113051500984_1.html”.

94 The OPEC Member Heads of Delegation Conference generally coordinate and unify petroleum policies to promote stability and harmony in the oil market. The OPEC has its Secretariat, the Board of Governors and the Secretary General and various bodies, including the Economic Commission and the Ministerial Monitoring Committee. The Conference considers the situation, forecasts economic growth rates and petroleum demand/supply scenarios. The Conference also considers collective oil production in order to maintain stable prices and steady supplies to consumers in the short, medium and longer term.

there are contradictions, how can this be reconciled to reach to environmental protection goals, including sustainable energy and climate change mitigations? A survey of some key environmental treaties indicates that there are indeed contradictions in the treaties' approaches, especially between the anthropocentric and eco-system approaches.

7.1 Approaches

From the point of view of jurisprudence, how should we approach to clean energy depends upon what is the approach that is being adopted towards climate change, as well as towards protection of biological diversity. Is there complementariness between these areas of environmental protection need to be assessed. The UNFCCC recognises that "stabilisation of the greenhouse gas concentration in the atmosphere is a common concern of humanity." As well, a key principle of the Convention on Biological Diversity (CBD) is the "common concern of humankind". In its preamble, it sets the goal of enhancing resilience in order to preserve biodiversity. The UNFCCC and CBD have, roughly speaking, adopted complementary approaches. There are, however, contradictions in other areas as well.⁹⁵ The forests are known as biomass and source of energy which have also been described as a "safety net" of genetic resources and "bio shields" against negative impacts of climate change, but treating the tropical rain forests as an environmental resource is a long way from implementation. The International Timber Agreement of 1983, with its soft ecological guidelines for sustainable use and a number of regional treaties, was designed to deal with the sustainable use of tropical forests. Some forests are governed by the 1972 World Heritage Convention and one related issues to this is "plant jurisprudence", which is also a related issue to biological diversity that entails the concept of guardianship; in this regard, it is argued by some that, "when a friend of a natural object perceives that a natural object(s) is being endangered or likely to be endangered, the law should provide her/him to apply to a court for the creation of guardianship."⁹⁶ The UNFCCC-based COP

95 A notion of "common property" is applied in the context of laws governing wildlife. The end result of that notion's application is that free access to a common property generally leads to overexploitation, referred to as the "tragedy of the commons". For instance, the "common heritage of mankind" is recognised concerning the mineral resources of the sea, but the same approach is not practiced concerning the living resources of the sea, which in most legal contexts are considered to be under the private domain. Biological diversity is recognised by the CBD as "resources", but it does not mention the problems of Genetically Modified Organisms (GMOs). This is yet another clash between the anthropocentric and ecosystem approaches.

96 C. Stone, *Should Trees Have Standing? -Towards Rights for Natural Objects*, 45 Southern California Law Review, 450, 1972. The wildlife protection and animal rights are relevant when analysing the environmental goals of UNFCCC and CBD. There is increasing public concern for the protection of animals, with emphasis on endangered species, habitat and rational management, e.g., whales, polar bears, porpoises, dolphins, sea otters, bald eggless, condors, and the snail darter. There are contradictions of approaches here as well. Furthermore, the international law does not recognise the animal rights and there are no coherent and explicit legal approaches to animal welfare. Priority of the law remains on the

negotiating strategies need to take these principles into consideration if the objectives of the REDD and REDD-plus⁹⁷ are to be meaningfully fulfilled.

7.2 *Principles*

Having seen the existing contradictions of approaches, it seems necessary to identify and assess how the existing principles could be implemented concerning the sustainable energy development. According to the UNFCCC, the “respective capabilities” is an integral part of the principle of common but differentiated responsibility of states.⁹⁸ The principle is a foundation of the legal regime that was created to mitigate climate change, upon which targets for greenhouse gas emission cuts were laid out in the 1997 Kyoto Protocol. While the principle as a whole is essential for the legitimacy of the climate regime, this has so far proven less than effective and hindering international negotiations for a new climate treaty. This, in essence, means that the practical application of the principle of respective capabilities of states could be the basis for addressing the renewable energy needs of states and transfer of green technology between states. The respective capabilities of states are dynamic, not static. For example, China, India and Brazil have achieved considerable economic growth, in recent decades, but these states do not consider themselves as a part of the developed world.⁹⁹

It should be acknowledged that despite their noteworthy economic growth, China, India and Brazil suffer from poverty and lack of infrastructure development, energy supply, advanced technology and best environmental practices. What makes the respective capabilities principle relevant to sustainable energy development is that it is in the best interest of China, India and Brazil, to balance the low carbon emissions along with economic growth.

trade related issues concerning animal welfare, failing to include the eco-system approach, e.g. EC Leg hold Trap Regulation, Humane Trapping Standard, Humane Killing. Acceptance of the biological communities mostly found in the preambles, animals remain objects (Shrimp/Turtle Case (USA v. Malaysia, Thailand ...The WTO Dispute Settlement Mechanism, 1998 recognizing protection of renewable resources.

97 Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. "REDD+" goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks. “www.un-redd.org/AboutREDD/ tabid/102614/Default.aspx”.

98 The Kyoto Protocol-based emission cuts are allocated to the developed countries. In its Annex I, there is a list of developed countries, based on the current practice, defining developed countries with developed economy, advance technical infrastructures, high degree of gross domestic product and per capita income, as well as higher standard of living. Most of these countries represent the Northern hemisphere. There is a difference between these states in terms of amount of emissions.

99 The developing countries are known as the non-Annex countries under the Kyoto Protocol based on the low level of living standard of the people, underdeveloped industries and low human development index.

If a comprehensive multilateral agreement, covering various aspects of sustainable energy development were to be concluded, it would also be in the best interests of the more established industrial countries to foster its own development and use of alternative energy just as it is expected from China, India and Brazil. Geopolitical interests, however, are a substantial hindrance to the realization of this scenario.

7.3 *Market Mechanisms*

Appropriate legal mechanisms are important tools to ensure the renewable energy practice, especially when states work collectively. The question is whether there are such mechanisms, which could practically be applied?

A relatively successful mechanism for balancing environmental goals and economic interests can be seen with the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer (a Protocol to the Vienna Convention on ozone layer protection). This Protocol's aims – the reduction of sulphur dioxide emissions that contribute to acid rain – have largely been achieved through flexible environmental regulations coupled with cost-effective, market-based mechanisms.¹⁰⁰ Any kind of economic investments under the market-based mechanism will be dependent on the investors' profit interests, whether it is carbon trading or renewable energy market.¹⁰¹ Yet, one should not ignore the fact that there are some noteworthy strengths of the trading schemes, e.g. by creating "price" for an incentive in the private sector either to pollute less or use more alternative energy or both.

It must be acknowledged that market is not an invincible mechanism, and therefore some experts have suggested markets' alternatives for the promotion of sustainable energy. They argue that taxing the burning of fossil fuels—coal, petroleum products and natural gas—in proportion to their carbon content is an alternative to the emission trading market mechanism. There are, however, others who consider taxation is a flawed response to a flawed market mechanism and suggest that the solution of the problem is to fix the existing market mechanisms.¹⁰² Some important questions are; will states fulfil their responsibility to establish international market for sustainable energy at the

100 A more refined version of the market-based approach has evolved with the Kyoto Protocol's CDM and JI, both of them being used for international emission trading. The EU Emission Trading Schemes (EUETS) further refined international emission trading, setting specific quantities of emission reduction. For the emission trading market to function successfully, it is necessary that abatement costs of emission reductions be kept in balance with economic growth as well as market competitiveness. The problem with international emission trading—and other similar schemes—arises out of the system itself, because they are based on free market trading rules, i.e. demand and supply.

101 Carbon tax, For example, Rosenblum, Daniel (11/13/2007) "BBC Poll shows growing support for carbon taxes." Critics, who instead support a carbon tax or using public finance to mitigate climate change, argue that emission trading is an inadequate initiative and therefore suggest that trading pollution allowances should be avoided.

102 Anton Krawchenko *see*, "www.energy-business-review.com/article_feature.asp?guid=E8E28FC9-26EE-4ED7-82D9-F4D1CF33F4A4".

first place and assist market during failures and/or economic crisis when needed? What kind of mechanism should be established for sustainable energy markets and how states would provide incentives to the private investors at times of energy markets failures? Perhaps, a bailout of the private investors by the state banks along the lines of the Troubled Asset Relief Program (TARP) that emerged in the United States in response to the 2007-2008 global market crash may be one option. An international mixed energy market is slowly taking a shape with some innovative economic instruments, which needs to be utilised for sustainable energy market. A short assessment on the economic instruments follows.

8 Economic Instruments

As a result of the energy market liberalisation, various types of economic instruments have emerged in the past decade,¹⁰³ not only in Western Europe and North America but also in China and India. These are incentives, essentially, to spur energy saving and efficiency. These instruments have evolved because of the presence of private finance in the energy market, with ultimate aim of incentivising the use of alternative energy over fossil fuels. Questions also need to be raised over whether or not the evolving economic instruments are applicable on an international scale in order to establish a viable alternative energy market. And, if so, under what conditions these economic instruments could be used as a part of the climate change mitigation solutions.

8.1 *Various forms of Instruments*

For example “on-bill finance”¹⁰⁴ aims to establish the energy provider’s legal relationships with its investors, as well as covering its operating costs. The local and national laws governing on-bill financing schemes are based on “properly assessed clean energy”¹⁰⁵ and “energy performance contracting.”¹⁰⁶ These are long-term financial instruments that offer various repayment modes to cover the costs of energy efficiency measures.

103 Anuschka Hilke and Lisa Ryan, *Economic instruments for low-energy buildings*, OECD/IEA, 2012.

104 Philip Henderson, “On-Bill Financing Overview and Key Considerations for Program Design”, *Natural Resources Defense Council (NRDC) Issue brief*, July 2013 ib:12-08-a.

105 *Fact Sheet Series on Financing Renewable Energy Projects*, see “www.nrel.gov/docs/fy10osti/47097.pdf”.

106 See in detail “ec.europa.eu/energy/efficiency/financing/campaign_en.htm”.

There are also other types of energy “contracts” between governments and private companies, e.g. “build-own-operate-transfer” (BOOT).¹⁰⁷ For the BOOT to function, favourable legal arrangements are required at the local, national and international levels.

The “white certificate” is another economic instrument. It is a document issued by a legally authorized governmental institution, which certifies that, a specified amount of energy savings are being achieved by a specific company or consumer.¹⁰⁸ The certificates can be sold and bought among companies based on the energy saved in compliance with the targets. However, the price for saving of energy, per unit, stands as a problem. The white certificates are still limited to the local and national levels.

“Feed-in tariffs” (FiTs) is essentially a policy designed to enhance investment in technologies for renewable energy.¹⁰⁹ FiTs is designed for a long-term contracts to renewable energy producers, it offers cost-based compensation, e.g. providing price certainty and financing renewable energy development through technological development. For example, FiTs have led to the dramatic increase in Europe’s solar photovoltaic power and other alternative energy sectors.¹¹⁰ In particular, Deutsche Bank has made a significant contribution to global wind power development through their utilisation of FiTs.¹¹¹ Germany has demonstrated that FiTs can be used as a tool to combine energy security and emissions reductions objectives.¹¹²

“Green certificates” or “Renewable Energy Certificates” (REC) have been introduced as a part of energy supplier obligation schemes. For example, since 2012, Sweden and Norway have established a common market for RECs.¹¹³ This gives rise to the possibility that bilateral agreements between states could be the foundation of a RECs common market. This type of system could be implemented where countries that share the same level of ambition can secure maximum benefits from the development of power grids. The Green Energy Corridor agreement between Germany and India,¹¹⁴ mentioned above, shares

107 Gilberto M. Llanto, *A Review of Build-Operate-Transfer for Infrastructure Development: Some Lessons for Policy Reform*, Philippine Institute for Development Studies, DISCUSSION PAPER SERIES NO. 2008-25.

108 Paolo Bertoldi and Silvia Rezessy, *ENERGY SAVING OBLIGATIONS AND TRADABLE WHITE CERTIFICATES*, Joint Research Centre of the European Commission, 2009.

109 Couture, T., Cory, K., Kreycik, C., Williams, E., *A Policy Guide Feed-in Tariffs Design*, National Renewable Energy Laboratory, U.S. Dept. of Energy (2010).

110 Ibid.

111 Ibid.

112 Ibid.

113 Eva Centeno López, *Common Swedish Norwegian certificate market for renewable electricity*, Swedish Ministry of Enterprise, Energy and Communications, Sweden Workshop on Review Environmental State Aid Guidelines 12 April 2013. See also “www.regjeringen.no/en/dep/oed/press-center/press-releases/2010/g.html?id=627384”.

114 See more about Germany and India Green Energy Corridor “www.business-standard.com/article/economy-policy/scindia-in-germany-to-finalise-pact-for-green-energy-corridors-113051500984_1.html”.

some characteristics with the bilateral RECs model. The Green Energy Corridor is a loan or aid for developing suitable conditions in India, i.e. provide technical assistance to set up a functional FiT scheme, much as Germany has done in South Africa.¹¹⁵ The proposed green energy pacts could be developed on the basis of the two models.

It should be noted, however, that in addition to the international emission trading scheme under the UNFCCC's Kyoto Protocol, some national or regional greenhouse gas emission trading schemes have developed:

“Companies covered by the emissions trading schemes are required to hold sufficient allowances for the greenhouse emissions they produce. These allowances can be traded with other companies in the scheme. The energy efficiency measures can be an important low-cost way for companies to reduce their emissions. If allowances are auctioned, the revenues are accrued by the treasury and can be ring-fenced for energy efficiency measures.”¹¹⁶

The fluctuation of price in emission trading schemes is still a problem in terms of economic instruments. How to develop economic stimulus programs for carbon market demands an answer from economists, not necessarily from lawyers. The above-mentioned economic instruments basically fall under the scope of national laws. The Kyoto Protocol- based mechanisms are the part of public international law as well as the EU law. The crediting schemes based on the CDM and JI obliges the annex 1 parties to finance emission reduction activities outside their territories. Under the CDM project, an annex party can finance abatement activities in developing countries, while through JI projects, an obliged party can finance abatement activities in another country equally obliged under the Protocol.

The conflict between sets of laws and weaknesses in the enforcement of public international law is yet another hurdle to foster the development of the financial incentives. Most of the tools developed so far remain under the scope of the different national laws or private international law, or the conflicts of laws. Thus, application of these instruments, whether it is at national or international scales, depends upon the favourable national legislative framework of the respective countries.

9 Conclusions

This discussion has demonstrated that legal issues concerning sustainable energy use and climate change mitigations are not yet fully interlocked, especially when looked from the point of view of international environmental law. Nor have reasonable trade-offs been established between the various

115 See more about FiT scheme between Germany and South Africa. “www.dbadvisors.com/content/_media/GET_FIT_-_042610_FINAL.pdf”.

116 Anuschka Hilke and Lisa Ryan, *Economic instruments for low-energy buildings*, OECD/IEA, 2012, p.24.

national policies regarding climate change mitigation and those regarding sustainable energy development.

Some progress in the legal development is being made, but in terms of outcomes, progress remains insignificant. For example, mitigating climate change through emissions reduction in the fossil fuel energy sector is a priority for most nations, but most of their litigation, legislation and legal approaches are as yet incoherent and weak.

When looked from the lenses of litigation, judicial decisions may provide guidance to the negotiations process and litigations attract media attention,¹¹⁷ the actual positive impact on the UNFCCC to negotiate a workable treaty climate change, however, has been negligible. Despite the fact that there is a general consensus among states and experts that fossil fuel emissions must be reduced, the UNFCCC negotiations remain deadlocked. Although there has been a considerable rise in national legislation efforts and progress concerning climate change mitigations through green energy development, the harmonisation of these legislative instruments remains problematic.

The environmental treaty approaches are contradictory and interpretation of principles is static, not dynamic. The emission reduction mechanisms are still weak and the incentive to not pollute has declined along with the dramatic drop of the price of per unit emissions. The application of the economic instruments is a promising step in the right direction, but it is constrained by the very structure of public international law and various national laws.

Above all, it seems difficult to separate the energy issues from strategic military security perspective, because all states are seeking energy independence and there is a lack of practical acknowledgement of energy related inter-dependence of states. The powerful states continue their strategic foreign policies based on energy security and supply, usually securing those resources from the more volatile regions of the world. Hydraulic fracturing, or flacking, is considered as one alternative mitigating this problem. Yet, if and when flacking demand increases and supply intensifies, the hydrocarbon fracturing will also fall within the geopolitical context. Some experts, therefore, seem to consider energy is essentially political issue and suggest that the problem can be more effectively addressed through political means.¹¹⁸ Even though the discharge of state obligations is often made outside the judicial processes and disputes are rarely referred to adjudication, it is the law that should guide energy politics. As long as the strategic energy politics continue to dominate over the necessity of law, transformation of the current mode of operation and use of energy is not possible towards sustainable energy-based society. There is no doubt that the excessive consumption of the

117 The inter-state climate change litigation may help to create the political pressure and third-party guidance required to re-energize the climate change negotiations. Christoph Schwarte and Ruth Byrne, "International climate change litigation and the negotiation process", October 2010, A longer working paper on the issue is available through "www.field.org.uk".

118 Rafael Leal-Arcas and Andrew Filis, *The fragmented governance of the global energy economy: a legal-institutional analysis*, *The Journal of World Energy Law & Business* Advance Access, July 19, 2013.

fossil fuel-based energy is the cause of climate change and the solution of the problem cannot be found without using alternative energy. The energy and climate change mitigation need be treated in such a way that renewable energy access is ensured which meets standard of consumer protection, the environmental impacts and energy access/supply at the local, regional and global level. Sustainable energy development is in everyone's long-range interest and therefore it needs to be taken into consideration by the international community. One basic step in that direction is to conclude a new treaty integrating climate change mitigation and sustainable energy development, whether it is within or outside the UNFCCC, before even more

Resource Efficiency

