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**THE DIALECTICS OF GLOBAL ENERGY CRISIS: ADDRESSING  
ENERGY SUSTAINABILITY AND THE NEED FOR ENVIRONMENT  
PROTECTION LAWS IN INTERNATIONAL TRADE**

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## CERTIFICATE

This is to certify that **E M ATHIRA**, Reg. No: LM0220006 has submitted his dissertation titled, *“The Dialectics of Global Energy Crisis: Addressing Energy Sustainability And The Need For Environment Protection Laws In International Trade”*, in partial fulfilment of the requirement for the award of Degree of Master of Laws in International Trade Law to the National University of Advanced Legal Studies, Kochi under my guidance and supervision. It is also affirmed that, the dissertation submitted by her is original, bona-fide and genuine.

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## **DECLARATION**

I declare that this Dissertation titled “The Dialectics Of Global Energy Crisis: Addressing Energy Sustainability And The Need For Environment Protection Laws In International Trade” is researched and submitted by me to the National University of Advanced Legal Studies, Kochi in partial fulfilment of the requirement for the award of Degree of Master of Laws in International Trade Law, under the guidance and supervision of Mr. Hari S. Nayar, and is an original, bona fide and legitimate work and it has been pursued for an academic interest. This work or any type thereof has not been submitted by me or anyone else for the award of another degree of either this University or any other University.

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## **ABBREVIATIONS**

1. ACE	ASEAN Centre for Energy
2. AMKN	African Microhydro Knowledge Network
3. ASEAN	Association of Southeast Asian Nations
4. Btu	British Thermal Units
5. CCTs	Clean Coal Technologies
6. CDM	Clean Development Mechanism
7. CFS	chlorofluorocarbons
8. CITES	The Convention on International Trade in Endangered Species
9. COP	Conference of Parties
10. CTE	Committee on Trade and the Environment
11. DSM	Dispute Settlement Mechanism
12. ECT	Energy Charter Treaty
13. EIA	Energy Information Administration
14. ESCAP	Economic and Social Commission for Asia and the Pacific
15. EU	European Union
16. EURATOM	European Atomic Energy Community
17. FDI	Foreign Direct Investment
18. GATS	General Agreement on Trade
19. GATT	General Agreement on Tariffs and Trade
20. GHG	Green House Gas
21. HCFC	hydrochlorofluorocarbons
22. IAEA	International Atomic Energy Agency
23. ICJ	International Court of Justice
24. IEA	International Energy Agency
25. IEI	The International Energy Initiative
26. IMF	International Monetary Fund
27. IMO	International Maritime Organization
28. IP	Intellectual Property
29. IRENA	International Renewable Energy Agency
30. ISA	International Solar Alliance
31. LDCs	Lesser Developed Countries
32. MDGs	Millennium Development Goals

33. MEA	Multilateral Environment Agreement
34. NAFTA	North American Free Trade Agreement
35. NEA	OECD's Nuclear Energy
36. NPT	Non-Proliferation Treaty
37. ODA	Official Development Assistance
38. OECD	The Organisation for Economic Co-operation and Development
39. OLADE	The Latin American Energy Organization
40. OPEC	Organization of Petroleum Exporting Countries
41. PEEREA	Protocol on Energy Efficiency and Related Environmental Aspects
42. PREGA	Promotion of Renewable Energy, Energy Efficiency, and Greenhouse Gas Abatement
43. PSNR	Permanent Sovereignty in Natural Resources
44. R & D	Research and Development
45. RD&D	Research, Development and Demonstration
46. RE	Renewable Energy
47. SCMA	Subsidies and Countervailing Measures Agreement
48. SDGs	Sustainable Development Goals
49. SEforALL	Sustainable Energy for All
50. SIDS	small island developing nations
51. TPES	total primary energy supply
52. UN	United Nations
53. UNCC	United Compensation Commission
54. UNCITRAL	United Nations Commission on International Trade
55. UNCTAD	United Nations Conference on Trade and Development
56. UNDP	United Nations Development Programme
57. UNEP	United Nations Environment Programme
58. UNFCCC	United Nations Framework Convention on Climate Change
59. UNIDO	United Nations Industrial Development Organisation
60. USSR	United States of Soviet Russia
61. WEA	World Energy Agency
62. WTO	World Trade Organization

## CASE LAWS

1. *Bering Sea fur seal arbitration (United States v Canada)* 28 RIAA 263
2. *Corfu Channel (United Kingdom v Albania)* (1949) ICJ Reports 4,
3. *Legality of the Threat or Use of Nuclear Weapons Advisory Opinion* (1996) ICJ Reports 241.
4. *The Brazilian Tire Case, European Communities v Brazil*, Appellate Body report, WT/DS332/AB/R
5. *The Mexican Tuna Case*, GATT Panel Report, DS21/R, BISD/39S/155 1994
6. *The Shrimp-Turtle Case, The WTO Shrimp-Turtle Case (United States Import Prohibition Of Certain Shrimp And Shrimp Products)*, 1997
7. *The U.S. Gasoline Case, Brazil and Venezuela v United States*, WT/DS2/AB/R, Doc No 96-1597
8. *Trail Smelter (United States v Canada)* (16 April 1939 and 11 March 1941) 3 RIAA 1905.

## CHAPTER I

### INTRODUCTION

Energy accounts for 13% of overall international trade, with oil accounting for 11% of it. Natural gas and coal account for 14 and 4% of global energy commerce, respectively. By 2030, oil trade is predicted to double and natural gas trade will triple. Trade liberalisation is assumed to boost economic activity and, as a result, energy consumption.<sup>1</sup>

All countries require energy resources, but only a few have them, therefore energy trade (mainly oil) is critical to meeting global energy demands.<sup>2</sup> Oil is traded more internationally than any other commodity. "About half of global service commerce is heavily reliant on energy."<sup>3</sup> However, the GATT/WTO has never been concerned with energy trade.

Given that the lowering of import restrictions—one of the key purposes of the multilateral trading system—is not an issue when it comes to energy, very few energy-rich countries recognised the need to join the GATT/WTO club. Saudi Arabia, the world's largest energy producer, only joined the WTO in 2005, and many other energy producers are still not members.<sup>4</sup>

In 2011, the United States consumed eighty quadrillion British thermal units of fossil fuels (Btu). According to the US Energy Information Administration (EIA), fossil fuels provided 80 percent of that energy, with petroleum accounting for 35.3 percent, coal for 19.6%, and natural gas for 26.8%. Nuclear and renewable energy accounted for 8.3 percent and 9.1 percent of total energy consumption, respectively.<sup>5</sup>

Saudi Arabia, Iran, Iraq, Kuwait, and the United Arab Emirates accounted for seventy percent of oil reserves within the Organization of Petroleum Exporting Countries (OPEC) in 2009, with

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<sup>1</sup> ICTSD, "Linking Trade, Climate Change and Energy," ICTSD, Geneva, 2006.

<sup>2</sup> Pauwelyn, J. "Global Challenges at the Intersection of Trade, Energy and the Environment: An Introduction," in Pauwelyn, J. (ed.) *Global Challenges at the Intersection of Trade, Energy and the Environment*, Geneva: Centre for Trade and Economic Integration, 2010, p. 3.

<sup>3</sup> Gault, J. "A World of Introduction from the Energy Industry Perspective," in Pauwelyn, J. (ed.) *Global Challenges at the Intersection of Trade, Energy and the Environment*, Geneva: Centre for Trade and Economic Integration, 2010, p. 9.

<sup>4</sup> See Selivanova, Y. (ed.) *Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter*, Kluwer, 2011; Shih, W. "Energy Security, GATT/WTO, and Regional Agreements," 49 *Nat. Resources J.* 433, 2009.

<sup>5</sup> Energy Information Administration, "Total Energy," United States Government, 2011. <http://www.eia.gov/totalenergy/>

Saudi Arabia alone accounting for twenty-six percent of total OPEC reserves. Currently, non-OPEC production accounts for over 60% of global oil supply.

With an annual growth rate of around 7%, China has surpassed the United States as the world's top oil consumer. In 2012, global crude oil consumption increased by 0.6 million barrels per day (b/d), to 88 million b/d. Consumption in the OECD fell by 1.2 percent, as has been the case in recent years. Consumption in non-OECD countries increased by 2.8 percent. China's consumption increased at the fastest rate of 5.5 percent (505,000 b/d).<sup>6</sup>

### **The Changing Dynamics of Energy Trade**

There are now two sorts of energy-endowed countries that create energy: the first are those that are both energy producers and exporters, such as Saudi Arabia, Russia, and Norway. In this instance, the country's energy production surpasses local demand, resulting in energy surpluses being exported to the international market. The second category includes energy-rich countries that, despite their energy production, are classified as energy importers rather than exporters, such as the United States and the United Kingdom. In this instance, the country's energy production is insufficient to meet domestic need, hence it must import energy resources from exporting countries to meet domestic demand.

The fossil fuel resources of oil, coal, and natural gas, which are non-renewable resources having finite amounts available within confirmed natural reserves, account for the lion's share of energy commerce. Importantly, only a few countries have abundant fossil fuel reserves and export them, whereas the great bulk of the world is made up of energy-importing nations. In this respect, energy is the most widely traded commodity on the planet, and current global consumption is nearly entirely made up of finite and non-renewable resources, on which the modern world is highly reliant.<sup>7</sup>

Global energy commerce was neither regulated by appropriate laws and regulations pertaining to energy trade, nor was it conducted de facto according to written or transparent rules. Instead, for decades, energy trade was governed by intergovernmental ties shaped by political and diplomatic factors. Transparency, clarity, stability, and predictability are all lacking in this political rather than regulated mode of trade.

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<sup>6</sup> EUGENE D. COYLE, WILLIAM GRIMSON, BISWAJIT BASU and MIKEMURPHY, *Understanding the Global Energy Crisis*, Purdue University Press. (2014)

<sup>7</sup> See *Supra* n.4

Despite the tremendous increase in power generation from renewable and green sources, coal will continue to be a significant source of fuel for power generation due to supply availability, security, and diversity. As a result, it's critical to assess the state of the art in the field of Clean Coal Technologies (CCTs) and how they can assist reduce carbon emissions in the future.

Climate change mitigation and trade and investment development are not supposed to be mutually exclusive goals. They are designed to be mutually beneficial in the framework of the global green economy.

### **From Non-Renewable Energy Dependant Industrialisation to Renewable Energy Dependant Sustainability**

Oil demand is expected to reach over 120 million barrels per day (mbpd) in 2030, according to the International Energy Agency (IEA) and the Organization of Petroleum Exporting Countries (OPEC), with transportation being the primary user. The developed world accounts for the vast majority of global demand. Demand grew more quickly in developing countries, particularly in Asia (especially China). A small number of Middle Eastern oil-producing countries also contributed to this rise, owing to the expansion of their refining, petrochemical, and metals sectors.<sup>8</sup>

Income growth, pricing, energy intensity (energy usage as a percentage of national income), environmental concerns, technical advancements, and government policies are all important factors impacting future energy demand. Even if energy demand is initially price inelastic, price increases eventually cause demand-reducing technical change, especially if the increases are regarded as permanent.

A bulk of global energy requirements are supplied by Fossil fuels (oil, gas and coal).<sup>9</sup> Oil will continue to be the most important fuel through 2030, however the proportional importance of gas, coal, and non-fossil fuels should rise. For the next two decades, both OPEC and the IEA forecast that fossil fuels will play a major role.<sup>10</sup>

Renewable energy is expected to account for 29% of power generation and 7% of transportation fuel by 2030, expanding at a rate of roughly 9% per year.<sup>11</sup> Biofuels have the potential to play a significant part in the future energy mix. The impact on land availability and food prices, as

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<sup>8</sup> Energy-related issues from the trade and development perspective, Trade and Development Board Trade and Development Commission First session Geneva, 11–15 May 2009 Item 4 of the provisional agenda.

<sup>9</sup> IEA (2008). Key World Energy Statistics, Statistics Report, August 2020, [www.iea.org/statistics/](http://www.iea.org/statistics/).

<sup>10</sup> IEA and OPEC background papers for the eleventh International Energy Forum, Rome, 20–22 April 2008.

<sup>11</sup> IEA (2008). Deploying renewables – principles for effective policies.

well as oil prices remaining above \$50 per barrel (pb) and countries' legal requirements for include biofuels in their fuel mix, will all influence the amount to which biofuels are used.

Oil is the most essential energy source and should remain such, but it is also a major source of greenhouse gas (GHG) emissions (overall consumption of fossil fuels accounts for some 80 per cent of global CO<sub>2</sub> emissions).<sup>12</sup> Given the non-renewable nature of fossil fuels, there are increasing pressures and needs to diversify the energy mix, invest in alternate forms of revenue (for energy producers), and develop and expand alternative clean energy sources in order to combat climate change.

In terms of power infrastructure, although deploying wind or solar power can provide challenges or costs in terms of storing huge amounts of electricity and connecting to power grids, RE is better suited for localised use and reduces transmission losses. Rural RE deployment may significantly improve access to inexpensive and secure energy supply, boosting agricultural and industrial production, economic growth, and poverty alleviation. Agriculture (organic agriculture), urban transportation, and building are all potential sources of energy and carbon dioxide savings. Developing countries can implement national energy policies to set the stage for implementing climate-friendly energy structural improvements. A variety of commercial, regulatory, and voluntary initiatives can be used to encourage energy-efficient and renewable-energy technology.

Developing countries may be particularly skilled at developing technology solutions that are tailored to the needs of other developing countries, allowing for South–South exchanges.

With over 80% of worldwide merchandise trade conducted by sea, maritime transport is the backbone of global trade and at the heart of global transport strategy. Nuclear energy is a large source of power generation, accounting for 13.4% of global electricity generation in 2009<sup>13</sup> and 19% of OECD electricity generation from January to May 2012.<sup>14</sup> The IAEA and the OECD Nuclear Energy Agency have promulgated the principal agreements and standards, while the Euratom Treaty is the key treaty under which EU members aspire to ensure the safe and sustainable use of nuclear energy.<sup>15</sup>

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<sup>12</sup> Stern N (2007). *The economics of climate change*. Cambridge University Press, 2007.

<sup>13</sup> International Energy Agency, *Key World Energy Statistics 2011* [http://www.iea.org/publications/freepublications/publication/key\\_world\\_energy\\_stats-1.pdf](http://www.iea.org/publications/freepublications/publication/key_world_energy_stats-1.pdf)

<sup>14</sup> International Energy Agency, *Monthly Electricity Statistics: May 2012* <http://www.iea.org/stats/surveys/mes.pdf> 1.

<sup>15</sup> *Treaty establishing the European Atomic Energy Community*, opened for signature 25 March 1957, 298 UNTS 167 (entered into force 25 March 1957).

## **Rise to Prominence of Energy law as a Discipline**

The International Energy Agency ('IEA'); the Energy Charter Conference and Secretariat; the International Atomic Energy Agency ('IAEA'); the United Nations Development Programme ('UNDP'); the United Nations Environment Programme ('UNEP'); the OECD Nuclear Energy Agency; and the International Renewable Energy Agency ('IRENA') are all international organisations that deal with energy law. IGOs, particularly international energy institutions, have a long history of providing secretariat services for conferences that result in energy regulatory instruments such as treaties. They claim to be providing a 'service' to governments, who have formal decision-making powers, treaty-making capabilities, and the capacity to make or amend treaty law. IGOs, on the other hand, can influence or even create technical standards, usually in collaboration with government specialists, industry associations, and companies.<sup>16</sup> The rules controlling various stages of development of key energy sources, such as oil and gas, nuclear power, and renewable energy, form their own distinct body, as well as a 'sub-discipline' or area of expertise of international energy law. The international oil business is governed by a combination of treaty law, internationalised legal principles, and uniform practise.

## **Objective of the Study**

- The Objective of the dissertation is to research into matters concerning Energy Security, commercial energy activities including trade, transit, and energy efficiency and other topics that are intricately connected to Energy Sustainability in International Trade.
- Given the increased volume of energy materials and products traded across borders, the current institutional structure of energy governance, which consists of multilateral, plurilateral, regional, and bilateral treaties covering various and sometimes overlapping spheres of energy trade and investment, needs to be reconsidered.
- The Protocol on Energy Efficiency and Related Environmental Aspects" (PEEREA) of the Energy Charter Treaty must be fully understood, as it recognises that advances in energy efficiency lessen negative environmental repercussions of the energy cycle, such as global warming and acidification.

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<sup>16</sup> Thomas Wälde, 'The Role of Selected International Agencies in the Formation of International Energy Law and Policy Towards Sustainable Development' in Adrian J Bradbrook and Richard L Ottinger (eds), *Energy Law and Sustainable Development* (IUCN, 2003) 171, 173.



- However, the Energy Charter Treaty has significant flaws, as transnational corporations that have invested in fossil fuel production and nuclear power can sue national governments for lost profits as a result of the transition to renewable energy. As such, the agreement aims to avoid disruption of petroleum transportation between countries from being disrupted.
- The ECT was created primarily to meet the post-Cold War energy demands of European states and to establish free energy trade (largely fossil fuel energy) from the Iron Curtain countries.
- More specifically, the discussion will focus on the interaction of the Energy Charter Treaty and the World Trade Organization Agreements, Regional Cooperation's, International Investment agencies etc.

### **Scope of the Study**

The quest for additional energy by nations to meet rising demand has significant implications for both rich industrialised countries and emerging Third World countries. Energy scarcity is posing a growing threat to both their growth and standard of living. Despite this, neither individual countries nor the international community have created a long-term cooperative approach to address resource shortage.

However, we are only now realising that solving old problems often results in many more problems. We fail to see the new issues that will certainly arise from efforts to overcome the current situation while we debate strategies to address the energy problem.

The fact that the energy crisis affects practically all industrialised countries, notably those in Western Europe and Japan, is a significant factor. The underlying concern for these countries is how they will be able to maintain secure and uninterrupted energy supplies in the long run. It will be required for the international community to embrace a long-term and comprehensive perspective if this common challenge is to prove an opportunity for a meaningful solution.

Adequate Research and Development in alternative, greener sources and friendly cooperation with an exchange of latest environmental control technology by the industrialised nations is necessary. Given, that current WTO rules are far from addressing all the needs of energy trade today, is it necessary to have a WTO Agreement on trade in energy.

## **Hypothesis**

Despite energy accounting for one of the largest sectors of trade, the laws governing the same are haphazardly constructed and its implications ambiguous. The presence of a plethora of agencies, cooperation, treaties and agreements in the trade regime still barely addresses the tip of the iceberg when it comes to the impending questions of energy sustainability and the long-term implication on the environment. These laws being anthropocentric adds to the fact that the visions of the trade regime when it comes to energy is myopic.

The international community has begun to make a little headway in dealing with this crisis and have begun to address and realise the existence of the energy crisis as a sword of Damocles. Yet energy law as a discipline is largely being side-lined.

## **Research Questions**

- Should there be a change introduced in the global energy governance and to what extent.
- The Applicability of various Environment Protection treaties like the Paris Agreement, Kyoto Protocol, Havana Charter, which justified measures related to the “conservation of exhaustible natural resources” into International Trade.
- Is the existence of the Energy Charter Treaty as the sole vanguard for Energy Trade in the International sphere justified?
- Can Sustainable Development Goals be attained by focusing on International Investment Law

## **Research Methodology**

The research methodology employed in the dissertation is Doctrinal and Analytical.

## **Chapterisation**

- **Chapter I: Introduction**

The chapter is an introduction to the current state of affairs of the energy conundrum and its close and inextricable link to sustainability and climate crisis. This chapter provides a brief overview of the positions of countries and organisations in terms of energy production and consumption. This chapter also speaks on the objective and scope of the study, hypothesis and the mode of research employed.

- **Chapter II: The Role of Trade Regimes in Aiding the Transition to A Global Green Economy**

This chapter covers the roles and ideals of the organisations in the international trade regime in the energy sector, as suggestive of the title. It describes the evolution of the energy talk from when it was focused on anthropocentric utilitarianism to eco-centric conservationism. It also attempts to emphasise the competence of the WTO, as need be, to establish a climate waiver so as to favour climate change mitigation which furthers in bringing a solution to the energy crisis.

- **Chapter III: Threat to Energy Security A Possible Hindrance In Attaining Energy Sustainability**

This chapter is an attempt to emphasise the link between the energy crisis to that of sustainability and climate change. One is either an aftermath or the catalyst for another and as such, the issue of climate change and sustainability cannot remain untouched when the question of energy crisis is on the table. From millennium development goals to sustainable development goals, energy usage and distribution is a main concern of these agendas.

- **Chapter IV: Permanent Sovereignty Over Natural Resources A Roadblock to Energy Sustainability?**

The unfettered capitalisation of natural resources, particularly non-renewable ones, to the point where it jeopardises the very cycle of energy by a handful of countries comes as a warning bell for the entire global nations. This chapter explains the evolution of how the principle of permanent sovereignty over natural resources, developed from that of an instrument for self-determination to that which imposes climate obligations on these nations.

- **Chapter V: The Role of International Organisations Like IEA, OPEC, The UN, or The G20, ICSID in Facilitating SDGS**

As suggestive of the title, this chapter gives a brief overview of the several existing multinational organisations and cooperations' attempt to address energy in their commercial, economic or social policies. It also makes an attempt on how these

organisations' global goals can be imbibed into the grassroots level to make addressing energy sustainability more effective.

- **Chapter VI: Conclusion**

This chapter lays out suggestions based on the observations made during the research, which emphasises on the need for a global network of tech transfer and cooperation in order to mitigate the aftermaths of the energy crisis.

## CHAPTER II

### THE ROLE OF TRADE REGIMES IN AIDING THE TRANSITION TO A GLOBAL GREEN ECONOMY

From an economic standpoint, it has long been recognised that energy goods trade accounts for the highest proportion of international trade in terms of both value and share of "global merchandise export." According to WTO figures, the value of fuel exports in 2011 was \$ 3,171 billion, accounting for 17.8% of global goods exports.<sup>17</sup> Energy trade is neither automatically or by definition included or excluded from international trade discipline, despite its importance.

In particular, in the recent two decades, two important approaches to the dispute over GATT/WTO disciplines and energy trade have been evolved. The first approach supports the idea that international trade rules apply to all sectors of trade, including energy trade, owing to the fact that the energy industry was never specifically excluded from the GATT/WTO rules.<sup>18</sup> The opposite viewpoint raises doubt on the automatic control of GATT/WTO disciplines over energy trade, and views energy trade as a particular instance that was excluded de facto rather than de jure from the GATT/WTO standards.<sup>19</sup>

It's worth noting that this discussion is founded on a shared importance for both sectors, notably international commerce and energy trade, and covers significant ramifications for both. Energy trade is the most important sector of trade in the international trading system since it is the largest trade sector in terms of share and value, as well as being critical to other trade sectors. Being a part of the international trading system in the energy sector entails adhering to a set of regulations that is stable, agreed upon, and predictable. As a result, the outcome of this discussion indicates the distance between the existence and non-existence of a rules-based regime to control trade's most important sector, as well as good or negative repercussions for both sectors.

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<sup>17</sup> the WTO, International Trade Statistics 2012 (Geneva: WTO, 2012) p. 61, Table II.1, available at [http://www.wto.org/english/res\\_e/statis\\_e/its2012\\_e/its2012\\_e.pdf](http://www.wto.org/english/res_e/statis_e/its2012_e/its2012_e.pdf)

<sup>18</sup> Andrea Jiménez-Guerra, "The World Trade Organization and Oil," *Oxford Institute for Energy Studies* (Oxford 2001)

<sup>19</sup> The United Nations Conference on Trade and Development UNCTAD, *Trade Agreements, Petroleum and Energy Policies* (United Nations, New York and Geneva, 2000), 1-2, 14-15, available at [http://p166.unctad.org/pluginfile.php/1839/mod\\_resource/content/0/31oct/itcdtsb9\\_en.pdf](http://p166.unctad.org/pluginfile.php/1839/mod_resource/content/0/31oct/itcdtsb9_en.pdf)

## **7. World Trade Organisation's Attempt at Addressing Energy**

### **7.1. Uruguay Round negotiations**

Various groups of countries held discussion that had a clear impact on energy issues during the Uruguay Round (1986-1994). Some countries in the Negotiating Group on Natural Resources-Based Products, for example, have raised concerns about certain problematic practises related to energy products.<sup>20</sup> Dual pricing, export restrictions, and trade distortions caused by governmental ownership and control methods were among the contentious concerns.<sup>21</sup> Despite the fact that the WTO agreements do not contain an independent agreement or any specific rules relating to energy, the assumption is that the WTO covers a wide range of energy trade issues.<sup>22</sup> All trade in energy products, for example, is governed by GATT regulations; similarly, all trade in energy services should be governed by GATS rules.<sup>23</sup>

### **7.2. Doha Round**

Liberalizing trade in environmental products and services (climate-friendly goods and services), energy services, and trade facilitation (energy transit) are three significant areas of negotiation in the Doha Round that are relevant to trade in energy challenges.<sup>24</sup> The fact that the Doha Round includes energy issues,<sup>25</sup> even if treated only as sub-matters rather than major areas of negotiation, stresses the existence of energy trade issues in the WTO. The entrance of energy-endowed countries to the WTO reinforces the claim that energy trade is governed by WTO rules. In contrast to the GATT era, the WTO appears to be attracting more energy-endowed countries to join the organisation as full members. There are still unresolved concerns at the junction of international trade regulations and energy trading. Despite the fact that WTO law applies to all other elements of trade, its application to the energy industry has remained

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<sup>20</sup> See Uruguay Round, Group of Negotiations on Goods, Negotiating Group on Natural Resource-Based Products, meeting of 11 February 1987, note by the GATT Secretariat, MTN.GNG/NG3/, 26 February 1987; UNCTAD, *Trade and Energy*, 15 at footnote 6, mentioning the submission of the US in MTN.GNG/NG3/W/2, MTN.GNG/NG3/W/13 and MTN.GNG/NG3/W/23, as well as the submission of the European Communities in MTN.GNG/NG3/W/37.

<sup>21</sup> See paras. 10–11 of the Uruguay Round Meeting of 11 February 1987; UNCTAD, *Trade and Energy*, 15–16.

<sup>22</sup> See Marceau, G. “The WTO in the Emerging Energy Governance Debate,” in Joost Pauwelyn (ed.) *Global Challenges at the Intersection of Trade, Energy and the Environment* (Centre for Trade and Economic Integration: Geneva, 2010), pp. 25-41

<sup>23</sup> *Id.*

<sup>24</sup> See Pascal Lamy, “Energy, Trade and Global Governance,” in *Global Challenges at the Intersection of Trade, Energy and the Environment*, in Joost Pauwelyn (ed.) (Geneva, 2010), 15–18, at p. 17

<sup>25</sup> *Id.*

ambiguous.<sup>26</sup> Furthermore, WTO law, with all of its agreements, regulations, obligations, and exceptions, was not designed with energy issues in mind.

It's also worth noting that WTO discipline is mainly dependent on regulations that prohibit WTO members from acting in particular ways. It lacks regulations that impose affirmative responsibilities on WTO members, which are required to control important aspects of energy trade.

However, rising global energy needs, as well as factors such as the recent accession to the WTO of several 'energy-significant' economies, the increased centrality of energy in environmental and climate change-related discussions,

In the global system, energy resources have always been powerful geopolitical and strategic tools.<sup>27</sup> Liberalizing global energy commerce was not considered a "political priority" when the GATT was being negotiated in the 1940s.<sup>28</sup> However, rising global energy needs,<sup>29</sup> as well as factors such as the recent accession to the WTO of several 'energy-significant' economies, the increased centrality of energy in environmental and climate change-related discussions<sup>30</sup>, and the proliferation of private-sector involvement in energy<sup>188</sup>, have led to a rethinking of this position today.<sup>31</sup> As a result, the WTO's role in regulating global energy goods and services trade has become increasingly questioned.

### 7.3. Kyoto protocol

Article 12 of the Kyoto Protocol establishes three market-based mechanisms to encourage industrialised countries and companies to invest in developing-country greenhouse gas emission reduction measures. Emissions Trading, Joint Implementation, and the Clean Development Mechanism (CDM) are examples of these policies, which can all include investments in renewable and energy-efficient technology. An industrialised country or its companies can earn carbon emission reduction credits to meet their Kyoto Protocol

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<sup>26</sup> See generally ICTSD, "*Fostering Low Carbon Growth: The Case for a Sustainable Energy Trade Agreement*" (Geneva, Switzerland 2011).

<sup>27</sup> UNCTAD, 'Trade Agreements, Petroleum and Energy Policies', UNCTAD/ITCD/TSB/9, at 14 (2000).

<sup>28</sup> Thomas Cottier *et al.*, 'Energy in WTO Law and Policy', Working Paper No 2009/25 (May 2009), at p. 1, available at <http://phase1.nccr-trade.org/images/stories/projects/ip6/IP6%20Working%20paper.pdf>

<sup>29</sup> M.A. Adelman, 'World oil production & prices 1947-2000' (2002) 42(2) *The Quarterly Review of Economics and Finance*, at 170

<sup>30</sup> UNCTAD, 'Trade Agreements, Petroleum and Energy Policies,' UNCTAD/ITCD/TSB/9 at 13 (2000).

<sup>31</sup> World Trade Organization, 'Energy Services,' S/C/W/52 (September 1998), at paragraph 6.

requirements by participating in these actions that reduce greenhouse gas emissions in developing countries.

## **8. Trade and Environment**

Another notable treaty-based development in the international trade regime was the 1994 Ministerial Decision on Trade and Environment, which could lead to increased trade-environment synergies. It formed the Committee on Trade and the Environment (CTE), whose mission is to research the environmental consequences of trade policy and recommend changes to trade laws that will most effectively support sustainable development. In all sectors of the WTO, the CTE investigates the relationship between trade and the environment. It is responsible for reporting to and advising the WTO's General Council, which is one of the organization's highest decision-making bodies as well as its main rule-making body.<sup>32</sup>

The existence of an organisation with this role and status inside the international trading framework, such as the CTE, may appear to show a convergence of trade and environmental issues. Closer investigation, however, may raise doubts about the CTE's efficiency and scope. The CTE has no direct rule-making power within the WTO; while it advises the General Council, it cannot amend the multilateral trade regime's regulations directly. The CTE's position in the WTO's decision-making framework suggests that environmental concerns are being pushed aside in favour of bigger trade issues.<sup>33</sup>

### **8.1. Multilateral Environmental Agreements**

Many in the environmental community consider the mechanisms by which MEAs integrate trade and environmental policy to be two of the most successful MEAs, and trade restrictions are critical to their success. Despite this, each uses trade limitations in a different way.

#### **8.1.1. The Convention on International Trade in Endangered Species (CITES)**

The Convention on International Trade in Endangered Species (CITES), which went into effect in 1975, regulates trade in endangered species to ensure that their survival is not jeopardised. All importing, exporting, re-exporting, and introduction of species protected by CITES from

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<sup>32</sup> Doaa Abdel Motaal, ed., "The Trade and Environment Policy Formulation Process," in *Trade and Environment: A Resource Book*, ICTSD Southern Agenda on Trade and Environment, [http://www.trade-environment.org/page/southernagenda/RB\\_1-2.htm](http://www.trade-environment.org/page/southernagenda/RB_1-2.htm)

<sup>33</sup> *Id.*



the sea must be permitted through a licencing system. CITES establishes standards for national-level enforcement committees of its members to follow when it comes to monitoring the treatment of endangered species and implementing legislation that protect them. Trade restrictions are also included in CITES to ensure compliance with the monitoring and enforcement system—restrictions that apply to both parties and non-parties.<sup>34</sup>

CITES has gained international legitimacy for thirty years, thanks to scientific study and multilateral agreement. More recent MEAs have adopted similar trade provisions, following CITES' successful model. As a result, MEAs concerned with hazardous wastes, harmful pesticides and chemicals, persistent organic pollutants, and the perpetuation of harmful biodiversity products have created regulation and standardisation systems based on export and import permits to control international trade in these products, similar to CITES.

### **8.1.2. The Montreal Protocol for Ozone Protection**

The Montreal Protocol, which was signed in 1987, intends to phase out substances that deplete the ozone layer in the atmosphere, particularly chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs). Two trade restrictions are included in the protocol. First, trade in the substances controlled by the protocol is prohibited between signatories and nonsignatories. Second, trade of products containing any of the controlled substances, such as refrigerators and air conditioners, is prohibited between signatories and nonsignatories. This was done in part to prevent CFC and HCFC trade leaks. The protocol also empowers member countries to prohibit the import of products made with controlled substances, such as computers with circuits cleaned with CFCs, but does not oblige them to do so. This third provision was the Montreal Protocol's most problematic trade-related provision.<sup>35</sup>

No government would be forced to apply trade restrictions, risking a large decline in the import market, until a critical mass of countries did so. These countries signed it immediately after the trade restrictions were added. These countries' negotiators revealed to the protocol's lead negotiator that the protocol's trade restrictions were the driving force behind their change of heart. These limits were ostensibly imposed to persuade developing countries who had been debating whether or not to sign the protocol to join the multilateral ozone treaty.<sup>36</sup>

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<sup>34</sup> United Nations Environment Program, "Trade-Related Measures and Multilateral Environmental Agreements," 2007; see also <http://www.cites.org>.

<sup>35</sup> See Scott Barrett, *Environment and Statecraft* (Oxford: Oxford University Press, 2003), p. 313.

<sup>36</sup> *Id.*

Before inserting trade restrictions in the Montreal Protocol, negotiators discussed with the GATT secretariat to see if they were compliant with international trade rules. The secretariat confirmed that trade restrictions are permissible under Article XX of the GATT if they are deemed necessary to protect human, animal, or plant life or health, or if they are related to the conservation of exhaustible natural resources.<sup>37</sup>

Later, the GATT secretariat stated that these restrictions were not essential. It claimed that (1) the protocol could have been negotiated without trade restrictions to reduce CFCs, and (2) the protocol's trade restrictions were designed to preserve domestic industry. According to the secretariat, these restrictions compensated CFC producers in participating nations by allowing them to earn additional profits from the sale of diminishing quantities of CFCs. The restrictions, according to the secretariat, discriminated against non-parties. The secretariat's statement, on the other hand, failed to mention that CFC-producing industries in participating nations were taxed on the additional revenues they received as a result of the protocol.<sup>38</sup>

The GATT secretariat's reaction to the Montreal Protocol's trade restrictions illustrates a number of issues that still reverberate today in the trade policy world. The secretariat maintained that the protocol might have met its goals without the trade restrictions, highlighting the strict "necessity test" that environmental trade restrictions must satisfy. Only if trade restrictions are virtually indispensable to the underlying policy's environmental goal and are imposed in the least trade distorting manner conceivable are they legal.

## **9. Within WTO Dispute Settlement Mechanism: The Evolution of WTO Jurisprudence Through Environmental Disputes**

### ***9.1. The Mexican Tuna Case, 1994***

The Mexican tuna case from 1994 is widely regarded as the first major environmental trade dispute. The US has banned the import of Mexican tuna that has not been caught in a dolphin-safe manner. The GATT dispute settlement panel decided that these US trade restrictions were unconstitutional since they discriminated against similar items. The panel also determined that these US trade restrictions violated Mexico's national sovereignty since they attempted to enforce national US norms for tuna-fishing techniques among Mexican fishermen.

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<sup>37</sup> Richard Elliot Benedick, *Ozone Diplomacy: New Directions in Safeguarding the Planet* (Cambridge, Mass.: Harvard University Press, 1998), pp. 242–243.

<sup>38</sup> *Supra* n.35

Any leniency on either of these issues—enforcing standards based on process and production methods or extraterritoriality—could lead to protectionism and unilateral imposition of national standards on other nations, according to the panel. Such leniency would jeopardise the multilateral trade regime's fundamental principles by reducing predictability in international trade markets and policy.<sup>39</sup>

### *9.2. The U.S. Gasoline Case, 1995*

The first environmental case adjudicated through the WTO's DSM was the US gasoline dispute in 1995. Under the United States Clean Air Act, gasoline refiners were barred from selling gasoline that was less clean (below a "refinery baseline") than the gasoline they sold in 1990. Each domestic refinery established a refinery baseline that matched the grade of gasoline it sold in 1990. The US Environmental Protection Agency created a refinery baseline for foreign refiners that was intended to reflect the average quality of gasoline in 1990. Gasoline imports below this refinery's baseline were prohibited. The DSM special panel determined that this import restriction was not warranted under GATT Article XX paragraphs b and g. Specifically, the panel argued that, while clean air was acknowledged as a "exhaustible natural resource," the refinery baseline was not a metric relevant to its conservation and hence did not satisfy paragraph g. The Appellate Body reversed this decision, holding that the refinery baseline was relevant to clean air conservation and thus qualified as an exemption under paragraph g. The Appellate Body, on the other hand, argued that the policy was discriminatory and did not meet the requirements of Article XX's chapeau since international manufacturers were held to different standards than domestic producers. The Appellate Body pushed the boundaries of paragraph g with this decision, but it maintained a strict view of discrimination in environmental trade policy.<sup>40</sup>

### *9.3. The Shrimp-Turtle Case, 1997*

The shrimp-turtle case in 1997 mirrored the dynamics of the gasoline case in the United States. The United States established trade restrictions against shrimp taken by trawlers that did not deploy a turtle-excluder device under the Endangered Species Act in order to protect five species of endangered turtles that migrate through U.S. waters. The Appellate Body overruled the special panel's decision that the trade limitation was not warranted under paragraphs b and

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<sup>39</sup> WTO Environmental Disputes, [http://www.wto.org/english/tratop\\_e/envir\\_e/edis00\\_e.htm](http://www.wto.org/english/tratop_e/envir_e/edis00_e.htm)

<sup>40</sup> "United States—Standards for Reformulated Gasoline," Report of the Appellate Body, AB-1996-1, WT/DS2/AB/R, April 29, 1996.

g of Article XX. It claimed that sea turtles were a "exhaustible natural resource" and that production-based rules were required to safeguard them. The Appellate Body, on the other hand, maintained that the United States had discriminated against India, Malaysia, Pakistan, and Thailand in imposing the restriction; the US had provided financial and technical assistance to countries in the Western Hemisphere in order to begin using the turtle-excluder devices, but it had not done so for the plaintiffs. The Appellate Body's decision broadened the definition of national territory established by the Mexican tuna case. Because these process-based standards protected turtles migrating through US waters, the US was entitled to enforce them. The Appellate Body published a statement encouraging WTO members to use trade policy to protect the environment on a bilateral, plurilateral, or multilateral basis. The Appellate Body once again stated unequivocally that environmental trade policies cannot discriminate between trading partners.<sup>41</sup>

#### *9.4. The Brazilian Tire Case, 2007*

The precedent set in the U.S. gasoline and shrimp turtle cases was cemented in the 2007 Brazilian tyre controversy. Brazil has banned the import of retreaded tyres, which are more likely to end up in landfills than new tyres. The accumulation of waste tyres poses a health danger, and toxins-producing waste tyre fires can easily ignite and be difficult to extinguish. The policy's goal was to "reduce the risk of waste tyre buildup to the greatest degree practicable." Brazil did not conduct costly policy and economic analyses to demonstrate that the trade restriction was required to achieve this goal; instead, it justified the ban using logical, deductive reasoning. The Appellate Body agreed with this reasoning and determined that the ban was justified under Article XX, paragraph b, as required to achieve this environmental goal. However, the Appellate Body found that Brazil could not invoke Article XX because the import prohibition discriminated against EU producers in practice. Brazilian retreaders had obtained many court injunctions, citing infringement of their fundamental rights, allowing them to circumvent the import prohibition and import retreaded tyres from nations and manufacturers of their choice. With this decision, the Appellate Body has made it clear that it supports a WTO member's creation of national environmental standards and enforcement of those standards as the member sees right. The Appellate Body has made it simpler for developing nations that lack the finances and skills to perform thorough policy evaluations to establish environmental trade regulations by recognising Brazil's deductive argument. Discrimination against products

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<sup>41</sup> WTO Environmental Disputes, [http://www.wto.org/english/tratop\\_e/envir\\_e/edis00\\_e.htm](http://www.wto.org/english/tratop_e/envir_e/edis00_e.htm).

based on production standards or physical qualities, on the other hand, will only be permissible if it is justified by the same environmental justification as the trade measure itself. Some believe that this reflects a DSM that prioritises fighting protectionism and discrimination while encouraging environmental action through trade:

*“While trade can and will be unequivocally trumped by good faith nontrade policy measures, at least those catering to key societal interests such as health and the environment (trade seems a distant second), this must happen without discrimination and must not otherwise be abused as a trade policy measure (trade catches up).”<sup>42</sup>*

Recent environmental litigation has demonstrated that the WTO Appellate Body is becoming more willing to qualify environmental trade measures as necessary to protect plant, animal, or human life or health, or to conserve non - renewable energy resources. Despite this, the Appellate Body maintains a stringent definition of what constitutes disguised protectionism or discrimination. As a result, only a small percentage of environmental trade policies make it through the DSM uninjured. This dynamic may be seen in the shrimp-turtle, gasoline-in-the-US, and tire-in-Brazil controversies.

## **10. Climate Related Trade Restrictions**

The WTO's main goal is to remove trade-distorting practises. Independent of trade negotiators, environmental policymakers can adopt some trade-related environmental initiatives. Creating a multilateral climate regime that restricts trade in carbon-intensive items is one of these measures. One of the most problematic environmental trade policies in the trade regime is trade restriction based on production methods. Nonetheless, the idea that a product's environmental impact is an important quality for consumers and thus relevant to product standards is gaining traction within the trade regime.

The “WTO tool-box of rules can certainly be leveraged in the fight against climate change, and adapted if governments perceive this to be necessary to better achieve their goals.”<sup>43</sup>

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<sup>42</sup> BRIDGES Monthly Digest, February 2008, [http://www.ictsd.org/monthly/bridges/BRIDGES\\_12-1.pdf](http://www.ictsd.org/monthly/bridges/BRIDGES_12-1.pdf)

<sup>43</sup> Pascal Lamy, “Doha Could Deliver a Double-Win for Environment and Trade,” remarks, Bali, December 9, 2007, [http://www.wto.org/english/news\\_e/sppl\\_e/sppl83\\_e.htm](http://www.wto.org/english/news_e/sppl_e/sppl83_e.htm)

It is critical to emphasise that stakeholders in the trade regime will be more likely to accept trade-related climate measures implemented through multilateral agreement rather than ad hoc national climate policies. The worldwide consensus on climate trade manoeuvres would help the WTO achieve its goal of predictability and consistency in trade relations. Trade-related climate-related policies are more controversial in the absence of an international climate accord with particular trade-related commitments. If imposed within a transparent international framework, trade restrictions based on production-based criteria may be acceptable, but they will almost certainly be challenged if they are just part of a single country's national climate policy.

Despite this, many nations undertake trade-related measures to assist national environmental policy in the absence of global action, and many of these actions are not disputed in the multilateral trade DSM. If an environmental trade measure is challenged in the WTO because it violates certain GATT articles, it will only be exempted under Article XX if the nation can show that it is necessary to protect human, plant, or animal life or health, or that it is related to the conservation of nonrenewable.

Even a quantitative restriction, which trade supporters despise, may be legal if it meets the requirements of being non-discriminatory and not being utilised for protectionist objectives.

### *10.1. Carbon Tariff*

The European Union has threatened to impose a carbon tariff on commodities produced in nations that do not fulfil European standards for greenhouse gas emissions. Importers of carbon-intensive manufactured goods from countries without equivalent climate programmes would be required to acquire emissions permits under recent climate proposals in the United States. These initiatives have sparked a flurry of debate among trade and climate policymakers. Proponents of freer trade worry that addressing these concerns may lead to protectionism down the "slippery slope."

In 2007, French President Nicolas Sarkozy advocated an EU carbon tariff as a method to mitigate the costs of complying with European climate policy for European businesses. The European Commission proposed putting the tariff in its 2008 climate change action plan in January 2008. Internal opposition to this proposal was strong. A carbon tariff could be used to gain support from the stakeholders who must bear the costs of emissions reductions.

There are few multilateral initiatives to adopt climate-related trade measures, and unilateral initiatives to include trade restrictions into national climate policy have major limitations.

The trade and environment policy communities appear to be heading for a significant clash over climate-related trade policies, with concerns about protectionism and skewed incentives for firms in developing nations as a result of these national-level tariff proposals.<sup>44</sup>

### 10.2. WTO Climate Waiver

A direct reference to trade or trade measures appears in about 45 percent of all climate contributions.<sup>45</sup> Trade-related climate measures will very certainly develop and spread in the future. Climate policies are very likely to stifle trade, and these trade-restrictive climate policies are no exception. The WTO's jurisprudence, which was established to meet the needs of a society that was 70 years old at the time, cannot keep up with the increasing rate at which climate change as a global concern is being addressed. So yet, neither the trade nor the climate regimes have shown any desire to face the looming conflict between climate objectives and trade regulations. The members of the World Trade Organization (WTO) should approve a WTO climate waiver to reduce the economic and political risks of such a clash.

The core of a WTO climate waiver should be a waiver from the applicable trade rules for national measures that: discriminate on the basis of carbon and other greenhouse gases used or emitted in making a product; fit the definition of a climate response measure as defined by the United Nations Framework Convention on Climate Change (UNFCCC); and do not discriminate in a manner that constitutes a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.<sup>46</sup>

A waiver merely waives certain defined trade responsibilities in particular defined instances for certain defined kinds of measures, as the word "waiver" suggests. The rules are not affected by a waiver.

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<sup>44</sup> See Trevor Houser et al., *Leveling the Carbon Playing Field: International Competition and U.S. Climate Policy Design* (Washington, D.C.: Peterson Institute for International Economics and World Resources Institute, 2008).

<sup>45</sup> Clara Brandi, "Trade Elements in Countries' Climate Contributions under the Paris Agreement" (2017) Geneva: International Centre for Trade and Sustainable Development at vii; see also Rana Elkahwagy, Vandana Gyanchandani & Dario Piselli, "UNFCCC Nationally Determined Contributions: Climate Change and Trade" (2017) Centre for Trade and Economic Integration Working Paper 2017-02 (Trade Lab).

<sup>46</sup> James Bacchus, The Content of a WTO Climate Waiver, Centre for International Governance Innovation, CIGI Papers No. 204 – December 2018

As a result, the acceptance of a climate waiver will allow WTO members to experiment by realigning relevant trade rules only for the purpose of tackling climate change without modifying the rules in any manner. A climate waiver is the option available to WTO members that can do the most to help combat climate change while posing the least risk to the rules-based multilateral trading system because it does not change the rules, but only applies them differently in carefully defined and limited circumstances to certain kinds of measures.<sup>47</sup>

In addition to this procedure for obtaining a climate waiver, it is critical to note that a climate waiver must be just one of many methods in which WTO Members amend and realign WTO laws to coincide with global sustainable development goals.

The legal aspects of Article IX:3 of the WTO Agreement will shape the content of a WTO climate waiver. Article IX:3 provides that

*“[i]n exceptional circumstances, the Ministerial Conference may decide to waive an obligation imposed on a Member by this Agreement or any of the Multilateral Trade Agreements, provided that any such decision shall be taken by three-fourths of the Members...”<sup>48</sup>*

Although some may argue that a waiver is ineffective since it is just temporary, a climate waiver does not have to be. In most cases, waivers are only allowed for a year. The WTO Agreement provides that “[a]ny waiver granted for a period of more than one year shall be reviewed by the Ministerial Conference not later than one year after it is granted, and thereafter annually until the waiver terminates.”<sup>49</sup>

### **10.2.1. Precedent**

The WTO waiver of some WTO intellectual property (IP) regulations to allow compulsory licencing of some pharmaceuticals required for public health, which was agreed in 2003, stipulates that it would end only when an amendment to the IP rules replacing the terms of the waiver takes effect.<sup>50</sup> A WTO climate waiver should be approached in the same way.

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<sup>47</sup> James Bacchus, *The Case for a WTO Climate Waiver*, CIGI, Special Report, 2 November 2017

<sup>48</sup> Marrakesh Agreement Establishing the World Trade Organization, General Agreement on Tariffs and Trade, Article IX:3, 1867 UNTS 154, 33 ILM 1144 (1994).

<sup>49</sup> General Agreement on Tariffs and Trade, Article IX:4, Marrakesh Agreement Establishing the World Trade Organization, 1869 U.N.T.S. 183, 33 I.L.M. 1167 (1994).

<sup>50</sup> WTO, General Council, *Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health*, Decision of 30 August 2003, WTO Doc WT/L/540 (2 September 2003).



In 2003, the World Trade Organization (WTO) disregarded some intellectual property restrictions to allow compulsory licencing of some pharmaceuticals that are essential to public health. This waiver was due to expire on the date that an update to the intellectual property rules entered effect, replacing the waiver's terms.

Unlike the public health waiver, the WTO climate waiver will not be temporary. Waivers are supposed to be given only “in extraordinary circumstances,” according to the WTO Agreement.<sup>51</sup>

It would be significantly more difficult to secure a wide amendment of current WTO regulations to match them more closely with combating climate change, regardless of how difficult it is to enact a climate waiver.

### ***10.2.2. Drawbacks***

In the absence of a waiver, the acceptance of such a waiver might suggest that all trade-related climate policies are prohibited, and that this could “narrow down existing flexibility under WTO law.”<sup>52</sup>

Another major issue is that the approval of a WTO climate waiver could imply that existing WTO rules cannot be utilised to assist climate action.

Another legitimate concern is that adopting a WTO climate waiver could legitimise and unleash a global wave of "disguised protectionism" by developed countries, aimed mostly at developing-country trade.<sup>53</sup> Because of the current global climate situation, developed countries want emerging and underdeveloped countries to entirely decarbonize their development pathways, even though developed countries have a head start in this area.

## **11. Response Measures**

### ***11.1. Sustainable Development***

The Paris Agreement's Article 6 encourages "voluntary cooperation" in the implementation of voluntary national climate pledges. Article 6 further calls for "voluntary cooperation" in the pursuit of "higher ambition" through extra national "mitigation and adaptation" initiatives to combat climate change and "promote sustainable development and environmental integrity."

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<sup>51</sup> *Marrakesh Agreement*, *supra* note 3, art IX:3.

<sup>52</sup> Kasturi Das et al, *Making the International Trade System Work for Climate Change: Assessing the Options* (London: Climate Strategies, 2018) at 8.

<sup>53</sup> *Id.*

The 193 United Nations members who agreed on the world's Sustainable Development Goals for 2030 have identified the shared need to "rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions" as one target in achieving their goals of combating climate change while ensuring sustainable consumption and production patterns.<sup>54</sup>

### 11.2. Green Subsidies

Many WTO members have funded the development of solar, wind, and other renewable energy technologies. These green subsidies have gone afoul of WTO regulations that regulate market-distorting subsidies in a growing number of WTO cases.<sup>55</sup> Subsidies for fossil fuels are forbidden by the Subsidies and Countervailing Measures Agreement (SCMA). To reinforce and enhance market-based measures, government involvement targeted at altering choices and results in the global energy marketplace is required.

Because the climatic harms that fossil fuel energy produces are not included in its market price, government action is required to offset the advantage gained by fossil fuel energy in the marketplace (and because the production and use of fossil fuel energy is itself often subsidized). As a result, one solution that these climate activists have turned to is offering government subsidies for renewable energy alternatives to fossil fuels.

A legal line should be drawn in the content of a WTO climate waiver that waives green subsidies that create outcomes that fulfil this purpose. Furthermore, this line drawing should contain a waiver for subsidies for basic research and development, which is critical to clean energy innovation, as well as many other fields.<sup>56</sup>

## 12. The Applicability of WTO Law to Energy Trade

The GATT applied to any goods that might be traded, either through export or import. As a result, all tradable energy products qualified as tradable products that may be exported and imported in theory. Indeed, since 1947, huge volumes of energy products, notably oil, coal, and gas, have been traded worldwide throughout the GATT's existence. As a result, it is reasonable

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<sup>54</sup> *Transforming Our World: The 2030 Agenda for Sustainable Development*, GA Res 70/1, UNGAOR, 70th Sess., UN Doc A/RES/70/1 (2015), Target 12.c.

<sup>55</sup> *Id.*

<sup>56</sup> James Bacchus, *The Case for a WTO Climate Waiver*, CIGI, Special Report, 2 November 2017

to conclude that, to the degree that energy resources are tradable items, all trade in energy products, like all other tradable products, is governed by the GATT.<sup>57</sup>

In view of the foregoing reasoning, it is evident that the existing WTO regime does cover energy commerce. The current situation, however, is far from perfect, with several ambiguities and uncertainties. In view of these factors, clarity in applying WTO norms to the worldwide energy market is critical. Given the absence of political will to implement a worldwide energy governance framework, the latter approach appears to be the most realistic in the near and medium term. To minimise the emergence of contradictory norms, there are increasing needs to looking at the interaction between the ECT — a multilateral effort aimed at governing energy-related investments – and existing WTO frameworks.

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<sup>57</sup> See Gabrielle Marceau, “The WTO in the Emerging Energy Governance Debate,” in Joost Pauwelyn (ed.) *Global Challenges at the Intersection of Trade, Energy and the Environment* (Centre for Trade and Economic Integration: Geneva, 2010), 25–41, at 26.

### CHAPTER III

#### THREAT TO ENERGY SECURITY A POSSIBLE HINDRANCE IN ATTAINING ENERGY SUSTAINABILITY

From the demand side, the energy security gap is often seen. It's frequently linked to a lack of energy supply or high energy prices. Because of the "insecurity" that consumers feel under those situations, it is considered a concern of energy supply security.<sup>58</sup>

Trade liberalisation could have a number of negative environmental consequences. One of the key goals of the global trade regime is to raise global output volume. As a result, increasing exploitation of natural resources and higher levels of carbon emissions in the manufacturing process are possible outcomes. More fossil fuels will be used to transport more commodities across longer distances. Foreign investment and competition, on the other hand, may transfer cleaner manufacturing methods to developing countries, and international trade regulations may compel countries to remove their protection of carbon-intensive industries. The phenomena of comparative advantage may cause some production to be concentrated in locations with lower environmental costs. Open borders do not increase or decrease global carbon emissions, nor do they harm or improve the environment, according to the facts.

Concerns about the effects of climate change, combined with high energy costs, put pressure on governments to improve energy efficiency and promote cleaner energy and related technologies. This will necessitate further investment. This will be especially essential in sectors that account for roughly 85% of industrial energy consumption and are major drivers of GHG emissions and other pollution.

Promoting "green" and energy-efficient industries and infrastructure could improve developing countries' locational attractiveness, reduce energy costs and import bills, improve competitiveness and adaptability to export market demands, provide health and environmental benefits, and promote a less carbon-intensive development path. Industrial facilities may enhance their energy efficiency by 20–30% if they used the finest available technology, especially in energy-intensive industries.<sup>59</sup>

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<sup>58</sup> Blum, Helcio, and Luiz F.L. Legey. "The Challenging Economics of Energy Security: Ensuring Energy Benefits in Support to Sustainable Development." *Energy Economics* 34.6 (2012): 1982–1989. Web.

<sup>59</sup> IEA (2007), *Tracking Industrial Energy Efficiency and CO2 Emissions*; and UNIDO (2008). *Policies for promoting industrial energy efficiency in developing countries and transition economies*.

According to the McKinsey Institute, a \$170 billion annual investment in simple energy efficiency measures by households and industries using current technologies between now and 2020 would cut projected global energy demand in half 21 – and most of that investment would be quickly amortised even at a carbon price of around \$50 per tonne of CO<sub>2</sub>. "Addressing energy security, climate change, and economic growth in a mutually beneficial manner," the G8 Energy Ministers remarked during the G8 Summit in 2008.<sup>60</sup>

## **6. Interrelation between Energy and Sustainable Development**

Energy efficiency and stable, inexpensive, and low-polluting sources are universally recognised as crucial, if not essential, components of sustainable development.<sup>61</sup> Economic, social, and environmental policy are three essential components that must be addressed simultaneously in order to achieve sustainable development. One may imagine sustainable development in terms of an adequate vector of economic, social, and environmental features after identifying these fundamental factors. Because it is important to all three elements of sustainable development, energy is at the centre of every discussion.<sup>62</sup>

Energy is certainly an essential driver of macroeconomic growth in terms of the economic dimension of sustainable development. In terms of the environment, traditional energy sources are substantial sources of environmental stress at both the global and local levels. In terms of the social dimension, energy is required to meet many basic human needs and services, and inequities in energy supply and quality frequently appear as social justice issues.<sup>63</sup>

Three major energy issues in the global South can be recognised based on the above theoretical embodiment. First, there's energy supply and security, which includes modest consumption but anticipates major rise in energy use in the future. The second issue is energy scarcity. Even in developing countries, nearly 2 billion people do not have access to modern energy services,

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<sup>60</sup> See, ICC Calls on G 8 and G20 to Keep Markets Open, INT'L CHAMBER OF COMMERCE, <http://www.iccwbo.org/index.html?id=37587>

<sup>61</sup> Goldemberg, J. and T.B. Johansson, eds. 1995. *Energy for Sustainable Development : A Policy Agenda*, New York: UNDP.

<sup>62</sup> Munasinghe, M. 2002. "The sustainomics trans-disciplinary meta-framework for making development more sustainable: Applications to energy issues", *International Journal of Sustainable Development*, vol. 5, nos. 1/2, pp. 125-82

<sup>63</sup> Samir Ranjan Pradhan, Cooperation for Energy Security and Sustainable Development (CESSD): A South-South Perspective, *Indian Foreign Affairs Journal*, Vol. 3, No. 3 (July-September, 2008), pp. 68-91, Published by: Prints Publications Pvt Ltd.

which is a huge problem that is often disregarded. This has repercussions in terms of health, social, environmental, and economic factors.<sup>64</sup>

The third issue is "energy plenty," which occurs when energy-producing and exporting developing countries fail to manage export income for development, a condition known as "resource curse syndrome." This is a major problem for oil-exporting developing countries, which are currently receiving a large inflow of oil revenues.<sup>65</sup>

## **7. Resolving The Issue of Sustainability While Addressing Climate Change**

A fundamental issue in attaining energy sustainability is improving the energy efficiency of energy supply systems and reducing the usage of fossil fuels in energy production. Coal-fired power stations are notoriously inefficient, and as a result, they are important producers of transboundary air pollution. Global warming is perhaps the most serious issue. The most serious concern in the global warming debate is the increasing release of carbon into the atmosphere, the most of which comes from coal-fired power plants, though oil and gas use also contributes significantly.<sup>66</sup> Energy use and production account for roughly two-thirds of the global warming problem. Local air pollution in cities and ozone depletion are two more issues linked to energy supply systems.

Another critical step toward establishing a sustainable energy future is to support and promote energy efficiency. This is to underline the importance of energy efficiency in optimising energy efficiency in energy production, not just in energy consumption, as it has previously gotten the greatest attention. The full benefit of energy efficiency must be realised throughout the energy cycle. The term "energy cycle" should be understood to refer to the entire energy chain, which includes activities such as prospecting for, exploring for, producing, converting, storing, transporting, distributing, and consuming various forms of energy, as well as the treatment and disposal of wastes, as well as the decommissioning, cessation, or closure of these activities, all with the goal of minimising harmful environmental impacts.<sup>67</sup>

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<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> A. J. Bradbrook, "Energy Use and Atmospheric Protection" (1996) 3 *Australasian J. Natural Resources L. and Policy* 25

<sup>67</sup> Article 19(3)(a) of the Energy Charter Treaty ((1995) 34 *ILM* 360) and article 2(4) of its related Protocol on Energy Efficiency and Related Environmental Aspects ((1995) 34 *ILM* 446).

Educational initiatives that promote the importance of sustainable energy development are frequently overlooked, but they are critical for increasing public awareness and support for the types of reforms that will be required to transition us from the fossil fuel era to a future based on renewable energy technologies.

### 7.1. Addressing Climate change

Combating climate change is one of the most important present concerns for all industries in general, and the energy sector in particular.<sup>68</sup> The entire energy chain has a significant negative environmental impact and contributes to climate change.<sup>69</sup> Exploration, production, refining, storage, transportation, distribution, and consumption of energy are all part of this chain, and they all include the combustion of energy products. As a result, greenhouse gas (GHG) emissions have increased significantly. Energy resource combustion accounted for 65 percent of worldwide GHG emissions in 2010.<sup>70</sup> The fact that fossil fuels (oil, coal, and gas) accounted for 81 percent of global total primary energy supply is noteworthy in this regard (TPES).<sup>71</sup> The Kyoto Protocol to the UN Framework Convention on Climate Change (UNFCCC), which established legally binding commitments to reduce GHG emissions, represents a huge worldwide endeavour.<sup>72</sup>

According to recent research produced by British Petroleum, while OECD nations will succeed in decreasing GHG emissions by 2030, non-OECD countries' quick economic expansion would result in higher emissions and balance OECD countries' reductions. As a result, global emissions are expected to grow by 28 percent by 2030 (versus 2010).<sup>73</sup> This upward trend in fossil fuel usage and combustion results in a steady increase in GHG emissions, endangering the global climate. Furthermore, the significant, complex, and reciprocal challenge of climate change and energy is part of a larger challenge to achieving global sustainable development.<sup>74</sup> As a result, the current pattern of rising energy demand, supply, and consumption, accompanied

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<sup>68</sup> Leal-Arcas, R. *Climate Change and International Trade*, Edward Elgar, 2013.

<sup>69</sup> Leal-Arcas, R. "Linking energy and climate change," OUTREACH, Stakeholderforum, p. 4, November 2012.

<sup>70</sup> International Energy Agency, "CO<sub>2</sub> Emissions from Fuel Combustion", Paris: France 2011, 17, <http://www.iea.org/co2highlights/co2highlights.pdf> [hereinafter IEA CO<sub>2</sub> Emissions 2012]. Klymeyer, A.M., "New Rules for the Environmental Imperative: Considerations for the Energy Sector and Interaction with WTO Rules," in J. Pauwelyn (ed.) *Global Challenges at the Intersection of Trade, Energy and the Environment* (Geneva, 2010) at p. 63.

<sup>71</sup> "IEA CO<sub>2</sub> Emissions 2012," 17, 18.

<sup>72</sup> See Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998).

<sup>73</sup> See BP 2012, *Energy Outlook 2030* at p 81.

<sup>74</sup> *Supra* n.71

by energy combustion, heightens the risk of irreversible environmental harm, and hence of permanent damage to humanity and global sustainable development.

### **7.2. Addressing Energy security**

Given the world's complexity and interdependence, any risk to energy supply or demand is clearly a challenge and a threat to energy security. Geopolitical conflicts, energy price volatility, disruptions in energy supply and demand, depletion of energy resources, climate change and environmental difficulties, natural disasters, and so on are all significant concerns for energy security.<sup>75</sup> Given the predicted growth in energy commerce over the next few decades, and barring significant and dramatic innovation or revolution in the energy business, it is safe to say that the greater the expansion of energy trade, the greater the challenges to energy security will become. In this context, it is important to note that current global energy governance is inadequate and unqualified to handle and resolve the aforementioned issues.

## **8. Global Governance of Sustainable Energy**

There are no energy-specific rules or commitments in the WTO, and global energy governance is limited and fragmented. Nonetheless, global governance that facilitates the move in energy production and usage toward renewable energy sources is urgently needed today. A plurilateral and eventually multilateral WTO agreement centred on the energy industry could be one of the responses to this requirement. Long-standing concerns about technology transfer and development, as well as promises made to developing nations when the WTO was founded, should be addressed by such an agreement.

Energy exploitation is intricately linked to environmental issues, with several planning, environmental protection, and conservation law issues that are important to the industry. The nuclear power industry, for example, has tremendous potential environmental repercussions in terms of radioactive waste storage and disposal, as well as the consequences of nuclear accidents. Onshore and offshore oil exploration and production, marine oil transport, and pipeline oil transport all require regulation to mitigate the industry's potentially negative

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<sup>75</sup> Catherine Redgwell, *International Energy Security*, in *Energy Security: Managing Risk in a Dynamic Legal and Regulatory Environment* (Oxford University Press, 2004), 17; Winzer, "Conceptualizing Energy Security," 46 *Energy Policy* 37; Yergin, "Ensuring Energy Security," 69.



environmental impacts, while the burning of coal for energy has resulted in acid rain and air pollution in major cities. Wind farms can harm birds and bats, create noise, and interfere with landscape and amenity, whereas large hydro-electric facilities can have huge environmental repercussions due to river damming.

The energy industry and the climate industry are tightly linked. Energy use emissions from stationary energy consumption and transportation account for over 80% of global greenhouse gas emissions, hence mechanisms for lowering greenhouse gas emissions and pushing the world toward a "low carbon economy" have a significant impact on energy producers and users. Carbon taxes, emissions trading schemes, feed-in tariffs, and renewable portfolio standards, which mandate the use of renewable energy in electricity, measures to improve energy efficiency standards in buildings, cars, and white goods, and support for carbon capture and storage technologies are just a few of these mechanisms.<sup>76</sup>

### **8.1. Access to energy**

In many developing countries, providing access to modern energy is a crucial policy goal because large portions of the population, particularly in rural regions, do not have access to power for cooking, heating, or lighting. In recent years, there has been a growing international recognition of the critical role of energy services in reducing poverty and accomplishing many of the internationally recognised economic, social, and cultural human rights.<sup>77</sup>

Despite the fact that there are no binding international commitments in public international law regarding universal access to energy services, and that access to modern energy services is not recognised as an express human right in any international human rights instrument, it has been argued that

*“access to energy services should be an implied human right given that many express rights (such as the right to education and the right to an adequate standard of living, to name but a few) cannot be achieved without access to energy services.”<sup>78</sup>*

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<sup>76</sup> Elizabeth Bossley and Andy Kerr, *Climate Change and Emissions Trading: What Every Business Needs to Know* (CEAG Ltd, 3rd ed, 2009) 37.

<sup>77</sup> See, eg, the UN Secretary-General's Advisory Group on Energy and Climate Change, *Energy for a Sustainable Future: Summary Report and Recommendations* (2010) [http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGECC%20summary%20report\[1\].pdf](http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGECC%20summary%20report[1].pdf)

<sup>78</sup> Adrian Bradbrook and Judith Gardam, 'Placing Access to Energy Services within a Human Rights Framework' (2006) 28 *Human Rights Quarterly* 389, 405

Trade regulations, on the other hand, are not and cannot be a substitute for environmental regulations. Nowadays, international environmental policy and its institutions are inextricably linked to the world trade order. Economic activity and international trade movements are major contributors to environmental degradation and pollution.<sup>79</sup>

On the surface, the World Trade Organization (WTO) appears to be a forum for negotiating agreements intended at removing barriers to international trade and providing a level playing field for all, thereby promoting economic growth and development. The World Trade Organization (WTO) is not an organization that protects the environment. So far, its trade and environment expertise has been restricted to trade policies and trade-related aspects of environmental policies with a substantial impact on trade. However, the two sectors can complement each other when it comes to addressing the link between trade and the environment. Overall, the GATT/WTO regulations give members a lot of leeway when it comes to enacting national environmental legislation. Under some conditions, WTO agreements confirm states' right to safeguard the environment. This is regulated by exceptions that allow governments to establish measures that protect the environment but have an impact on trade if specific circumstances are met. To help developing nations create the resources needed to safeguard the environment and move toward sustainable development, trade liberalisation for developing country exports, as well as financial incentives and technological transfers, are required. Improved trade and environmental coordination between trade and environmental officials at the national level, as well as increased coordination at the international level, could improve mutual support between the trade and environmental regimes.

## **9. Facilitating Sustainable Transition to Renewable Energy**

### **9.1. Millennium Development Goals**

The Johannesburg Plan of Implementation, adopted at the 2002 World Summit on Sustainable Development, recognised that access to modern energy services was critical to achieving the Millennium Development Goals (MDGs), which the United Nations had set out to meet the needs of the world's poorest by 2015. It also advocated for the inclusion of energy considerations in national development plans. Some of the multi-stakeholder partnerships for sustainable development focused on improving energy availability to help achieve the MDGs. UN-Energy was established in 2004 to ensure that the many energy-related decisions made in

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<sup>79</sup> WT/DS58 Appellate Body Report, adopted on 21 November 2001, available at [http://www.wto.org/english/tratop\\_e/dispu\\_e/cases\\_e/ds58\\_e.htm](http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds58_e.htm)

Johannesburg were followed up on. UN-Energy, on the other hand, is an inter-agency mechanism tasked with coordinating the energy-related work of 20 UN agencies. UN-Energy also aimed to help countries meet both the MDGs and the climate change agenda.<sup>80</sup>

The lack of unanimity among nations was one of the obstacles to development on sustainable energy. Many developing countries argued that energy access should come first, with choice of technology coming second. Many fossil fuel producers did not want to promote a shift away from fossil fuels since it would harm their economies. Others, such as small island developing nations (SIDS), were concerned about climate change and advocated for a focus on renewable energy and emissions reductions. Stronger international institutional structures were needed, however, to assist countries and their people in gaining access to electricity and making the transition to sustainable energy.

The United Nations General Assembly established the 2030 Agenda for Sustainable Development in 2015, which includes 17 Sustainable Development Goals (SDGs). The aims of SDG 7—affordable and clean energy—responded to these energy concerns. To accomplish SDG 7, governments and other stakeholders must develop partnerships and manage significant technological and financial transfers, particularly to help the most vulnerable people.

### **9.2. International Renewable Energy Agency**

In the early 1980s, developing countries advocated creating a UN agency to support solar energy, but certain industrialised countries, especially the United States and Japan, were opposed to the proposal. Some speculate that these major renewable energy technology innovators were motivated by a desire to prevent industrial competition from forming in underdeveloped countries, which would be crucial future markets. At the time, none of the existing global energy agencies actively supported renewables, and many stressed the importance of pooling resources to fund relevant R&D, technology transfer, and capacity building in developing nations.<sup>81</sup>

Following extensive lobbying and growing global interest in renewable energy, Germany held a preparatory process in 2008, which culminated in the establishment of IRENA a year later.

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<sup>80</sup> UNIDO. (2020). UN Energy. <https://www.unido.org/our-focus/cross-cutting-services/green-industry/partnerships/un-energy>.

<sup>81</sup> EUROSOLAR and WCRE. (2009). The long road to IRENA: From the idea to the foundation of the International Renewable Energy Agency. Documentation 1990–2009. Ponte Press.

The agency conducts research, provides mapping, planning, and policy tools and advice, and leads multistakeholder initiatives, including three regional Clean Energy Corridors, the SIDS Lighthouses Initiative, and the Global Geothermal Alliance, to name a few.

The Clean Energy Corridors play a critical role in ratcheting up political support for renewables, supporting coordinated energy planning, building business cases for renewables, and helping to create enabling environments for in-state renewables by focusing on the regional level in areas such as grid infrastructure and electricity markets, energy resource diversification, investment promotion, and job creation. The Africa Clean Energy Corridor has helped identify high-potential renewable energy generation zones and related investment options, conducted regulatory readiness assessments, and provided technical assistance, taking an approach that seeks to cater to country-specific needs and priorities of multiple stakeholders. As a result of the small-scale loans, developing countries have been able to expand energy access and reduce their reliance on fossil fuel imports.

### **9.3. Sustainable Energy for All**

UN Secretary-General Ban Ki-moon formed a high-level, multi-stakeholder Advisory Group on Energy and Climate Change the same year IRENA was founded. The group selected two priority areas for increased effort and international cooperation, and called for a global campaign to support them: access (ensuring universal access to modern energy services by 2030) and efficiency (improving energy efficiency), reducing global energy intensity by 40 percent by 2030.<sup>82</sup>

SEforALL is a one-of-a-kind global organisation. The Administrative Board, the organization's main governing body, is made up of executives from government, industry, and foundations. The multi-agency Global Tracking Framework, which generates an annual progress report on SDG 7, and an annual event, which takes stock of progress, aims to mobilise funds, and provides a platform for encouraging collaboration and showcasing action, are two of SEforALL's most visible initiatives.

To reach countries and manage multistakeholder relationships, SEforALL depends on Regional and Thematic Hubs and Accelerators. The Energy Efficiency Hub, which is hosted at the

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<sup>82</sup> AGECC. (2010). Energy for a Sustainable Future. United Nations.  
<https://www.un.org/chinese/millenniumgoals/pdf/AGECCsummaryreport%5B1%5D.pdf>

Copenhagen Centre on Energy Efficiency, and the Renewable Energy Hub, which is hosted at IRENA, are two examples.<sup>83</sup>

#### **9.4. Sustainable Development Goals**

There was no particular aim for energy in the MDGs. Some blamed it on a long-running dispute between the Global South and the North about whether energy was primarily a "social and economic good" or a "environmental bad." SEforALL attempted to refocus the debate by emphasising both the role of energy in sustainable development and the necessity of environmental protection, and its three targets set in 2011 had an impact on the SDG 7 negotiations.<sup>84</sup>

This divergence of opinion was echoed in the SDG negotiations, with many developing nations stressing that energy access should take precedence over technology choice. Similarly, developing countries rejected a suggestion from some affluent countries to include a target to phase out inefficient fossil fuel subsidies, stating that they were vital in some situations for poverty alleviation. SDG 12 on sustainable consumption and production finally incorporated this goal.<sup>85</sup>

### **10. Viable Implementations in the Grassroots**

All said and done, the international organisations and their policies are but platforms to achieve a more sustainable pathway to energy production and consumption. The MDGs and SDGs have to be met, with methods that align with and consider the individual contributions of nations, NGOs and IGOs. For that, a much simpler and short-term attainable goals need to be set, be it in the form of educating about energy studies in the grassroots and focusing in energy sector investments.

#### **10.1. Consumer information and environmental education**

The introduction of a wide range of consumer products that use renewable energy and energy efficiency technology is a key component of sustainable energy development. The widespread

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<sup>83</sup> SEforALL. (2016). Sustainable Energy for All: Strategic framework for results 2016–21. SEforALL

<sup>84</sup> McDade, S. (2013). SDG 7 and sustainable energy development in Latin America and the Caribbean. UN Chronicle, 9. <https://doi.org/10.18356/cb2c5053-en>

<sup>85</sup> Kamau, M., Chasek, P. & O'Connor, D. (2018). Transforming multilateral diplomacy: The inside story of the Sustainable Development Goals. Routledge. SUPRA

deployment of these new consumer products requires consumer education and confidence.<sup>86</sup> Both the United Nations and international consumer organisations have already addressed this issue.

Based on a recommendation by the Commission for Sustainable Development's third session, the United Nations General Assembly updated its Guidelines for Consumer Protection in 1999 to include sustainable Development.<sup>87</sup> According to the revised Guidelines, one of the key goals of consumer protection is to promote sustainable consumption (cl I(h)), and sustainable consumption should be one of the aspects of a robust consumer protection strategy that all governments should establish and maintain (cl II.3(g)). Consumer concerns about energy are especially mentioned. The Asia-Pacific NGO Forum on Effective Consumer Information for Sustainable Energy Use, held in Seoul, Republic of Korea in May 1999 and co-organized by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and the Citizens' Alliance for Consumer Protection of Korea, took on the same theme. This Forum brought together representatives from the majority of Asia-Pacific countries' largest consumer organisations. Conclusions and Recommendations for Future Action by Consumer Organizations to Promote Sustainable Development and Sustainable Energy Use was published by the Forum.<sup>88</sup>

## ***10.2. Multilateral Energy Sector Investment***

To reduce CO<sub>2</sub> emissions, strong action is required. The International Energy Agency predicts a 45% increase in worldwide GHG emissions by 2030 in their business-as-usual scenario.<sup>89</sup> "China, India, and the Middle East account for three-quarters of the expected increase in energy-related CO<sub>2</sub> emissions in the Reference Scenario, with non-OECD nations accounting for 97 percent."<sup>90</sup>

Renewable Energy projects will help to reduce carbon emissions in accordance with the SDGs, but they will also help to promote energy self-sufficiency<sup>91</sup> and security by diversifying energy

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<sup>86</sup> A. J. Bradbrook, "Eco-Labeling: Lessons from the Energy Sector" (1996) 18 *Adelaide L. Rev.* 35.

<sup>87</sup> The Commission on Sustainable Development recommendations are contained in document E/1992/31, chap I, para 45, sec E. The revised Guidelines for Consumer Protection were adopted in ECOSOC Resolution 1999/7 of 26 July 1999.

<sup>88</sup> See A. J. Bradbrook, "The Development of a Regulatory Framework on Consumer Protection and Consumer Information for Sustainable Energy Use" (2000) 5 *Asia Pacific Journal of Environmental Law* 239.

<sup>89</sup> World Energy Outlook 2008: Executive Summary, Int'l Energy Agency 39 (2008), <http://www.iea.org/Textbase/npsum/weo2008sum.pdf>

<sup>90</sup> *Id.*

<sup>91</sup> Yoshino, N., F. Taghizadeh-Hesary, and N. Tawk. (2017). "Decline of Oil Prices and the Negative Interest Rate Policy in Japan." *Economic and Political Studies* 5(2): 233–50. doi: 10.1080/20954816.2017.1310798

resources. Overdependence on limited energy resources (coal, oil, or gas) reduces the economy's resilience and makes it more vulnerable to energy price swings.

Following the Fukushima nuclear accident in March 2011, Japan's energy security weakened, resulting in the shutdown of nuclear units and the substitution of fossil fuels for nuclear power. Due to increased reliance on oil, the absolute value of oil consumption elasticity reduced in several economic sectors following the accident, jeopardising the country's energy security. According to scholars, Japan should diversify its energy supplies to strengthen its energy self-sufficiency and security.<sup>92</sup>

### ***10.3. Investing in Energy sector to meet the UN Millennium Goals***

Increased access to energy has long been recognised as critical to attaining the Millennium Declaration's goals of human dignity, equality, and equity around the world.<sup>93</sup> The Millennium Declaration Goals cannot be realised without improved access to energy, according to the World Bank, since “most economic activity is not possible without energy, and no country in modern times has substantially reduced poverty without massively increasing its usage of energy.”<sup>94</sup>

The United Nations Advisory Group on Energy and Climate Change has suggested that energy be included in the review of the Millennium Development Goals.<sup>95</sup> The International Energy Agency and two United Nations organisations collaborated to determine the magnitude of the expenditure required to accomplish the MDGs, recognising the importance of energy development in achieving the MDGs.<sup>96</sup>

In the Monterrey Consensus for developing countries, private international capital flow, notably FDI, was described as “vital.”<sup>97</sup> The Monterrey Consensus urged countries to maintain

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<sup>92</sup> Taghizadeh–Hesary, F., N. Yoshino, and E. Rasoulinezhad. (2017). “Impact of the Fukushima Nuclear Disaster on the Oil-Consuming Sectors of Japan.” *Journal of Comparative Asian Development* 16(2): 113–134. doi: 10.1080/15339114.2017.1298457

<sup>93</sup> Energy Poverty Issues and G8 Actions, World Bank, 1, (Feb. 2, 2006), [http://siteresources.worldbank.org/INTRUSSIANFEDERATION/Resources/Energy\\_Poverty\\_Issues\\_Paper\\_Russia\\_G8\\_eng\\_summary.pdf](http://siteresources.worldbank.org/INTRUSSIANFEDERATION/Resources/Energy_Poverty_Issues_Paper_Russia_G8_eng_summary.pdf)

<sup>94</sup> *Id.*

<sup>95</sup> U.N. Secretary-General's Advisory Group on Energy & Climate Change (AGECL), *Energy for a Sustainable Future*, Summary Report and Recommendations, 3 (Apr. 28, 2010) [hereinafter *Energy for a Sustainable Future* available at <http://www.un.org/wcm/webdav/site/climatechange/shared/Documents/AGECC%20summary%20report%5B1%5D>]

<sup>96</sup> *Supra* n 87

<sup>97</sup> Monterrey Consensus of the International Conference on Financing for Development, INT'L CONFERENCE ON FIN. FOR DEV., ¶ 20 (2003), <http://www.im.org/esa/ffd/monterrey/MonterreyConsensus.pdf>

their efforts to create a transparent, stable, and predictable investment climate, with effective contract enforcement and respect for property rights, in order to attract and increase capital inflows.<sup>98</sup> The experience demonstrated that creating an enabling domestic and international investment climate is critical to fostering domestic and international private investment, and that bilateral investment treaties can help to promote private investment by increasing legal stability and predictability for investors.<sup>99</sup>

#### **10.4. Financing Investment in Renewable Energy Sector**

Clearly, fossil fuels continue to be the primary source of energy investment. As a result, how to drive investments toward RE is a fundamental challenge in the transition to low-carbon energy provision. Banks are hesitant to finance RE projects because of the Basel capital requirements, which restrict lending by financial institutions, and because most RE projects are considered hazardous by banks. Another issue is that banks' resources are derived from deposits, which are typically short to medium-term in nature, but green infrastructure projects require long-term financing, resulting in a maturity mismatch for banks. As a result, banking finance cannot offer all of the funding for green projects, and we must seek out new sources of funding for this sector to close the funding gap. Bank lending must be directed to more secure industries and businesses.<sup>100</sup>

One possible approach is to encourage non-bank financial entities to engage in green initiatives, such as pension funds and insurance firms. Long-term financial resources suited for green infrastructure investment are held by insurance firms and pension funds.<sup>101</sup>

Institutional investors are the greatest source of capital for listed companies, with about \$100 trillion in assets under management in the OECD 7 countries alone. Institutional investors are well positioned to steer corporate capital allocation towards more sustainable uses due to their size and function as a conduit for savers' climate concerns to the capital markets.

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<sup>98</sup> *Id.*

<sup>99</sup> Follow-Up Int'l Conference on Fin. for Dev. to Review the Implementation of the Monterrey Consensus, Nov. 29-Dec. 2, 2008, *Doha Declaration on Financing for Development: Outcome Document of the Follow-up International Conference on Financing for Development To Review the Implementation of the Monterrey Consensus*, ¶25, U.N. Doc. A/CONF.212/L.1/Rev.1 (Dec. 9, 2008).

<sup>100</sup> Mazzucato, M., and G. Semieniuk. (2017). "Financing Renewable Energy: Who is Financing What and Why it Matters." *Technological Forecasting & Social Change*. dx.doi.org/10.1016/j.techfore.2017.05.021

<sup>101</sup> Gianfrate, G., and G. Lorenzato. (2018). *Stimulating Non-Bank Financial Institutions' Participation in Green Investments*. ADBI Working Paper 860. Tokyo: Asian Development Bank Institute.



## CHAPTER IV

### PERMANENT SOVEREIGNTY OVER NATURAL RESOURCES A ROADBLOCK TO ENERGY SUSTAINABILITY?

#### 4. Evolution of PSNR principle since the age of decolonialisation

Energy Sustainable use is inextricably linked to, and a vital measure for, achieving the goal of sustainable development, and as such, it is an acceptable limitation on state sovereignty, as it provides for a balance between permanent sovereignty and resource protection.

In the postwar era, the concept of "permanent sovereignty over natural resources" emerged as a new principle of international law within the United Nations (UN). Initially, the claims were driven by the desire of newly independent and other developing countries to secure economic benefits from the use of natural resources within their borders. The notion became associated with the right of colonial peoples to self-determination and human rights during the decolonization period. Following that, the emphasis on the principle's objective was shifted to fostering national economic development.

According to the UN Declaration on Permanent Sovereignty Over Natural Resources, 'the right of peoples and nations to permanent sovereignty over their natural wealth and resources must be exercised in the interest of their national development and the well-being of the people of the State concerned.'<sup>102</sup>

'Sovereignty is the rule and can be applied at any time,' said Abi-Saab, a former member of the Appellate Body, and 'limitations are the exceptions, not the rule, and cannot be permanent; they are, however, restricted in scope and duration.'<sup>103</sup> This raises the issue of resource exploitation that could jeopardise global ecological well-being, as well as the extent to which the idea of permanent sovereignty over natural resources can be employed to advance a state's entrenched interests.

It is obvious that peoples are awarded sovereign rights over natural resources based on territorial sovereignty rather than a premise of global resource sharing.<sup>104</sup> Because natural resources are unevenly distributed geographically, the concept of permanent sovereignty

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<sup>102</sup> U.N. G.A. Res. 1803(XVII), ¶ 1 (Dec. 14, 1962).

<sup>103</sup> *Supra* n. 1

<sup>104</sup> *Id.*

reinforces the disparities between countries with abundant natural resources and those that have not.

Mexico joined the GATT as a contracting party in 1986 and the WTO as a founding member in 1995. Mexico was one of the world's most important oil producing and exporting countries when it joined the GATT. One of the most critical energy trade concerns came to the fore when Mexico negotiated its admission to the GATT, namely, the question of export restriction practises that energy producing and exporting countries used to impose over the production or exportation of energy products, primarily crude oil. Mexico aimed to safeguard its sovereignty and impose export restrictions on natural resources in general and energy products in particular through paragraph 5 of the Protocol of Accession to GATT. Paragraph 5 of Mexico's Protocol of Accession states:

“Mexico will exercise its sovereignty over natural resources, in accordance with the Political Constitution of Mexico. Mexico may *maintain certain export restrictions* related to the conservation of natural resources, *particularly in the energy sector*, on the basis of its social and development needs if those export restrictions are made effective *in conjunction with restrictions on domestic production or consumption.*”<sup>105</sup>

The respective obligations of developing and developed countries were vigorously negotiated during the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol on Climate Change summit in Bali in December 2007.<sup>106</sup> Developing countries have no GHG restrictions and have long argued that requiring them to cut their emissions would prevent them from developing their economies and improving the lives of their people, as energy generation and consumption are critical to contemporary living and economic growth. They argued that imposing an emission cap on developing countries would be unfair because developed countries have grown and developed by polluting the world as the primary emitters of GHG for decades, and that developed countries should bear the majority of the current burden while allowing developing countries' economies to catch up.<sup>107</sup> As a result, developing countries have consistently refused to be bound by GHG emission caps, and the UNFCCC's fundamental principle has been that parties should act to protect the climate system "on the

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<sup>105</sup> GENERAL AGREEMENT ON TARIFFS AND TRADE.

<https://docs.wto.org/gattdocs/q/GG/L6199/6036.PDF>

<sup>106</sup> Bali Action Plan, Dec. 15, 2007, 1-2, available at

[http://unfccc.int/files/meetings/cop\\_13/application/pdf/cop\\_bali\\_action.pdf](http://unfccc.int/files/meetings/cop_13/application/pdf/cop_bali_action.pdf)

<sup>107</sup> *Id.*

basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities."<sup>108</sup>

The atmosphere has come to be regarded as a global unity that transcends geographical boundaries, and its deterioration as a result of climate change has become a worldwide issue.<sup>109</sup> Similarly, the international community's recognition that the advantages of biological resources accrue to humanity as a whole led to the acknowledgment of biodiversity protection as a shared concern to humanity, notwithstanding their presence inside the constraints of domestic domains. As a result, a new concept of sovereignty was established.

Because it 'does not fall simply within the domestic jurisdiction of States, given to its global importance and ramifications for all,' the recognition of an issue as a common concern of mankind does actually limit the State's freedom of action.<sup>110</sup>

#### **5. The Sovereign Right to Use Natural Resources for Economic Development**

The right of a nation to utilise and use its natural resources for economic development is implicit in its natural resource sovereignty. State sovereignty over natural resources is a concept of international law that allows states to 'freely use and exploit their natural wealth and resources wherever they consider desirable for their own growth and economic development,' as accepted by the Panel in China-Raw Materials.<sup>111</sup>

#### **International norms on the PSNR principle**

The Stockholm Declaration's Principle 21 is without a doubt the most well-known. It reflects the PSNR principle as well as State responsibility for environmental damage that occurs across borders. However, while Principle 21 calls for the avoidance of extraterritorial consequences that harm the environment in other nations or places outside of national jurisdiction, it does not impose specific obligations that other States could enforce in relation to national resource management.

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<sup>108</sup> United Nations Framework Convention on Climate Change, U.N. Doc. GE.05-62220, art. 3 ¶ 1, (1992), available at <http://unfccc.int/resource/docs/convkp/conveng.pdf>

<sup>109</sup> UNFCCC, preamble recital 1.

<sup>110</sup> ILC, Second Report on the Protection of the Atmosphere, Special Rapporteur Murase (2015) UN Doc A/CN.4/681, at 22.

<sup>111</sup> Appellate Body Reports, *China—Measures Related to the Exportation of Various Raw Materials*, WT/DS394, 395, 398/AB/R, 30 January 2012 (Appellate Body Reports); Panel Reports, WT/DS394, 395, 398/R, 5 July 2011 (Panel Reports).

In recent decades, it has been obvious that states have grown increasingly interconnected in the field of natural resources, for example, as a result of increasing resource scarcity, resource allocation to development, biodiversity conservation, and environmental preservation in general. As a result, national and international efforts to conserve the environment have been made. The Brundtland Commission created the idea of "sustainable development" in 1987 to balance the clashing claims of environmental preservation and the need for progress. The trends in international environmental law discussed in this chapter have led to States' obligations to manage their natural wealth and resources not only to avoid significant harm to other States', but also to manage their natural wealth and resources properly for the sake of their own people, including future generations. Furthermore, these developments give a foundation for international cooperation, which is necessary for environmental protection.

'Legal regimes are being swiftly outpaced by the rising pace and scope of consequences on the environmental base of development,' according to the Brundtland Commission. 'Human laws must be rewritten to keep human actions in line with the unchanging and universal principles of nature,' it recommended.<sup>112</sup> Similarly, the Rio Conference on Environment and Development urged for further international law development in the sphere of sustainable development.<sup>113</sup> This would almost certainly necessitate a further evolution of current international law, which is primarily State-oriented and under which national resource regimes coexist but rarely interact, toward one that is humankind-oriented and approaches environmental preservation and sustainable development from a global perspective: in other words, an international law under which international cooperation is encouraged. National sovereignty over natural resources, as an important cornerstone of environmental rights and responsibilities, may well continue to serve as a core concept within this evolving international legal framework.

## 6. **Exploitation of Natural Resources And PSNR**

For many years, the principal PSNR-related UN resolutions and treaties had as their primary goal the full utilisation of natural resources. They frequently overlooked the effects on the environment and natural resources as a result.<sup>114</sup> The present trend is to take a holistic approach

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<sup>112</sup> World Commission on Environment and Development (1987: 330).

<sup>113</sup> Principle 27 of the Rio Declaration on Environment and Development; see also *Agenda 21*, Chapter 39.

<sup>114</sup> Lyster, S. (1985), *International Wildlife law: An analysis of international treaties concerned with the conservation of wildlife*, Grotius Publications: Cambridge.

to ecosystem management. A growing number of responsibilities restricts a state's authority over its natural resources and income by requiring it to manage them more carefully.

The rapid evolution of international environmental law has had a significant impact on how the principle of PSNR is interpreted in modern international law. While the principle's fundamental aspects have been reinforced and consolidated in a number of international environmental accords, the corollary responsibilities for nature conservation and environmental preservation are becoming more prominent. As a result, PSNR is no longer just a source of freedom for each state to manage its natural resources; it is also a source of matching duties that necessitate careful management and impose accountability at the national and international levels. Such non-binding UN declarations as the Stockholm Declaration and the World Charter of Nature empathetically reflect this viewpoint. It also stems from customary international law norms such as *sic utere tuo ut alienum non laedas* (use your own property so as to not injure the property of another) and State responsibility, as well as binding legal instruments.

#### **6.1. Economic Development And Environment**

The international community recognises that people's well-being can only be guaranteed if the state pursues a path of sustainable development that incorporates environmental concerns and safeguards natural resources from depletion in order to secure their long-term usage. From this perspective, the evolution of the concept of development from economic growth to sustainable development may well indicate that the principle of permanent sovereignty over natural resources now includes a duty of environmental protection, as only then can permanent sovereignty be exercised in the interests of development and the well-being of the State's people.

#### **6.2. State Sovereignty and Environmentalism**

While international law discourages the employment of unilateral extraterritorial measures, it does not expressly forbid them. In the environmental sphere, there have been examples of such attempts, such as the United States' protective actions that led to the famous *Bering Sea fur seal arbitration*.<sup>115</sup> Such endeavours, predictably, result in international disputes, which the environmentally conscious state frequently loses. According to Sands, the World Trade Organization's Dispute Settlement Body has recently taken a more sympathetic attitude to

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<sup>115</sup> (*United States v Canada*) 28 RIAA 263

natural resource conservation issues, even with the implementation of extra-territorially applicable domestic policies.<sup>116</sup>

If the international community fails to adopt sufficiently effective international resource protection standards, particularly in the case of shared or common resources, instances of national sovereignty restrictions through extraterritorial application of domestic environmental legislation may rise. This would have the consequence of gradually limiting the remaining space of freedom from other countries' intervention.

### **6.3. The No Harm Rule**

The core idea of sovereign equality underpins a key international environmental standard that limits states' authority over natural resources. The duty to respect other States' territorial integrity, which is an expression of their sovereignty, leads to the requirement not to harm their environment. This stems from the concepts of good neighbourliness and *sic utere tuo ut alienum non laedas*. The International Court of Justice (ICJ) stated in the *Corfu Channel case*<sup>117</sup> that a State has a "obligation not to allow knowingly its territory to be used for acts contrary to the rights of other States," while the *Trail Smelter*<sup>118</sup> arbitrations highlighted the rule's specifically environmental dimension.

As a result, the commitment not to harm the environment of other countries or areas outside of national jurisdiction functions as a check on the ability to freely utilise natural resources, limiting sovereignty. The customary status of this principle is today unquestioned.

In the *Trail Smelter case*, the Tribunal stated that

*“No State has the right to use or permit the use of territory in such a manner as to cause injury by fumes in or to the territory or the properties therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.”*<sup>119</sup>

This principle, often known as the 'no harm rule,' expresses concern that how a State exercises sovereignty over its natural resources – how it extracts, transforms, and exploits them – may have negative effects for the environment of other States. To avoid such harm, it establishes

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<sup>116</sup> Philippe Sands and Jacqueline Peel, *Principles of International Environmental Law* (3<sup>rd</sup> ed., Cambridge University Press, 2012)

<sup>117</sup> *Corfu Channel (United Kingdom v Albania)* (Judgment) (1949) ICJ Reports 4,

<sup>118</sup> *Trail Smelter (United States v Canada)* (16 April 1939 and 11 March 1941) 3 RIAA 1905

<sup>119</sup> *Id.*

restrictions on the use of sovereignty over natural resources. As a result, the commitment not to harm the environment of other countries or areas outside of national jurisdiction functions as a check on the ability to freely utilise natural resources, limiting sovereignty. This principle's traditional prominence is unassailable today.<sup>120</sup>

Because sustainable development necessitates the integration of economic, environmental, and social considerations, the growing recognition of a domestic obligation of due diligence towards the environment may well work in favour of the recognition of a domestic obligation of due diligence towards the environment. In this view, a commitment to protect the domestic environment would be consistent with the demand that permanent sovereignty be exercised in the interests of the people's well-being, including their environmental and social well-being, thereby supporting sustainable development.

It was a basic customary international law principle even before the Rio Declaration that sovereignty establishes reciprocal environmental responsibilities on sovereign states toward nations beyond their own territory.<sup>121</sup> In today's world, and in accordance with Principle 2 of the Rio Declaration, rational adjustments in notions of sovereignty over natural resources are required, particularly when their utilisation has an environmental impact. The proposed changes address sovereign states' environmental responsibilities to maintain the climate as they exercise sovereignty in the context of resource extraction, rather than solely for economic reasons or financial gain. This informs a relational perspective to sovereignty for international interdependencies and cooperation needed to solve climate change.<sup>122</sup>

Nonetheless, the principle necessitates the possibility that states could impose rules for energy exploration and exploitation in the context of sustainable development, i.e. formulating rules for incorporating sustainability in the energy industry via statutory or legislative requirements on best environmental practises.

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<sup>120</sup> *Legality of the Threat or Use of Nuclear Weapons Advisory Opinion* (1996) ICJ Reports 241,

<sup>121</sup> R. Churchill, D. Freestone (Eds.), *International Law and Global Climate Change*, Graham and Trotman and Martinus Nijhoff, 19917 at 13.

<sup>122</sup> S.L. Seck, *Revisiting transnational corporations and extractive industries: climate justice, feminism, and state sovereignty*, *Trans. Law Contemp. Probl.* 26 (2017) 383 at 404.

## CHAPTER V

### THE ROLE OF INTERNATIONAL ORGANISATIONS LIKE IEA, OPEC, THE UN, OR THE G20, ICSID IN FACILITATING SDGS

The requirement for reliable energy supplies to fulfil rising demand necessitates increased investment in energy supply and trade. Climate change, the continued depletion of fossil fuels, and other environmental problems necessitate increased energy efficiency and the utilisation of alternative energy sources. The levels and predictability of energy prices and investment, as well as the policy and regulatory framework, will all play a role in whether such needs are met with maximum sustainability and minimum cost, disruption of energy supplies, economic hardship for all stakeholders (particularly the poorest), or damage to development prospects. Prices and investment will be affected by changes in energy demand, supply, and security, as well as environmental concerns, technology advancements, and incentives to promote energy conservation, efficiency, and development, as well as the usage of renewable energy sources. To turn these obstacles into opportunities, developing countries must take national actions in this area that are backed up by a comprehensive set of international policies.

Critical fragmentation and a lack of consistent standards plague global energy policy.<sup>123</sup> Its structure consists of fragmented systems spanning multi-layered regimes such as multilateral, regional, bilateral, and national systems and treaties, as well as a variety of international institutional governors such as the International Energy Agency, the Organization of Petroleum Exporting Countries, the United Nations, and the Group of 20.<sup>124</sup>

As a result, the fragmentation of governance and inconsistency of laws in global energy governance will very certainly increase tensions and uncertainty in energy trade in particular, as well as global energy governance in general.

Energy generation and supply expenditures accounted for only 3.8 percent of total OECD aid to developing countries in 2005–06, and 1.2 percent and 1.3 percent of total ODA to Africa and LDCs, respectively.<sup>125</sup> The low priority of energy-related infrastructure under ODA

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<sup>123</sup> Leal-Arcas, R. and Filis, A. “The Fragmented Governance of the Global Energy Economy: A Legal-Institutional Analysis,” *Journal of World Energy Law and Business*, Vol. 6, Issue 4, pp. 1-58, 2013, Oxford University Press.

<sup>124</sup> A. Ghosh, “Seeking Coherence in Complexity? The Governance of Energy by Trade and Investment Institutions,” *Global Policy* 2, no. s1 (2011): 106–119, p. 107, 117.

<sup>125</sup> UNCTAD secretariat calculations based on OECD Creditor Reporting System.



complicates energy plans and development strategies in developing nations.<sup>126</sup> Energy-related aid to developing nations, particularly LDCs, needs to be significantly increased.

## 2. International Co-operations

Access to and transfer of environmentally sound technologies and corresponding know-how must be provided on favourable conditions, including concessional and favourable terms, by developed countries. Given the existing wealth gap between developed and developing countries, as well as the majority of developing countries' external debt, it is unrealistic to expect developing countries to be able to fund the development and implementation of sustainable energy technologies on their own, let alone develop the necessary know-how and scientific and technical expertise.

One of the most important factors in the quest for sustainable development has long been recognised as a sustainable energy future. The importance of energy for sustainable development has been mentioned in international documents since at least the Brundtland report in 1987.

International agencies have an explicit and visible part in the regulatory process, assisting in the negotiation and administration of treaties, the formal creation of standards and guidelines, and, on rare occasions, direct regulatory power. A latent, but crucial, direct regulatory role is the development of technical standards, which is frequently done in partnership with specialists from governments, companies, and industry associations.<sup>127</sup> They also work by providing national governments – as well as domestic specialists and societal forces – with a ready-made set of regulations that are usually well-researched, tried, and widely used elsewhere. These have the political and technical authority that "authoritative" international standards entail. The International Maritime Organization (IMO) has standards for offshore pollution and dumping, the International Atomic Energy Agency (IAEA) has standards for nuclear safety of facilities and transport, the OECD has standards for good multinational companies' conduct, the World Bank has standards for environmental assessment of lending projects, UNCITRAL has standards for infrastructure concession contracts, the United Nations has standards for environmental considerations in mining, and non-governmental organisations have standards for environmental considerations in mining.

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<sup>126</sup> UNCTAD. *The Least Developed Countries Report 2006*.

<sup>127</sup> See A. Wawryk, 20 *JENRL* (2002), on international environmental standards in the oil industry: Improving the Operations of Transnational Oil Companies in Emerging Economies.

## ***1.2. The South-South Cooperation***

### ***1.2.1. The Latin American Energy Organisation (OLADE):***

The Latin American Energy Organization (OLADE) was founded during the early 1970s international energy crisis. Faced with the necessity to deal effectively with the crisis, Latin American and Caribbean countries embarked on a period of intensive political mobilisation that culminated on November 2, 1973, with the signature of the Lima Convention, which established OLADE. Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Dominican Republic, Suriname, Trinidad and Tobago, Uruguay, and Venezuela are among the 26 countries that have ratified the Lima Convention. OLADE is a permanent advisory council for energy-related cooperation and integration, as well as a centre for the exchange of experiences and information between policymakers in the energy sector.<sup>128</sup>

### ***1.2.2. The International Energy Initiative (IEI):***

The International Energy Initiative (IEI), based in South Africa, aims to promote - initiate, strengthen, and advance - efficient energy production and usage for sustainable development. IEI is a South-South-North cooperation that was conceived, led, and is based in the South. It is a small, autonomous, multinational non-governmental public-purpose organisation with regional offices, staff, and programmes across Latin America and Asia, led by internationally recognised energy specialists.<sup>129</sup>

### ***1.2.3. ASEAN Centre for Energy (ACE):***

Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, and Vietnam formed the ASEAN Centre for Energy (ACE) as an intergovernmental organisation. It is governed by an ASEAN Governing Council made up of senior energy officials from ASEAN countries as well as a representation from the ASEAN Secretariat. By initiating, coordinating, and supporting regional, joint, and collective energy initiatives, the Centre aspires to be a catalyst for the ASEAN region's economic growth and development. To realise this

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<sup>128</sup> ECLAC Document # LC/W 280: *Energy Efficiency Status and Outlook in Latin America and the Caribbean*, October 2009.

<sup>129</sup> Agreement on International Energy Program, <https://iea.blob.core.windows.net/assets/c6be6d60-1ca8-4b99-b8c7-7ac508ec157c/IEP.pdf>

vision, the Centre will help ASEAN accelerate the integration of energy strategies by providing relevant data, cutting-edge technology, and expertise to ensure that necessary energy development policies and programmes are in line with the region's long-term economic growth and environmental sustainability. Since its inception, ACE has played a key role in the development of the ASEAN Plan of Action for Energy Cooperation 1999-2004, which is being diligently implemented by ASEAN's specialist energy organisations.<sup>130</sup>

#### ***1.2.4. The African Microhydro Knowledge Network (AMKN):***

The African Microhydro Knowledge Network (AMKN) serves as a regional model for policy coordination as well as a possibly replicable model for similar action in other countries or regions with similar conditions. AMKN was established in April 2005 as a capacity-building facility with the goal of facilitating the exchange of policies and experiences in the development of microhydropower in Sub-Saharan Africa. The twenty countries involved are improving microhydro policy development by combining their knowledge and experiences. The AMKN is particularly noteworthy as an example of worldwide "South-South" cooperation.

Promotion of Renewable Energy, Energy Efficiency, and Greenhouse Gas Abatement (PREGA) is a flagship energy cooperation programme established by the Asian Development Bank. Bangladesh, Cambodia, the People's Republic of China, Indonesia, India, Mongolia, Nepal, the Philippines, Samoa, and Vietnam are among the members.

#### ***1.3. Organisation of Petroleum Exporting Countries (OPEC)***

OPEC was formed in the 1960s as a result of a joint attempt between Venezuela and Saudi Arabia to lessen reliance on multinational oil firms.<sup>131</sup> The major goal was to form a united front against the oil giants on a number of fiscal concerns. When it comes to truly "international" energy law, OPEC is the international organisation having the most influence not only on the oil industry, but also on energy and energy-related environmental issues, and not just on production and trade, but also on investment. OPEC countries today control roughly 75% of global oil reserves and 40% of global oil production.

OPEC is a player that does not fit well into either a traditional or current "green" perspective, as it has been considered as at least co-responsible for high oil prices since the 1970s. It also

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<sup>130</sup> *Id.*

<sup>131</sup> P. Stevens, *Oil and Gas Dictionary* (1988), 138–140; L. Lugo, *The Amazing Story of OPEC* (1997).

pushes, naturally, for hydrocarbon usage. It also does not conform to the conventional conception of developing countries as victims and passive beneficiaries in need of high-minded Western help and guidance, but rather as an independent actor outside of Western control. It is also hardly ever the focus of NGO attention or subjected to NGO pressure. NGOs play a little part in almost all OPEC countries' political systems.

OPEC's position was completely in line with the then-dominant "Third World" demand for a "New International Economic Order" based on "Permanent Sovereignty over Natural Resources" and exclusive authority over foreign investment, including the ability to nationalise. The success of OPEC at the time fed directly into the UN General Assembly's NIEO resolutions, which in turn provided and magnified legitimacy to OPEC's actions - despite the reality that the increase in oil prices at the time disproportionately disadvantaged developing nations.<sup>132</sup>

By 1980, the majority of upstream oil and gas reserves and production were in the hands of state-owned corporations in producing countries, and OPEC became a forum for dialogue and, on occasion, collective action among its members. While the early days of OPEC were centred on royalty and tax issues, by the 1970s, the emphasis had shifted to price setting. The use of production quotas for each country eventually supplanted this. The idea was that by adjusting the production quota in response to market conditions, prices could be kept within desired price bands. It established the OPEC Special Fund for Development Aid after oil profits skyrocketed in 1973 and again in 1981.

Two fundamental concerns characterise OPEC's current role in the formation of international energy law. To begin with, the organisation was created on the natural desire of producing countries to enhance and stabilise revenue, i.e. their "mineral rent" from control of oil and gas resources. Its *raison d'être* remains the same. However, there are tensions between short-term price maximisation and long-term market-share objectives for OPEC oil and gas versus non-OPEC competitors and non-hydrocarbon alternatives.

Second, OPEC is naturally averse to viewing the Western currency positively, particularly the EU government's heavy-handed approach to moving away from hydrocarbons in favour of

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<sup>132</sup> T. Wälde, "Requiem for the New International Economic Order," in G. Hafner and G. Loibl (eds), *Festschrift fuer Ignaz Seidl-Hohenveldern* (1998); for this reason, the OPEC Fund for international development was set up

renewable energy sources, as this would devalue its reserves. However, such rules could be combined with a supply restriction depending on price and production.

If production (based on investment) is kept in harmony with demand, climate change in itself is not a mid-term threat to OPEC countries. The OPEC policy of preserving implicit and explicit curbs on investment and output is perfectly compatible with the more radical anti-hydrocarbon positions expressed by NGOs like Greenpeace: exiting from hydrocarbons by limiting supply. OPEC policy can be interpreted as a conservation policy as well as a price stabilisation (increase) programme.

The OPEC countries' possible future membership in the Energy Charter Treaty<sup>133</sup> would present the same issues as their WTO membership, as the ECT allows non-GATT members' application of GATT terms with some qualifications. In contrast to the GATT, the ECT recognises "Energy Sovereignty" and "the optimization of (resource) recovery and the rate at which they may be drained or otherwise used" (Article 18(3)). As a result, ECT membership may cause less challenges for OPEC countries than GATT membership.<sup>134</sup>

Sustainable development necessitates increased energy efficiency, the reduction of greenhouse gas emissions that impair the global (and local) climate, and possibly restrictions on hydrocarbon supply and usage. Such initiatives, which are actively pursued by NGOs and the EU, for example, are unlikely to work if OPEC, the principal international agency of the major oil producing countries, is not properly taken account of.<sup>135</sup>

#### **1.4. International Energy Agency (IEA)**

The International Energy Agency (IEA) in Paris is the Western reaction to OPEC, however overtly mentioning this reverse-mirror role appears to be taboo. Though its scope, membership, and operations are limited, it is the most important international organisation dealing with energy. It is essentially an intergovernmental energy policy institute for Western countries that also operates an emergency sharing system. Its significance stems from the absence of a global intergovernmental energy organisation. The division between the Western (IEA) and production country worlds (OPEC) is most likely the reason for the lack of political interest and effort in establishing a World Energy Agency (WEA). Existing international agencies with

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<sup>133</sup> (1995) 34 *ILM* 360.

<sup>134</sup> P. Stevens, *Oil and Gas Dictionary* (1988), 138–140; L. Lugo, *The Amazing Story of OPEC* (1997).

<sup>135</sup> B. Mommer, *Global Oil and the Nation State*, 2002,

energy mandates (UN, UNCTAD, UNEP, UNIDO, World Bank) would perceive their turf challenged and seek to take on such mandates if a World Energy Agency were to be founded.

The International Energy Agency (IEA) was created in 1974 as a result of a suggestion made by Henry Kissinger in 1973, at the height of the first oil crisis, which saw a sharp rise in oil prices and the taking over of foreign-owned oil production by producing countries. OPEC, whose presence was overlooked in the 1960s, became known as the major instigator and a powerful cartel threatening the oil supply of western countries, particularly the United States. The IEA was and continues to be specifically limited to western countries, i.e. the majority of OECD countries. The International Energy Agency (IEA) was never intended to be or become a global energy agency.

The IEA's main goal was to create a system of collective energy security that would parallel the collective producer power reflected by OPEC at the time. The International Energy Agency (IEA) manages a continuous emergency sharing system that ensures collective energy security. This system was never put in place. The treaty that established the IEA is the International Energy Program of 1992. The membership is confined to OECD countries, however OECD membership is not automatic. As a result, joining the OECD and later the IEA is a two-step process.<sup>136</sup>

The IEA does not appear to have provided technical assistance (policy advice; legislative, tax, and institutional reform; training; assessment of energy projects and programmes; privatisation; investment promotion) in member or non-member countries, unlike other national or international agencies (e.g., the World Bank, UN, UNIDO, UNCTAD, IMF, IMO). That is regrettable, given the IEA's large core of expertise, comparative advantage in its specialty field, and energy policy links with all IEA and many non-IEA countries.<sup>137</sup>

The IEA's traditional core is its emergency oil sharing programme, which is now better referred to as "emergency response measures." It starts with member states taking steps to reduce demand and keep oil stocks at 90 days of net imports. A rationing plan is triggered if an emergency situation for the entire IEA group occurs (two levels of group shortage: a 7% and a 12% shortfall, to be determined by the IEA Executive Director), which also requires surplus countries to provide for imports into deficit countries.

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<sup>136</sup> D. Henderson, *The MAI Affair: A Story and its Lessons* (1999); P. Sauve, "Scaling Back Ambitions on Investment Rule-Making at the WTO" (2001) 2 *J. World Investment* 529.

<sup>137</sup> *Id.*

Energy continues to be the backbone of the global economy, so there appears to be a need for a truly universal energy agency. One option is to keep the oil emergency sharing system in place, but to broaden the organization's focus to include all energy sources, expand membership (perhaps in associate form) to all countries interested in joining, and focus more on developing energy-related technical assistance. The IEA's contribution to international energy law has primarily been the emergency-sharing system as a free-standing element. However, the IEA has had little direct influence on national energy law reform – such as through bilateral or World Bank and UN technical assistance – and has not yet played a visible role in the evolving WTO, NAFTA, or EU-based energy trade law, nor in the numerous environmental treaties, protocols, and guidelines that are now emerging. The incorporation of sustainable development would have to be strengthened in both content, linkages, and name as part of this modernization of the international institutional set-up for energy policy.<sup>138</sup>

### **1.5. Energy Charter Conference and Secretariate**

The fundamental aim of the *Energy Charter Treaty* is to ‘strengthen the rule of law on energy issues, by creating a level playing field of rules to be observed by all participating governments, thereby mitigating risks associated with energy-related investment and trade’.<sup>139</sup> Its key provisions concern the protection of investment, trade in energy materials and products, transit and dispute settlement. Those states that have signed the Treaty, such as Australia, are members of the Energy Charter Conference, the IGO established by the Treaty to be the governing and decision-making body for the Energy Charter process.

The Energy Charter Conference, served by its Secretariat, is the most recent addition to specialized, energy-focused international organizations. It is based on the Energy Charter Treaty<sup>34</sup> (with a headquarters agreement with Belgium), and has the formal status of an international organization. The ECT is an energy-focused treaty with all European countries, the states of the former USSR, plus Australia and Japan as members. The treaty deals mainly with investment protection (in the style of modern bilateral investment treaties) and with trade (adopting WTO rules for energy trade between states where at least one is not a WTO member (that is now mainly Russia, Ukraine and the Asian countries of the former USSR)). The ECT also deals with transit in a novel way.

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<sup>138</sup> *Id.*

<sup>139</sup> Energy Charter Secretariat, *About the Charter* <http://www.encharter.org/index.php?id=7&L=0>

In terms of influencing non-OECD countries – transition and developing economies – towards market economy models for organizing the energy sector, the EC Secretariat/Conference overlaps with much larger organizations such as the EU, the World Bank and the non-member activities of the IEA. The ECT and its organization's contribution to international energy law is currently mainly through the service of the ECT, one of the very few multilateral treaties exclusively devoted to energy, and thus a key element of international energy law. By supporting negotiations for an energy transit protocol, the Energy Charter organization is also directly involved in the emergence of new, and very relevant international energy law. As energy markets integrate regionally and globally, the role of transport, transit and inter-connectors becomes much more important than it was in a period when most energy industries were segregated into national areas.

### **1.6. International Atomic Energy Agency (IAEA)**

The International Atomic Energy Agency (IAEA) is the only global organisation dedicated to the peaceful use of nuclear energy. It has played a critical role in international nuclear security and a minor, if any, role in nuclear power development and application. It was established by treaty and became operational in 1957, making it one of the few successful East-West collaborations during the Cold War.<sup>140</sup> With a staff of over 2,000, a budget of over US\$300 million 38, and the usual set-up (general conference, board of governors, and a Director-General), it is little known outside the specialised nuclear community and has yet to be exposed in any significant way to the anti-nuclear movement.

It is used by Western countries to control nuclear risk in developing and now former Communist countries as a universal organisation (related to the UN as such, but not a specialised UN agency in the narrow sense), but it must coexist (with some underlying competitiveness) with the specialised nuclear agencies of the OECD countries and EURATOM, the EU's special nuclear agency.

The IAEA original mandate included *inter alia*:

- Research on the peaceful use of nuclear energy including scientific and technical information exchange and training;

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<sup>140</sup> N. Horbach, "The International Atomic Energy Agency", in *International Encyclopaedia of Laws, Intergovernmental Organisations*, Suppl.3 (October 1998).



- The safeguards system to ensure nuclear materials are not diverted to military purposes;  
and
- Setting of safety standards.

The main functions have been standard-setting and the safeguards system over the years. Its major duty now is to ensure the safe use of nuclear materials and infrastructure in both NPT member countries (Article III deals with IAEA verification) and non-NPT countries (e.g. India, Pakistan and Israel, although most of their facilities are kept outside the reach of IAEA safeguards). Non-nuclear nations were encouraged to join the IAEA and the NPT treaty framework as nuclear powers emerged during the Cold War. The IAEA monitors facilities to ensure safety – not just in terms of operating requirements, but also in terms of non-proliferation – based on unique bilateral agreements with states. The issue of non-proliferation has become crucial not just in respect to nations (such as Iraq's efforts to develop a secret nuclear arms industry), but also in connection to illegal commerce in nuclear materials and weapons between states and, perhaps, terrorist groups. Many future high-priority IAEA activities are likely to focus on nuclear security, both in terms of defending against attacks on nuclear installations and in terms of terrorist threats to build and use small-scale nuclear explosives against civilian targets, given the increased security threat posed by terrorists to nuclear installations in 2002.<sup>141</sup>

### **1.7. United Nations**

The UN system consists of the UN proper with its various departments and other units and specialised agencies. Some of them, such as the World Bank and the International Maritime Organization, are almost self-contained. The UN system, its major and auxiliary institutions, as well as several secretarial groups and specialised agencies, engage in a wide range of operations. As a result, rather than a systematic survey, what follows is a selection with remarks.

#### ***1.7.1. Climate Change Secretariate***

The UN Framework Convention on Climate Change, with its secretariat in Bonn, is the most relevant UN action for the energy industries, particularly the oil and gas business. With its specified caps on CO<sub>2</sub> and other relevant greenhouse gas emissions for industrialised (including post-Soviet) countries, unspecific good-will obligations on developing countries, the

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<sup>141</sup> N. Horbach, O. Brown and T. Borre, "Terrorism and Nuclear Damage Coverage" (2002) 20 *JENRL* 231.

introduction of emission trading and other emission reduction measures (CDM and JI), and the absence of the United States, the world's largest CO<sub>2</sub> emitter, the future of the Kyoto Protocol is unclear.

With the United States absent, there will be a trade issue, in the sense that the Kyoto mechanisms are likely to develop intra-corporate, national, and international trade in emission rights, as well as financing of joint implementation and the clean development mechanism (CDM);<sup>142</sup> it is difficult to see how US companies operating outside the Kyoto membership can be full beneficiaries of the emerging trade.<sup>143</sup>

### ***1.7.2. Compensation Commission***

The UN Compensation Commission, established after the Gulf War to administer Iraqi liability for war damage, in particular large environmental and other damage to the oil production facilities in Kuwait by Security Council resolutions 687 and 705 (1991) and 986 (1992), has been involved in oil and gas affairs (1995).<sup>144</sup> The UNCC was established in 1991 as a UN Security Council subsidiary organ. Its mission is to process claims and pay compensation for losses and damage caused by Iraq's illegal invasion and occupation of Kuwait. A set percentage of revenue from authorised Iraqi oil exports – now 25% – is set aside for reimbursement of damages originating directly from Iraq's invasion of Kuwait. Commercial losses, "environmental damage," and natural resource depletion are among the damages listed in the Security Council resolution. The practise of the UN Compensation Commission should provide an international standard for valuing oil sector and oil-related environmental damages. The UNCC's activities in the area of oil-industry-related liabilities are worth investigating further.

### ***1.7.3. United Nations Environment Program (UNEP)***

The Nairobi-based UN Environment Programme is charged with developing a worldwide strategy to environmental concerns that affect sustainable development. It offers training workshops for developing nations to disseminate state-of-the-art know-how, conferences to identify significant issues and generate policy suggestions, and technical assistance to assist developing countries in adopting modern policies, as do all UN institutions. Environmental

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<sup>142</sup> T. Wälde, "Contractual Architecture for the Kyoto Protocol," (1999) 8 *RECIEL* 168 (with I. Worika, M. Brown and S. Vinogradov).

<sup>143</sup> R. Lillich (ed), *The United Nations Compensation Commission* (reviewed in (1996) 90 *AJIL* 532)

<sup>144</sup> UN Compensation Commission, "Text of Well Blowout Claim" (1997) 36 *ILM* 1343.

factors are being incorporated into energy planning to some extent. UNEP's work providing administrative support – including for the negotiation of subsequent protocols – to international treaties such as the Vienna Convention for the Protection of the Ozone Layer and its 1987 Montreal Protocol, the Basel Convention on Hazardous Waste Transport, and the UNFCCC – is of greater interest to international energy law. While not directly "energy law," they do have an indirect impact on the oil sector at times.

UNEP, on the other hand, has never been completely regarded as the primary organisation for global environmental concerns and policy responses by the international community. UNEP, unlike several other recognised specialised bodies, is not regarded as entirely independent and professionally competent. However, if UNEP's present attempts to promote guidelines on best practises for environmental disclosure in the oil industry succeed, this could change. By establishing worldwide and internal corporate guidelines, UNEP has jumped into the middle of the evolution of non-conventional international energy law.

In conclusion, the UN system does not treat energy well. Its political appeal has been overshadowed by the growing popularity of environmental and now human rights initiatives, which present an opportunity for NGOs and the UN system to work together to gain greater political legitimacy. Energy is a critical component of sustainable development and climate change, as well as one of the most important nuts-and-bolts issues of economic development and inter-country trade.<sup>145</sup>

It should be formed with significant involvement from both industry and competent NGOs and professional associations, rather than a generic UN department with its inevitable slack and wastage, as the IMO, IAEA, IEA, and WTO are.

#### ***1.7.4. United Nations Conference on Trade and Development (UNCTAD)***

Under the UN-Energy inter-agency framework, the UN system partners to improve access to energy in a sustainable manner in order to accomplish internationally accepted development goals, such as the Millennium Development Goals. As a member of UN-Energy, UNCTAD works to promote energy for development through international commerce and trade-related policies. It might improve its contribution by monitoring and analysing trends in the energy

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<sup>145</sup> T. Wälde, "Access to Energy Networks: A Precondition for Cross-border Energy and Energy Services Trade", CEPMLP internet journal and (with A. Gunst) now published in (2002) 36 *J. World Trade* 191.

economy, detecting emerging concerns, and suggesting policies to boost energy trade and development at the national, regional, and global levels.

### **1.8. OECD Nuclear Energy Agency (NEA)**

The OECD's Nuclear Energy Steering Committee, a subcommittee of the OECD Council, oversees the NEA, which is considerably more closely integrated than the IEA. The NEA has some internal operational autonomy and reports directly to the OECD Council's Nuclear Energy Steering Committee. With a few exceptions (Poland, New Zealand), the 28 members are all OECD countries, accounting for 85 percent of the world's installed nuclear energy capacity. Its primary responsibilities include research, data gathering, and information exchange related to the peaceful use of nuclear power, particularly operations safety, radioactive material transport, worker safety, and waste management. Previously, the NEA was in charge of all nuclear operations. Nuclear safety and regulation, nuclear energy development, radioactive waste management, radiation protection and public health, nuclear law and liability, nuclear science, and nuclear data gathering are all areas in which it operates.

Its principal contacts are with nuclear authorities in member states. There is a link between its primary network role and the identification of "best practises" coming from technical conversation and regulatory comparison, just as there is in all other international agencies. The NEA also serves as a conduit for the International Commission on Radiological Protection's radiation protection standards to be translated into OECD decisions. The radiation protection recommendations from the 1990s are currently under way.<sup>146</sup>

One of the NEA's responsibilities is to produce and disseminate nuclear legal knowledge. The goal is to achieve more harmonisation. It has provided technical help on nuclear law reform in Eastern Europe and Asia (including nuclear liability in the event of accidents), usually in partnership with the EU and the IAEA. It publishes the - authoritative – Nuclear Law Bulletin and has completed various analytical/comparative nuclear law studies in its member nations and Eastern Europe. It also collaborates with the University of Montpellier on a nuclear law professional training programme. Finally, the NEA provides support for the Paris Convention on third-party responsibility in nuclear energy, as well as the Brussels Convention that

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<sup>146</sup> see C. Tietje, "Global Governance and Inter-Agency Co-operation in International Economic Law" (2002) 36 J. *World Trade* 501.

supplements it.<sup>147</sup> In the domain of nuclear legislation, the NEA also works with non-member nations (especially those in the former Soviet Union).

The NEA is not always an antagonist from an anti-nuclear standpoint: its emphasis on nuclear safety – including its work on nuclear plant decommissioning – is compatible with an anti-nuclear viewpoint. There is no evidence that “civil society” has included the NEA in its list of top globalisation-promoting evil forces, which includes the World Bank, the IMF, and the WTO. However, it has outlined in detail the contribution that nuclear power makes – and can make – to attaining the Kyoto targets in its most recent analysis on the link between greenhouse gases, climate change, and nuclear power.<sup>148</sup> It indicates that nuclear power emits almost no CO<sub>2</sub>, in contrast to the considerable to extremely large CO<sub>2</sub> emissions caused by coal, oil, and gas consumption in power plants. It is wedged between the globally focused IAEA – which will now be mobilised to combat the terrorist threat to nuclear facilities – and the politically and financially more powerful EU Commission. Non-state actors who oppose nuclear energy are not represented in NEA committees, which function primarily as expert bodies dominated by governmental and industry expertise.

### **1.9. International Solar Alliance**

On the eve of the Conference of Parties (COP) 21 opening ceremony in Paris, Indian Prime Minister Narendra Modi and French President François Hollande inaugurated the International Solar Alliance. The Alliance intends to harmonise solar energy demand (investment, technology, and R&D) across the 121 nations with significant solar potential that lie between the Tropics of Cancer and Capricorn. The initiative highlights the fact that one of the most obvious approaches to reduce greenhouse gas emissions is to develop renewable energy sources. In Southern countries, solar power is the most abundant renewable energy source, yet technology and finance are still in short supply.<sup>149</sup>

The Alliance's goal is to take advantage of the fact that similar difficulties are faced in geographically distant places. These regions may have a lot more clout if they formed an alliance. As a result, the '121 nation alliance' wants to create ISA a platform for developed countries with solar technologies to collaborate with developing countries between the Tropics

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<sup>147</sup> <http://www.nea.fr/html/law/legcom.html>.

<sup>148</sup> <http://www.nea.fr/html/ndd/reports/2002/nea3808.html>

<sup>149</sup> Katyayani Rajawat, *International Solar Alliance – India's Potential in clean energy*, International Journal for Academic Research and Development, Vol 4, Issue 1, January 2019, Pg. 32 - 39

of Cancer and Capricorn to maximise their solar potential. All solar stakeholders (bilateral and multilateral organisations, corporations, industrial producers, and civil society) will be brought together in order to help fulfil the goals. Signatory countries agree to collaborate on innovative policies, programmes, and projects, as well as capacity-building initiatives and financial instruments.<sup>150</sup>

India will greatly benefit from ISA because it has stated unequivocally its commitment to the Paris Declaration and is taking the lead in making solar energy a key part of its energy mix. The ISA has the potential to significantly assist developing countries in the global South in becoming energy self-sufficient. India would collaborate with partner countries to identify national opportunities to accelerate the development and implementation of existing clean solar energy technologies, which have a significant untapped potential. Increased solar technology deployment will benefit countries in terms of direct and indirect job creation, as well as the economic activity that will be sparked by the availability of energy and solar appliances to primarily rural families.<sup>151</sup>

## **2. Possible Remedies and Response Measures**

The international community should work to provide an enabling environment for the development and implementation of innovative energy technology and infrastructure funding arrangements. Assistance to developing nations, particularly LDCs, for decarbonization projects, climate change adaptation investment, and associated transfer of energy-saving technologies, for example, could be provided through the auctioning of revenues from emissions trading. Germany has stated that one-third of the proceeds from the European Emission Trading Scheme's auctioning of emission allowances will be used to encourage the transfer and effective use of carbon-efficient technologies in developing nations. The African Biofuels and Renewable Energy Fund helps African countries build biofuels and renewable energy sectors. At their June 2008 meeting in Osaka, the Group of Eight (G-8) Finance Ministers voiced support for the creation of multilateral climate investment funds to aid developing nations' efforts in this field. The outcome of the Kyoto Protocol's post-Kyoto negotiations on carbon dioxide emission reductions would be significant.<sup>152</sup>

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<sup>150</sup> *Id.*

<sup>151</sup> *Id.*

<sup>152</sup> UNCTAD, *Energy-related issues from the trade and development perspective*, UNCTAD Secretariat, Geneva, 11–15 May 2009 2009

It will be critical to improve technical help and provide knowledge on applicable best practises. It could assist developing countries in developing energy policies and better integrating them into their economic, environmental, and trade policies, tailoring energy use strategies in various areas, raising public awareness, transferring appropriate technologies, and creating a domestic market for energy efficiency services and products. Any strengthening of international trade rules in the energy sector would have to take these characteristics into account, with the goals of (a) improving energy access, particularly for developing countries; (b) improving developing countries' competitiveness in energy production and services; and (c) increasing international flows of energy-related technology. Stronger international (or regional) trade laws in this area could help poor nations get access to fewer carbon-intensive goods, technologies, and environmental services, as well as expand their export potential.

### **2.1. Technology Transfer and Research & Development**

Government-funded research, development, and demonstration (RD&D) efforts have substantially decreased the cost of renewable resources while also improving their performance. The technological laboratories of the US Department of Energy have conducted ground-breaking investigations and effective research on energy efficiency and renewable technologies. For example, R&D has aided the development of compact fluorescent light bulbs, which last ten times longer than incandescent bulbs while using only a fraction of the energy.<sup>153</sup>

Technology transfer is crucial for developing countries to be able to take advantage of energy efficiency and renewable technologies used in developed countries. The success of a project requires technical help and education of major energy stakeholders. Many such initiatives are being carried out over the world, with the support of governments and international organisations.<sup>154</sup> Developing countries have a lot of potential to leapfrog to cleaner energy solutions thanks to advancements in technology. They can use cleaner technology right away, avoiding the economic and environmental consequences of employing less efficient technologies and then having to replace them, as is the case in developed countries.

Article 12 of the Kyoto Protocol establishes three market-based mechanisms to encourage industrialised countries and businesses to invest in developing-country greenhouse gas emission reduction measures. Emissions Trading, Joint Implementation, and the Clean

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<sup>153</sup> US Department of Energy, *Compact Fluorescent Lamps*, Consumer Energy Information: EREC Reference Briefs, available at <http://www.eren.doe.gov/consumerinfo/refbriefs/ef2.html>

<sup>154</sup> J. Goldemberg *et al.*, (eds.), UNDP, *World Energy Assessment* (2001) at 231, 427.

Development Mechanism (CDM) are examples of these policies, which can all include investments in renewable and energy-efficient technology. An industrialised country or its enterprises can earn carbon emission reduction credits to meet their Kyoto Protocol requirements by participating in these actions that reduce greenhouse gas emissions in developing countries. These trading mechanisms have a lot of promise in terms of providing a way for poor nations to get the resources they need to finance the upfront costs of renewable energy technology in order to encourage long-term carbon reductions. These steps can assist developing nations in obtaining the required finance, information, and training to enable them to fully engage in global warming solutions by utilising renewable, energy-efficient, and other clean energy resources that are also beneficial to development.

## **2.2. The Clean Development Mechanism**

The Clean Development Mechanism is the most viable way for poor nations to get the resources and expertise they need to promote renewable and other clean energy sources. The CDM's mission is to assist poor nations in attaining sustainable development and contributing to the Convention's overall goal. Throughout the last decade, the worldwide development discussion has been distinguished by a growing acknowledgment of the need to create an ecologically more sustainable socio-economic growth.<sup>155</sup>

The Clean Development Mechanism (CDM) is one of the mechanisms related to climate change and sustainable development established under the Kyoto Protocol of 1997, and one of the key features of CDM projects is that the recipient country determines the project's contribution to sustainable development. Around 137 CDM projects dealt with energy in the early stages, out of a total of 157 projects spread across the EU new member states, Latin American countries, Asia, and Africa, with the twin objectives of decreasing GHG emissions and contributing to sustainable development.<sup>156</sup>

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<sup>155</sup> Commission on Environment and Development (the Brundtland Commission), created by the UN General Assembly in 1983: *See, Our Common Future*, OUP, 1987.

<sup>156</sup> AGECC (2010): "Energy for a Sustainable Future ", Advisory Group on Energy and Climate Change, Summary Report and Recommendations, New York



## CHAPTER VI

### CONCLUSION

This research attempts to navigate through the efforts of the international trade regimes in tackling the vexing issue of energy crisis and to gain a deeper understanding of the shift in paradigm from a purely economic standpoint of energy trade to a more diverse field that encompassed social, political and environmental perspective.

The world trading regime have since its inception, attempted at addressing trade in energy sector and the kind of implications it would have on an environmental, economic and social scale. In its nascent stage, the energy dialogue was largely attributable to the development perspective since the priority of the global community by and large was to bring Europe back to its feet since the aftermaths of World War II. Energy was a primary concern for development of these war-ravaged countries and was seldom addressed as a climate concern until much later into the industrial revolution. This delay in understanding the implications of disregarding the energy sector as a proper discipline has gravely affected the energy distribution system in the world, going forward which was evident in the 1970s oil shocks and the current conflict between optimum energy utilisation and sustainable environmental protection. Later on, in the era of decolonisation, the developing countries in their agenda began to explore the horizons of energy utilisation but was met with much spite by the already industrialised countries who were largely responsible for the current predicament.

In the late 90s, the WTO began to make several attempts in rectifying this oversight in several of its dispute resolutions. Despite the severe criticism and the backlash by the trading community, the DSB in several occasions put the environmental needs first. But much of these were labelled as protectionist and meant unilaterally imposing national standards of a State on the other. And in much of these cases, the national standards were of the industrialised state, which furthered the North-South divide in the climate concern.

When energy is abundant, it can support economic and welfare growth; when it is limited, it can stifle economic expansion and lead to shifts in technological and consumption patterns. As a result, the availability of energy determines a society's development direction. That explains why energy security has been a recurring issue since the advent of modern society, a "pillar of energy policy for roughly a century," and a part of most countries' political and development objectives. Despite this the attention it receives as a discipline is minimal.

Starting from the Millennium Development Goals to the Sustainable Development goals, the international community has begun to make some headway in addressing the energy-climate concern but the take on the issue by the trading community remain negligible. The requirement for reliable energy supplies to fulfil rising demand necessitates increased investment in energy supply and trade. Climate change, the continued depletion of fossil fuels, and other environmental problems necessitate increased energy efficiency and the utilisation of alternative energy sources. The levels and predictability of energy prices and investment, as well as the policy and regulatory framework, will all play a role in whether such needs are met with maximum sustainability and minimum cost, disruption of energy supplies, economic hardship for all stakeholders (particularly the poorest), or damage to development prospects. And this largely falls on the shoulders of the WTO.

Through dispute resolution jurisprudence, the bounds defining acceptable environmental trade policy appear to be growing. Formal treaty talks, on the other hand, have yielded less results as a consequence of consensus debates among all WTO member countries. The Uruguay Round document and the Doha Round mandate both mention the importance of sustainable development in the global trading system. However, efforts toward a trade law that properly supports environmental trade policy have made little headway. Despite the fact that dispute settlement rulings show that environmental standards based on production methods are legal, WTO members are hesitant to bring up process and production methods in negotiations, let alone write a provision into the WTO treaty.

Due to a lack of international energy trade prior to the 1970s, as well as a lack of understanding about the transboundary environmental impacts of energy use prior to the 1960s, resource exploitation and environmental protection were largely regarded as matters for national control, rather than international regulation. But as these matters have made its way into international discussions, more and more nation states are finding themselves in a tussle between the environmental protection needs and sustainable developments of the states that are highly fossil energy dependant.

The idea of energy security have, however, evolved from maintaining oil supply and dealing with the macroeconomic effects of oil disruptions and/or price adjustments to include a wide range of issues like resource availability to fulfil future demand; political conflicts and terrorism; natural disasters and other severe weather events; and environmental challenges, including climate change.

Recently, the principle of permanent sovereignty over natural resources have evolved to encompass the correlative duty of the states to protect the environment, that extends to not just the neighbouring countries but on a global scale. This principle has its roots in the right of self-determination of the decolonised territories in having unfettered access to its natural resources, but it often came with grave repercussions as it meant there were no authority to limit the exploitation of these exhaustible resources. Over time, the principle have, however, evolved to accommodate the environmental obligations of the states as well.

It is pertinent to note at this point that, there have been several forms of cooperations between the global south and the global north when it comes to addressing energy trade and climate change that focuses on technology transfer and the clean development mechanism.

### **Suggestions**

The world is progressively functioning towards making certain rudimental transformations obligatory to perpetuate the energy demand-supply balance. Studying the energy scenarios which encompass an array of energy supply potentials along with a mixture of technological amalgamation and their outputs is necessary to provide a platform to conceptualize future energy outlook. It is imperative to establish energy models that have been meticulously designed by research organizations, national institutes and international community so as to curtail greenhouse gas emission, prevent global warming and climate change, maintain energy demand-supply balance across numerous sectors in short, mid and long term period.

Models of energy are simplified representations of real-world systems. Models are useful tools that can be used in situations where performing experiments in the actual world is not feasible, practical, or cost-effective. Energy models are useful because they depict a complicated system that may be used to perform in-depth research and calculation. The hypotheses that form the foundation of the models must be identified clearly so that they may be examined and analysed.

According to recent studies, human activities are responsible for the majority of observed global climate change, and the greatest method for significantly reducing climate change is to move toward zero emissions. The low carbon society aspires to a decarbonized economy by reorganising current energy systems and lowering heat-trapping emissions across all sectors. The principles of a low-carbon society are consistent with the twin challenges of sustainable

development: emphasising economic growth and development to meet the needs of all groups within society without jeopardising ecological objectives, as well as stabilising atmospheric greenhouse gas concentrations through carbon pricing and/or emissions trading. The inextricable link between climate and economic development can be addressed by adopting low-carbon consumption patterns and lifestyle preferences.

It is vital to ensure the supply and demand of suitable amounts of inexpensive and ecologically friendly energy services in order for an economy to achieve its greatest degree of welfare. An economy's energy security is linked to such assurance as well as its upkeep. From the demand side, the energy security gap is often seen. It's frequently linked to a lack of energy supply or high energy prices. Because of the "insecurity" that consumers feel under those situations, it is considered a concern of energy supply security. However, in the case of a productive, efficient economy, any available energy that is not spent is also an energy security gap.

This holds true when considering the fact that a large mass of land falls within the tropical zone which is ideal to harness solar energy but even the establishment of the International Solar Alliance pays little justice to the potential solar energy that goes unused.

Providing financial incentives for renewable energy development, or reducing the cost-competitiveness gap by, for example, providing subsidies to the renewable energy industry or through price support schemes; or mandating the use of renewable energy in the supply of electricity are all examples of legal initiatives to promote renewable energy. Other issues of importance include electrical market reform, grid integration, the elimination of national legislative hurdles to renewable energy, and trade barriers at the international level.

Another important aspect to consider about the energy security gap is that closing it corresponds to adopting a sustainable development pattern if we assume an allocative and ecologically efficient economy. Environmental efficiency assumes that energy services are produced through processes that do not directly or indirectly exceed the environment's carrying capacity. Allocative efficiency underlines the importance of energy in poverty reduction. As a result, an energy secure economy must be able to provide energy services that are: (1) life-cycle environmentally sustainable; (2) efficiently employed in the production of essential goods and services that should be affordable to all individuals; and (3) efficiently employed in the production of other demanded non-essential goods and services.

What is evident about the energy problem is that it makes a lot of sense for energy-consuming countries to work together to develop the required technologies to generate abundant and widely available energy that is also environmentally friendly.

A major part in mitigating climate change while addressing the global energy crisis rests in proper investment in a large-scale research and development through international cooperatoin, which should ideally be tasked to the WTO, which could further facilitate technological transfer. It remains, as a matter of fact, that the first to suffer the brunt of the aftereffects of the energy crisis are largely the poor in developing nations and as such, on an economic perspective, it is nearly impossible for the third world nations to completely decarbonise their pathway towards development. And hence it falls upon the international trade regime to persuade the industrialised nations to willingly share information of commercial importance.

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8. Kyoto Protocol to the United Nations Framework Convention on Climate Change
9. Marrakesh Agreement Establishing the World Trade Organization
10. Monterrey Consensus of the International Conference on Financing for Development
11. Protocol on Energy Efficiency and Related Environmental Aspects
12. Rio Declaration on Environment and Development
13. The Montreal Protocol for Ozone Protection
14. Treaty establishing the European Atomic Energy Community
15. United Nations Environment Program
16. United Nations Framework Convention on Climate Change

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**APPENDIX**

**CERTIFICATE ON PLAGIARISM CHECK**

1.	Name of the Candidate	E M ATHIRA
2.	Title of thesis/dissertation	The Dialectics of Global Energy Crisis: Addressing Energy Sustainability And The Need For Environment Protection Laws In International Trade
3.	Name of the supervisor	MR. HARI S. NAYAR
4.	Similar content (%) identified	9%
5.	Acceptable maximum limit (%)	
6.	Software used	GRAMMARLY
7.	Date of verification	11-10-2021

Checked By (with name, designation & signature): Hari S. Nayar

Name and Signature of the Candidate: E M Athira



Name & Signature of the Supervisor: Hari S. Nayar