Comprehensive Energy Law and Management

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Cambridge Scholars Publishing

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This book first published 2023

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-5275-4605-5
ISBN (13): 978-1-5275-4605-9

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INTRODUCTION

As an important production factor, energy is among the most important growth factors in societies. Energy plays an effective role in the political and economic behavior of the governments and their security policies. In addition, the business of the forms of energy has a distinctive role in the global trade and the international financial resources turnover. Energy has transformed from a transnational notion to a global notion. This concept can influence the national security of the countries (including the consumers and suppliers) in the military, cultural, political, and environmental respects. Energy is, in fact, serving the security of the nations as a political instrument.

Following the industrial revolution and the shift from coal consumption to petroleum consumption, the importance of energy increased. Therefore, the supply of energy has been the top priority of the state policies and plans in the past decades. Countries have a strong unbreakable bond with the notion of energy security, and in the 21st century we are challenged by a new energy paradigm. Hence, energy security is the main geopolitical dispute in this century. This notion is focused on reducing the geopolitical, economic, and environmental threats and diminishing the risks to the international energy markets.

The supply of energy and its guaranteed continuity are among the major concerns of different countries. Undoubtedly, the availability of energy is a requisite for sustainable development. This is because energy is among the most important strategic factors determining the achievement of sustainable development. Sustainable development, in turn, stresses the proper consumption of the conventional sources of energy by the future generations. The notion of sustainable energy is actualized if development is achieved in different areas. Sustainable energy supply is essential for sustainable development, and one of the important indicators of sustainable development is the enforcement of higher standards of energy production and consumption. Establishment of balance in the consumers' access to the energy services and elimination of the barriers are considered to be among the components of sustainable development. Sustainable development is also the fruit of three notions, viz. economic growth, energy security, and environmental protection.

Despite the positive effects of fossil fuels on the economic growth and development of countries, and the shortage of proper models of energy production, distribution and consumption are deemed a major environmental challenge on the international level. The uncontrolled use of fossil fuels not only has heightened global concerns for the elimination of the common sources of energy, but also has brought about irreversible consequences like global warming, greenhouse gas emissions, climate changes, and ozone layer depletion.

The demand for energy has increased substantially in the past decades due to the population growth and socio-economic development. According to the statistics, the annual global population growth rate is approximately 2%. This growth rate has been accompanied by the increased energy demand and consumption in various countries. The increasingly paramount global need for sources of energy as well as the limitations on the fossil fuels have stirred numerous economic, political, and military actions and reactions all around the globe.

Human need for sources of energy has always been an important issue, and discovery of a renewable infinite source of energy has always been humans' dream. Energy planners have always attempted to identify and substitute the renewable sources of energy due to the non-renewability of fossil fuels and the limited sources of these energies. Moreover, diversification of energy sources has a determining role in energy security. The diversity of the sources of energy and establishment of balance between various energy sources can provide nations with energy security. It is, therefore, possible to enhance energy security in different countries by developing alternative renewable energies and reducing dependence on fossil fuels.

Since the consumption of renewable energies has a different effect than the fossil fuels, countries increasingly value the role of this source of energy to secure the continuity of their economic growth. Approximately 120 countries have launched long-term plans for the alternative renewable energies. In addition to the national policies, various international organizations such as the United Nations have also prioritized the renewable sources of energies.

Through the adoption of planned practical policies, it is possible to increase the renewable energies' share of the total energy consumption. Ostensibly, formulation of policies on renewable energies for the achievement of the predetermined goals calls for an insight into the socio-economic and political dimensions of each state. International interactions and collaborations

take a significant role in the transition from the fossil fuels to the renewable energies.

The development of renewable sources of energy also brings about social, economic, and environmental development of the nations. This development also results in the sustainable development of the countries. Moreover, the development of alternative renewable energies calls for the formulation of comprehensive and coherent strategies for understanding the renewable sources of energy, while experts in different areas of management, law, economics, engineering, and other relevant disciplines must also be involved in this task. Sources of energy, energy production, energy demand, energy security, energy management, and the environmental problems caused by the consumption of energy are among the main notions associated with the alternative renewable energies.

CHAPTER ONE

THE NOTION OF INTERNATIONAL LAW

International law refers to a set of rules and regulations governing the international society. By virtue of these rules and regulations, governments, as the primary members of the international society, feel obliged to observe these rules and apply them to their relations. In addition, international law offers rules and regulations on the formation of international organizations, their duties, and the relations between the international agencies or the governments. In other words, international law brings legal order to the peaceful and hostile relations of the practitioners and actors in the international society. International law basically originates from the governments' determination, yet the role of international organizations in the genesis of international law cannot be overlooked.

Given that the international society is a community based on mutual interests and demands of the nations, international law is considered an inevitable necessity in this society. This branch of law has been dubbed "international law" since it has changed the international society as a solely political society by adding a legal aspect to it.

The most important characteristics of the international law are as follows:

- Mutual interactions and collaborations between the international society members are the bases for international law.
- International law originates from the determination and compromise among the countries.
- International law offers weaker legal sanctions than the municipal (domestic) law.

Without the international law, the world would undoubtedly step towards chaos and decay. Although the international law lacks legal sanctions similar to the municipal law, it is not free of the legal sanctions at all. Today, legal sanctions such as the criminal, civil, economic, political, and diplomatic actions along with mutual actions and the sanctions identified in

the United Nations' Charter partly guarantee the enforcement of the rules and regulations of the international law.

Practitioners of International Law (Members of International Society)

From the legal point of view, the word "practitioner" refers to an entity that both sets out and is subject to legal rules. Countries are the most important members of the international society and the cause of the establishment of relations and interactions in this society. Secondly, international organizations are among the practitioners and chief actors in the international law arena.

A country or state is a permanent community of people in a single land that are governed by an autonomous political power. In other words, three pillars (areas of work), namely the population, land, and government (political power), constitute every country regardless of the internal structure of the countries. International agencies, as members of the international society, are a group of governments attempting to attain their shared goals. International organizations are established based on an establishment document and pursue the determined goals within the framework of predetermined pillars and continuous activity. According to the tribunal's advisory opinion on the compensation of the loss inflicted upon the United Nations staff (1949), the practitioners of the international law are considered international legal entities by virtue of having international rights and duties.

Sources of International Law

According to Article 38 of the Statute of the International Court of Justice and the approach governing the international law, the following sources are considered the sources of international law:

1. International treaties: By dint of Article 2 of the Vienna Convention on the Law of Treaties (1969) a treaty is "an international agreement concluded between states in written form and governed by international law, whether it has a certain title or is drafted in several counterparts."
2. International customs: They are the general practices shared by all countries through their relations with other countries on the international level and serve as binding legal practices and rules. The formation of an international custom calls for the repetition of a legal

action. Indent 2 of Article 38 of the Statute of the International Court of Justice discusses the general customs resulting from the general practices. Hence, customs are not established with respect to all countries. Accordingly, international customs emerge as global and regional customs.

3. General legal principles: They are a set of shared principles and rules that are approved by most civilized nations, various legal schools, and governments. Article 38 of the Statute of the International Court of Justice introduces the general legal principles as well as the international treaties and customs as the sources of international law. Although the general legal principles are considered sources of international law, they are second to the international customs and treaties in terms of priority. The general legal principles are flexible because of being general and non-assertive and may provide solutions to various international law problems, bridging the gap in the legal rules and regulations. If the general legal principles manifest as international treaties and customs, they possess more power and effect.

   General legal principles are classified into the following two categories:

   - Common general legal principles: These are a set of rules and principles shared and applied by all legal systems (domestic and international). Instances include the pacta sunt servanda compensation principle, and the principle of respect for acquired rights.
   - General legal principles in international law: These are a set of rules and regulations enforced in the light of the relations among the countries and other practitioners of the international law in the international society. Examples include the principle of respect for states' independence, the principle of precedence of international treaties to municipal law, the principle of sovereign equality of states, and the principle of permanent sovereignty over natural resources.

4. International judicial processes: Decisions and practices of international courts may be used as the second source of international law in the absence of explicit rules and regulations.
5. Doctrine: It refers to the collection of the opinions of legal scholars regardless of their personal beliefs and opinions. It can also be the

secondary source of international law and it has a substantial role in the evolution of the international law.

6. The principle of equity: By dint of indent 2 of Article 38 of the statute of the International Court of Justice, the court can hear the cases with the mutual consent of the parties to the dispute. The reference of the lawsuits to equity may be carried out by the parties or may result from an international treaty. For instance, Article 59 of the United Nations Convention on the Law of the Sea ordains that in the case of inadequacy and silence of the substantive law, the principle of equity may be considered the secondary source of the international law.
7. International peremptory norms (jus cogens): By virtue of Article 53 of the 1969 Vienna Convention on the Law of Treaties, an international peremptory norm is a norm accepted by the international society as a compelling law. This norm may only be changed by another norm of the same type. The international peremptory norms are part of the general norms of the international law, and examples of these norms are the pacta sunt servanda, abolitionism, and sovereign equality of states.
8. Ex parte legal actions: As mentioned, Article 38 of the Statute of the International Court of Justice lists the sources of international law but it does not introduce the governments' ex parte actions as the sources of international law. However, as regards the international law, governments accept obligations through their unilateral actions. Ostensibly, not every unilateral action can be considered a source of international law. Rather, these actions must satisfy the following three requirements.
    1- The issuing state's intention to impose requirements
    The issuing state's intention to impose requirements has been approved by the International Court of Justice as the most important element. In the case concerning the North Sea Continental Shelf, the International Court of Justice stressed the actual intention of imposing requirements on the ex parte actions of the states.
    2- Lack of contradiction with the international peremptory norms
    In the case concerning Armed Activities on the Territory of the Congo, the International Court of Justice stressed the lack of contradiction between the ex parte actions and the international peremptory norms.
    3- Lack of contradiction with the issuing state's obligations
    In the continental shelf case between Tunisia and Libya, the International Court of Justice stressed the lack of contradiction

between the ex parte actions and the international obligations of the issuing state.

Development of Public International Law

International law is substantially customary, and it does not contradict the sovereignty of states due to its high flexibility. In the past two decades, powerful states have gradually resorted to the international law to stabilize their interests and have requested the development and formulation of rules and regulations governing the customary international law. These states aimed to bring order to the unorganized rules and regulations governing the international society. In other words, international law was drafted and formulated to replace the customary regulations as binding treaties. These initiatives started with the Vienna Convention in 1814 and have survived all of the barriers and obstacles in this path.

In addition to the international conferences on different issues and areas, international agencies, especially the United Nations and its pillars, play a substantial role in the development of international law. The International Law Commission is also particularly focused on this issue. Article 15 of the Statute of the International Court of Justice not only distinguishes the international law, but also defines the aforesaid notions as follows. The development of international law involves the preparation of drafts of treaties on issues that have not been addressed by the international law or legal issues lacking adequately developed practices and codes. The formulation also refers to the organized and accurate regulation of international rules and regulations of the previous simple customs. In the past decades, the International Law Commission has considerably attempted to prepare the drafts of several conventions on various notions of the international law. Examples are the international treaty law, the international law of the sea, diplomatic law, consular law, and governments' international obligations.

As one of the newest branches of the public international law, the international energy law has formed through the establishment and enforcement of binding and non-binding rules and regulations by the international society, and its essence, form, and structure have developed and evolved in the past decades.

International Energy Law

The international energy law is a new branch of international law that has been developed incoherently in the form of different international instruments. The international energy law is an interdisciplinary field that is linked to various areas such as politics (energy security), economics (issues associated with the financing infrastructure), environment (the destructive effects of energy on the environment and implementation of environmental principles), human rights (the public right to access energy), international trade, management, and engineering. This discipline covers diverse dimensions of energy, energy management, energy security, and environment. The requisite for a thorough investigation into the international energy law is the knowledge of these areas.

In the age of globalization of economy and emergence of new industrial and economic powers and the global demand for energy, the conflict of interests of the energy owners has resulted in new investments, energy suppliers, and challenges, which are addressed and discussed by the international energy law. The notions of international energy law inherently and continuously address the economic and technical areas and shall be taken into account in the legal and contractual examinations of these dimensions. Today, the public and national structure of the energy industry is transforming into a private competitive structure. In this private framework, transnational and private companies influence the genesis of the international energy law. Hence, this discipline may secure the movement of the states towards a stronger economy through targeted rules and incentives for the local and foreign investors with the aid of alternative renewable energies. Consequently, it can contribute to the mitigation of the environmental destructive effects and climate changes. The attainment of this goal evidently calls for the formulation and development of coherent rules and regulations that cover the energy-centered realities and hopes.

Basically, each part of the energy spectrum may utilize the legal knowledge. In different energy sectors, especially the alternative renewable energies, the international legal principles can be constructive and influential. The undeniable necessity of developing this category of energy sources becomes evident with the analysis of the instruments and principles of international law for the alternative renewable energies. The international energy law recognizes the rules governing the harvest of natural resources, while it also stresses the prevention principle.

Relationship of International Energy Law with Public International Law

The international energy law is a new branch of the public international law that is playing an increasingly substantial role in the age of globalization. The international energy law is closely related to the public international law. Moreover, given the important effects of the international energy law on an international level, there is, hence, an international aspect of the energy law. Regardless of the international aspect of both disciplines and their shared sources, many of the rules dictated by the international energy law are affected by the public international law. For instance, the principle of permanent sovereignty over natural resources, the principle of states' sovereignty over shared fields, etc. are among the most important international energy laws that have originated from the public international law. In addition, various treaties such as the Energy Charter Treaty have been concluded in the framework of international energy law. International treaties, international customs, and general legal principles and doctrines similar to the public international law are among the important sources of the international energy law. The public international law has largely contributed to the establishment of this new legal discipline.

Relationship of International Energy Law with International Environmental Law (IEL)

The development of every society is accompanied by environmental considerations. The environment is one of the most important pillars of sustainable development, and sustainable development is currently the goal of various countries. One of the criteria and the requisites for sustainable development is the concern for the environmental factors. The production process yields products as well as unwanted outputs, i.e. environmental pollutants. If these environmental pollutants are not controlled and reduced, the path to sustainable development is blocked.

The international energy law faces major barriers to sustainable development and availability of energy including establishing a balance between the environmental and economic components.

The development of over 300 international instruments of environmental law reflects the special place on this topic in the international law. Today, the consequences of human intervention with the environment are known more than ever, and it could be stated that all economic activities directly

and indirectly influence the environment. Human activity in the energy sector also damages the environment throughout the harvest, production, transportation, and consumption phases.

There is a close relationship between energy and the environment, and their mutual effects are not negligible. The use of the sources of energy brings about economic growth and development of the countries. However, the production, distribution, and consumption of energy, especially the fossil fuels, is a serious threat and a challenge to the environment and sustainable development. Therefore, regardless of the limitations on the fossil fuel reserves, the use of these sources of energy has led to an increase in the greenhouse gas emissions and their destructive environmental impacts.

Today, we are witnessing the growth and development of the international energy law as a branch of public international law. The international energy law, which originates from the public international law, is closely associated with the international environmental law. The international environmental and energy laws are so interwoven that they cannot be distinguished from one another. As a result, some of the principles of the environmental international law are also covered by the international energy law. Some of the most important examples of these principles are listed hereunder:

- The principle of sovereignty over natural resources
- The principle of necessity of communication and cooperation in the states of environmental law
- The principle of compensation from the polluting party

Relationship of International Energy Law with International Trade Law

The international trade law is a set of rules and regulations governing the business and commercial relations on the global level. The international energy law and the international trade law are closely related. As one of the most important production factors and a strategic commodity, energy takes a significant role in the international trade. Furthermore, the business of the forms of energy has a special place in the global trade and turnover on the international level. The world economy quickly responds to the energy market fluctuations, and thus any decrease in the energy production, especially in the fossil fuel sources, reduces the exports and imports as well as the international trade transactions. In the past decades, the issue of energy has been approached by the international society. As a result, “trade”

and "energy" mutually affect one another and influence the economic development of today's world.

International energy law and international trade law are two extremely related disciplines. Basically, the energy trade is subject to the rules and regulations of the international law (such as the conclusion and enforcement of oil contracts). Moreover, international energy trade calls for an extensive transportation network. International trade offers transportation rules and regulations that govern the international energy law. Other notions shared by these two disciplines are investment, transfer of technology, and settlement of disputes over energy.

Furthermore, one of the vital and major concerns of the World Trade Organization (WTO) is the notion of energy. The energy market is among the markets whose globalization is significantly important. The WTO has discussed energy-related topics such as dual pricing, taxes on energy exports and imports (especially taxes on oil and energy services), transit, and international trade.

Legislation of International Energy Law

Energy is one of the factors determining international relations. Due to the close relationship of energy with concepts such as international security, human rights, and the environment, the United Nations has introduced energy-related issues as one of the vital factors involved in the attainment of the millennial goals. The requisite for international satisfactory economic conditions is the availability of a set of coherent rules and regulations on these conditions. The preparation, development, and enforcement of legal rules as a multilateral instrument are more effective than the bilateral agreements. In the past decades, the international society has tried to develop and formulate international instruments of energy, especially the alternative renewable energies, to found a coherent international legal system and minimize the effects of the abuse of fossil fuel sources. One of the major solutions for reducing these effects is using the green or renewable sources of energy. Hence, the environmental protection and sustainable development principle is the guide for the design and establishment of international energy laws. To achieve this goal, all of the local and foreign environmental parameters must be taken into account.

There are global aspects to environmental issues. Countries must prevent the adverse biological effects resulting from the operation of fossil sources. Moreover, the use of the alternative renewable energies has staged a

satisfactory growth with respect to the current evolution of the international energy law. Consequently, parallel to this growth, various international instruments have been developed to set the environmental policies in different states. Moreover, since the development and growth of energy is not solely a national issue and evidently affects different countries, several international treaties have been concluded to prevent the adverse effects of pollutants such as the greenhouse gases by imposing legal obligations and requirements. The most important examples of these instruments are as follows.

The Energy Charter Treaty (ECT): Examples are the Vienna Convention for the Protection of the Ozone Layer (1985), the Montreal Protocol on Substances that Deplete the Ozone Layer (1987), the United Nations Framework Convention on Climate Change (1992), the Kyoto Protocol on the United Nations Framework Convention on Climate Change (1977), and the Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects, etc.

The Energy Charter Treaty is the most important legal framework and criterion for energy defined and approved at the international level. This unique instrument plays a determining role in the uniformity of the energy rules and regulations on the international energy transactions as regards investment and trade. Article 18 of this instrument requires the member states to collaborate on the exploration and the harvest of the sources of energy with a fair non-discriminating approach. Article 13 of this treaty also stresses the principle of Sovereignty over Natural Resources. Moreover, Article 19 of the Energy Charter Treaty covers the environmental aspects of energy, and the member states shall prioritize the development and the use of renewable sources of energy. However, this does not suffice because in order to access sustainable energy, modern rules and regulations must be accompanied by organized regional, trans-regional, and global mechanisms for the enforcement of the legal energy rules and elimination of challenges.

This legal system was developed to bring stable legal order to the suppliers and consumers of energy on the international level. Targeted legislation on energy can convert the energy law components into the determining factors in this regard. In order to develop a legal system governing the energy sector, the following two principles must be taken into account.

1) Applying environmental principles
2) Securing the necessary financial and technical interests

However, it seems that due to the multilateral nature of the notion of energy and the close relationship between the energy law (especially the laws on the renewable energies) and various areas, the development and consolidation of a set of rules and regulations covering the different energy issues into a single integrated instrument is extremely difficult. There are, therefore, several serious major challenges to this task.

1. A lack of adequate understanding of the importance and advantages of the alternative renewable energies
2. A lack of strategic plans for the alternative renewable energies in different countries
3. The complexity and ambiguity of the legal conditions governing the harvest of shared resources of renewable energy
4. The limitations on the harvest and transfer of the forms of energy
5. Correction of the pricing of different sources of energy
6. Settlement of bilateral and multilateral energy disputes
7. Lawsuits arising from the contracts for the production, distribution, and consumption of energy on the international level

Principle of Permanent Sovereignty over Natural Resources

The sovereignty of countries over natural resources is deemed a sine qua non for the independence of states. The Principle of Permanent Sovereignty over Natural Resources originated from the response of the colonial nations and anticolonial movements as well as the nationalization of natural resources. Following the liberation and anticolonial movements that started after World War II, the developing countries attempted to apply the Principle of Permanent Sovereignty over Natural Resources as an international law principle with an aim to establish balance and equality in the international society. However, numerous disputes and conflicts between the developing and developed countries have originated from this principle.

The Principle of Permanent Sovereignty over Natural Resources was for the first time introduced by the representative of Chile in 1952 during the negotiations over the Human Rights Treaty and was stressed as part of the self-determination right of states. In the introduction to Resolution 626 (December 1952), the United Nations General Assembly asserts that people's right to the free utilization and harvest of natural resources is an

integral part of their sovereignty, which complies with the principles and goals of the United Nations Charter.

This principle suggests that every state enjoys the exclusive right to use, extract, utilize, and sell the natural resources in its land. No country can violate this right by dint of any contract or concession. Accordingly, countries attempt to set rules and regulations on the aforesaid areas. Ostensibly, the sovereignty over natural resources is not absolute and suffers from limitations, resulting in several consequences and impacts. These obligations include having good faith and observing the sovereignty right to improve public welfare, environmental protection, and sustainable development.

The Principle of Permanent Sovereignty over Natural Resources has been identified and stressed directly and indirectly in various resolutions passed by the international organizations. The United Nations Charter implicitly refers to the countries' right to sovereignty over natural resources. The principle of states' self-determination, which is addressed frequently in the United Nations Charter, implies the aforesaid principle. The United Nations General Assembly has also discussed this principle in different resolutions. In Resolution 626 (December 1952), this general assembly asserts the Principle of Permanent Sovereignty over Natural Resources. In addition, in Resolution 378 (December 1954), the United Nations General Assembly introduces the right to sovereignty over natural resources as a human right. This principle has also been approved and stressed in resolutions no. 1314, 1803, 2158, and 3171 of the UN General Assembly. By virtue of Resolution 1314, this assembly founded a commission formed by 9 countries as the Commission on Permanent Sovereignty over Natural Resources. This commission passed Resolution 1803 with an emphasis on the countries' permanent sovereignty over natural resources.

In addition, the Principle of Permanent Sovereignty over Natural Resources has been approved and asserted by the International Covenant on Civil, Political, Economic, Social and Cultural Rights, the United Nations Convention on the Law of the Sea (1982), and the Vienna Convention on Succession of States in respect of Treaties. Article 56, 77, and 81 of the United Nations Convention on the Law of the Sea implicitly emphasizes the coastal states' right to explore and harvest the natural resources in the related continental shelf.

In the Anglo-Iranian Oil Company case, the International Court of Justice explicitly refers to the permanent sovereignty of states over natural resources.

Moreover, in the case concerning Armed Activities on the Territory of the Congo or the Congo vs. Uganda case (ICJ Reports, 2005: P116); the Texaco Overseas Petroleum Company and California Asiatic Oil Company vs. Libya Case (1977); and the case of Government of the State of Kuwait vs. American Independent Oil Company (1982), the principle of Permanent Sovereignty over Natural Resources is stressed as an international custom. This principle is also asserted in the case concerning the National Iranian Oil Company vs. Idemitsu Kosan Company (1953), which was heard in the Tokyo Court, and the arbitration case of Iran and the United States about the Amoco and Sadco companies.

In addition to the UN General Assembly and the International Court of Justice, principle 21 of the Stockholm Declaration (1972), principle 2 of the 1992 Rio Declaration, the 2002 New Delhi Declaration, and the states' economic rights and duties charter (1974) also recognized and stressed the principle of Permanent Sovereignty over Natural Resources.

Principle of Prevention of Environmental Damage

The right to use a healthy environment is a fundamental human right. The protection and preservation of a healthy environment are also obligatory for humans. Hence, enjoying a healthy environment is both a right and an obligation. Having a healthy environment effectively contributes to the achievement of sustainable development, and an effective way of preventing damage to the environment is the application of legal rules and regulations governing the environment. An important principle contributing to the achievement of this goal is the principle of the Prevention of Environmental Damage. This principle entered the realm of international law from the municipal law and was articulated in the international law following the approval of the Rio Declaration. According to this principle, countries shall not define and implement their energy production and consumption models such that they cause damage to the environment. The assessment of the environmental impacts is a direct result of this principle. To wit, any environmental effect caused in the course of a project must be predicted and analyzed prior to the issuance of the project permit. Moreover, on account of the principle of prevention, when there is adequate evidence of the probability of an environmental threat and hazard, the pertinent standards must be reached. The principle of prevention substantially contributes to sustainable development.

The potential nature of damage, the irreversibility of environmental damage, and uncertainty are the main constituents of the principle of prevention.

Moreover, since in many environmental conditions restitution in integrum is impossible, application of this principle can minimize the environmental damage. The principle of prevention has been identified and stressed in many international instruments. Most international documents and instruments of environment have at least implicitly referred to the principle of prevention. The principle of prevention of environmental damage is asserted in the United Nations Convention on the Law of the Sea (Dec. 10, 1982), 1833 U.N.T.S. (396:21), L.L.M 1261 (1982), the United Nations Framework Convention on Climate Change (preamble, May 9, 1992), Treaty Doc. No. 102-38 (1992), and 1771 UNTS 165. The Convention on the Law of the Sea also refers to the principle of prevention and precaution in the definition of environmental pollution.

In the case concerning Corfu, the International Court of Justice stressed the principle of prevention of environmental damage. In its 1996 advisory opinion on the Legality of the Threat or Use of Nuclear Weapons, the International Court of Justice referred to the aforementioned principle. In addition, in the Trail Smelter dispute between the United States and Canada (1941), the Principle of Prevention of Environmental Damage in the international law was recognized and asserted by the Court of Arbitration. Moreover, according to the international law rules and regulations, the states' right to harvest resources, especially the oil and gas reserves, shall not inflict loss and damage on a country or other countries. Principle 21 of the Stockholm Declaration emphasizes the principle of prevention of damage to other states during the harvest of natural resources.

Training substantially contributes to the prevention of environmental pollution. The 1972 Stockholm Conference and 1975 Belgrade Charter stress the necessity of training for preventing environmental pollution. The prevention principle is an effective step towards sustainable development.

Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency

The basis for the international law is the interaction and cooperation among the international society members, while cooperation between states on different areas is the basis for the new international law. Indent 3 of Article 1 of chapter 1 of the UN Chart stresses the cooperation among states on various areas. In addition, indent 1 of Article 1 of chapter 4 of this charter states that the General Assembly may utilize the principle of cooperation to protect international peace (including the principles of disarmament and

weapon regulation). By virtue of Principle 24 of the Stockholm Declaration, the cooperation among states on the international issues, especially environmental issues, is necessary and obligatory. Several resolutions also emphasize the principle of cooperation. Instances are the resolution 1043 on international cultural and scientific cooperation (AIRE/1043 X1), resolution 1027 on the development of international economic cooperation and expansion of international trade, and resolution 66/227 titled "International Cooperation on Humanitarian Assistance in the Field of Natural Disasters: From Relief to Development".

According to the Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency, states are required to cooperate with each other under all circumstances with good faith to protect the environment. This principle was introduced to the international law to minimize the environmental damage. States shall firstly prevent environmental damage through cooperation, and in the case of infliction of environmental damage, the states are obliged to inform the other countries to diminish the environmental damage. This principle plays an important role in reducing the environmental hazards and problems caused by the utilization and transportation of nuclear energy and oil. Failure to cooperate and communicate environmental disasters and problems has irreversible adverse effects. The Chernobyl disaster in 1986 is a prominent example of timely communication and prevention of environmental damage.

The Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency was introduced implicitly for the first time by the International Court of Justice in the case of the Corfu dispute between England and Albania. In its verdict, the International Court of Justice referred to the Albanian government's obligation to inform the English vessels of the mines in its coasts and their possible effects. Although the court did not explicitly refer to the Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency, this principle gradually evolved in the international environmental law.

The International Court of Justice has stressed the Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency in several verdicts, some of which are listed in the following. As regards the transnational pollutions, the International Court of Justice stressed in the Trail Smelter dispute (1941) case that the parties to the dispute shall cooperate to solve the problem of the damage caused by the Trail Smelter Company. In the Gabčíkovo–Nagymaros dispute (1997) and the dispute between Argentina and Uruguay (2007) over the permit of a factory on the

banks of Uruguay River, the court also referred to the Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency.

The Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency is included as an international custom in the international instruments and conventions as well as several declarations. The United Nations Convention on the Law of the Sea (1982) is considered the most important instrument of communication in the states of environmental emergency. According to Article 198 of this convention, if a state is informed of a possible imminent environmental risk to the marine environment or damage caused to the marine environment, it must immediately inform the other states that may be at risk. In addition, this country must inform the international agencies of the case. Articles 10, 9, and 7 of the 1990 London Convention on Oil Pollution assert the Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency (oil pollution).

Principles 22 and 24 of the Stockholm Declaration discuss the Principle of Necessity of Communication and Cooperation in the States of Environmental Emergency. Principles 18, 19, and 27 of the Rio Declaration extensively address the obligatory aspect of communication and cooperation in the states of environmental emergency. Principle 18 of the Rio Declaration emphasizes that a state must inform the other states of any environmental disaster or emergency environmental state. Principle 19 of this declaration also indicates that the communication shall be carried out in a specialized timely manner.

Exploitation of Shared Fields in International Energy Law

One of the manifestations of sovereignty in the international law is the exclusive capacity of governments to exploit natural resources and prevent other governments from using their resources without their consent. The issue of natural resources shared by two, or several, neighboring countries is among the most complicated notions of international law. Many natural resources around the globe are shared by two or several neighboring countries. The exploitation of these shared natural resources is a legal challenge faced by these countries.

The oil and gas reserves are among the resources subject to the states' sovereignty principle. The shared oil and gas fields are located at the intersection between the land and marine borders of two or several countries or at the intersection of the marine borders of a government and an

international deep-sea position. A large part of these oil and gas fields are located in offshore regions. Unlike the solid mines, which can be easily divided by the borders of countries, when a state starts to exploit these oil and gas resources, all or a considerable fraction of them in one country move and migrate to another country due to their fluidity.

Natural resources are classified into the groups of fluid and non-fluid natural resources by fluidity. The fluid natural resources include water, oil, and gas resources. In 1971, the issue of shared water reserves and their harvest was put on the agenda of the International Law Commission. This commission stresses the fair and reasonable harvest of these resources. These exploitations shall not contradict the interests of other states. The International Law Commission also specifically addressed these resources in 2008.

There are several stands on the legal system governing the shared oil and gas fields. Since oil and gas properties are similar to water in terms of fluidity and movability, the legal rules governing the shared oil and gas fields are deemed similar to those governing the shared water resources. On the other hand, some argue that there are substantive differences between the oil/gas reserves and water resources in terms of physical and geological properties. Additionally, the issue of oil and gas reserves is accompanied by national interests and political considerations. Therefore, each of these resources calls for a specific set of legal rules and regulations irrespective of their shared fluidity and due to their substantive structural differences.

The international law recognizes the right to sovereignty over natural resources in the seabed and sub-seabed regions in the continental shelf and exclusive economic zones. However, no custom or binding agreement on the cooperation and joint exploitation of the shared oil and gas fields exists. Hence, pursuant to the rule of "possession acquired without consent", an adjacent state or several adjacent states may exploit the shared resources ex parte. On the other hand, by dint of the principle of equity, principle of sovereignty over natural resources, proximity principle, and the principle of prohibition of chicane, the adjacent state(s) shall harvest and exploit resources through mutual consent and cooperation. Secondly, the harvest of resources by a state shall not harm the rights of other states. Thirdly, the right to the exploitation of shared fields shall fit the state's share. However, according to the international law principles and rules, governments are responsible for the uncontrolled and unfair exploitation of shared fields and the resulting loss.

Based on the verdict of the Permanent Court of International Justice on the Lotus case and Lake Lanao case between Spain and France, the advocates of the ex parte harvest of resources insist the free sovereignty of governments, provided that this freedom is not limited by international treaties and customs. On the contrary, the opponents of unilateral exploitation of resources argue that this type of exploitation is contrary to the principles of sovereignty and territorial integrity and it is considered a latent invasion of the territories of countries.

Exploitation of shared oil and gas reserves such as the natural non-fluid resources is not contingent upon borders and boundaries. According to the rules and regulations of the international law, including the abuse prevention principle and the prevention and precaution principle, the shared fields shall be utilized and exploited in accordance with environmental problems and considerations.

Basically, no exclusive treaty on the principles governing the exploitation of the shared oil and gas resources has been concluded. The governments' practices are mainly focused on the conclusion of bilateral or multilateral treaties as sources of law as identified in Article 38 of the International Court of Justice. Several bilateral and multilateral agreements have been signed between the neighboring countries on the exploitation of the shared oil and gas fields. Each party is obliged to negotiate with the other party in good faith to reach an agreement on the exploitation of shared fields. In all of these agreements, cooperation on the exploitation of shared fields is among the main requirements.

International agreements on the shared fields are classified into five categories:

1- Agreements requiring both states to cooperate on the exploitation of shared resources.
2- Treaties that assign one neighboring country the task of exploiting the shared fields and benefits from the revenues.
3- Treaties that require the parties to enter into petroleum contracts for cooperation on development.
4- Treaties that assign a joint institute the task of exploiting the shared fields.
5- Treaties that guarantee the shared exploitation of the shared fields (Shiravi, Abdul Hussein, Oil and Gas Laws, p. 271).

The exploitation of shared resources has been addressed in several international instruments. For instance, resolution 3129 of the UN General Assembly on environmental cooperation on shared natural resources invites the parties to effectively cooperate considering the self-determination of governments to commit to cooperation in settling the disputes over the continental shelf issues and protecting their territorial integrity and sovereignty over these resources in accordance with the international law. This resolution insists on the achievement of environmental standards in exploiting these shared fields. According to this resolution, the exploitation of shared fields is contingent upon previous communications and negotiations. Resolution 3281 of the General Assembly, which is titled the Charter of Economic Rights and Duties of States, mentions the necessity of previous communications for the exploitation of shared fields. The exploitation of these resources/fields shall not harm the other party's interests. Moreover, by virtue of Article 3 of the aforementioned resolution, countries shall cooperate in exploiting the shared resources and consider each other's lawful interests.

Resolution 186/34 of the UN General Assembly on the guide for the United Nations' environmental program for shared natural resources, and Resolution 2994 of the UN General Assembly on the United Nations' conference on the human environment, stress the necessity of cooperation between the neighboring states in exploiting shared natural resources and avoiding environmental damage.

In the continental shelf disputes between Germany and Denmark, as well as between the Netherlands and Germany (1967), the International Court of Justice implicitly invited the parties to the dispute to agree on the harvest of shared resources. Moreover, in the dispute between Tunisia and Libya in 1977 over the shared resources, the International Court of Justice invited the parties to agree on joint development. In the Guyana-Suriname dispute, the Court emphasized cooperation among governments in harvesting the shared resources in the light of negotiations and required the avoidance of ex parte actions.

The Rio and Stockholm declarations stress the incorporation of environmental issues and considerations into the harvest of shared fields. Moreover, the 1982 Convention on the Law of the Sea not only refers to the environmental considerations regarding the exploitation of shared fields, but also requires the countries to harvest shared fields with mutual consent. Secondly, according to this convention, the exploitation of shared fields shall not harm the rights of another state or other countries. Accordingly, Article 142 of the