SOUTH EASTERN EUROPEAN UNIVERSITY  LAW – INTERNATIONAL LAW

THIRD CYCLE OF STUDIES – DOCTORAL STUDIES

THESIS : IMPACT OF CLIMATE CHANGE ON INTERNATIONAL LAW

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CHAPTER I

1. International environmental law

1.1 Introduction

Climate Change as a phenomenon now is a part of *international environmental law* (IEL), and *international environmental law* (IEL) is an integral part of *international law* in general, its relation could not be unattached from each other. Considering this importance, this topic currently is dealt with in the utmost seriousness from International Public Law.

Many may ask how LAW could help in saving the environment, what is the form? How much codification can affect the preservation and protection and how codification could help on saving of the environment.

Climate change as environmental issue is a large, and complicated concept today because it affects the life of the entire planet. Living in a situation where every day we are faced with International Law and international society has created a balance with different treaties, there is a will to try in one way or other to minimize the damage of various States towards the environment, which in present times happens very often.

The other aspect of the topic is how to incorporate Environmental Law, treaties, and other codifications into national Law because the relationship between International Environmental Law (IEL) and domestic Law should be the subject of a serious discussion about the best way in which each domestic legal system could incorporate international Law norms into national Law. The crises that come from our carelessness to the environment.

Our topic emerges clearly that the research field and the primary focus is on climate change and its relation to international law, from basic concepts to the development of this institution. The world Is changing, also the environment is changing due to mismanagement by the states, in the sense of not counting that they will face directly environmental problems as climate change and all other subjects such as air pollution, ozone depletion, and other topics related to Climate change which are important for our future.

Another important aspect is that these laws that would be approved in certain states find proper implementation. Many countries have passed laws and in legal terms they do not lack anything, but they fail when it comes to implementation. This phenomenon is more pronounced in undeveloped and developing countries, which approve agreements but their

implementation is not at the desired level. International environmental law is an area that is developing, and we will analyze its development towards public international law, with special emphasis on the analysis of climate change, the effects it gives, the legal aspect, the social aspect and the economic one.

2. General aspects

The development of international environmental law has its beginning around the 60s, and now it is one of the remarkable subjects that has been developed and it could be compared with other high rated topics such as:

- Human rights
- *Maritime law*
- *Trade law*
- *International criminal law*

But what is International Environmental Law, can anyone define it, Is there any written definition of what (IEL) is and what it represents, or it is a bigger concept and no one could exactly define it. First problems arise when you try to identify the meaning of *International Environmental Law* (IEL). Different scholars have opinions that vary and are not the same, some think that the IEL has no legislative body, and there are no sources that could be considered separate and apply only to the codification of aspects of the environment. Mentioning this is correct to say that IEL is seen as a part of *Public International law* rather than a self-contained discipline and no serious Lawyer, neither any serious institution will say otherwise.

The great development of International Environmental Law has also come from its relevance and its interaction different *law* branches, as *Private international law*, *maritime law*, international human rights, and economic *law*. Now we can say that environmental law is a multi-dimensional discipline and affects all areas.

Another problem for scholars and Lawyers is the lack of definition on international tracts of what Environment is, although there is a definition of what the environment is without being able to encompass it all because of its inclusiveness.

According to the dictionary, with the term Environment, we find: air, water, land where people, plants, and animal live.[1] Even though that this definition is general and does not include the depth of meaning of what environment is.

3. Sources, Lawmaking of International environmental law

Talking about sources of Lawmaking is always difficult because it is a new discipline, and there is not much codification which is related and have to with climate change, watching it from the sources that are used for other law disciplines.

International Environmental Law (IEL) is more of a discipline that derives from the general sources of Law. It also derives from various diplomatic conferences, from judicial precedents, and also from bilateral agreements, and multilateral agreements that have been made, for different purposes, but with which International Environmental Law may also be associated.

International institutions, international organizations, including the UN Bodies and regional agencies with their programs, played a crucial and intensified role in creating codificiation and making policies and agendas, by creating the legal infrastructure and providing different types of expertise, by heading different projects, making different conferences that are related to environmental issues.

IEL has taken very much from framework treaties, bringing different principles and it came from regular meetings and as much as the knowledge expanded, much more was given to the Law-making of IEL.

The processes of constitution and creation of IEL are always related to politics. They are usually created by diplomatic tables, compared to expertise in the field. Legal experts provide expertise which then adapts to diplomatic goals, which together influence the evolution of the IEL.

The need to protect the environment has made that this branch of International Law develops more quickly and flexibly by adopting new concepts and new principles.

As other Law disciplines, the IEL also is considered that came from four types of Lawmaking bases such as:

- Custom,
- Treaties,

[1] Cambridge Dictionary. (2022, April 27)

- Judicial decision,
- General principles,

Sources of law are regulated by ICJ Statute where Article 38 has expressed the sources that could be considered as legit regarding a decision making.[2]

3.1 Treaties

Agreements are a very important and essential aspect of public international law, they are also essential for environmental law. Codification through various agreements, even if they are bilateral or multilateral, occupies an important and necessary part in the creation and development of this discipline.

The first guidelines, or starting point, can be considered two agreements:

- *UNCLOS (United Nations Convention on the Law of the Sea),*
- *1992 Convention on Climate change and Biological diversity,*

These two agreements gain their importance because they are considered as *law making* and many important treaties have emerged from them.

Treaties today are considered to be a primary source of IEL because they can create multilateral rules which have a binding nature for anyone who sign them.

In literature, the term Treaty is the most used one, but we could also find a variety of names that are used for the same purpose and can be such as protocol, covenant, pact, act, or concordat.

In general, treaties are a written agreement between states, or in our case, it could be an agreement with the different international organizations, which are governed in all cases by International Law. Most of the time, those kinds of treaties are signed and enter into force in two different ways, the first is by exchanging notes, exchanging letters and become binding upon signature without further need to be presented to the parliament, other ones are treaties which enter into force when they are ratified by the parliament. Besides this, other forms are when states sign Memorandums of Understanding, which are not biding but most of the time they help to create good faith and high expectation.

By signing treaties, we create a good basement for each country which sign it to be responsible, and it creates a structured regime where all member states that sign them and

[2] See Article 38

become part of it, and in all circumstances, are obliged to respect and behave conform the treaties.

There is no prescription of how the treaties should be, but they are best described by the Vienna Convention which codifies how rules are applicable after they are entered into force (Birnie et al., 2009).

Vienna Convention on Law of Treaties has liberalized treaty-making by giving the freedom to make treaties in numerous ways, and sometimes to object, but without violating, the principles of what those agreements were made for.

In these conventions, the principle comes from its article 26 with the maxima *Pacta sund Servanda*, which means, signed agreements must be kept in good faith. [3] The abovementioned article has helped in making states responsible for the issues that are treated by agreements.

What often happens is that in multilateral treaties you find it difficult to prescribe everything in the treaty and most of the time the agreements related to the environment are more general and they lay dawn only a framework such as:

- *UNFCCC 1992 Framework Convention of Climate Change,*
- *1985 Convention for protection of the Ozone Layer,*

Of course they do not describe every detail. The details will then be decided by the states which will choose the methods to address the most important issues and therefore states will need to prescribe more details and maybe add some annexes or draft a certain agreement to adapt the circumstances according to the situation which may occur.

3.2 Custom

It all starts with society and certainly certain behavior prescribe what it allows to do and not to do. Most of these rules develop subconsciously by different groups of people who do not agree with decisions that are made regarding issues that concern them. Most of the rules in their beginning are not written down or codified, they come from different processes, from the needs of communities to change certain issues. Custom rules survive when the cause is right and they develop through the years and become accepted and have legitimacy because of what they treat and how they survived.

[3] See Article 26,

Custom is the oldest form of law, there is no doubt that public law has gained more from it rather than any other field, and until lately, most of the international law was based on customs as a primary source.

The most characteristic feature of Custom in International Law is that it is an expression of a common practice derived from several precedents, which means it comes from the repeated application of certain solutions for the same cases[4].

According to scholars, the role of custom is divided into two categories, the first group of scholars thinks that it cannot be significant anymore noting that it is slow-moving and has not evolved as International Law is evolving, but on the other hand, other scholars give it a different view noting that is a dynamic process and it's equally important or maybe more important as a source comparing to treaties because it has international and universal application.[5]

Custom today is much relevant and created a ground even for other sources that are developing heavily. International Environmental Law has gained much from Custom, and it helped the creation of a legal ground for different treaties which today are considered as a number one source.

The importance of the Custom comes from recognition as source of *public international law*, even the ICJ in its statute, in Article 38 specifies the manner of acceptance of the custom, giving it an added value and making it a more important source of Law.[6]

What is important about customary Law is that it regulates issues that are not regulated by treaties, and it creates an opportunity for states that cannot agree on certain issues to use customary Law and past precedents to reach agreements. Customary Law also helps the work of international judicial bodies as it facilitates their work in case of disputes since precedents are used as cases treated before.

In the future, maybe custom will lose its importance same as it happened within contemporary legal systems, where now it is considered as unimportant and often is seen only nostalgic value, but we could easily say that without customary Law we couldn't be where we are today since for the moment it is still an important source due to lack of the more centralized international bodies.

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[4] Arben Puto, Public International Law, 8th edition, Tirana 2004, (pp. 16).
[5] Shaw, M. N. (2017). International Law (8th ed.). Cambridge University Press.
[6] See Article 38

3.3 General principles

Since this discipline is new, many times we may have situations when we do not have solutions to problems due to lack of written Laws, agreements, acts, lack of custom-based cases, or lack of court precedents. It will be very important in court cases when the moment comes when the judges understand that there is no specific Law for the problem that occurred, and most of the time in these cases it should be improvised trying to find analogies to conclude a case.

In such moments that appear, it is important to note that some rules are universally accepted because internal systems have addressed these in the past and have become norms that almost all states accept.

The general principles have been given special importance because even here the same article of the ICJ gave the proper credit and has recognized them as sources that can be used in cases that are presented before the court. Of course, this has happened to escape certain situations in international Law since as we have mentioned it is a relatively new discipline, and not very codified, and at the same time, it can be used as an analogy for the problems that may be caused in a sub-branch of it as International Environmental Law.

Often to avoid the situation where there is not enough codified legal basis these general rules have affected, although in International Environmental Law there are few cases when the courts have used the general principles, among the rare cases is the incident of Corfu Chanel[7], which has helped the development of this discipline by using it as a case study as it was the first case that the ICJ Court had decided where the decision was made invoking general principles.

The use of general principles, although less common as a source, is used to avoid the Non-Liquet situation, where rules from domestic Law should be considered as the only way to decide cases that do not have written Laws.

In the practice of international law, there are some cases which are important where the general principles have been used, among which related to the issue of the environment

[7] Corfu Channel incident is one of the biggest incidents that has happened in the waters of Albania. This event is considered as one of the events that delayed Albania for 50 years in establishing diplomatic relations with the United Kingdom of England. From this incident at the canal point located entirely in the Albanian area, two British ships collided with mines, 44 officers and sailors died and 42 others were injured. This case has a tremendous effect on development of IEL since it was the first case that was treated.

besides the incident of Corfu Chanel are some other cases such as *Diversion of Water from the Meuse Case*[8] , where Belgium and Netherlands had signed bilateral agreement on the use of the waters abovementioned. Netherlands later sued Belgium for exceeding the use under the agreement, and the court decided to reject the two states using the general principles, as the treaty of signed between the two states did not specify the mode of use, considered they could be based on general principles (Birnie et al., 2009).

Chorzow Factory Case which took place between Germany and Poland where after the 2nd world war, Germany had given Poland a region called Upper Silesia by a joint Convention specifying that Poland had no option to forfeit any German property. Poland had forfeited two German companies thus violating the signed convention. From the aspect of international law, this case has left some precedents where the Court used restitution in integrum as a general principle of International Law.

3.4 Judicial Decision

Judicial decisions in International Law have become part of the resources that can be taken for granted as precedents are legitimate and can be used to solve cases that may be similar, it's importance mostly comes from the ICJ statute where it is used as last source of international law, but with minimum binding effect which applies only to the signatory states.[9]

Despite the importance of judicial decisions, they cannot be called a real source of international law, as most authors think that the courts do not make Laws, they only apply the active legal structure, and therefore it can be called subsidiary sources which are used in certain cases to address similar issues that could occur.

However, Judicial Decisions have a very important role, they are probably not the primary source, but can give different examples of how the law is interpreted in certain cases. International law often deals with cases for which there is a lack of codification, they are not regulated by law, and this includes previous court decisions, precedents, which can give a good hand in resolving complicated cases.

Practice shows that court decisions in various cases are taken as a reference, although their importance is increasingly fading as the rapid development of public international law has led to most environmental issues being codified.

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[8] Diversion of Water from the Meuse Case on Permanent Court of Justice, Netherlands v. Belgium [1937]

[9] See Article 59,

4. The evolution and codification of IEL-International Environmental Law

Like any law field, IEL is relatively new, but it is gaining great dynamism in its development. Preserving and protecting the environment is increasingly becoming a social and state obligation. Climate changes, the ozone layer damages, pollution, by careless actions of different countries are forcing international actors to focus more on this relatively new area. Since the first agreements that we have mentioned, the development of IEL has received a great boost and is soon expected to become very important inside a public law, aiming to be a self discipline.

Today, different countries contribute to this development, by concluding various agreements that are helping the codification towards a greater development of this discipline. Different treaties, different agreements, customary Laws are contributing strongly to the evolution of this scientific discipline.

Climate change that is happening around the world has given a great impetus to the idea that this discipline should be developed even more and have an important role within public international Law and maybe soon it can become an important discipline of Law in general.

It is assumed that there are around 1,000 multilateral agreements on environmental issues that have been signed by the states, and there are more than 1,500 Bilateral agreements[10], but some of them have received the greatest importance due to a large number of ratifications between the states. The list of agreements that have given more development to this discipline are:

[10] Koivurova, T. (2013). Introduction to International Environmental Law (1st ed.). Routledge.

Name of the Treaty	Ratified by	Adopted	Entered into Force	Type
KYOTO PROTOCOL	192 Members	1992	16.02.2005	Pollution and Climate change
CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FLORA AND FAUNA (CITES)	183 members	03.03.1973	01.07.1975	Species
CONVENTION ON BIOLOGICAL DIVERSITY (CBD)	196 Members	05.06.1992	29.12.1993	Species
THE MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER	197 Members	16.09.1987	01.01.1989	Pollution and Climate change
WORLD HERITAGE CONVENTION	193 Members	23.11.1972	17.12.1975	Nature
PARIS AGREEMENT	184 Members	22.04.2016	04.11.2019	Pollution and Climate change
UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE	164 Members	09.05.1992	21.03.1994	Climate Change
VIENNA CONVENTION FOR THE PROTECTION OF THE OZONE LAYER	197 Members	22.03.1985	22.09.1988	Protection of Ozone Layer

Figure 1 – International Environmental law agreements

All of these agreements have helped International environmental law develop, and now have become an important part of IEL and who knows, in the future, it can be a discipline on its own.

Considered as a branch, it has benefited from the formation of the *International Law Commission (ILC), for drafting and promoting International Law*.[11]

This commission has drafted almost 30 agreements with a specific character of the environment and it has become the biggest and more important asset for the development of international law. All important agreements have been drafted by this commission which will function and will play a very important and decisive role in the future.

Today, multilateral agreements are numerous, environmental issues have become important, as the environment is one of the few goods that is used by all.

The agreements listed in the table played a vital role in the journey and development of this discipline, now it is important that, we, the people, be more carefull and try to preserve, protect the environment. This can only be done by working harder on agreements and treaties which would directly affect the increase of care for the environment.

Climate change, rising of CO2 gases, damage to the ozone layer, air pollution, and many other problems related to the environment will be at the center of research in international law. We must say that there has been development, but it is still not enough what has been done so far, powerful states must include in their agenda the protection of the environment in the whole world not just in their states.

What could help that this field rapidly develop would be the creation of a special court for environmental protection, which would deal with cases related to the environment and would be a control mechanism for treaties and agreements signed between states.

As long as we are dealing with the environment, development of IEL will become a necessity. This area will evolve because the need for taking care of the environment is increasing every day. New Laws will be written, different conventions and treaties will be created, depending on the needs that will arise. Some will be unheard and new, others will be taken from previous practices, but one thing is for sure that the codification and importance of this discipline will increase in the coming years.

5. The Development of International Environmental Policy

The problems that have arisen, the connection of the environment with human rights, the introduction in the constitutions of different states as an important part, the establishment of commissions, the signing of numerous treaties, some of which we have mentioned, have

[11] See article 1.1

pushed the international spectrum to think of common policies in an attempt to take care and protect what is in our hand from the numerous degradations caused by the negligence of the state/people, and other actors that are involved.

The idea of creating common policies is very good in principle, only that a suitable module must be found to create control mechanisms for these policies.

But what are the challenges, advantages, and disadvantages we will address below?

The origin of the development of common policies is the conventions and conferences which have been held over the years, starting with the Stockholm Conference of 1972, which is considered as first omen in the rapid development of IEL, where for the first time, an expert of different fields had raised first concerns, making the developing countries of that time aware and participate in this conference which would later be followed by other conferences.

The combination of human rights with environment in the Stockholm declaration was very welcome and attention given to human rights cannot be said to have been made 20 years later in the Rio Declaration in 1992, although the principles outlined at the Stockholm Conference were also adapted and changed from the experience that states had gained from the 20 years since this declaration.

Numerous criticisms of the Stockholm Declaration lie in the fact that the principles displayed there have an almost novelist description, intertwined even artistically with a political orientation rather than a normative character.

After the Stockholm conference, *World Commission on Environment and Development (WCED) in 1987 published the Brundtland Report*[12], which intended to create a global agenda proposing short and long term plans in order to achieve development of the environmental issues. The Brundtland report tried to create an opportunity for developing countries to have the same access as countries with higher socio economic development, purpose of report was to create a balance between less developed countries and those who were more developed to be in the same path when it comes to creating policies for issues regarding environment.

Development of common policies, apart from the historical aspect from the Stockholm declaration, has undergone a great change until today, the topics which are common

[12] See Brutland Report

policies are more numerous and scattered into a different topic. Numerous is because social awareness has been raised on environmental issues, they are scattered into different topics because they have now begun to pay attention to various issues, ranging from:

- climate change,
- ozone depletion,
- air pollution,
- marine pollution,
- global warming.

International law is now being developed, along with it are also being developed topics that are related to the environment, environmental policies are also being developed through awareness campaigns for the people. Today in the world it is a trend to talk about issues related to the environment, many developed countries in the main cities are developing green policies, which makes us realize that the future will be even brighter. Even the big world companies are looking at the way of gaining energy causing as little damage to the environment, also the car industry has started to be oriented by electric cars due to their efficiency and less harmful performance toward the environment.

6. Human rights and their relation to environment

"Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations"[13]

This is first principle of most important conference for human rights and their relation with environment. First principles shows how much importance is given to human rights indirect access to the environment.

Although they are mentioned here for the first time, this is not the only convention that mentions human rights in the environment, but this had opened the way for them to be mentioned in other subsequent conventions.[14]

The environment and mankind have an inescapable connection. Preservation, protection, taking care for the environment can also be considered preservation, protection and taking care of universal human rights. It is essential right for a clean environment, with no polluted

[13] See first principle – Stockholm declaration
[14] See Rio Declararation 1992 – First Principle

air, with quality, healthy food and water, to a safe life. These essential needs are being guaranteed not only by international law, they are included also in domestic laws. The number of states that have included these rights in their constitutions is growing rapidly.

Most of the states today are committed. States try providing a normal healthy environment to their citizens, and this of course is being done by making good policies, than good policies regulate the issues regarding environment.

Today in well-established countries it is difficult to make decisions that may conflict with environmental conventions. Eco policy is taking an important place in the internal systems as it is trying to be given greater importance as the environment has begun to be considered as a general, common good, which we must preserve with the utmost care.

But it should be noted that the introduction of environmental issues in international conventions qualitatively as an expression was made for the first time African Charter on Human and Peoples Rights, where they are presented decisively in article 24,[15] which were later used in some court cases.

Awareness of states regarding the environment can also be seen in states constitution where they involved environmental problems as part of national law . This example is being followed by developing countries, which are trying to include articles in constitutions that guarantee the preservation and protection of the environment. For example, all Balkan Countries have put into their constitution articles that relate to the environment and Human Rights. Kosovo as a new state has taken care that in its constitution to pay attention to the human rights to live in a clean and protected environment, in Article 52 states: *Nature and biodiversity, environment, and national inheritance are everyone's responsibility. Everyone should be provided an opportunity to be heard by public institutions and have their opinions considered on issues that impact the environment in which they live. The impact on the environment shall be considered by public institutions in their decision-making processes.*[16]

Serbia has also put into her constitution environmental issues, by giving them a place that is related to human rights by stating in Article 74 that: *Everyone shall have the right to a healthy environment and the right to timely and full information about the state of the environment. Everyone, especially the Republic of Serbia and autonomous provinces, shall be*

[15] See article 24,

[16] See **CONSTITUTION OF KOSOVO** – Article 52, Article 52 [Responsibility for the Environment]

accountable for the protection of the environment. Everyone shall be obliged to preserve and improve the environment.[17]

Meanwhile, Albania is more reserved on its article into the constitution by giving a relatively smaller place and has only one line in their constitution regarding the Environment. In the Albanian Constitution article 56, it states that: *Everyone has the right to be informed about the status of the environment and its protection*[18], which makes it clear that environmental issues will be dealt with with other legislation rather than their constitution.

Croatia has also made a very good description in their constitution giving great importance to the issue of the environment, the description in the constitution is accurate and precise, where the direct connection between environmental issues and human rights is noticed, as it says in Article 50: *Everyone shall have the right to a healthy life. The state shall ensure conditions for a healthy environment. Everyone shall, within the scope of their powers and activities, accord particular attention to the protection of human health, nature, and the human environment.*[19]

Brazil on the other hand in its constitution has made a very broad description of issues that relate to the right of the people to a healthy environment. It states at the beginning of Article 225 that: *All have the right to an ecologically balanced environment, which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations*[20], in the same article are explained in detail the rights and obligations for the preservation and protection of the environment but what is slightly contradictory is the fourth paragraph which talks about assets and their right to use emphasizing that the *Brazilian Amazonian Forest, the Atlantic Forest, the Serra do Mar, the Pantanal Mato-Grossense and the coastal zone are part of the national patrimony, and they shall be used, as provided by Law, under conditions which ensure the preservation of the environment, therein included the use of mineral resources*,[21] which in international Law is quite controversial as the forest burns which were made in the Brazilian Amazonian forest in an attempt to open new agricultural land have posed a great risk as they can be found locally in

[17] **CONSTITUTION OF SERBIA** - Healthy environment Article 74
[18] CONSTITUTION OF ALBANIA - Article 56
[19] CONSTITUTION OF CROATIA - Article 70
[20] Constitution of Brasil – Article 225, Environment
[21] Constitution of Brasil – Article 225, Environment, paragraph 4

the state of Brazil but are very important as they are considered the lungs of the world in general.

A more moderate and more liberal approach and in longer terms can be found in the constitution of Norway, a state which gives it a very special role of preserving and protecting the environment. Norway in its constitution in Article 112 states that: Every person has the right to an environment that is conducive to health and to a natural environment whose productivity and diversity are maintained. Natural resources shall be managed based on comprehensive long-term considerations which will safeguard this right for future generations as well. To safeguard their right under the foregoing paragraph, citizens are entitled to information on the state of the natural environment and on the effects of any encroachment on nature that is planned or carried out. The authorities of the state shall take measures for the implementation of these principles.[22] What is very important is that Norway has this article in its constitution in the field of human rights, which means that it is a step ahead of many other countries in the world.

But what is most necessary is that all states should take care to provide a suitable environment for the development of life in general as the environment is a common good which must be preserved with special care. Seeing that the need for increased care for the environment is increasing every day, more needs to be done in the codification of international Laws or agreements to create a legal basis in case of any violations to take sanctions against states which for their benefit not infrequently damage the environment, which can be harmful not only to the state where the damage occurs but can also be harmful to the whole international community.

All this is done with the idea of enabling man to have his rights related to the environment in which he lives, as a necessary factor which in the first place improves human life in general.

In the future, there may be initiatives to create special Laws on the connection between human rights and the environment as a better opportunity to regulate common issues as well as to give importance to persons in decision-making.

[22] Constitution of Norway – Human Rights – Article 112

Also very meaningful is the second principle of the Rio Declaration which tries to create a general culture where the special focus should be given to the environment that surrounds us in the years to come.[23]

7. International Organization

International organizations play an important role in International Environmental Law, the role of these organizations is multidimensional and extends to many areas of influence.

The increase of international awareness on these topics has led to the creation of various organizations of an international character, with the idea of creating a multi-faceted approach to solving problems that occur in different parts of the world. In this chapter, we will try to study the impact and role of these organizations in creating the general legal infrastructure in an attempt to preserve and protect the environment. The purpose of most organizations is to help address these issues.

Today in the world there are many movements and organizations which deal with the environment, some are more general while some others are more specific, some are independent and some others are derived from the agreements of the states and have the duty to actively with problems that appear around the world.

Even in International Environmental Law, organizations are different, ranging from those created by important global mechanisms, with a global character, to organizations that are regional and for specific areas to those that are national or local initiatives. Organizations can also be divided into governmental (IGO) or non-governmental (NGO).

The main problem is that there is no centralized body responsible for environmental issues.

States have given little of their sovereign immunity to the United Nations and other entities, but we still do not have decision-making and legislative body that deals only with these issues.

The most significant of the organizations that have given in the creation of environmental Law is the UN, through various programs that have been created with the idea to give rapid and meaningful development to this field.

[23] Rio Declaration – Principle 2 The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.

In addition to organizations within the United Nations, other organizations, both governmental and non-governmental, play an important role in the Lawmaking, development, control, and maintenance of the environment.

Some of the organization that are important and deals with environmental issues are below mention:

- *Food and Agriculture Organization* [24],
- *International Labor Organization*[25],
- *World Health Organization*[26],
- *UN Educational, Scientific and Cultural Organization*[27],
- *World Meteorological Organization*[28],
- *International Maritime Organization*[29],
- *International Atomic Energy Association*[30],
- *UN Conference and Trade and Development*[31].

8. International Bodies, UN and Environmental Governance

The United Nations as a body that deals with all issues that may have a multilateral purpose, with the character of international relations played its main role in the development of International Environmental Law. The UN, through other bodies, coordinates with the idea of assisting developing countries in becoming more responsible regarding the environment.

The idea is to make *Environmental Governance*[32] through various organizations, which is the main factor for the achievement of *sustainable development.*[33]

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[24] Home | Food and Agriculture Organization of the United Nations. (2022). FAOHome. https://www.fao.org/home/en/

[25] International Labour Organization. (2022). ILO. https://www.ilo.org/global/lang--en/index.htm

[26] Home. (2022, May 6). WHO. https://www.who.int/

[27] Home | UNESCO. (2021). UNESCO. https://www.unesco.org/en

[28] About us. (2021, January 18). World Meteorological Organization. https://public.wmo.int/en/about-us

[29] International Maritime Organization. (2021). IMO. https://www.imo.org/

[30] International Atomic Energy Agency | Atoms for Peace and Development. (2021). IAEA. https://www.iaea.org/

[31] About UNCTAD | UNCTAD. (2021). UNCTAD. https://unctad.org/about

Environmental governance means creating the infrastructure to implement and formulate policies and Laws that can find a general application. Environmental governance aims to cooperate and involve as many states as possible. It is an extensive and dynamic growing process as most of the international bodies created now have a very important role in the drafting of International Environmental Law as a field, as well as in the creation of international Laws, applicable in cases of non-compliance of them.

The UN has established many international mechanisms that serve humanity, among which many organizations have their source from the UN. The United Nations in environmental issues has given rise to two super organizations such as UNEP and UNDP, where then from these two organizations spring many other developments, whether they are in the legal aspect or in other aspects. The genuine development of these two organizations has put them at the forefront of the fight against climate change.

Everyone has understood that great change can come only when the forces join, and the UN in a form is a demonstration of this coordination of forces as the largest organization which every day creates the preconditions for fighting in all areas that have to do with environment.

8.1 General Assembly and Security Council

An important role in creating the legal infrastructure within the UN is played by the **General Assembly**, which, although not of a normative nature, has helped in the development of International Environmental Law. In this order, it is understood that the priority within the General Assembly falls on the member states which have the right to vote, which favors them concerning non-member states.

The General Assembly made its impact through resolutions and conferences which later through other bodies influenced the creation of legal and policy agendas which gives it a continuing role at the heart of the Lawmaking process (Birnie et al., 2009).

In addition to the general assembly which has the above-mentioned role, it should be emphasized that within the UN the main role is played by the Security Council which consists of 15 states, with 5 states having the main power, this power given by the veto.

[32] Environmental Goverance is a concept that puts the sustainable environment at the center of attention and develops all other issues with it.

[33] Sustainable development is a principle that seeks to achieve a natural resource development on which the economy and social life depend.

Although the Security Council does not have a legislative mandate, it has influenced the development of this field. *The idea of the Security Council is to maintain peace and security in the world, this is done with Chapter VII which although not decisively deals with the protection of the environment, as it did in the Security Council resolution 687 used for the Gulf War between Iraq and Kuwait*.[34]

Developments made over the years made the Security Council the starting point for the biggest events in the field of environment, as most of the world-renowned conferences were initiated by the Security Council.

The UN, in general, has played an important role in the development of this discipline, some of the programs and organizations within it have made the 21st century to be considered as the century where care and protection of the environment have developed the most.

This role comes and is strengthened every day and more, as the need for interventions is quite large. There are various areas where the situation can be improved, and the UN is at the forefront of any improvement trend as it is more comprehensive.

Joint warfare is the best way to prevent this degradation of the environment. Causes must be shared, and the UN is probably the best body to push forward these causes that lead to the preservation and protection of the environment as a necessary good for humanity.

9. UN Environmental Program – UNEP

The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment[35]

UNEP program is diverse, it deals with every Environmental field such as Climate Change, Air, Biosafety, Forest, Green Economy also it has Sustainable development Goals, etc which plays a leading role under UN and helps environmental Law develop. UNEP is very important, in the Climate Change sector it has different goals to reach. It starts with the

[34] See Security Council Resulution – Section 2

[35] About UN Environment Programme. (n.d.). UNEP - UN Environment Programme. https://www.unep.org/about-un-environment

work with different governments intending to integrate Climate Change into their national policies, by trying to adopt new ideas and new ways, they also try to make cooperation between society, governments, businesses, and other fields to improve air quality, also they have a program with help transition countries to try to find renewable energy sources, reduce air pollution.

UNEP in its program for climate change presents in graphical form how the general goal can be achieved, which is to limit temperature raise beyond 1.5 C.

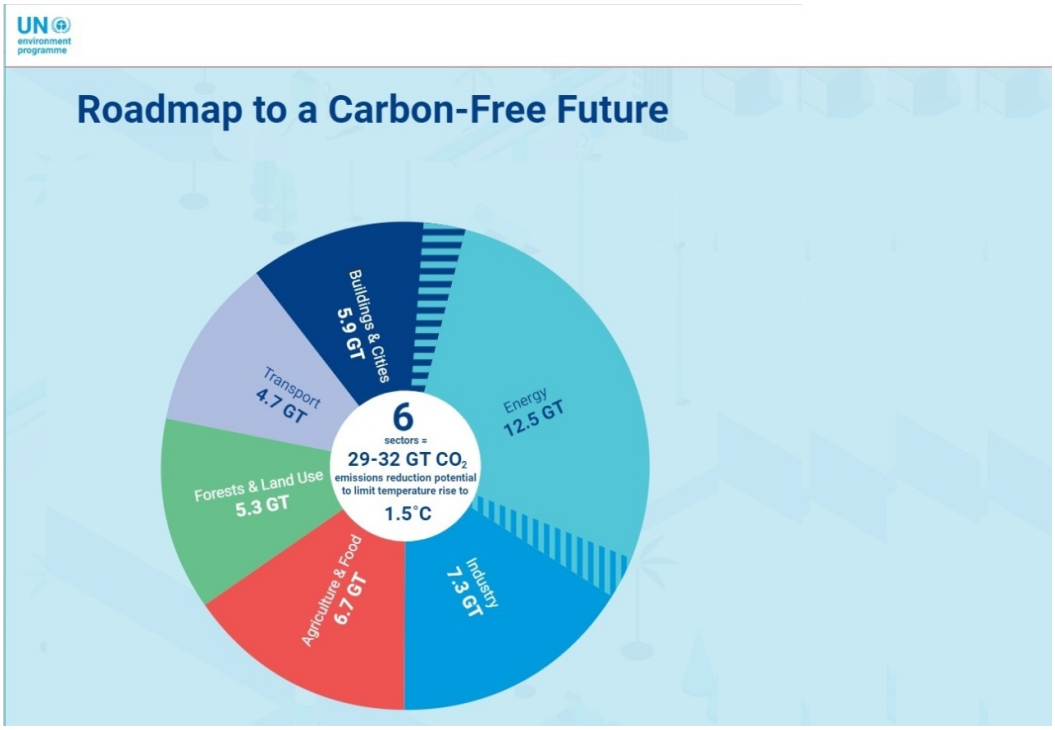

Figure 2 - UNEP (The United Nations Environment Programme) – Climate Change - Roadmap to a Carbon Free Future – Six Sectors –

As we can see above it aims to reduce the emission of gases by 12.5 GT from Energy sector, per year, by finding sources of renewable energy, as it is considered that the world has the technological possibilities to achieve this goal.[36]

Industry can also help, as it can reduce emissions to 7.3 GT per year, using renewable energy sources as well, increasing efficiency and developing technology.[37]

[36] UNEP (The United Nations Environment Programme) – Climate Change - Roadmap to a Carbon Free Future – Six Sectors - Energy - Actions are required at every level: government, private sector and the public https://www.unep.org/interactive/six-sector-solution-climate-change/

[37] Cooling Emissions and Policy Synthesis Report. (n.d.). UNEP - UN Environment Programme. https://www.unep.org/resources/report/cooling-emissions-and-policy-synthesis-report

In the field of Agriculture and Food, UNEP thinks that they can reduce GHG emission to 6.7 GT, this could be achievable if there are good development policies which also educate the consumer in food management by not buying more than they need. *They try to measure food loss, and implement different strategies to reduce food waste (United Nations Environment Programme, n.d.-a).*

Forest & Land Use can reduce the GHG by 5.3 GT per year, this could only be done by restoring 150 million hectares of forests by 2020 and 350 million hectares by 2030 as they are proclaimed in Bonn Challenge (The Bonn Challenge, 2020).

Another important aspect is the Transport which aims to reduce the GHG for 4.7 GT per year, where it is one of the most difficult objectives and involves many sectors, starting from public transport, personal vehicles, and other modes of transport.

To achieve the desired goal, several areas must be challenged, the aim is to improve technology in automobiles, the car industry must reach the perfection in terms of gas emissions, then in the social aspect it is important to raise awareness to use more public transport, to walk in front of using cars, to stimulate the use of bicycles (United Nations Environment Programme, n.d.-a).

The other Building and Cities program aims to rebuild public housing, make it more environmentally friendly, invest in heating through heat pumps, stimulate solar panels, use blue and green infrastructure so that annual emissions are reduced to 5.9 GT per year (United Nations Environment Programme, n.d.-b).

UNEP for 2022 - 2025 has foreseen a special program which it have named it as For people and Planet which is based on three key points:

- Climate Action,
- Nature Action and
- Chemicals and pollution actions.

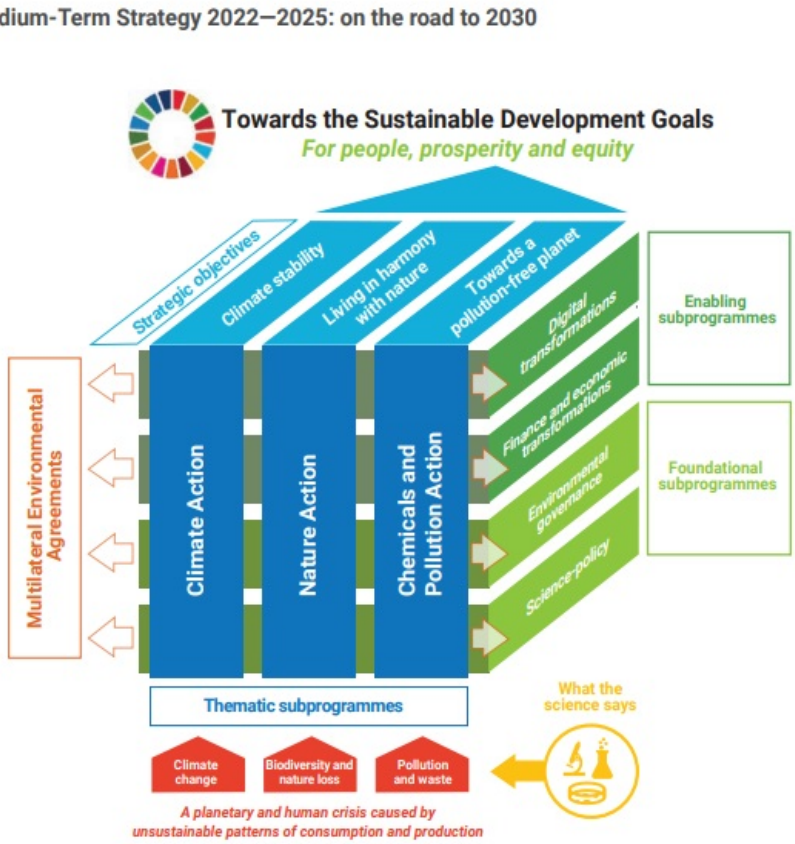

Figure 3 – For people and Planet – UNEP Strategy 2022 - 2025[38]

The picture above explains in detail how UNEP intends to improve the situation through the program or mid strategy. Initially everything starts from International Agreements on environmental issues, then they are intertwined in three key points, which present the strategic objectives which aim to live in harmony with nature and create an environment that will not be polluted. All this according to UNEP can be done if we have some sub programs that would enable digital transformation, socio-economic transformation, through an environmental governance based on science policy.

All the goals of UNEP in this strategy are related to the Paris Agreement and the goals that the states have signed as a commitment with binding effect.

UNEP will assist countries in creating political strategies and policy-making and decisions to be in line with scientific data, and all this is done only to achieve the fulfillment of international agreements which have clear goals, reducing emissions until 2030, to continue

[38] UNEP (2021). For people and Planet. https://wedocs.unep.org/bitstream/handle/20.500.11822/35875/K2100501-e.pdf

with the major target of zero emissions by 2050, and all this can only happen if global warming is limited and does not exceed 1.5 degrees Celsius.

UNEP in this mid strategy tries to orient the development in many areas, including the creation of renewable energy sources, to stop deforestation and habitat loss, to find new methods for food production, to help redesign transport in order to be more ecoo friendly.

Normally to achieve these objectives UNEP programs will focus on countries that emit the most gases and are the biggest polluters, but at the same time UNEP programs will be extended to poor countries, to help adapt to climate change.

The goal of this organization is for all its partners, both state and non-state actors, to establish mechanisms that are in line with the Paris Agreement and other international agreements such as the UNFCCC, the Kyoto Protocol, and the Glasgow Climate Pact.

10. UN Development Programme (UNDP)

The United Nations Development Program is one of the most important mechanisms within the UN which helps countries around the world to overcome crises of various natures. UNDP in its goals has several areas among which will be those related to the environment. Sustainable Development goals are different, the primary goal is to eradicate poverty in the world, but besides there are some programs that are related to the environment and among them are:

Good Health and Well Being – Over 7 million people die every year because of exposure to polluted air.

10.1 The program for clean water and sanitation

In the clean water and sanitation program, the main focus is on providing drinking water for all. The idea is to increase the capacity to have drinkable water for all people around the world. Some of the research within UNDP specified that:

UNDP – Clean Water and Sanitation
71 % or 5.2 Billion people have managed to drink water in 2015, compared to 844 million people who still lack drinking water. 80 % of wastewater goes to people without treatment.
70 % of wetlands were lost by the last century.
39% of the global population had safe sanitation while 2.3 billion people lacked it.
2 Billion people have problems with water stress, with the numbers increasing.

Figure 4 Fact and figures UNDP – Clean Water and Sanitation (data and text from this table represent the facts and figures of the UNDP Water and Sanitation program)[39]

Clean water and sanitation is important because it is a human right, access to the right to drinking water, is an elementary right which must be guaranteed to every person in the world, this right is crucial for human health and this is not limited here as water is important in reducing poverty, in food security and in any other field that has to do with the well-being of people.

Good water management means economic development, it also means development in the field of energy and agriculture. This program is of particular importance as it is one of the most basic programs that tries to improve the situation of people in the world, especially in countries where water shortages are very evident. In December 2016, the United Nations General Assembly took an initiative, and created a resolution declaring the years from 2018 to 2028 as the "International Decade (2018–2028) for Action – Water for Sustainable Development"[40]. The naming as "decades of water" allows us to understand the importance of this program then it should be added that this program has 3 main objectives with which it aims to achieve the desired success.

First Objective is called: Advance sustainable development and have to do with water management as an asset, to use it for sustainable economic development and well-being of the environment and people. Any failure in water management in the national aspect negatively affects the normal development of a state. *For this issue, the resolution calls for increased international cooperation in order for countries to cooperate in the scientific,*

[39] United Nations Development Programme. (2022). Clean Water and Sanitation Program, Facts and Figures.
[40] A. (2016, November 25). International Decade for Action, "Water for Sustainable Development", 2018–2028 : United Nations Digital Library System. https://digitallibrary.un.org/record/849767

research, innovative aspect, in order to have a sustainable development in water management at national, regional and international level Blazhevska (2018, p. 10).

Second objecitve is to energize existing programmes and projects as a method to continue the path started by various organizations and projects with special emphasis on creating genuine policies with which they could have a sustaianable water management which would increase the capacity to further strengthen the conservation of water resources.

This objective aims at cooperation, innovation, capacity building, and partnership between the private and public sectors in current and future projects around the world.

The third one is to Mobilize action to achieve the 2030 Agenda, for Sustainable Development which relates to the overall targets for the UNDP agenda, 2020-2030, and the focus is to be in line with this agenda, and this requires mobilization of action.

To achieve these objectives set in this agenda certainly requires a strategic plan agreed so that the work does not stall, for this reason there is an action plan which is divided into 4 key points through which it is intended to manage the work within the agenda.

All of these projects are really related to climate change, as common areas that involve many interrelated aspects.

10.2 The program for clean energy

This is a program that focuses on the growth and inclusion of people in electricity networks as an essential need for people. Also, this program aims to find alternative forms of electricity supply, giving priority to creating forms, alternatives such as solar energy, wind energy, and thermal water. Some of the official data in this program are also:

UNDP – Affordable and clean energy
1 in 7 people still lack electricity, and most of them live in rural areas of the developing world.
Energy is the main contributor to climate change, it produces 60% of the greenhouse gases.
More than 40 percent of the world rely on polluting and unhealthy fuels for cooking.
As of 2015, more than 20 percent of power was generated through renewable sources.
The renewable energy sector as a growing sector recorded 18.5 million employees in 2019.

Figure 5 Facts and Figures UNDP – Affordable and clean energy (data and text from this table represent the facts and figures of UNDP, affordable and clean energy program) [41]

[41] UNDP. (2022). | United Nations Development Programme. Affordable and Clean Energy.

This is one of the goals which requires a lot of attention as the future should be oriented by creating opportunities to build different mechanisms in order that the energy that we use on a daily basis to be affordable and clean. Here too there are various projects which are related to the Agenda 2020-2030, where it is intended that by the end of the agenda all people in the world have access to affordable, reliable and modern energy services. It also aims to improve efficiency, increase international cooperation in the field of research and technology, find alternative sources for renewable energy, and aims to increase investment in the improvement of energy infrastructure through UNDP-sponsored programs.

All these objectives which they are mentioning are also objectives which arise from the most important agreements for climate change.

Improving the state of climate change means that the actions taken in the codification and signing of agreements are transformed into concrete actions and this can be done only when there is a will for these goals to be respected and to work hard to achieve the objectives.

Affrodable and clean energy means an improvement in the state of climate change, since the sector that releases the most green house gases is precisely energy. If success is achieved here, consequently the achievement of the objectives arising from the Paris agreement for a world with zero emissions in 2050 will also succeed.

10.3 Climate action

Climate change today is one of the fundamental problems that our common environment is facing. Rapid growth has led to increased attention to this problem which can very quickly become the main problem as the damage that is being caused to the environment is irreparable if not acted in time.

UNDP in its programs has given special focus both in terms of investment, as well as in terms of raising awareness and legislation on this topic. In its program, UNDP has released some data which are worrying and we are presenting them as follows:

UNDP Climate Action –Fact and Figures
As of 2017, the world has caused approximately 1.0°C of global warming and these numbers are growing.
Sea levels have risen by about 20 cm and this has happened since 1880 and projections are that it is going to raise more by 2100.
CO2 emissions must drop by 45 % to limit warming temperatures until 2030
The Paris Agreement covers only 1/3 of the gas emissions reductions which are needed for not allowing that global temperature to rise by 2°C.
US$26 trillion in economic benefits by 2030.
18 million more jobs by 2030, from the energy sector, focused specifically on sustainable energy.

Figure 6 Facts and Figures UNDP Climate Action –Fact and Figures (data and text from this table represent the facts and figures of UNDP – Climate Action program.[42]

At first glance we can consider that this program is very important related to issues of global climate change. However, UNDP has also given great importance to this goal, and has harmonized and coordinated activities with all other organizations in order to improve the situation and targets set in the Paris agreement to limit global warming to 1.5 degrees Celsius to be achievable.

To achieve these changes, according to a UNDP study, green house gas emissions should be reduced by 7.6% starting in 2020.[43]

The main question that people ask is what could happen if we do not take certain actions? With the current situation the global temperature can rise up to 3 Degrees Celsius, which means irreparable damage to the entire ecosystem. If there are no proper actions and programs we will all be at risk in the near future, as the supply chain would be completely affected. One of the programs implemented by the UN is the creation of a platform for individual actions ACT NOW, which informs people what they can do to change the situation, what are the actions that each of us can do, and some of them we will list them below:

- Saving energy at home,

[42] Sustainable Development Goals | United Nations Development Programme. (n.d.). UNDP. https://www.undp.org/sustainable-development-goals#climate-action

[43] Climate Change. (2020b, August 11). United Nations Sustainable Development. https://www.un.org/sustainabledevelopment/climate-change/

- Use public transport,
- Walk before you drive,
- Eating vegetables,
- Selection of ecoo friendly products,
- Replacement of current vehicles with electric vehicles,
- Intervention with solar panels, change your home energy supply,
- Reduce, reuse, recycle,
- Speak up for the things that you know regardin environment.[44]

For these programs to function normally, it would be very important that the finances are at the right level. Most UNDP programs aim to extend to poor areas, and undeveloped countries so that even those countries can thrive and be well informed about the impact and importance of climate change.

11. Scientific Environmental Organization

In addition to organizations that deal with other aspects such as Lawmaking, social impact, field development, some organizations address environmental issues in scientific terms, so they use science as a tool for finding and raising awareness of humanity by publishing various facts and various researches. The work of scientists is different from that of politicians, they are not there to give ideas on global politics, scientists are there to give scientific ideas for tackling problems that have become big because of wrong policy-making.

Today scientific organizations are numerous, also because of other non-scientific organizations who always engage experts within their groups and this gives the connection between what is scientific and what is a political program.

One of the most important scientific organizations is the ICES International Council for the Exploitation of the Sea, which takes care of doing scientific research on the sea in general and on the living things in it in particular.

ICES does not deal with Law-making, it rather has the role of advisor on scientific aspects for other organizations that do Law-making.

Another scientific organization from the UN, namely from UNEP is The Intergovernmental Panel on Climate Change, which in its mandate must provide the world with scientific facts

[44] United Nations. (2022). Act Now. https://www.un.org/en/actnow

related to climate change and the impact they may have in the social, political, and economic aspects. So far this organization has published 5 general scientific reports and some scientific reports on specific topics.

Science today occupies a very important place in the fight against climate change. Scientific findings make the projections more accurate, as well as scientific findings will be a guide for drafting various agreements between countries. The development of science and technology will be a tool for the fight against climate change. The combination of these two components would facilitate the path to achieving the desired success.

There are many organizations at the global level that deal only with the scientific aspect, in addition to the IPCC there are other organizations whether they are at the local, regional or international level. Some of them have left traces in the development of this discipline in scientific terms.

One of them is the World Meteorological Organization which has a special scientific program that deals with climate action. The findings from this program are the basis for finding new scientific methods which are then used to make decisions about the best forms of climate adaptation. WMO has a program, Global Climate Observing System which is a program co-sponsored by several organizations where they deal with the publication of reports from the observations process.[45]

Woodwell Climate Research Center is another organization that deals with scientific studies, and they aim to turning climate research into urgent action.[46] The purpose of this organization is to find scientific solutions to the problems of climate change and those solutions to be available to mankind.

The World Climate Research Program (WCRP) also plays an important role, as scientific organizations take care to raise issues that are too large to be addressed by a single country. The creation of this organization took place in 1980 and was created by two important organizations such as the WMO and the International Science Council, and then to this organization was added as a partner also Unesco.[47]

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[45] Global Climate Observing System. (2019, October 16). World Meteorological Organization. https://public.wmo.int/en/programmes/global-climate-observing-systemb

[46] Our Impact. (2021, October 12). Woodwell Climate. https://www.woodwellclimate.org/our-impact/

[47] WCRP History. (2013, February 13). WCRP. https://www.wcrp-climate.org/about-wcrp/about-history

Another one is International Union for Quaternary Research, which was founded in 1928. It has members from a number of scientific disciplines who study the environmental changes, the scope of this organization is in the issues of glaciers, in their prehistory. [48]

A fundamental role is also played by the International Science Council, which is a non-governmental organization that brings together under its umbrella about 200 other organizations of a scientific nature in related fields. Specific for this organization is because it is among the only organizations which includes both social sciences and natural sciences.[49]

Organizations of a scientific nature generally have a special role, because the findings of these organizations can then be used to create policies, to write laws that should always be adapted to scientific findings. When science and law work together then it will be much easier to create mechanisms that will lead to a common fight against climate change.

12. Non-Government Environmental Organization

Those who are in greater numbers today and have a very important role in the development of international law but also the improvement of life on earth are also non-governmental organizations that aim to preserve and protect the environment. Non-governmental organizations often arise from the civil society need to make changes in certain areas, many are created by the problems that have emerged and have continued to grow and leave their impact and develop and become global.

Today there are various organizations which have grown so much that they have become the dominant force of raising awareness and conveying their idea to the people. Globalization has greatly influenced the growth of care for topics that have a common character and are for all people such as the environment. The UN body which includes most non-governmental organizations under its umbrella is IUCN - International Union for Conservation of Nature which has over 1400 members and somewhere over 17000 experts and is active in 170 countries around the world.[50]

13. IUCN - International Union for Conservation of Nature

IUCN has treated different climate change topics, in their programs they give importance to many topics related to climate change, special programs are:

[48] TINQUA. (1928). International Union for Quaternary Research. https://www.inqua.org/
[49] Council Science. (2020, June 15). ISC. International Science Council. https://council.science/
[50] About. (2022, February 4). IUCN. https://www.iucn.org/about

- *Forest and Climate Change*[51]
- *Social Policy and Climate change*[52]
- *Gender and Climate change*[53]
- *Species and climate change*[54]
- *Water and climate change*[55]
- *Law and climate change*[56]

13.1 The program for forest and climate change

Forest and Climate change program aims to afforest and increase green spaces through programs such as the Bonn Challenge which aims at afforestation of 150 million hectares by 2020 and 350 million hectares by 2030.

This would help increase green spaces which are being greatly degraded by different states, recall last year's burning in the Amazon by the state of Brazil which suggests that such cases may occur in the future.

Since its launch in 2011 this program has exceeded forecasts and in 2017 has exceeded 150 million hectares planted, and this has been extended to 60 different countries which have pledged to do a forestration. By the time of writing this thesis somewhere around 210 million hectares are committed, which means that the program is giving the right results. [57]

[51] Forests and climate change. (2021, February 17). IUCN. https://www.iucn.org/resources/issues-briefs/forests-and-climate-change#:%7E:text=Forests'%20role%20in%20climate%20change,emissions%20after%20the%20energy%20sector.
[52] Our work. (2018, August 8). IUCN. https://www.iucn.org/theme/climate-change/our-work
[53] Our work. (2018, August 8). IUCN. https://www.iucn.org/theme/climate-change/our-work
[54] Our work. (2018, August 8). IUCN. https://www.iucn.org/theme/climate-change/our-work
[55] Our work. (2018, August 8). IUCN. https://www.iucn.org/theme/climate-change/our-work
[56] About. (2022, February 4). IUCN. https://www.iucn.org/about
[57] Progress | Bonchallenge. (n.d.). Bonchallenge. https://www.bonnchallenge.org/progress

Countries that are seen as successful are: *Rwanda with 2 million hectares committed followed by El Salvador with 1 million hectares committed, Mexico - Quintana Roo 0.7 million hectares committed and undoubtedly Brazil with 12 million hectares committed.*[58]

Europe, the Caucasus and Central Asia launched ECCA30 with clear goals, to have a forestry of 30 million hectares by 2030, also this program has created The Restoration Barometer which aims to identify commitments, identify progress made and monitor Working in general.[59]

The reports from this barometer can then be used in the next meetings and for the compilation of detailed reports on the situation.

This barometer currently monitors around 20 plus countries, and it includes some important information such as:

- Climate Impact,
- Biodiversity benefits,
- Socio-Economic impact,
- Monitoration
- Pledged hectares,
- Technical solution

Also, this program has another project, called:

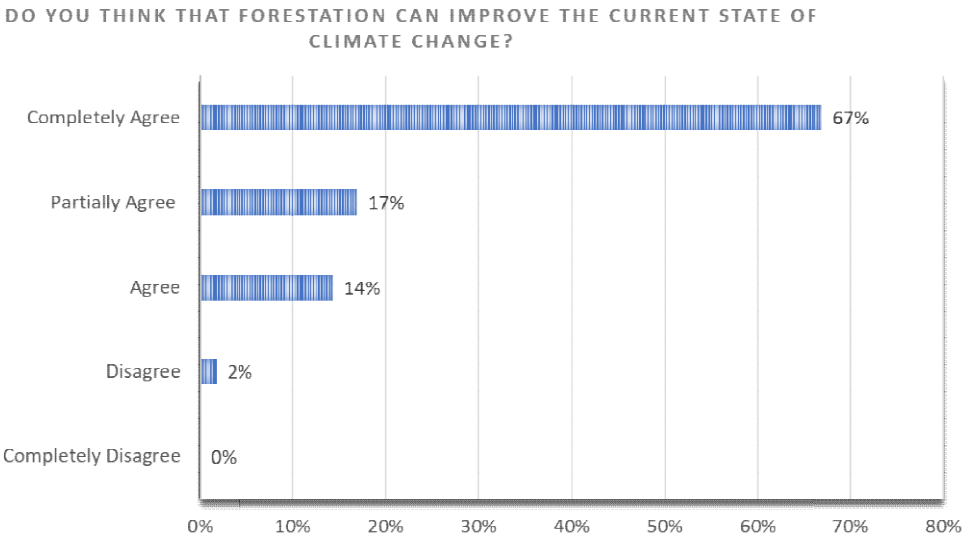
- *Reducing emissions from deforestation and forest degradation also called (Redd +)*

which made several publications and several investments to help developing countries to reach a better perspective and better education regarding the importance of the forest and climate change.

Regarding this issue we have asked a question in the survey to measure people's opinion about their idea of what they think about the question : Do you think that Forestration can improve the current state of Climate change and the responses are as are listed on the figure below:

[58] Commission on Environmental, Economic, Social Policy and Climate. (2017, February 14). IUCN. https://www.iucn.org/commissions/commission-environmental-economic-and-social-policy/our-work/commission-environmental-economic-social-policy-and-climate-change

[59] Bonn Challenge Barometer. (n.d.). InfoFLR. https://infoflr.org/bonn-challenge-barometer



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Do you think that forestation can improve the current state of Climate Change?	0%	2%	14%	17%	67%

Figure 7 Shahiqi (2021) Unpublished raw data – The Impact of Climate Change on International law. SEEU University. Do you think that Forestration can improve the current state of Climate Change

From the answers received we can conclude that people have positive thoughts about forestry, and 67% of people fully agree that planting new trees would improve the situation. 17% of other people partially agree and think that there may be other actions that can improve the situation. Only 2% of people are skeptical, and do not see forestation as a method for improvement, and this margin of negative responses is hopeful as we can understand that a problem of improvement has been found.

Forests are the lungs of nature, they stabilize the climate in the best way, regulate the ecosystem, and protect biodiversity, and are a good method for sustainable development. What should be aimed at by all is the orientation towards the return of lost forests, new plantings, as it is very important that the natural processes of carbon dioxide absorption and oxygen release are constantly increasing.

Forests are multi-dimensional, in addition to absorbing carbon dioxide, they are home to 80% terrestrial biodiversity, and constantly giving the world goods like clean water and healthy soils. [60]

[60] Forests and climate change. (2021b, February 17). IUCN. https://www.iucn.org/resources/issues-briefs/forests-and-climate-change

13.2 Social policy and its relation to climate change

Social policy and climate change[61], a program which deals with the social aspect of climate change, which aims to inform people as much as possible about the importance of this topic, in its program "Faith-based leaders" tends to influence religious leaders to explain the importance of climate change in their contacts with people.[62]

This program has a wide range of activities, their work is based mainly on the social aspect, some of the programs are as follows

- *Environment and Peace*
- *Gender*
- *Governance, Equity, and Rights (Governance, Equity and Rights, 2022)*
- *Green Criminology Specialist Group*[63]
- *Indigenous Peoples, Customary & Environmental Laws & Human Rights*[64]
- *Sustainable Use and Livelihoods.*[65]

The social aspect is very important, as we are all part of different societies and as different societies we have a responsibility to have a proper education in the role of society in preserving and protecting the environment.

What we can see is that developed societies contribute tremendously to the improvement of the situation. The more developed the society, the easier the fight against climate change

[61] Forests and climate change. (2021c, February 17). IUCN. https://www.iucn.org/resources/issues-briefs/forests-and-climate-change

[62] Commission on Environmental, Economic, Social Policy and Climate. (2017b, February 14). IUCN. https://www.iucn.org/commissions/commission-environmental-economic-and-social-policy/our-work/commission-environmental-economic-social-policy-and-climate-change

[63] Green Criminology. (2022, April 7). IUCN. https://www.iucn.org/commissions/commission-environmental-economic-and-social-policy/our-work/green-criminology

[64] Indigenous Peoples, Customary & Environmental Laws & Human Rights. (2022, March 11). IUCN. https://www.iucn.org/commissions/commission-environmental-economic-and-social-policy/our-work/indigenous-peoples-customary-environmental-laws-human-rights

[65] Commission on Environmental, Economic, Social Policy and Climate. (2017b, February 14). IUCN. https://www.iucn.org/commissions/commission-environmental-economic-and-social-policy/our-work/commission-environmental-economic-social-policy-and-climate-change

will become. Regular daily actions can lead to improvement of the condition. A noble act of planting a tree can reduce the effects and help the overall fight against climate change.

13.3 Gender and climate change

Since climate issues are not gender issues, IUCN has created a program that helps strengthen the role of women and link gender issues to climate change, this is often achieved through training, workshops, with the sole purpose of raising social awareness.[66]
Their main program is the Gender Action Plan (GAP) which has set five priority areas that will help on advancing our knowledge, creating a better understanding of issues related to climate change which have to do with gender.
Five priority areas are:

- *Capacity-building, knowledge management, and communication*
- *Gender balance, participation and women's leadership*
- *Coherence*
- *Gender-responsive implementation and means of implementation*
- *Monitoring and reporting*[67]

All people should be equal, because everyone can give their contribute in different form and different way on preservation of the environment. This program is very important because women and girls face violence every day, including physical violence, sexual violence, trafficking and early marrigies.
In times of crisis, the health of women and girls is endangered by climate change and this manifests itself in the lack of provision of care and health services, which then endangers the health of mothers and children. Equality would mean in this case justice, it would mean development. The link between gender inequality and climate change comes in many forms. Undeveloped countries where women's rights are violated are usually poorer countries, and poorer countries are more affected by climate change. Women and girls in these countries depend on cultivating the land, which is becoming more and more endangered. Decision-

[66] IUCN. (2021). About. https://genderandenvironment.org/about/
[67] IUCN. (2021). About. https://genderandenvironment.org/about/

making in these countries is not given to them, as they are not in power. In places where drought is high they are forced to travel miles to secure drinking water. In developing countries, they work long hours, manual labor for which they may not even be paid at all, and add to this the potential for violence they face, making equality programs necessary. Women are values to society and as such should be treated.

13.4 Protected areas

Protected areas are now recognized as decisive tools for sustainable development and the fight against climate change. Beyond conserving species and ecosystems, protected areas provide essential ecological, social, and economic services – such as clean water, carbon storage, genetic reservoirs, disaster mitigation, and soil stabilization – and for preserving our cultural heritage.[68]

There are two publications that IUCN has made that are related to protected areas and climate change:

- *Natural Solutions, protected areas helping people cope with climate change (also in Korean, or read the summary)*
- *North American Protected areas as natural solutions for climate Change (NAWPA)* [69]

In general, protected areas are consideret an important tool in the world fight against climate change. If they are properly managed, our fighting against climate change can be easier.

These are the three key objectives with which IUCN seeks to protect protected areas:

- *Enhance Awareness of Climate Change and its Impacts to Protected Areas and biodiversity in surrounding landscapes,*
- *Promote the Capacity of Protected Area Managers to Respond to Climate Change,*

[68] Protected Areas and Climate Change. (2017, February 14). IUCN. https://www.iucn.org/theme/protected-areas/our-work/protected-areas-and-climate-change

[69] Protected Areas and Climate Change. (2017, February 14). IUCN. https://www.iucn.org/theme/protected-areas/our-work/protected-areas-and-climate-change

- *Mainstream Natural Solutions and especially Protected Areas into Sectorial Strategies, Plans and Programmes for Mitigation and Adaptation to Climate Change.*[70]

These three key points serve as a guide for better management of the situation and they aim to have new strategies in the future with which there would be more inclusion and interconnection of protected areas, with a more careful monitoring.

In legal terms, states should monitor the legal framework for resource protection with increased vigilance. All states in principle have legal mechanisms approved but the implementation of the legal framework is lacking. Today, the actions of states against the effect an chain damages we do to environment should be intensified.

13.5 Species

The inescapable connection of climate change with species which are important to nature is great, and this is also addressed by the IUCN program on species that are endangered and whose extinction implies that it is coming from climate change.

The problems caused by climate change of the species are great and they are growing every day even though they are being observed and every effort is being made to prevent it but the current projections are that there will be changes in global waters, there is a risk of polar melting ice and montane glaciers, rising ocean acidity and rising water levels are some of the problems.

But the question may be asked why different species are important, and the answer is because they are necessary for the ecosystem in general. *IUCN program called: Red List of Threatened Species* [71]is a program that aims to save various species from extinction. Up to now, the achievements are promising, and this program is a world leader in this issue.

Factsheet say that there are 142,500 species on The IUCN Red List, 40,000 of them are threatened with extinction, most endangered with extinction are amphibians with 41%, also sharks and rays are in serious danger with 37%, 34% of conifers, 33% of reef building corals, 26% of mammals and 13% of birds.[72]

[70] Protected Areas and Climate Change. (2017, February 14). IUCN. https://www.iucn.org/theme/protected-areas/our-work/protected-areas-and-climate-change

[71] The. (2022). IUCN Red List of Threatened Species. https://www.iucnredlist.org/

[72] IUCN. (2022). Red list of Threatened Species. IUCN Red List of Threatened Species. https://www.iucnredlist.org/about/background-historyv

The data are worrying and this certainly has to do with countries in general. In addition to the risk of climate change, these species are often endangered by humans, and therefore states must include their protection in domestic law in order to preserve and protect the ecosystem.

Red List of Threatened Species includes partnerships from different organizations that contribute to the conservation of different species, also for this project is important funding where many strong financial organizations give their contribution with a very special role and the car company Toyota, which has a special Toyota Environmental Challenge 2050 program that aims to double the number of species that can be rescued.

13.6 Water and climate change

Also one of the most active programs with various climate projects with the idea to help communities for the best use of natural resources, through two projects:

- *The SEARCH project demonstrates how local communities can successfully overcome the negative impacts of climate change and manage these kinds of problems daily*.[73]
- *WISE-UP to climate' is a project that demonstrates natural infrastructure as a 'nature-based solution' for climate change adaptation and sustainable development*[74].

Water is the source of life and as such must be managed, preserved, because 90% of human disasters are related to water.

IUCN has other programs such as :

- BRIDGE
- GrowGreen
- Land Health
- Sustain 2021-2024
- Ridge to Reef

All these programs aim to provide access to water for all people as it is a basic right which must not be denied to anyone.

[73] Water. (2019, September 10). IUCN. https://www.iucn.org/theme/water/

[74] WISE-UP to Climate. (2018, April 30). IUCN. https://www.iucn.org/theme/water/our-work/current-projects/wise-climate

Changes in water cycles and extreme weather events are creating difficulties to Access to drinkign water. That undeveloped countries have significant problems, that is shown by the fact that about 450 million children live in areas where there is severe water shortages, and that this causes that even basic needs are not met. *Rising temperatures could send water into different types of contamination, and if the sea levels rise, it could cause fresh water to change and become more salty, endangering water resources for millions of people. If actions are not taken and this state of climate change continues to be so according to scientific projections by 2040, almost 1 in 4 children will live in areas of extremely high water stress.* [75]

13.7 Law and climate change

One of the ICUN programs that are very important and consists of experts from all over the world, who are from different profiles who work in policy-making as well as improving the legal infrastructure related to climate change.

The IUCN-Environmental Law Programme (ELP) includes the

- *World Commission on Environmental Law (WCEL)* [76]
- *Environmental Law Centre (ELC),*[77]

Also, the IUCN has great libraries of IEL, located on region of Bon with more than 37.000 bibliographic references. Also, the video/online library is very advanced.

[75] Water and the global climate crisis: 10 things you should know. (2022). UNICEF. https://www.unicef.org/stories/water-and-climate-change-10-things-you-should-know#:%7E:text=Climate%20change%20is%20disrupting%20weather,that%20children%20need%20to%20survive

[76] About. (2022, January 20). IUCN. https://www.iucn.org/commissions/world-commission-environmental-law/about#:%7E:text=The%20World%20Commission%20on%20Environmental,of%20law%20thorough%20IUCN%20activities

[77] Environment Law Centre. (2022, April 7). Home: working for strong environmental laws and rights in Alberta. https://elc.ab.ca/

WCEL holds annual conferences, where all experts, judges, prosecutors, scientists, gather and discuss various issues, legal aspects, policy-making, and issues influencing International Environmental Law.

On of the WCEL program is "Fighting climate change: A best practice guide for judges and courts (2019-2024)", which aims to create the appropriate legal structure for the three powers, legislative, executive and judicial to contribute to the fight against climate change. Legislative powers should draft policies and laws that will help fight climate change, executive powers to oversee the implementation of these laws, and a judicial system that would enable the resolution of disputes regarding climate change issues. The expected output of the project is an open access book titled: Judicial Handbook on Climate Change Litigation, released in late 2022.[78]

Also they have cvreated a proper background for 4 other major programs that they will start on 2022 such as:

- *Islands and climate change (2022-2024),*
- *Legal pathways to net-zero GHG emissions and nature based solutions (2022-2024),*
- *Enabling legal environment for emerging technologies to support climate action (2022-2024),*
- *Climate Law Network (2022-2024).*[79]

This group of specialists aims to increase cooperation with experts from other groups that deal with climate change in general.

[78] Judicial Handbook on Climate Litigation. (2022, January 20). IUCN. https://www.iucn.org/commissions/world-commission-environmental-law/our-work/climate-change-law/judicial-handbook-climate-litigation

[79] Climate Change Law. (2022, April 11). IUCN. https://www.iucn.org/commissions/world-commission-environmental-law/our-work/specialist-groups/climate-change-law

CHAPTER II

14. Climate Change

15. Climate change today occupies an important place in international politics as one of the strange phenomena that are happening to the environment and as one of the phenomena that can cause many problems in the future if awareness and care are not increased.

16. Climate change is happening all over the world, and this comes from many factors. The world until today has not done enough but now this issue has begun to receive due attention as one of the fundamental problems of the coming years.

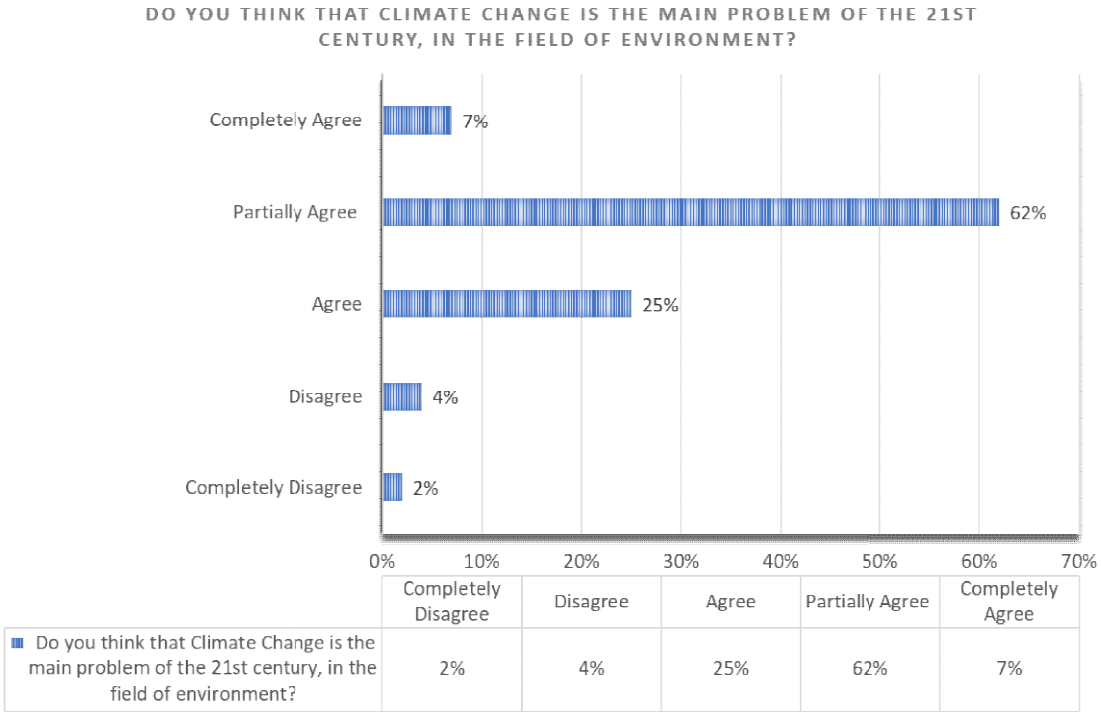
17. In the following topic, we will treat climate change as a phenomenon that is happening and we will also try to give recommendations on what more countries can do to prevent this phenomenon.

18. In general, with climate change, there are some concerns, among which are that the global temperature is rising, since 2017 an increase has been seen and there is a projection that this is constantly increasing. The sea level has increased by about 20 cm and at the same time, some actions must be taken because this level can go much higher, based on UNDP expert projections this level could raise about 40 cm by the year 2100.

19. The 21st century has been the hottest, the years 2015 and 2018 entering the top 5 of the hottest years recorded by the world meteorological organization. At first glance, the projections for rising temperatures seem like a small thing as the temperature has risen by only one degree, but according to scientists if this continues to happen we will have problems with even the most basic things as sea levels rise, then the temperature and acidity in the ocean will increase, our ability to grow crops like rice and wheat would be in greater danger.

Also one of the problems that are being caused by climate change is the burning of forests, which could refer to the burning that happened in Amazon, Brazil, and other burnings around the world, and the more hot summers there are the more dangerous it will be for forests.

20. To see the importance of climate change, we did a research asking people: Do you think that Climate Change is the main problem of the 21st century, in the field of Environment, and the results are not at all surprising, as that most people think is a fundamental problem that we will be dealing with continuously in the coming years.



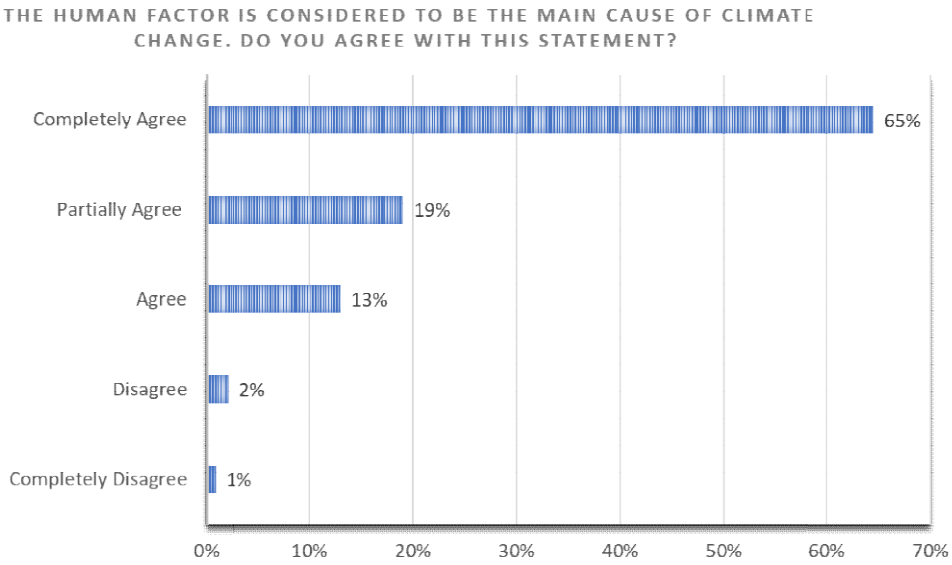
21.

Figure 8 - Shahiqi, D. (2021) Unpublished raw data – The Impact of Climate Change on International law – (The survey date : 10-03-2021 - 25-03-2021) – SEEU University. Do you think that climate change is the main problem of the 21st century in the field of environment.

Also, in the continuation of the more correct understanding of the connection between people as a key factor in climate change, we have asked the question if the human factor is considered to be the main cause of climate change. Do you agree with this statement? and the answers we received are in line with what we have already made as a statement, and that only 3% of people surveyed oppose this finding, putting man at the epicenter, as the

key factor in causing climate change with araund 97 % of people that in one form or another agree that the mankind are responsible for cilamte change.

Belove are the findings described in descriptive way :



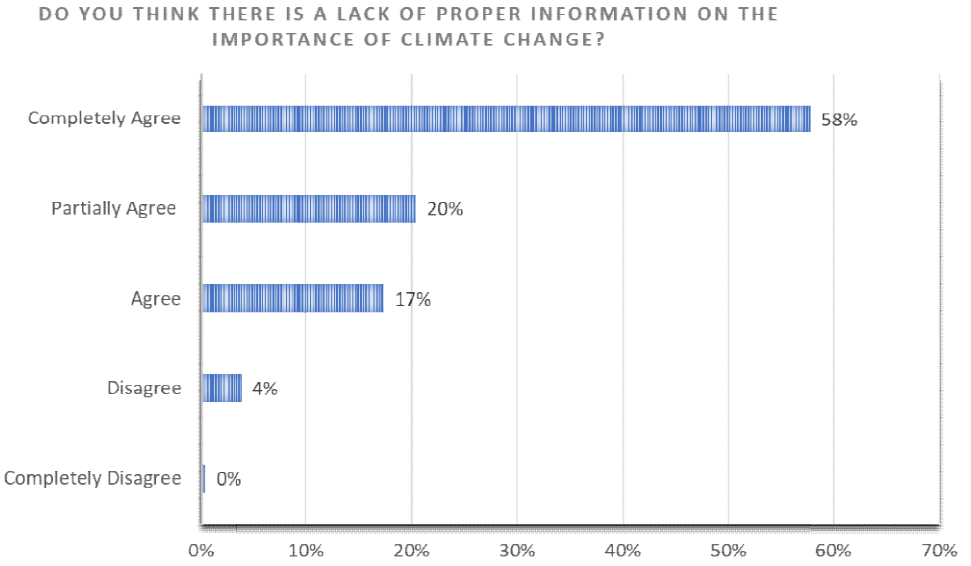
	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
The human factor is considered to be the main cause of Climate Change. Do you agree with this statement?	1%	2%	13%	19%	65%

Figure 9 - Shahiqi, D. (2021) Unpublished raw data – The Impact of Climate Change on International law – (The survey date : 10-03-2021 - 25-03-2021) – SEEU University. The human factor is considered to be thje main cause of climate change. Do you agree with this statement.

Also an important issue is the information, which must be appropriate, accurate, distributed as much as possible and be coherent. Information today in time of globalization is the key to success for any problem. Who has the information also have the advantage of coming to a solution. If you are well informed you can contribute to the improvement of the general condition. In the main agreements, much importance has been given to the issue of information, but the proper effect has not yet been achieved. Climate change has recently begun to play an active role, and to be considered a very big problem of the world in the coming years. One-on-one agreements, with the sole purpose of limiting green house gas are and will remain a challenge for future generations.

In order to have a more objective and realistic approach, we asked a question in the questionnaire, where we said: Do you think there is a lack of proper information on the importantce of climate change and the asnwers are lists in the figure belove where only 4 %

of the people surveyd opoose that there is a proper information regarding this issue, in contrario to 96% of the people who agree with my opinion that there is a lack of proper information, and states needs to do much more in order to have a better result.



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Do you think there is a lack of proper information on the importance of Climate Change?	0%	4%	17%	20%	58%

Figure 10 - Shahiqi, D. (2021) Unpublished raw data – The Impact of Climate Change on International law – (The survey date : 10-03-2021 - 25-03-2021) – SEEU University. Do you think that there is a lack of information on the Importance of Climate Change.

The importance of this topic should not be known only by experts of the field, this topic should be generalized, to have a wider scope, in the sense that more people are informed in order to give their contribution. There are various methods by which individuals can contribute to the improvement of the current condition, they can do it by changing their daily routine and taking actions in order to preserve and protect the environment.

14.1 Global Warming

One of the aspects of climate change is global warming[80], most try to combine these two terms as a single but climate change is a broader aspect and includes a wider range of cases

[80]NASA – GLOBAL CLIMATE CHANGE - Global warming is the long-term heating of Earth's climate system observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels. Found at: https://climate.nasa.gov/resources/global-warming-vs-climate-change/

within it, while global warming is an aspect of climate change, and has to do with rising temperatures.

However, we can consider that global waming is the main aspect of climate change and is a consequence of the uncontrolled emission of Greenhouse Gas and can cause many problems if the world continues to be hotter.

As a result of global warming there are some effects that scientists have noticed and among them the most special are: sea levels are rising, Glaciers are melting, air pollution is higher, more acidic oceans, more heats, more storms etc.

In terms of International environmental law, with global warming was dealt the most the Paris Agreement which we will analyze in following chapters.

As for definition "Global warming is the long-term heating of Earth's climate system observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in Earth's atmosphere".[81]

Global temperatures by 2022 have risen by 1.1 degrees Celsius according to all reports. This increase has not only caused great damage to the environment and the projections are frightening if proper action is not taken.

In legal terms, an attempt has been made through the Paris Agreement to limit global warming, more precisely to take actions that will limit warming to a maximum of 2 degrees Celsius. Later in 2021 it was attempted that through the Glasgow Climate Pact, global warming be reduced to 1.5 degrees Celsius as the changes in the environment with 1.1 degrees which occurred are very large, and the impression is created that the limit of 2 degrees Celsius will bring changes unforeseen that greatly damage the environment.

Chain effects are numerous from global warming and states must implement the commitments made in international agreements in order to achieve the desired target.

[81] Shaftel, H. (2022). Overview: Weather, Global Warming and Climate Change. Climate Change: Vital Signs of the Planet.
https://climate.nasa.gov/resources/global-warming-vs-climate-change/#:%7E:text=Global%20warming%20is%20the%20long,gas%20levels%20in%20Earth's%20atmosphere.

14.1 The rising of temperatures

Apects of climate change is global warming.[82] *M*ost try to combine these two terms as a single but climate change as a concept is a broader and includes a wider range cases within it, while global warming could be considere as one aspect of *climate change*, and has to do with rising temperatures.

However, we can consider that global waming is the main aspect of *climate change* and is a consequence of the uncontrolled emission of GHG and can cause many problems if the world continues to be hotter.

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[82] Shaftel, H. (2021). Overview: Weather, Global Warming and Climate Change. Climate Change: Vital Signs of the Planet. https://climate.nasa.gov/resources/global-warming-vs-climate-change/

[83] Shaftel, H. (n.d.). Overview: Weather, Global Warming and Climate Change. Climate Change: Vital Signs of the Planet. https://climate.nasa.gov/resources/global-warming-vs-climate-change/

14.2 GHG Green house gases

The main problem is Greenhouse gas, which is a major problem and it consists of different types of gases which all are caused by humankind.

The primary one is *CO2- Carbon dioxide which is emitted through the burning of fossil fuels such as natural gas, oil, trees, and wood products.*[84] Also, other gases are Methane, Nitrous oxides, Fluorinated gases, all of these gases cause climate change. Most of these gases are natural gases that nature needs and produces, but the abuse of these gases by humankind and uncontrolled ways has done to have these problems we have today.

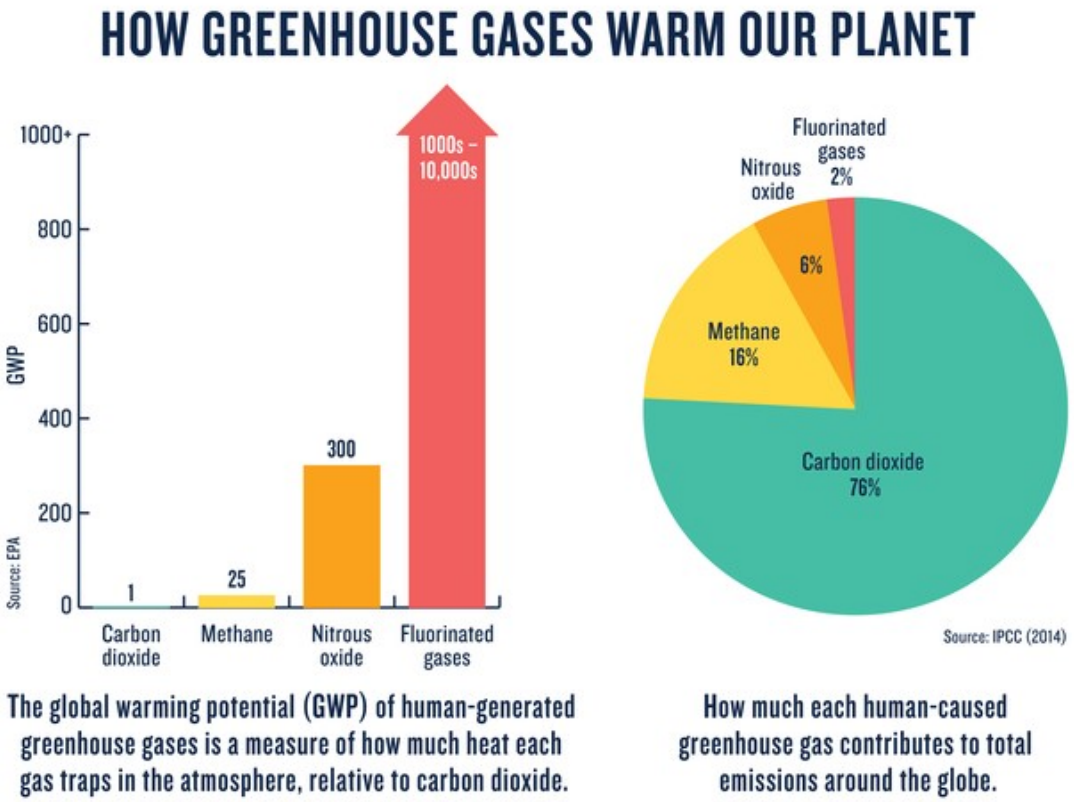


Figure 11- NRDC (Natural Resources Defense Council) - The Greenhouse gases - Five major Greenhouse Gases – Published at website : https://www.nrdc.org/stories/greenhouse-effect-101

[84] Carbon Dioxide | Center for Science Education. (2022). UCAR. https://scied.ucar.edu/learning-zone/how-climate-works/carbon-dioxide#:%7E:text=Carbon%20dioxide%20is%20a%20colorless,atom%20and%20two%20oxygen%20atoms.

If we want to present it in the illustrative aspect, the picture below explains the method of how the process and the impact of these gases in the atmosphere.

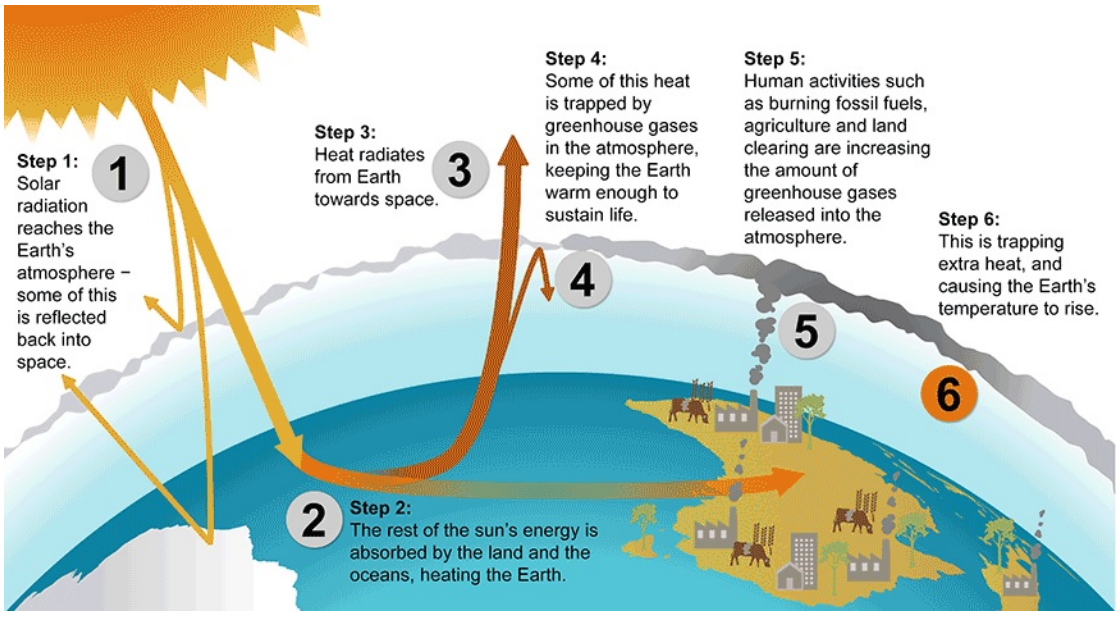


Figure 12- Australian Government "The Greenhouse gases Effect" - Departament of Agriculture, Water and Environment, website: https://www.environment.gov.au/climate-change/climate-science-data/climate-science/greenhouse-effect

In terms of effecst Greenhouse gases cause climate change and global warming, from air pollution they cause the respiratory disease, in terms of changing weather they cause extreme weather changings also the food supple is affected (Nunez, 2021).

Greenhouse gas emissions are a major problem leading to global warming. The sectors that are most affected and which require radical changes are:

- *Energy, which is the largest emitter of GHG and in total participates with 26% of GHG emissions, because the forms of gaining energy thrugh thermal and hidro plants and its use in every sector of life has become the main cause of climate change,*
- *AFOLU – is the second largest emiters in terms of sectors, as this form is very widespread in many spheres of life. In statistical terms AFOLU is responsible for 24% of Global Emissions,*

- *Industry – is the other sector which participates with 21% of Global Emissions, as one of the main causes of global warming*
- *Transport – participates with 14% and as such is one of the risks and forms which require improvement in the future,*
- *Buildings - this sector is also one of the largest GHG emitters and actually is responsible for 6% of global emissions.*[85]

All sectors are interrelated because as such they interfere with each other, for example energy in total by interfering with other sectors participates with 74% of global emissions and is one of the sectors that can help the most in the future in improving the situation.

In more detailed way of how each sector contributes to climate change we could refere to the picture below in order to see how each sectore interfere by other sectors.

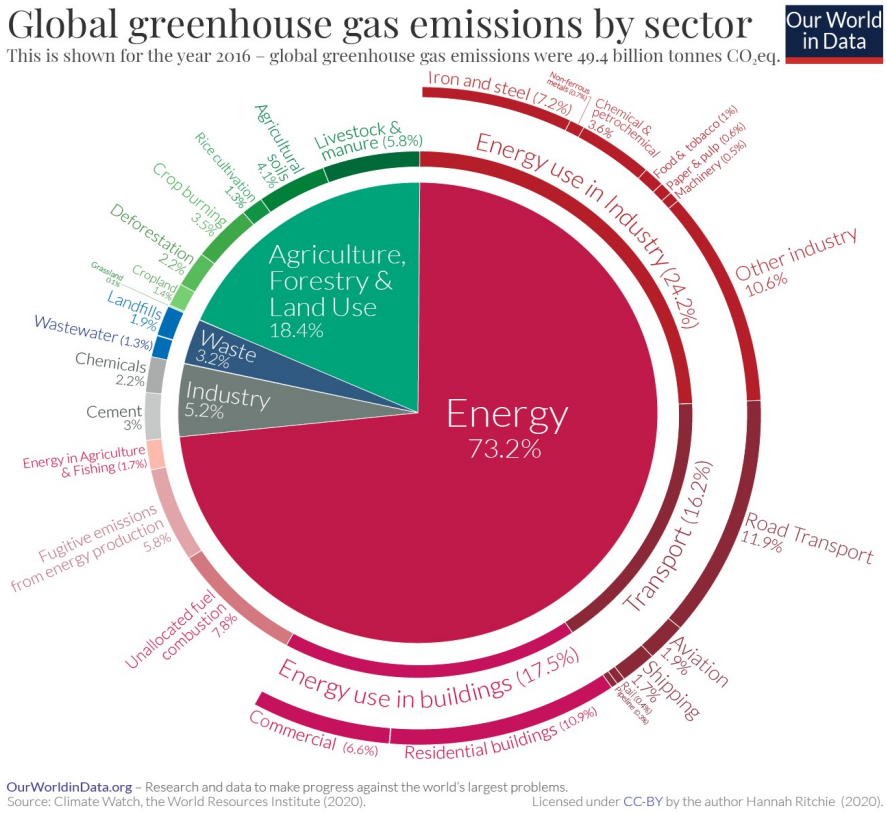


Figure 13 - Our World in Data. (2022, February 1). A Global Breakdown of Greenhouse Gas Emissions by Sector. Visual Capitalist.

[85] Ritchie, H. (2020, May 11). Emissions by sector. Our World in Data. https://ourworldindata.org/emissions-by-sector

Different countries emit in different forms, in general terms large states are also the biggest polluters, also large states lead even when it comes to problem solving.

We should note that the fight against climate change should be in the reduction of CO2 and other gases which are listed in the Paris agreement.

Many countries are degrading the environment, but the main role is played by China, as it is the largest emitter of CO2 gases, as its industry is dependent on coal, but China is not the only one in this area, since America and Europe are also major polluters.[86]

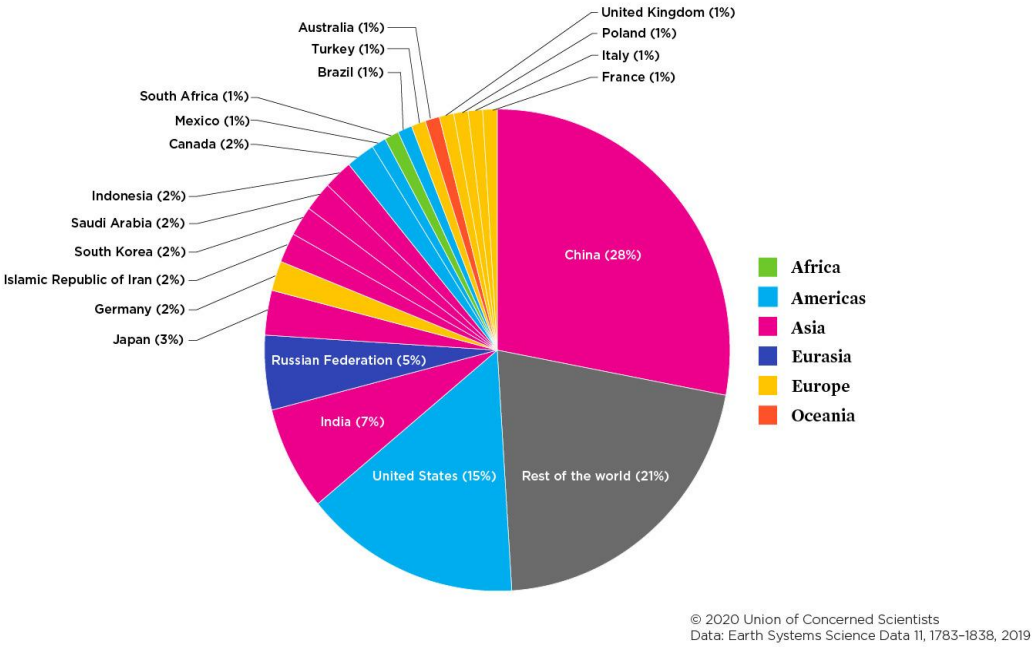


Figure 14- "Union of Concerned Scientists" Each Country's Share of CO2 Emissions. (2021).[87]

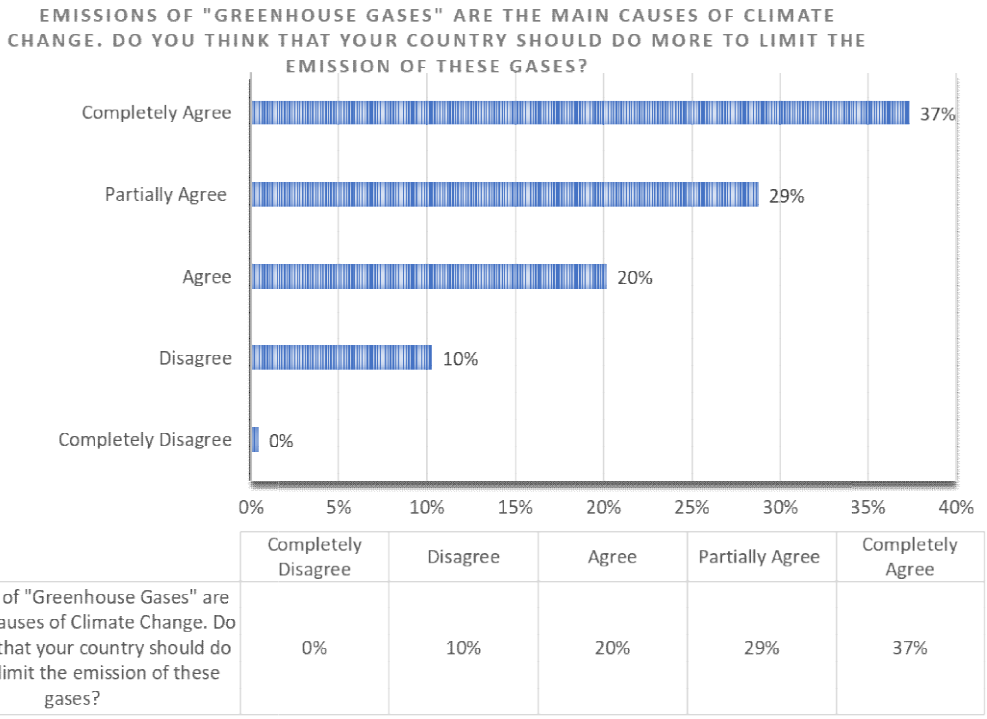
All photos above reflect the various researches that have been done and reflect the effect that Greenhouse gas emissions have.

In these circumstances it was a neseccary to raise a question in our research, regadring emission of the Greenhouse Gases, and what governments should do in the countries where

[86] BBC News. (2020, January 14). Climate change: Where we are in seven charts and what you can do to help. https://www.bbc.com/news/science-environment-46384067

[87] Each Country's Share of CO2 Emissions. (2021). Union of Concerned Scientists. https://www.ucsusa.org/resources/each-countrys-share-co2-emissions

the questionnaire was taken, and the results are as follows where only 10% of people surveyed have found that governments are doing enough, versus 90% of others who with 37% Completely agree that their country should do more, followed by 29% who partially agree and 20% that only agree that any country should do more to limit the emission of Greenhouse gases.



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Emissions of "Greenhouse Gases" are the main causes of Climate Change. Do you think that your country should do more to limit the emission of these gases?	0%	10%	20%	29%	37%

Figure 15. (Shahiqi, 2021) Unpublished raw data – The Impact of Climate Change on International law – SEEU University. Emission of "Greenhouse gases" are the main causes of climate change.

14.3 IPCC - Intergovernmental Panel on Climate Change

The Intergovernmental Panel on Climate Change (IPCC) is an intergovernmental body of the United Nations (UN), which aims to provide information to governments at all levels with scientific data on the impact that climate change may have. [88] Focus is to be inclusive of the impacts it can have, whether political, natural or economic. The idea is to use scientific data to guide governments in designing better policies to combat climate change.

[88] About. (2022, February 4). IUCN. https://www.iucn.org/about

The IPCC was created by two different important organizations such as: *The World Meteorological Organization (WMO) and UNEP in 1988*, and so far has about 195 members. Thousands of people also work with this organization, and the contribution is in various fields, but mainly with publications and scientific research. It should be noted that the IPCC does not make its own publications.[89]

The structure of IPCC :

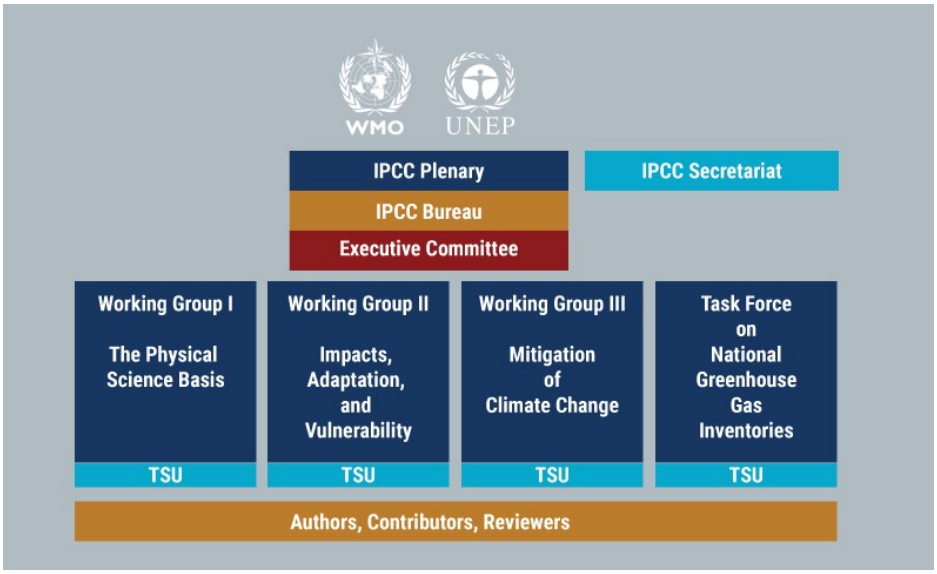


Figure 16- "The Intergovernmental Panel on Climate Change" Structure of the IPCC (Ipcc.ch)

The IPCC works into three different major groups and an organized task force:

The Physical Science Basis of Climate Change, the second group deals with Climate Change Impacts, Adaptation and Vulnerability and the third one deals with Mitigation of Climate Change, and the Task force on National Greenhouse Gas Invertory. [90]

These working groups have given this field a great development. IPCC is considered to be leader when it comes to fight against *climate change*. So far, IPCC compiled 5 comprehensive reports with scientific data on climate change. What is special about these reports is that many actors take part in their publication. Experts in various fields are invited at various stages to give their contribution, as well as governments and other organizations participate and contribute to these reports to be more comprehensive and touch on

[89] History. (2022). IPCC. https://www.ipcc.ch/about/history/

[90] The IPCC – IPCC Factsheet: What is the IPCC? - Working Groups and Task Force. (2018). https://www.ipcc.ch/site/assets/uploads/2018/02/FS_what_ipcc.pdf

different topics. Also it is important to mentioned that the sixth report is in process and will be completed in 2022.

Climate Change 2021: The Physical Science Basis is a report scientifically developed by the First Group and is the scientifically detailed report with the intention for physical understanding of the climate system and climate change. [91]One of areas that this report addresses is how human can influence on climate system, where according to scientific analysis are explained how the human factor has influenced climate change. The report explains what is the impact of the human factor on the atmosphere and surface, what is the impact of the human factor on the ocean, what is the impact on the biosphere. Also special of this report is that it explains Future global climate scenarios, Water cycle changes, and also talks about Linking global to regional climate change.

In 2022 also the Working group II, has published a report "Climate Change 2022 Impacts, Adaptation and Vulnerability", also a detailed scientific report that addresses various topics which will be a contributing part of the Sixth Assessment Report. [92]

Also group III has done an excellent scientific work and has released the report Mitigation of Climate Change. The report assesses new literature, methodological and recent developments, and changes in approaches towards climate change mitigation. [93]

The report of the third group explains in detail the scientific findings for the parts which are also related to daily life such as Transport, Building, Agriculture, Energy, and industry.

To support the work during the compilation of various reports, IPCC organizes workshops and expert mettings, also it organizes author meetings, then organizes meetings where the findings are discussed, also the discuss the methodology used during the research.[94] Much space is also given to the media and their influence in describing and informing people about the findings of IPCC reports.

How important is the IPCC is the fact that in 2007 he won the Nobel Prize together with the former presidential candidate of the US - Al Gore where in the statement for the Nobel Prize is quoted : “for their efforts to build up and disseminate greater knowledge about man-

[91] The IPCC – IPCC Factsheet: What is the IPCC? - Working Groups and Task Force. (2018). https://www.ipcc.ch/site/assets/uploads/2018/02/FS_what_ipcc.pdf

[92] IPCC. (2020). Climate Change 2022: Impacts, Adaptation and Vulnerability. https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_FinalDraft_FullReport.pdf

[93] Zhou, T. (2021). New physical science behind climate change: What does IPCC AR6 tell us? The Innovation, 2(4), 100173. https://doi.org/10.1016/j.xinn.2021.100173

[94] Koivurova (2013). Introduction to International Environmental Law (1st ed.). Routledge.

made climate change, and to lay the foundations for the measures that are needed to counteract such change".[95]

It is also important that this body continuously supports researchers, students of all academic levels, distributing scholarships to all countries and with special emphasis on developing countries.

In shor, the IPCC is the most competent body to disseminate scientific information on climate change, to assist states in policy-making, to conduct research, and to generate new knowledge in this sensitive field.

15. Climate change Law: from the Kyoto Protocol to present days and beyond

To properly assess climate change, one must also look at the legal aspect of international law, as this issue has a global character and affects all countries in their way. What has been done in legal terms is not enough, although there is an orientation towards improving the legal aspect by trying to create legal conditions to control climate change and not be allowed to go out of the projections that have been made by science.

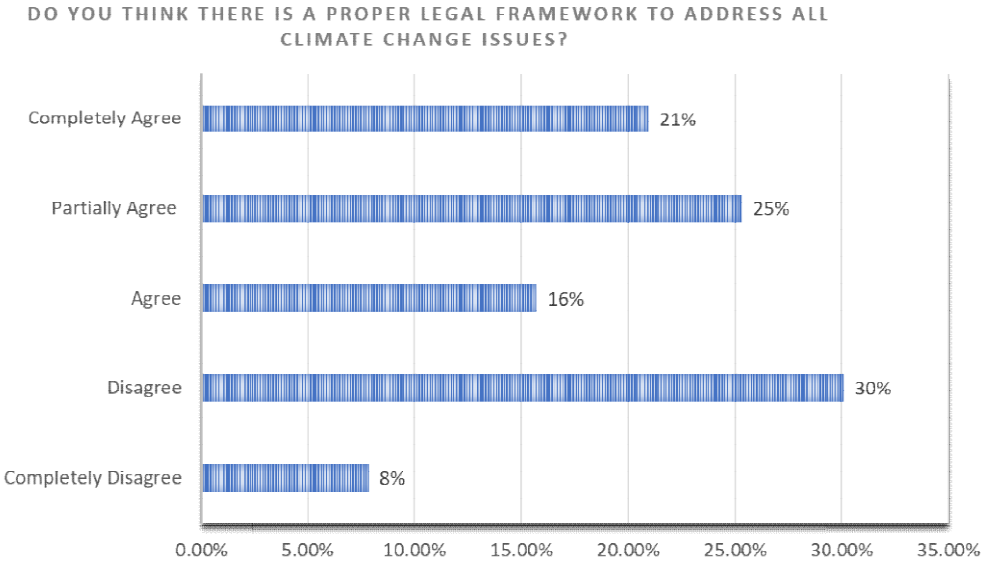
We will try to obtain and analyze any important agreements and their impact on international law, how these agreements have affected the improvement of the situation. We will also analyze the possibility for future improvements, we will analyze the countries that have complied with these agreements inaccuracy as well as the countries that have violated these agreements.

Among the most important agreements that gave a great impetus to the development of this discipline was the UN Framework Convention on Climate Change 1992, the Kyoto Protocol 2005, and the Paris Agreement 2015 and we will take them one by one not by the importance of them but from the time they occurred, and what they have given to international law these kinds of agreements.

In the individual research we did, one of the questions was: Do you think there is a proper legal framework to address all climate change issues and opinions have been divided where 21% of people Completely agree, another 25% Partially Agree , and 16% of people surveyed had a more moderate opinion where they only agree with this statement, meanwhile 30% of people disagree with this statement and think that there is no proper legal framework to

[95] IPCC Statement - 2007 Nobel Peace Prize - https://www.ipcc.ch/site/assets/uploads/2018/02/Nobel_statement_final.pdf

address all issues, compared to 8% who are categorically against and they completely disagree.



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Do you think there is a proper legal framework to address all Climate Change issues?	7.86%	30%	16%	25%	21%

Figure 17 - Shahiqi, D. (2021) Unpublished raw data – The Impact of Climate Change on International law – (The survey date : 10-03-2021 - 25-03-2021) – SEEU University. Do you think that there is a proper legal frameworl to address all climate change issues.

Looking at this situation we can conclude that although there are important international agreements, there is still a lot of work to be done by the governments of countries that are very economically developed.

15.1 The UN Framework Convention on Climate Change 1992

The UN Framework Convention on Climate Change 1992 is an environmental agreement, signed by 196 countries in total, and a regional organization with clear objectives to prevent and stabilize climate change by controlling and stabilizing greenhouse gas emissions.

At the time when this agreement was created, it is not that there were a lot of scientific data as it is today on this issue, but this agreement tended to be in line with the Montreal Protocol, taking it as a guide for later developments.

This agreement is of particular importance also because it includes developing countries, which must report annually on the data they have received to adjust the greenhouse gases without harming agriculture and the economy.

Developed countries report in a more detailed way by describing changes in gas emissions from 1990 to the present. This convention also envisages that the states increase cooperation between themselves, also increase education in this field, have synchronization between economic development and the environment without harming it.

A special aspect is the financing, where the developed countries through The Global Environment Facility[96] help and finance projects in this field to achieve the common goal, which is the preservation and protection of the environment in general.

In legal terms there is a problem, even this agreement is not binding, although it provides some opportunities for new protocols that may be binding on the state which signs them.

The UNFCCC is also considered a Soft Law[97] precisely because of its non-binding nature, which means that states have no legal obligations, and are not legally penalized for failing to deliver on commitments. The idea of this convention is for states to adopt national plans to adjust and stabilize greenhouse gas emissions, in an attempt to reverse the situation before 1990.

In general, in any agreement, the legal aspect is a problem as important states are reluctant to sign it due to the protection of their economic aspect. For example, a country like China or the United States, which are the largest emitters of Greenhouse Gases, can not prevent this quickly, because it would hurt their economy. After all, their industry is slightly dependent on coal and other chemicals that are huge emitters of CO2.

15.2 Kyoto Protocol

One of the most important protocols in International Environmental Law is the Kyoto protocol, which derives from the United Nations Framework Convention on Climate Change,

[96] The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided more than $21.1 billion in grants and mobilized an additional $114 billion in co-financing for more than 5,000 projects in 170 countries. Through its Small Grants Programme, the GEF has provided support to more than 25,000 civil society and community initiatives in 133 countries.

[97] The term "soft law" refers to quasi-legal instruments which do not have any legally binding force, or whose binding force is somewhat weaker than the binding force of traditional law.

and operationalizes this convention, trying to minimize the emission of Green House Gases, even to countries with developed industries, as well as in transition countries.

These conventions tend to push states to introduce and adopt policies that lead to a reduction in greenhouse gas emissions.

What was important to the Kyoto protocol was the commitments of the states to fulfill the plan resulting from this protocol, where the first commitment period was from 2008 to 2012. During this period some of the states had managed to exceed the plan and performed even better than they had promised. The economic crisis of 2007-2008 also played an important role in this, because during this period there was a great improvement in gas emissions, due to the remediation of the activity of large industries.[98]

The purpose of the Kyoto Protocol was to reduce the following gases in its first phase :

- Carbon dioxide (CO2);
- Methane (CH4);
- Nitrous oxide (N2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur hexafluoride (SF6)[99]

Industries were also included in Kyoto Protocol ANNEX A,

- **Energy -** Fuel combustion, Energy industries Manufacturing industries and construction, Transport, Fugitive emissions from fuels Solid fuels, Oil and natural gas,
- **Industrial processes -** Mineral products, Chemical industry, Metal production, Production of halocarbons and sulfur hexafluoride, Consumption of halocarbons and sulfur hexafluoride,
- **Agriculture -** Enteric fermentation, Manure management, Rice cultivation, Agricultural soils, Prescribed burning of savannas, Field burning of agricultural residues,
- **Waste -** Solid waste disposal on land, Wastewater handling, Waste incineration. [100]

[98] **Perry Sadorsky –** Article - Energy Related CO2 Emissions before and after the Financial Crisis https://www.mdpi.com/journal/sustainability

[99] Kyote Protocol – Annex A – Greenhouse Gases - https://unfccc.int/process-and-meetings/the-kyoto-protocol/what-is-the-kyoto-protocol/kyoto-protocol-targets-for-the-first-commitment-period

[100] Kyote Protocol – Annex A – Sector/ Source categories

The abovementioned gases and the gama of industries that are included in the Kyoto protocol make us realize why countries fail to improve their targets.

The first commitment period included 37 States in total, and this was regulated by Annex I of the Kyoto Protocol which, in addition to the participating states, also introduced Quantified emission limitation or reduction commitment, with reference values for each state to be met by 2012.[101]

In the Kyoto protocol, the legal aspect is very important, also it is important what gives this protocol to the International Environmental Law and international law, and this can be analyzed in many aspects, starting from the way of ratification, to the categorization that they do to states based on their development.

Unlike UNFCCC which can be considered as soft law, the Kyoto protocol can be considered as both soft law and hard law[102]. Its relation with the countries with developed industry is stronger, and here binding rules apply, which includes all the countries that are in Annex I, while for developing countries the Kyoto Protocol can be considered less strict(Soft Law) because these signatory states do not have the same commitments as the Annex I states.[103]

It is also important that in the Kyoto protocol the legal obligations are to a higher degree, as the members of Annex I who have signed the agreement find it more difficult to leave the legal obligations arising from the agreement. These forces the state to enforce the obligations under the Kyoto Protocol into domestic law, where they are subject to monitoring and enforcement.

After 2012, when the first commitments period was completed, the Kyoto protocol through Doha Amendment had tried to create another second period of commitments from 2013, until 2020, with objectives to implement the new package with even bigger objectives.

The package sets targets:

- 18 **%** cut in **greenhouse gas** emissions (from 1990 levels)**.**[104]

[101] Kyote Protocol – Annex B - **Quantified emission limitation or reduction commitment**

[102] Hard law refers to actual binding legal instruments and laws. In contrast with soft law, hard law gives States and international actors actual binding responsibilities as well as rights. The term is common in international law where there are no sovereign governing bodies. Hard law means binding laws

[103] The International Law and Politics of Climate Change - Ratification of the United Nations Framework Convention and the Kyoto Protocol, Journal of Conflict Resolution - Volume 52 Number 2, April 2008 243-268, Sage Publications - http://jcr.sagepub.com hosted at http://online.sagepub.com

[104] 2020 climate & energy package. (2020). Climate Action. https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2020-climate-energy-package_en

Even though the second period was from 2013 to 2020, problems were reaching these targets since the Doha Amanadament was not approved until October 2020, where 147 parties of the Kyoto protocol have deposited a letter of acceptance what made this amendment enter into force. In the Doha amendment, there was added another gas, Nitrogen trifluoride (NF3) raising the number to 7.[105]

Doha Amendment sets binding targets for 37 Countries, from which 34 have ratified the amendment. There are the countries that participated in the first-round commitment but didn't take place in the second commitment period (Japan, Russia, and New Zealand). Also from big countries without targets is Canada who dropped from Kyoto Protocol in 2012, and also the USA as they didn't ratify the agreement in the first place.

What is always discussed is the success of this agreement and we have different opinions about this. Some think the Kyoto Protocol was successful but others oppose the idea. The reasons for success or failure are many but we can get some of them. The biggest criticism of the Kyoto protocol is that it does not cover the whole world, it is not universal and it is not the same in the ratio of developed countries and developing countries.

The Bush administration had opposed the deal because of the risk to their economy, as 80% of the world is excluded from the deal, while Vladimir Putin has criticized Kyoto for being discriminatory and not universal as a developed country with larger gases emission like China, USA, India, and others do not have any restrictions.

The biggest criticism is why not all countries are treated equally, as the emission of gases does not cause harm only in the state where it occurs, it spreads in the air and destroys the entire atmosphere by not being limited only to the state that emits gases.

However, some aspects are considered as a success, as it is one of the first agreements that have binding rules, it is considered as one of those agreements that have an impact on International Environmental Law, in its development, also success is considered raising awareness for Greenhouse gases and their importance. Although the objectives have not been met, the projections have not been fully met, but the countries that had made the commitments have managed to improve their situation and this is considered a success. The biggest success is considered to be paving the way for new agreements, which would correct the mistakes that were made in the Kyoto Protocol.

[105] Kyote Protocol - Doha Amandament, Part B - Anex A

15.3 Paris Agreement

Last but not least is the Paris Agreement, an agreement which has a major impact on issues related to the environment, climate change and International Environmental Law.

From a legal point of view, the Paris Agreement is also binding on the signatory parties and its purpose is to limit global warming and keep it below 2 degrees Celsius. In order to achieve this goal, the emission of Green House gas must be stopped / reduced, which is also defined in Article II of the Paris Agreement, which describes the goals of this agreement.

Article 2:

(a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.[106] This objective is very important to try to stop the rising of temperatures by limiting the emission of Greenhouse gases, so the temperatures will not rise above 1.5 ° C, which would have a very large impact on the development of life in general as this would make sea levels rise, then the temperature and acidity in the ocean will increase.

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production;[107] - This point of the agreement means that climate change will affect food security at the global, regional or local level. Climate change causes an increase in temperatures, this increase affects changes in extreme weather events, it can also affect the loss of water resources by rising temperatures, which can lead to a reduction in agricultural productivity.

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development [108]. This point of the agreement envisages the way of financing which aims at a financial stability, where developed countries within the period until 2025 would have to invest up to 100 billion dollars to advance ideas and projects that lead to limitation of greenhouse gas emissions, and this is explained by Article 9 of this

[106] See Article 2. (2015). In *Paris agreement: Paris, 12 December 2015* (p. 3). Paris, France: TSO

[107] See Article 2. (2015). In *Paris agreement: Paris, 12 December 2015* (p. 3). Paris, France: TSO.

[108] See Article 2. (2015). In *Paris agreement: Paris, 12 December 2015* (p. 3). Paris, France: TSO.

agreement which states that developed countries must also finance developing countries in order to achieve the required result.[109]

Article 2 is generally the foundation of this agreement, as this article sets out the projections for the future of climate change in the coming years, but we will take one by one all the other articles that are just as important for the future and implementation of this agreement by defining the key points of the agreement.

Article 4 has a total of 19 points which are related to the goals of this agreement and which are also related to differentiation between states, where in the first point of this article it is specified that the states should start as soon as possible to achieve the Temperatures goals as they are defined in Article 2.[110]

In addition, in Article 4, points 4, 5, and 6 give priority to developed countries to be the driving force and impetus of this agreement by helping developing countries in order to achieve the overall goal. Also the importance of Article 4 has to do with the differentiation between states and the responsibilities that each state has, explained in a general way for all the cases that may ocurr.[111]

An important part of this agreement is the Financial part. To better understand it we refer to point 1 of article 9 which state: Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention[112].

Although this article is very important for the way of sponsorship of this law from the legal point of view, it is important to analyze these articles because in many cases the legally binding character is foreseen exactly in the form in which these articles are formulated.

In addition to finance, capacity building will be common, as developing countries will assist developing countries in capacity building in order to try to improve the overall situation, these issues are discussed in Article 11 where they are given guidelines and targets for all States parties to the agreement.[113]

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[109] See Article 9. (2015). In *Paris agreement: Paris, 12 December 2015* (p. 13). Paris, France: TSO

[110] See Article 4.1 (2015). In *Paris agreement: Paris, 12 December 2015* (p. 4). Paris, France: TSO.

[111] See Article 4. Point 4, Point 5, Point 6 (2015). In *Paris agreement: Paris, 12 December 2015* (p. 4 – 5). Paris, France: TSO.

[112]See Article 9.1 (2015). In *Paris agreement: Paris, 12 December 2015* (p. 13). Paris, France: TSO

[113]See Article 11. (2015). In *Paris agreement: Paris, 12 December 2015* (p. 13). Paris, France: TSO.

An important aspect is the methodology to achieve the common goal, and this is explained by article 10 where great importance is given to technology as one of the areas that can help improve the situation. This then translates into the long-term policies of states in their industry to enhance technology in order to be more efficient in emitting harmful gases. Funding and technology are closely linked and both are goals of this agreement.

To see that the agreement aims for the future to be without Green house gases, takes care Article 12 of this agreement, where great importance is given to education, trainings, rising of public awareness, access to information, and this should be mandatory for all since is the only way to realise the problem we have.[114]

15.4 Legal Aspect – Binding vs Non Binding

To better understand the Paris Agreement we must also analyze its legal aspect. In principle, this agreement is Binding, which means that this agreement must be implemented by the parties that are signatories to the agreement.

But it should be noted that there are criticisms that dispute the legal aspect of this agreement, based on the forms and methodologies of implementation of this agreement. Critics argue that the agreement can not be enforced by courts and arbitration tribunals as the agreement is not codified, has no enfocable rules, and there are no sanctions for non-enforcement expressed decisively. They are also related to the manner of accepting the agreement, which has to do with ratification in parliament in order to become part of domestic laws. Based on abomentioned facts it was said that the agrement is more as good intention act rather than a law.[115]

Many questions have also been raised about the legal form of whether there can be a treaty under international law, whether obligations can arise from this agreement, whether the agreement can be brought before the courts, whether the agreement is enfocable and whether there are forms of punishment for parties of the agreement.

But in any case we will analyze why it can be called binding agremment based on the arguments below :

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[114] See Article 12. (2015). In *Paris agreement: Paris, 12 December 2015* (p. 16). Paris, France: TSO.

[115] Anne Marie Slaughter, Article 'The Paris Approach to Global Governance', *Project-Syndicate*, found at: https://www.project-syndicate.org/commentary/paris-agreement-model-for-global-governance-by-anne-marieslaughter-2015-12

The first relating to the binding character is that the paris agreement is considered a treaty and based on this binding effect comes from the Vienna Convention on the Law of Treaties 1969 - Article 26 and the Latin maxima "Pacta sunt Servanda" Every treaty in force is binding upon the parties to it and must be performed by them in good faith.[116]

The second relates to the manner of expression / words used in the agreement. For example, in a treaty the word "shall" was mentioned 117 times and according to scholars the expresion of this word gives to agreement th binding role, since this word has binding character and differs from words as "should" of "may".

The third one is for the way how the agreement got into force, "This Agreement shall enter into force on the thirtieth day after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 per cent of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession."[117]

which allows us to understand that initially there must be 55 ratifying states, then the legal effect will come only when 55% of green house gas emitters are part of the agreement. Here is the difference with the Kyoto protocol as it could not be called successful without the states with the highest emission are excluded from ratifying the agreement.

The fourth is that even this agreement does not allow reservations for the signatory parties, which means that all have equal weight and no one has special reservations.

From all that was said above we can conclude that there are different interpretations. The most common interpretations are that the agreement is legally binding but not in all its parts, and this is related to the fact that not every part of the agreement creates legal obligations.

In any case, the Paris Agreement has gained weight after most countries in the world have signed it. How important it is shows that one of the first three decisions of the newly elected president of the USA was the decision to return to the Paris Agreement after his predecessor had left the agreement.[118]

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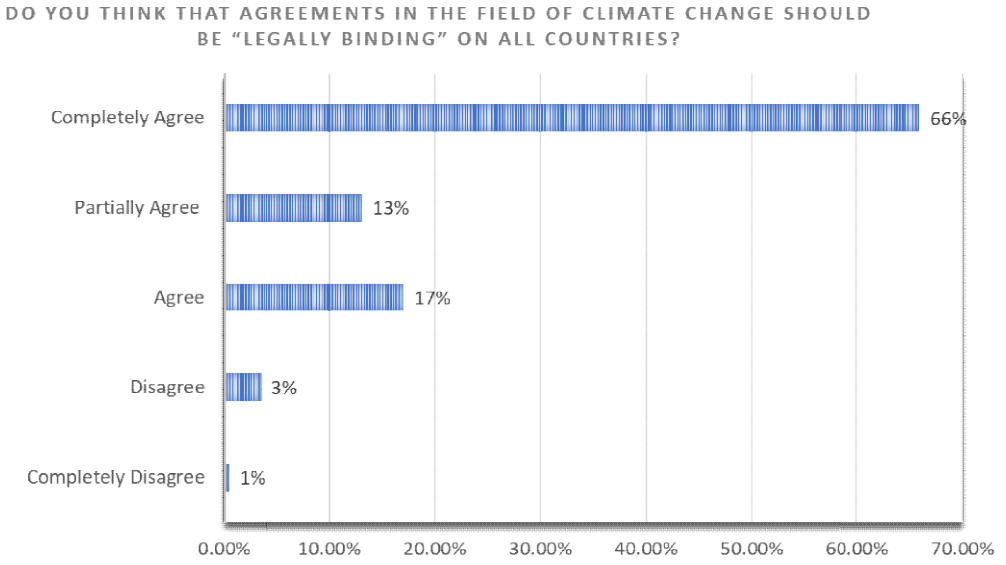
[116] Vienna Convention on the Law of Treaties 1969 -Done at Vienna on 23 May 1969. Entered into force on 27 January 1980. United Nations - Article 26, page 11.

[117] Paris Agreement - Entry into force document - Reference: C.N.735.2016.TREATIES-XXVII.7.d (Depositary Notification)

[118] Joseph R. Biden Jr., President of the United States of America, having seen and considered the Paris Agreement, done at Paris on December 12, 2015, do hereby accept the said Agreement and every article and

What should be the legal aspect Binding or Non Binding we had one of the questions in the survey, where people have given their opinions, and we can say that it is one of the most positive feddback questions we have received. Somewhere only 4% of respondents think that agreements in the field of Climate Change should not be legally binding, which means awarenesss on thiss issue is raised, with another 96% who think that to achieve the desired success all agreements should be legally binding as the only way to try to achieve zero greenhouse gas emissions by 2050.



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Do you think that agreements in the field of Climate Change should be "Legally binding" on all countries?	0.44%	3%	17%	13%	66%

Figure 18. Shahiqi, D. (2021) Unpublished raw data – The Impact of Climate Change on International law – (The survey date : 10-03-2021 - 25-03-2021) – SEEU University. Do you think that agreements in the field of climate change should be " legally binding" on all countries.

15.5 Advantages and Disadvantages of the Paris Agreement

In addition to the good intention to limit global warming, we will analyze the aspects where the advantages and disadvantages of this agreement can be presented, taking into account the legal and economic factors as they are very closely related to each other.

Advantages :

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clause thereof on behalf of the United States of America, avalaible at : https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/

- It has almost universal support – 197 states has already accepted the agreement, The Paris Agreement has far more international consensus than the Kyoto Protocol ever had,
- The Paris Agreement will help to control the impact of global warming by limiting the temperatures rise again,
- It encourages countries to invest in renewable energy, and other alternatives forms,
- It will impact employment opportunities around the world, since the lot of new projects will happen. Climate action could produce $26 trillion globally in economic benefits, and this could happen by the year 2030, five sectors are key for this achievement: energy, food, land use, water and industry.[119]
- No one can do it alone, all states need to corporate in order to have success,
- It creates more competition for innovation, also it creates a proper background for technology to develop.

Disavantages :

- It creates different sets of rules for different countries by dividing into two categories – Developed countries and Developing countries,
- The emissions gap after 2030 is massive, as this was seen as hard task to achieve,
- The cost of the Paris Agreement is huge, since only until 2025 it will cost 100 bilion, in order to be reviewed after 2025,
- It could cause the price of energy to rise,
- Difficult to enforce, and this is related to the binding vs non binding character as we mentioned above,
- May not go far enough to slow global warming, since it will depend also on political will of the states to corporate.

From what was said above we understand that in every agreement there will be arguments Pro and Against which can be verified with time. The purpose should not be discussed as temperature limitation is vital for the future, but the main arguments are whether the

[119] 6 Reasons Why the Paris Agreement is Good for Economies. (2021, February 20). Unfoundation.Org. https://unfoundation.org/blog/post/6-reasons-why-paris-agreement-is-good-for-economies/

agreement can be implemented accurately or it will have the fate of preliminary agreements such as the Kyoto Protocol.

15.6 COP26 – Conference of the Parties - GLASGOW

Securing a brighter future for our children and future generations requires countries to take urgent action at home and abroad to turn the tide on climate change. It is with ambition, courage and collaboration as we approach the crucial COP26 summit in the UK that we can seize this moment together, so we can recover cleaner, rebuild greener and restore our planet (Prime Minister's Office, 10 Downing Street, 2021). This was the introductory speech of the Prime Minister of the UK as the host body of this conference which aimed to raise the level of responsibility and after the situation with COVID19 the world needed to clear its mind on issues related to the environment, because meetings of this level were considered lacking also due to problems that came with pandemic COVID19.

Based on what was proclaimed this conference had four main goals such as:

- *Secure global net zero by mid-century and keep 1.5 degrees within reach (*COP26 Goals*, 2021).*
- *Adapt to protect communities and natural habitats (*COP26 Goals*, 2021).*
- *Mobilise finance (*COP26 Goals*, 2021).*
- *Work together to deliver (*COP26 Goals*, 2021).*

These objectives, if we look at them in principle, are almost similar to any objective that has emerged from the previous agreements that we have mentioned, as this conference is a continuation of what happened 5 years ago in Paris.

Extreme drought, inability to grow corps, constant wildfires, which this year were even more frequent, the achievement of record temperatures around the world, make the need for international summits to be more than necessary.

In terms of importance COP26 is being considered as the second most important conference after COP15 from which the Paris Agreement was derived. Viewed from this aspect The Glasgow Conference is considered to be of vital importance for the future that awaits us.

This conference was also initially used to report on the current situation. The first part of the agenda in Glasgow had to do with the scientific reports prepared where initially the current situation was ascertained through the reports of various bodies and among them the subsidiary bodies which presented reports:

- *Report of the Subsidiary Body for Scientific and Technological Advice (*COP26 Goals*, 2021).*
- *Report of the Subsidiary Body for Implementation (*COP26 Goals*, 2021).*

Also in the reporting part it was used to present reports from developed countries, part of Annex I, at the same time developing countries which were part of the conference from where the idea was created on the general situation which we have already aggravated.
But what mattered and what are the goals on which this conference is based. We are starting to explain the 4 priorities which were and their outcome of what happened and what is expected to happen. We will also talk about the success or failure of this conference and how much it can have a legal impact.

15.7 Secure global net zero by mid-century and keep 1.5 degrees within reach

As a priority point that includes *climate change* is undoubtedly the rise in temperatures. With the Paris Agreement the parties had committed and signed not to allow the temperature to rise to a maximum below 2 degrees Celsius[120] attempting to at the worst possible it be limited to 1.5 Degrees Celcius.
6 years after the signing of this agreement, we have had the record of the highest temperatures ever recorded, the increase numbers of wildfires, the increased numbers of bad wether events, also the air quality is not improving and the need for stricter measures is always present.
In Lutton, Canada, this year has recorded the highest temperature ever, 49.6 degrees Celsius which was 5 degrees higher than the previous record (Reporter, 2021). On the other hand in Portland and Seatle we have similar situations. Seatle had a rise of 42.2 ^{0}C which

[120] Paris Agreement – Article II - Article 2, point a)

was 2.8 ^{0}C more than in the past, while in Portland a temperature of 46.9 ^{0}C was recorded which was about 5 degrees higher than the previous record.[121]

The above facts have led COP26 to focus on adapting the 2 degree Celsius limit in the Paris Agreement to 1.5 degrees Celsius as these tangible and frightening changes that we have experienced in recent years are as a result of rising temperatures to 1.1 Degrees Celsius. Imagine the future what could happen if measures are not radicalized and action is not taken.

The plan to lower it to 1.5 degrees Celsius is a very ambitious and difficult plan to implement according to experts in the field, precisely because of the reluctance of states to re-look at the targets set in the Paris agreement. Some of the big countries are in favor of the review but the big problem is the two largest industries such as China and the USA as the two biggest polluters in the world.

Representatives of various organizations are considering that with current behavior the theory to keep 1.5 ^{O}C is almost dead if things do not change quickly. Numerous reactions even from countries which are islands, and are afraid for their condition as any sea level rise can cause serious problems for their well-being (Doyle, 2021).The year 2020 was a year where the situation with the pandemic had caused a calming of the situation, due to the closure and many industries did not work, but in 2021 trying to reborn the economy by increasing production capacity have led to drastic changes, and this is manifested in the price of energy, in the use of gas and coal as energy sources. The Economy reborn sitation has led to a record CO2 emissions, and projects to create alternative energy sources have stagnated, because industries are trying to recover from the crisis with pandemic, leaving aside projects and commitments to preserve and protect the environment.[122]

Acording to the COP26 countries will need to:

- To accelerate in the exit stages for the use of materials which release CO2 and among them
- To limit the rapid way of deforestation, and at the same time to create new afforested spaces, as a measure to improve the situation,

[121] McSweeney, R. (2021, July 13). Pacific north-west heatwave shows climate is heading into 'uncharted territory.' Carbon Brief. https://www.carbonbrief.org/pacific-north-west-heatwave-shows-climate-is-heading-into-uncharted-territory

[122] Executive summary – World Energy Outlook 2021 – Analysis. (2021). IEA. https://www.iea.org/reports/world-energy-outlook-2021/executive-summary

- To create genuine policies that allow the possibility of switching from current vehicles to electric vehicles, less harmful to the environment
- Encourage states to orient themselves from renewable energies, giving them the main focus, in order to move away from the old forms of energy acquisition.[123]

15.8 COP26 Finance

One of the main aspects on fighting against *climate change* is of course Finance, at this point it is normal that there would be discussions about what has been done so far and whether it has been enough or we need to do more.

Previous commitments in the Paris Agreement have been to reach a consolidated budget of 100 billion by 2020, but all participating states have confirmed that this has not yet been achieved. One of the obstacles proclaimed has been the COVID19 pandemic situation, where countries have been exposed to an economic downturn due to continuous closures during the pandemic period which is continuing to be a key problem of the world also in 2022.

To achieve what everyone wants "zero emissions" in 2050 must change the economic system, not limited to public finances but giving a hand to the private sector. Public finances aim to create the necessary infrastructure for the economy to be oriented towards green, and more compatible with climate change, aiming at fundamental changes towards the road to zero emissions. Also important and unavoidable will be the aspect of the private economy, where through technology and innovation it is thought that public funds will be multiplied and turned into concrete investments in areas affected by climate change (*Finance*, 2022).

A special focus is the assistance that developed countries should provide to developing countries as their commitments signed even with the Paris Agreement. Despite this,

[123] COP26 Goals. (2021, October 26). UN Climate Change Conference (COP26) at the SEC – Glasgow 2021. https://ukcop26.org/cop26-goals/

according to experts, there are two scenarios that explain how to raise funds which can go as in the figures below:

Indicative composition of future ranges of climate finance provided and mobilised by developed countries based on two forward-looking scenarios (USD billion)

	Component	2021	2022	2023	2024	2025
Scenario 1	Public finance	70.5	77.7	85.3	91.1	94.5
	Export credits	2.6				
	Private finance mobilised	15.2	16.7	18.4	19.6	20.4
	Total	**88**	**97**	**106**	**113**	**117**
Scenario 2	Public finance	66.5	74.6	82.5	89.3	94.0
	Export credits	2.6				
	Private finance mobilised	14.0	15.0	16.0	16.5	16.6
	Total	**83**	**92**	**101**	**108**	**113**

Figure 19 - OECD - Organisation for Economic Co-operation and Development - Forward-looking scenarios of climate finance

As we can see from the two scenarios, there will be difficulties in the immediate achievement of the funds foreseen for fighting *climate change.* According OECD, this will also depend on many factors, which can be both positive and negative. Challenges are seen in developed countries and budget approvals for periods of electoral cycles, and any change within this period of the current government could be a problem, but at the same time may increase finances as other governments may come that have green programs more suitable.
It all has to do with political will, and the approach that developed countries have. These countries are fundamental in securing finance and as we can see this is related to the other topic which was discussed at COP26 which has to do with the joint effort to make changes.
An important aspect according to these scenarios are also the private income, which can come from different companies, which will help to raise the funds and support the policies that lead to the declared targets.
Also in Glasgow are presented some other funds which aim to help raise funds to reach 100 billion dollars annually and among them is GFANZ - The Glasgow Financial Alliance for Net

Zero which aims to support and mobilize emerging private capital markets in developing countries, using private capital, also increasing public-private cooperation (GFANZ, 2021).

GFANZ has made in November 2021 a progress report, detailing the actions and sectors in which investments are targeted for objectives set out in COP26. These investments should stem from science based guidelines, and be in line with the objectives to initially achieve the target set for 2030, towards the final zero emission target in 2050.

The sectors with which the situation is intended to improve and require investments are:

- Electricity, being generated by technology, creating renewable resources and new forms less harmful to the environment,
- Transport, in this field are aimed investments in electric vehicles, in the installation of mechanisms for supply along the roads, production of batteries with more efficient and less harmful costs for the environment,
- Buildings, improving constructions, making them with ecological materials, changing the method used for heating, giving importance to solar panels, heat pumps and biomass heating, and normally investing in household appliances that are efficient,
- Industry, improving production technology for steel, cement, iron, and other industries that have an impact on the environment,
- Agriculture, Food and Other Land Use (AFOLU), even at this point there may be investments in trying to replace products that have costs in the environment, also trying to invest in agriculture, food, and to improve the situation with afforestation (GFANZ, 2021).

GFANZ has also made a roadmap with the regions where investments should be focused, 32trilions for next decade so that the distribution is in line with the needs for achieving zero emissions, and we can see this in the picture below:

Figure 20- GFANZ – Financing Roadmaps – 6 Key Sectors, Regions

Also important is the method of financing. It will be done in the private sector, and of course in public sector, through government grants and by financing private business in increasing efficiency, towards improving the situation.

Of course this will probably be the biggest challenge, because there must be consistency, constant support, determination to achieve the desired targets.

15.9 Adaption - Adapt to protect communities and natural habitats

Life in coherence with *climate change* has become daily. Every day we witness extreme wether events which are negatively affecting the way of life, often becoming determinants and making us realize that if we do not have the right actions at the right time these changes will be even more frequent and more dangerous. It is the duty of all states without distinction to preserve and restore the ecosystem in the proper form, also special attention should be added to building defense capacities, to the warning system, to the improvement of technology, to the finding of new methods for the improvement of condition, so that people are not affected.

Adaptation to protect communities and natural habitats was a special consideration and as a key point in the summit held in Glasgow, as people face the effects of climate change, and in many cases bring direct problems that affect their well-being. Exposed to the greatest risk are usually those who have the least guilt, but must face the dangers that come from the incorrect behavior of large states. Lower economic power, the inability to cope with change, was the topic of discussion at COP26.

Alternatives to problem solving and derived from COP26 are also five initiatives related to this topic, such as: *eBuilding resilience across all of society, Effective Risk Management, Transforming Finance, Catalysing Locally Led Action, Harnessing the power of nature.*[124]

In addition to these initiatives in COP26 based on Article 7 of the Paris Agreement dealing with global goal on adaptation, a two-year program has been set: Glasgow–Sharm el-Sheikh work programme on the global goal on adaptation[125], where in the document issued by the conference are defined the actions of this program with a tendency to improve the situation.

Point 7 of this program also specifies the objectives which are related to the actions to be taken so that the adaptation period is appropriate by increasing the resilience and adaptive capacity of the planet in general in relation to climate change. [126]

It is important because the main focus is on adaptation, it is important that something is done in this direction. Normally time will tell if these steps that have been taken are the right ones, time will tell if they are necessary, and time will tell if we are late.

15.10 Working Together

It has been said many times that the problems of climate change can not be solved by anyone alone, because they do not belong to any country, they belong to everyone because they indirectly affect the lives of those who cause these changes, at the same time they affect the lives of those that preserve and protect the environment. This situation has always been the same, everyone has paid for someone's carelessness. Developed states

[124] The UK COP26 Presidency Glasgow Imperative: Closing the Adaptation Gap and Responding to Climate Impacts. (2021, November 7). UN Climate Change Conference (COP26) at the SEC – Glasgow 2021. https://ukcop26.org/the-uk-cop26-presidency-glasgow-imperative-closing-the-adaptation-gap-and-responding-to-climate-impacts/

[125] See Glasgow Sharm el-sheikh program, decision point 3

[126] See Glasgow Sharm el-sheikh program, decision point 7

have not only been the biggest polluters, but even when they have made agreements they have been the first violators of those same agreements.

Desire and will is the key to make changes, and some highly developed countries have not had this will, it is enough to look at the preliminary agreements and the attitudes of the states towards them to understand that there has been no desire for solution, a desire that has leads to the situation when you find it difficult to influence as the changes are already made.

One of the main objectives in COP26 was the conclusion of the Paris Rulebook, as the only way to operationalize this agreement, also the objective of COP26 is that during the climate crisis, to have mutual cooperation of civil society, business and governments.

Also with the initiative of the United Kingdom, the Breakthrough Agenda[127] has been presented, where through five key sectors Road Transport, Power, Hydrogen, Steel and Agriculture to be kept alive targeted of 1.5 Degrees. If it could be considered that the technology would be improved in these five sectors, then according to experts we could have an increase in employment with 20 million more jobs in these sectors by 2030, always according to experts GDP could be higher for 4%, and could save almost 2 million lives each year, which come as a result of exposure to air pollution (*Glasgow Breakthroughs*, 2022). Also to monitor the work of this agenda under the mandate of the UK Presidency, it has been decided for annual supervision through the 'Global Checkpoint Process' which will measure the achievments through four annual quarters on four diferent points:

- *Report on the State of the Transition (*Glasgow Breakthroughs*, 2022).*
- *Convene leading initiatives in each sector (*Glasgow Breakthroughs*, 2022).*
- *Co-convene Ministerial discussions on the State of the Transition (*Glasgow Breakthroughs*, 2022).*
- *Encourage new leaders-level commitments (*Glasgow Breakthroughs*, 2022).*

Either way drafting and creating different mechanism does not mean solving the problem. Now is the time for taking actions. Cooperation is essential. Civil society, governments, organizations, all must follow the same path, in order not to face fatal consequences in the

[127] See Breakthrough Agenda

future. One thing is for sure, there will be consequences for everyone. Those consequences will be more felt for places where pollution is higher, but since the environment is overall good, it will be feelt also to places that potentially pollute less.

15.11 Glasgow Climat Pact – Legal Aspect

The derivative of COP26 in legal terms was the adoption of the Glasgow Climat Pact as a document which aims to ensure that the achievements of the conference are legally conditioned so that they can succeed.

Glasgow Climate pact, although it has a noble and good intention, has not managed to have the necessary legal character to be considered a "legally binding" agreement which could have an even greater impact than the previous agreements. According to UN experts, it will take at least 10 times more effort to achieve that developing countries adapt to climate change. [128]

The preamble to the Glasgow Climate Pact explains the purpose of the conference, which sets out that the environment is “common concern”, and should be in the care of all. It also specify all human rights, all categories, and focusing in particular on equality of every form.[129]

Considering Science and Urgency, worth mentioning point 3 of this agreement, which explains that global temperatures in the current situation have increased to 1.1 degrees Celsius, and the effects are felt in all sectors, as well as point 5 of this agreement which has to do with relation to mitigation, adaptation and finance where it appeals for more ambition towards the realization of the goals of the Paris Agreement.[130]

Also two important issues in legal terms have to do with Adaptation, is the call made to states to integrate adaptation into local, national and regional planning[131] as well as the creation of the Glasgow – Sharm el-Sheikh work program which we have explained above.

Finance has an important place in this agreement, as it is devoted to an entire chapter, which instructs countries to contribute more financially so that there can be more

[128] Key Takeaways From the Glasgow Climate Pact. (2021, November 22). Lawfare. https://www.lawfareblog.com/key-takeaways-glasgow-climate-pact

[129] See Decision - Glasgow Climate Pact

[130] See Decision Glasgow Climate Pact see Point 3 and 5

[131] See Decision – Glasgow Climate Pact – Point 9

improvements, as well as calls on banks and other institutions to enable the increase of investment capital so that this fight against climate change finds the world on winning side.

Mitigation is probably the part where the biggest effort is made. It starts by referring to the Paris Agreement and the target provided in this agreement that the temperature from 2 degrees Celsius as it was in the past, to lower it to 1.5 degrees Celsius. [132]

What characterizes the part of Mitigation in the agreement is that terms like “Calls” “Urges” does not create legal obligations, and experts of international law see this terms as the problem of this agreement. If this agreement had the character of Legally Binding where it would order the states to create more genuine strategies, this agreement would further strengthen the Paris Agreement. Changing the term from Phase out to Phase down is one of the situations where we can understand the legal force of this agreement, as countries like India and China opposed the phrase "Phase Out" to be part of the Glasgow Climate Pact.

Also the legal character of this agreement and its force is criticized for the fact that it did not create a favorable situation for Loss and Damages for countries that are directly affected by climate change, and this was stopped by request of the EU and US, and has been seen as one of the conference failures.[133] Despite the challenges, this is a good initiative, which in the future may take on a stronger legal character and serve as a complement to previous agreements. What is important both in legal and social terms is that initiatives and agreements are positive, and increase awareness, which can improve the situation. Nothing is abundant at the moment, radical change is needed, decisive attitudes are needed, and we have to give maximum focus in order that fight against climate change to be successful.

15.13 Failure or Succes

Each initiative that has been taken so far has had its impact. Some initiatives have been more successful while others have failed to have the impact as the will with which they were created. But given that the fight against climate change, metaphorically speaking, is a

[132] See Decision, see point 20 and 21

[133] COP26 – Summarising the Outcomes of the Glasgow Climate Pact | Davidson Chalmers Stewart. (2021). COP26. https://www.dcslegal.com/news-and-insights/cop26-%E2%80%93-summarising-outcomes-glasgow-climate-pact#:%7E:text=The%20Pact%20acknowledges%20that%20limiting,2.7C%20global%20temperature%20rises

marathon and not a sprint, we must work every day to be victorious in this marathon at the end of the journey and not to fall along the way.

In the critical eye the initiatives made have been commented in various forms, some of the experts of the field see them as empty words, and do not believe in success as they have their doubts because none of the agreements signed so far in the field of climate change has not managed to be fully implemented.

One of the key points that is being seen as a success at COP26 is the completion of the Paris Rule Book, as this had remained unfinished since 2015, due to the divergences that countries had on the Carbon market. Success has been seen by experts also the impetus given to it on the field of finance and adaptation. Another success is considered that the participating countries in 2022 will return to set new targets which will help set the 1.5 degree Celsius limit by 2030.

China and US have pledged to work together on climate issues, dispite their divergjencies and their diplomatic relations, and this was seen as success also. Also, reducing methane emissions was one of the commitments of more than 100 countries which will reduce methane emissions by 30% by 2030[134].

The commitment of countries to stop deforestration by 2030 can also be considered a success. But each medal has its two sides. Also from the critical eye we can find things that have not been achieved in COP26, one of them is the issue of coal. This conference initially called for a "Phase out of Coal" which meant that states set a period in which they would ban the use of coal, which is one of the biggest polluters in the world, but countries that have coal-dependent industries and can not make a quick transition insisted that this be replaced by the term "phase down the coal" which was later placed in Glasgow climates pact, which has been seen by critics as one of the failures of conference. There is also criticism of one of the main issues related to finance, a problem carried over from other conferences, but which is essential to ensure sufficient revenue fighting *climate change*.

To put it bluntly, the successes and failures of this conference will be seen in the future, as each initiative needs the right time to understand how serious it is. One thing is for sure, this

[134] U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s. (2021, November 12). United States Department of State. https://www.state.gov/u-s-china-joint-glasgow-declaration-on-enhancing-climate-action-in-the-2020s/

conference will be followed by other conferences, and the eventual failures or successes of this conference will be a guide for possible improvement.

16. Energy, Sector that can improve climate change

Policy making means identifying the sectors with which the situation with climate change can be improved. For the Paris agreement to have the right effect and to be able to keep alive the predictions that global warming will not exceed 1.5 degrees Celsius must be intervened in certain sectors which we will explain in the continuation of this paper.

The largest emitter of green house gases from all scientific reports published so far is Energy. Improving the energy system globally requires the right time and action. As one of the most inclusive sectors in people's lives, the energy sector will have to be transformed in the future to reduce gas emmisions which are released from daily actions by the use of electrical equipment which are necessary for the normal development of life.

In order to achieve the right changes within this sector, the infrastructure with which this sector operates must first change. With the current and trendy emission situation, this sector won't keep global temperature below desired 2 degrees as provided by the *Paris agreement*. Since 2015 when Paris Agreement was signed according to the 2022 report of the IPCC we have an increase of 4.6% between 2015 and 2019, reaching somewhere around 38 GT CO2, then at the time of the Covid19 pandemic we have a slight decline of which then began to rise in 2021 again touching the records achieved in 2019 (IPCC, 2022).

To be victorious against *climate change*, gaining energy from coal must be reduced, since coal as a CO2 emitter, within the energy sector participates with 44% followed by oil and natural gas by 34% and 22% respectively.

Every day more and more energy aspect is taking another form, different countries are determined to find alternative sources for energy benefit through forms which are less harmful to the environment, trying to move away from traditional forms of energy benefit through thermal and hydro power plants.

Air pollution is one of the problems related to the energy sector, and is one of the factors that is driving countries to create less harmful alternative forms such as gaining energy from renewable sources.

What is very important for the improvement of the situation is that the Solar and wind energy sector is constantly growing, and it is almost becoming a trend, although there are many ways to do it, despite the growth it is still far from replacing the conventional forms of energy produced from thermal and hydro plants. Solar panels have started to become commonplace, as financial institutions are also supporting the provision of lower-rate loans to households and businesses that invest in improving the situation.

The benefits of solar energy are many, it can be easily maintained, reduces the value of the monthly energy bill, is a source of renewable energy, with solar panels you also save water, as they need a small amount of water to functioned. In addition to the primary benefits in reducing the bill, if it produces more energy than it consumes it can sell it to energy providers. Also important for this system is that you can conserve energy by storing it through batteries.

In the economic sector, demand for solar panels has led to an increase in revenues and the creation of new jobs. Now with these systems they do not cost as much as in the past, now they are more accessible to people and are seen as a good alternative to improve the situation with climate change.

Wind Energy is also a growing trend, currently this form of energy benefit is cheaper on the market and has the lowest cost. Wind energy is a clean fuel source as it does not cause pollution in the environment. Wind Energy is fastest growing sectors in developed countries, as it is being seen as an alternative to conventional forms of energy produce. One of the benefits is that this form has created many new jobs worldwide. *Only on U.S are more than 100,000 workers, and wind turbine technician is one of the fastest growing American jobs.*[135]

Also, amount of water that can be saved through wind energy technology is large, and at the same time people who have land suitable for wind turbines can benefit from the rents they would receive from energy producers.

In addition to good properties wind energy also has its drawbacks, one of them is the noise they create, it also has negative effects on wildlife as many species of birds have encountered spinning turbines. But in general, this sector has more benefits and is seen as one of the forms which will have the greatest growth. According to some studies by 2050 it is assumed that 80% of energy can be obtained from this system.

[135] Advantages and Challenges of Wind Energy. (2022). Energy.Gov. https://www.energy.gov/eere/wind/advantages-and-challenges-wind-energy

In addition to these two forms it is growing also the Low carbon energy soruces such as:

- Nuclear Energy,
- Hydropower Energy ,
- Bioenergy,
- Geothermal Energy.

All these forms of energy benefit will be the future of the world in the coming years, because it is the sector that needs the most improvements to achieve the abovementioned objectives signed with the *Paris agreement*.

16.1 Nuclear Energy and Environment

After the 1986 Chernobyl accident, suspicions grew about the dangers of nuclear energy and the potential damage it could cause to the environment. All states and the environment can be affected by a nuclear explosion and by radioactive contamination and the release of toxins.

International law must ensure that appropriate codifications are made and that risks such as the Chernobyl case and other risks are not repeated and if they are repeated the perpetrators to be held accountable for their actions and also to have compensations if damage is caused.

What prevents international law is Sovereign of states which means that states engage in these dangerous activities within their territories and to interfere on their sovereignty is difficult, so international agreements are needed in order to unify activites, and that states to limit actions through these agreements.

But not everyone thinks the same, there are those who do not link the development of nuclear energy with accidents but link it to other issues, which are that this energy is less harmful, much needed to reduce co2.[136]

Researchers go even further, considering that the damage from a possible explosion of a reactor is not greater than the damage caused by other accidents in the environment, and the Three-Mile Island[137] reactor accident is taken as an example.

[136] Why Nuclear Power Must Be Part of the Energy Solution. (2022). Yale E360. https://e360.yale.edu/features/why-nuclear-power-must-be-part-of-the-energy-solution-environmentalists-climate

To give importance to this topic, scientists make comparisons with environmental pollution from other accidents which have been more extreme than the cases when we had melting of nuclear reactors. Reference is also made to the cases mentioned above, Bhopal in India, Miamata, or Italy's Seveso[138] accident.

The 2011 tsunami in Fukushima, Japan, flooded the power supply and cooling system at three reactors, causing them to meltdown. The report of the International Atomic Energy Agency had reached the conclusions that the damage caused were minor, compered to the other accidents.[139]

From this point of view, it can be said that many nuclear energy scientists see it as the solution to the problems of climate change, due to the lower greenhouse gases emissions.

The biggest problem in endangering the environment by nuclear energy is considered to be the disposal of nuclear waste, and it is a special challenge, also another problem appears to be a very costly technology, and almost unattainable for countries that do not have strong economies. Also a permanent danger is the possibility of an accident which can cause disasters both in people and in the environment.

In the legal spectrum, it should be noted that there are two agreements that are considered the most important in this area.:

- *The Nuclear Safety Convention*[140]
- *The Joint Convention on the Safety of Spent Fuel and Radioactive Waste Management*[141]

The Nuclear Safety Convection has clear objectives, it in the first article reveals its goals which are to achieve and maintain a high level of nuclear safety, to protect society and the

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[137] The Three Mile Island Reactor is the only accident in the history of nuclear energy in the US, and occurred in 1979. Based on the report of the US Nuclear Regulatory Commission, the damage caused by this melting has not left major consequences even on the health damage of persons or in the destruction of the environment

[138] The Seveso accident was a chemical accident. At 1979 there was an explosion at a chemical factory where were released a lot of chemichal component called TCDD. There is scientific research that even 30 years after the outbreak, newborns in this area have the Dioxin component six times higher and may be at risk for thyroid disease.

[139] Fukushima: Radiation Exposure - World Nuclear Association. (2022). WNA. https://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/appendices/fukushima-radiation-exposure.aspx

[140] See the Convention on Nuclear Safety 17.06.1974

[141] Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management | IAEA. (2022). IAEA. https://www.iaea.org/topics/nuclear-safety-conventions/joint-convention-safety-spent-fuel-management-and-safety-radioactive-waste

environment from harmful effects during the installation of nuclear energy technology, and also has an aim to prevent accidents with radiological consequences. [142]

The Joint Convention on the Safety of Spent Fuel and Radioactive Waste Management has the same goals and together with the above mentioned convention has played an important role in codifying this area of International Environmental Law.

17. AFOLU - Sector which can improve climate change

Afolu as a term was originally used in 2006 by the IPCC to bring together two important sectors such as Agriculture and other forms of land use that were previously treated separately, and were named as LULUCF (Land Use, Land Use Change and Forestry). [143]

AFOLU participates in GHG with 1/4 of the global emissions as one of the sectors which is extremely important as it includes many dimensions of human life.

Land is our home, it provides food for the 7 billion people in the world, and of course the importance of preserving and protecting it is vital. Land supports primary production, is a support service for decomposition, nutrient and water cycling.L and is important because it is the regulation for Climate it is also o rregulation for hazard activities, noise and pollution, it also regulate soil and water quality. [144]

This sector in general can help a lot in stopping global warming and improving the situation. Greenhouse gas emissions in this sector are constantly increasing and states should design policies so that this sector is initially maintained and then contributes to reducing emissions in accordance with the commitments that states have made in international agreements.

There are two methods by which AFOLU can be improved and this includes Supply-side measuser which means emission reduction by better managing the land, livestock and taking extra care of afforestation. The other method Demand supply measuer means change in access to food we consume, change in management of food waste.

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[142] Convention on Nuclear Safety | IAEA. (2022). IAEA. https://www.iaea.org/topics/nuclear-safety-conventions/convention-nuclear-safety

[143] Pradhan, B. B. (2019, April 23). GHG mitigation in Agriculture, Forestry and Other Land Use (AFOLU) sector in Thailand - Carbon Balance and Management. BioMed Central. https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-019-0119-7#:%7E:text=The%20Agriculture%2C%20Forestry%20and%20Other%20Land%20Use%20(AFOLU)%20is,Forestry)%2C%20which%20were%20previously%20treated

[144] IPCC. (2021a). Agriculture, Forestry and Other Land Use (AFOLU). https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_chapter11.pdf

All areas that can improve the situation are interrelated areas which imply chain actions starting from the correct conception of policies, the drafting of national laws with which the primary focus is placed on the environment. Also important is the management or executive aspect where the implementation of these policies will take place and also important is the punishment as a measure for not achieving the objectives.

18. Buildings – Sector that can improve the situation

Sectors that affects the emission of green house gas is also Building and construction, which participates with 21% of global CO2 emissions in the world. Mitigation intervention in buildings is diverse and includes many different areas ranging from building types whether they are residential or non-residential, building size, then from the way and materials with which these buildings are built, to the concept of what they are used for.

In general, the way the building is made has evolved throughout history, changing, becoming more sophisticated and adapting to the technological developments of modern times. People have always based construction on atmospheric conditions, creating buildings that have been able to withstand climatic aspects.

The industrial revolution has changed construction in general. Iron, steel and concrete are widely used materials all over the world and of course these materials leave traces to *climate change, because* amount of gases released by their processing is quite large.

The Construction sector in modern times has only just begun to change, people are now beginning to think that buildings should be based on green policy as it is the only way to improve the situation with emissions.

Today, world is looking at alternatives on how to find other forms of construction that could help capture targets for initially lower emissions by 2030 and then 2050 find us with zero Greenhouse gas emissions.

The architecture envisages some construction methods which are being considered as alternatives for replacing the forms which are not eco friendly and one of them is the construction with timber through the CLT method - Cross Laminated Timber which brings benefits since the construction with timber makes the buildings absorb CO2 from the atmosphere and keep it Inside the building as long as that building exists. What makes this

technique special is because it is quite strong as a material, but the weight is much lighter[145] This Building Construction Technique is one of the growing industries, with Europe currently leading the way in developing this method. The problems of this technology are that it is not produced in many countries as it is a relatively new method, and normal costs are higher due to non-production in many countries, also the issue of acoustics is seen as a problem and as always for the products of wood there re risks from fire.

From the studies that have been done to compare the amount of Greenhouse gas released between the CLT form and Concrete buildings, it has resulted that the CLT form of construction is many times more eco friendly and since it has these properties, it should be one of the alternatives in the coming years. [146]

Other materials which are recommended as eco friendly materials and for which the demands are increasing are also the use of BAMBO Wood which has many qualities which are eco friendly starting initially from the time for harvest which is from 3 to 5 years, which has been seen as an advantage compared to other types of woods. It is also very durable, and does not need to be painted, it helps lower the light intensity and is a great absorber of carbon dioxide.[147]

In addition to the materials that can be the main effect, also important in improving the situation with climate change is the architecture and the way of conceiving the buildings so that they are less harmful to the environment. Building services are very important, and during construction care must be taken in 4 pillars such as:

- Safety, (Daylight and artificial lighting, ventilation, fire detection, alarms, lifts),
- Comfort, (Acustic, thermal comfort, indoor air quality, water and drainage),
- Efficiency, (Energy generation from solar panels, facade, building management),
- Climate Change, (GHG Emmision, pollution).[148]

The reduction of GHG will be required in all sectors that cause it and of course the future will be of revolution and great change in the way of conceiving things which can destroy the

[145] Hanes, C. C. (2019, February 28). Benefits and risks of building with Cross Laminated Timber. AXA XL. https://axaxl.com/fast-fast-forward/articles/benefits-and-risks-of-building-with-cross-laminated-timber

[146] Andersen, J. H., Rasmussen, N. L., & Ryberg, M. W. (2022). Comparative life cycle assessment of cross laminated timber building and concrete building with special focus on biogenic carbon. Energy and Buildings, 254, 111604. https://doi.org/10.1016/j.enbuild.2021.111604

[147] Atanda, J. (2015). Environmental impacts of bamboo as a substitute constructional material in Nigeria. Case Studies in Construction Materials, 3, 33–39. https://doi.org/10.1016/j.cscm.2015.06.002

[148] IPCC. (2022). Climate Change 2022: Mitigation of Climate Change. https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_FinalDraft_FullReport.pdf

environment. The tendency to make buildings eco friendly should be turned into a goal in itself as it can greatly improve the already aggravated state of climate change. People should be guided by materials that have less environmental damage, because this is the only way to achieve the right results for a world without co2 in 2050.

19. Transport – Sector that can improve climate change

Transport is one of the sectors that is considered among the largest polluters in the environment and is one of the sectors with the highest GHG emission rate which according to studies participates with 23% of the total green hose emissions. In general 70% of the gases emitted in this sector come from road vehichle, another 30% come from shiping, aviation, and rail.[149]

The pandemic situation has given rise to some new methods that were not previously thought of. During the pandemic when went locked down and most of the work was done from home remotely and vehicle traffic was lower, experts noted that there was a significant improvement in the state of CO2 emissions.

In the field of transport, individual actions to improve the situation are numerous and they can be taken by each of us starting with:

- Using bicycles and walking in short destinations,
- Use of public transport,
- Instead of driving alone, carpool with some friends and share the road together,
- If you go out to buy groceries and go shopping, do it in a certain place,
- Work from home if your company approves of it,
- Drive wisely, drive efficiently, go easy on gas pedals and breakes,
- Check your car so that it is in good condition,
- Orientation by electric cars is an excellent opportunity to improve the situation in the environment
- Limit your flights as much as you can.

To confirm what we said above we will look at an article published by the BBC illustratively to understand CO2 emissions from different types of transport.

[149] National Geographic Society. (2020, August 11). Transportation and Climate Change. https://www.nationalgeographic.org/media/transportation-and-climate-change/

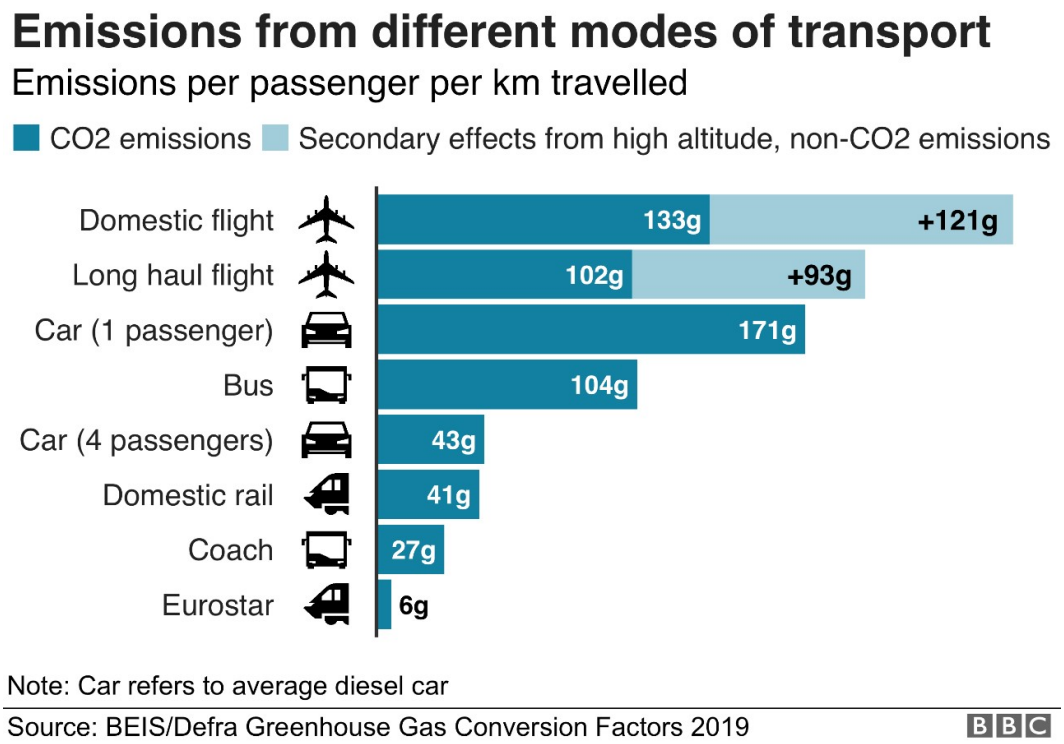

Figure 21 BBC News. (2019, August 24).

The picture above explains all the alternatives and possibilities we have, how much these forms of transport emit GHG and normally from this we can orient ourselves on how we can improve the situation in the future.

The car industry in the world today is nearing a major turning point as all the companies that are leaders in the car market have started producing electric vehicles by gradually attempting to break away from traditional diesel and petrol cars and replacing them with electric cars which do not emit gases into the environment. The challenge for car technology, however, remains the production of these cars, because if their manufacturing is not done by industries that energy soruces do not come from solar panels, or wind energy or other forms that are sustainable, then we can say that the production of these cars is a challenge, and the emission of ghg during this output is quite high.[150]

Apart from electric vehicles which are of great importance in reducing GHG, public transport is another challenge which can improve general situation with *climate change*.

[150] Gonçalves, A. (2020, March 9). Are Electric Cars Really Greener? Youmatter. https://youmatter.world/en/are-electric-cars-eco-friendly-and-zero-emission-vehicles-26440/

Public transport is many times more sustainable than cars, since initially the number of people it transports to certain places is higher. Public transport avoids long waits, and arriving on time at a certain destination is faster . According to studies from the elimination of the use of a car in favor of public transport a saving of 30% of carbon dioxide emissions can be realized (Authority, 2022).

Regulating public transport is a challenge for undeveloped countries, as they are advanced and very costly technologies that many countries could not hav due to high costs. That technology development is important shows the fact that a train that sends from Paris to Bordeux can not have the same effect if compared to the trains of countries which are undeveloped, so in addition to what we said it is very important to invest in countries that have limited possibilities in order to preserve the environment. The biggest polluters are of course the big countries, but even the small states should not be avoided. To achieve the goals of a world with zero emissions, we also need investments that are strategic and help undeveloped countries to cope with climate change.

20. Industry – Sector that can improve the current state of climate change

Industry sector is one of largest and most comprehensive causes of GHG emissions is undoubtedly the industry, and consequently the main challenge to have the transformation of the industry so that pollution from this sector is reduced. Industry causes GHG emissions in two forms.

- *The first is Direct Emissionare produced by burning fuel for power or heat, through chemical reactions, and from leaks from industrial processes or equipments,*
- *The second is Indirect emission which is caused by the use of fossil fuels as a source of energy during the production of raw materials (Sources of Greenhouse Gas Emissions, 2015).*

The methods for improving this sector are numerous, starting from the technology they use, and they can be transformed by becoming more efficient by using less energy for lighting and heating, and less energy for running equipment. One of the revolutions required to improve the situation is the replacement of coal with natural gas to run machinery. Also a good method is recycling, which means using productes that are recycled or renewable,

before creating new products. Training and information are very important and companies need to train their staff on the importance o reduce or prevent emissions leaks from equipments (Fournier, 2020).

In general, all environmental pollutants can be key factors. By improving sectors that emit most green house gas we can create chances to achieve the commitments made by international agreements.

It must be said that change requires commitment and is a long way to go in all sectors that are identified as the largest emitters. Improving these sectors means improving the situation in general.

Eco friendly industry, eco friendly buildings, eco friendly transport are interrelated areas, and improvement within these categories is the improvement of the climate change situation.

21. Atmospheric Pollution

One of the areas related to *climate change* and effects that are seen and experiencing every day is air pollution as one of the key factors in the degradation that mankind does to the environment.

International law gained a great impetus regarding this topic by UNFCC, it was not the first agreement since before this are known two agreements such as:

- *"The 1979 Convention on Long-range Transboundary Air Pollution"*
- *"1985 Convention for the Protection of the Ozone Layer"*

Climate change and other topics such as air pollution are interrelated and almost the goal is the same, as all agreements seek to improve environment.

Even this topic as in the above topics, the problem lies in the universality of the agreement, how much it manages to extend to all states, also the biggest challenge is the states that are reluctant to accept different agreements because it means impact on the their economy, since the greatest air pollution comes precisely from developed industries.

On abovementioned convention the definition of air pollution is defined article number 1.[151]

[151] See Article 1 definition

Seeing that agreement is relatively early, and is among the first agreements dealing with environmental issues is normal that it will have flaws and will not be able to solve problems as both the world and science were not very informed in that time.
However from this agreement derived 8 other protocols as such:

- *1984 Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) (*The Convention and Its Achievements*, 2022).*
- *1985 Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent (*The Convention and Its Achievements*, 2022).*
- *1988 Protocol concerning the Control of Nitrogen Oxides or their Transboundary Fluxes(*The Convention and Its Achievements*, 2022)*
- *1991 Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes (*The Convention and Its Achievements*, 2022).*
- *1994 Protocol on Further Reduction of Sulphur Emissions (*The Convention and Its Achievements*, 2022).*
- *1998 Protocol on Heavy Metals and its 2012 amended version (*The Convention and Its Achievements*, 2022)*
- *1998 Protocol on Persistent Organic Pollutants (POPs) and its 2009 amended version (*The Convention and Its Achievements*, 2022).*
- *1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone and its 2012 amended version (*The Convention and Its Achievements*, 2022).*

These protocols have given life to the convention, the basic text of the convention is considered weaker than the states would like it to be, as it is a convention that speaks in general terms, where the basic things are defined without detail, without give model clarifications on how to move forward.

The protocols on the other hand legally have the problem of universality, for example the USA and Canada have refused to sign the sulfur reduction protocol, as it has not been convenient for their domestic economy.

To achieve the greater goals a conference was held at 2019 where the 40th anniversary of the convention was celebrated, where a statement was drafted which presents the goals for the future, and the recommendations are to have more efforts that the new states continue to support the convention as the air has no boundaries, and to achieve a better state there must be a commitment from all states.

In addition to the legal aspect, it is important to understand the damage caused by pollution. In this aspect should be referred to the data provided by health organizations.

The number of deaths in the world as a result of air pollution are terrible. According to the World Health Organization (WHO) around 4.2 million people die worldwide as a result of people being exposed to outdoors polluted air, 3.8 million deaths each year as a result of household exposure to smoke from dirty cookstoves and fuels, 91% of the world's population live in places where air quality exceeds WHO guideline limits.[152]

WHO has a very important project such as "Breathelife" with which it has identified some of the biggest air pollutants and in terminology are known as :

- *Black Carbon- (Produced most often by burning trash, from heating and cooking with coal, diesel engines, kerosene or open biomass burning)* (C2ES, 2020).
- *Ground-level ozone – (Forms when emissions of methane, nitrogen oxides and other "precursor" pollutants from industry, traffic, waste and energy production interact in the presence of sunlight) (BreatheLife2030, 2021)*
- *Methane – (which comes from agriculture, primarily rice paddies and livestock production. This is followed by emissions from sewage and solid waste, and oil and gas production) (BreatheLife2030, 2021).*

It is generally an intensification of efforts to have clean air and this is seen in the measures taken by states, starting from the control of air on a daily basis through various programs, as well as the education of new generations for the need to preserve ambientit.

However, the maximum effect is not being achieved at all, the more the world is populated, the more difficult the situation becomes, the more cars we have, the more problems with

[152] C2ES. (2020, February 4). What is Black Carbon? Center for Climate and Energy Solutions. https://www.c2es.org/document/what-is-black-carbon/

the air we are going to get, the more trees we cut down, the worse will become oxygen situation in nature, the more industries that depend on the use of coal the more polluted the air will be.

The legal infrastructure needs improvment in addition compared to international agreements. States need to introduce more restrictive laws in domestic law in order to further sanction environmental pollutants.

Seeing that one of the problems in the country where I live is air pollution, in the survey we asked the question: Do you think that air pollution is a key problem in your country and responses are as follow in figure below.

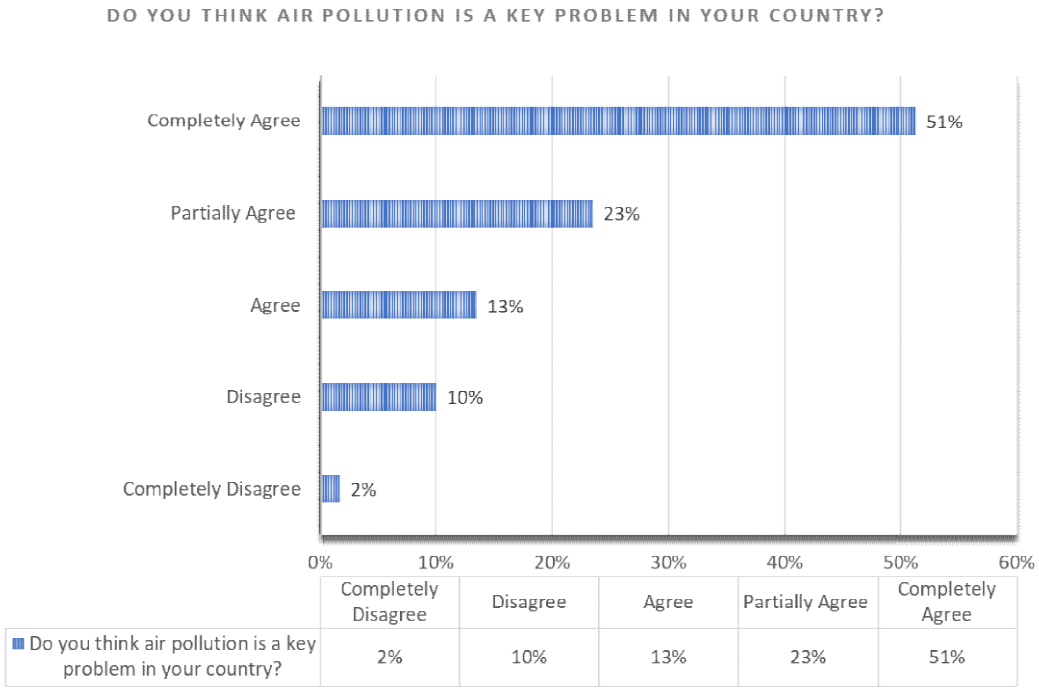

Figure 22. (Shahiqi, 2021).Unpublished raw data – The Impact of Climate Change on International law - SEEU University.

As can be seen that most people are of the opinion that air pollution is a key problem in the country where they live and agree with our finding. Therefore, governments and all bodies at local and central level should be oriented towards environmental policies where we could improve the situation.

22. Protecting the Ozone layer

In the mid-1970s, scientists discovered that certain human actions were causing ozone depletion. After these findings, the attention to this phenomenon had started to increase, which at the time was very common because the chemicals that were released came mainly from industrial and agricultural processes. Numerous chemicals that are used in our daily life are a permanent risk for damage to the ozone layer, these chemicals are otherwise called ODS (Ozone depletion substance) and were found as chemical compounds in various household appliances, in our cars, and other work tools.

In International law mos important treaties and conventions are two :

- *"The Vienna Convention for the Protection of the Ozone Layer", and*
- *"Montreal Protocol"*

22.1 Explainig Vienna convention for the protection of the ozone Layer

The beginning of international agreements for the protection of the ozone layer can be considered abovementioned agreement, where for the first time in written form we would have a not very detailed framework agreement, since the time when this agreement was created the world had just begun to recognize the problems of ozone depletion.

From legal aspect, this agreement does not have a great importance because it was more of a framework that guided the parties to the actions they could take harmonizing policies and make laws.

Abovementioned agreement had an informative character, it informed the states about the danger that threatened them.

With this framework convetion states agree to corporate in researching and science, to exchange information, to prevent activities that couse damage to ozone layer.

But like most framework agreements, this one aimed to create conditions through various protocols to improve the situation by stopping the emission of certain gases.

22.2 Montreal Protocol

When success can not be achieved by framework agreements, it has become practical to proceed with special protocols in order to try to achieve the desired goal. In general the protocols are more detailed.

The abovementioned protocol is multilateral environmental agreement that regulates the production of man-made chemical gases that can cause damage to the ozone layer (*Ozone Layer | Description, Importance, & Facts*, 2022).

The Montreal Protocol should be viewed in two aspects, the first is the aspect of elimination of these substances trying to reduce, minimize and in the future even completely stop the emission of these chemicals.

The other aspect is the legal aspect, regarding this we can say that in International Environmental Law, the Montreal Protocol is the first act that is binding on the signatory parties what gives this protocol special importance in international law. It should also be noted that it is one of the few agreements signed by all UN member states.

What is important in terms of international law is that even this agreement specifies that there can be no exceptions for individual states, which means that no state has the reservation right, which gives it even greater legal importance in the legal aspect[153].

In general, this agreement has been quite successful both in the number of signatory states and in its observance and implementation. States have generally reduced the production of chemicals that cause damage to the ozone layer, and projections are that within the years 2030 - 2050 the ozone layer will return to the state it was before 1980.

A special aspect of this agreement is its financing which is done through The Multilateral Fund for the Implementation of the Montreal Protocol, which derives from the agreement and its article nr. 10.

The Multilateral Fund's activities are implemented by international agencies through different programs such as:

- *The World Bank – which concentrates on financing investments in projects at the state level - the percentage of resources that fund support is 45% of the fund value*
- *UNDP – which organizes and supervises investment projects, assists in technical assistance and studies related to feasibility reports for specific projects, UNDP from Multilatreal Fund receives 30% of resources*

[153] See Article 18: Reservations

- *UNIDO- prepares and evaluates investment project proposals and includes 20% of the Fund resources,*
- *UNEP carries out no investment projects, but it affects the creation of conditions for the realization of these projects, in financial terms this program receives less than other programs, only 5% of the fund's income.*[154]

Corporation between MLF and these organization are mainly for four Susitanble Development Goals:

- *Goal 9 – Industry, Inovation and Infrastructure, (About UN Environment Programme, n.d.).*
- *Goal 12 – Responsible Consumption and production*[155]
- *Goal 13 – Climate Action*[156]
- *Goal 17 – Partnership for the goals*[157]

Montreal Protocol has been very successive since the state of Ozone layer is improving, and projections are that this problem will be resolved by the middle of this century.

The Montreal Protocol has also from time to time made amendments which have strengthened this agreement and have helped to include other gases which have been discovered over time that have been harmful to the ozone layer.

In total there are five amandaments :

- *The London Amendment (1990* [158]
- *The Copenhagen Amendment (1992)*[159]

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[154] Home - Implementing Agencies. (2022). MLF. http://www.multilateralfund.org/aboutMLF/Implementingagencies/default.aspx

[155] Resources | Page 3 | Sustainable Development Goals - Resource Centre. (2022). Resource Centre. https://sdgresources.relx.com/resources?page=2

[156] Resources | Page 3 | Sustainable Development Goals - Resource Centre. (2022). Resource Centre. https://sdgresources.relx.com/resources?page=2

[157] UNEP Montreal Protocol OzonAction Programme - United Nations Partnerships for SDGs platform. (2022). UNEP. https://sustainabledevelopment.un.org/partnership/?p=7522

[158] The London Amendment (1990): The amendment to the Montreal Protocol agreed by the Second Meeting of the Parties (London, 27–29 June 1990) | Ozone Secretariat. (2022). Ozone Secretariat. https://ozone.unep.org/treaties/montreal-protocol/amendments/london-amendment-1990-amendment-montreal-protocol-agreed

[159] The Copenhagen Amendment (1992). (2022). The Amendment to the Montreal Protocol Agreed by the Fourth Meeting of the Parties (Copenhagen, 23–25 November 1992) | Ozone Secretariat.

- *The Montreal Amendment (1997)*[160]
- *The Beijing Amendment (1999)*[161]
- *The Kigali Amendment (2016)*[162]

Looking at the general aspect we can say that this protocol has had an extraordinary success, both in terms of ratification, where it can be considered a universal agreement, as in terms of the success it has achieved, since the first improvements are already seen. Also the projections are going according to the recommendation of the field experts.

23. Marine Pollution

Marine pollution is very important sector on *International Environmental Law*. Oceans are largest part of the common space, they extend almost everywhere with around 70 percent, and connect many states with each other.

Since the 19th century, where for the first time the effects of the pollution were seen, until the development of this right we will have many efforts and many meetings to reach agreements which today have a special role in public international law.

In addition to ships damaging the flora and fauna in the oceans, attention began to be drawn to other problems that could cause pollution that were not known until then.

It was 1967 and there was an environmental disaster, where in the Torrey Canyon, a ship had crashed and it had a cargo of up to 110,000 tons of oil, and for that time it was the biggest disaster since the hazardous substances that had been spiled coused unprecedented damage up to that time (Sands et al., 2012).

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https://ozone.unep.org/treaties/montreal-protocol/amendments/copenhagen-amendment-1992-amendment-montreal-protocol-agreed
https://ozone.unep.org/treaties/montreal-protocol/amendments/copenhagen-amendment-1992-amendment-montreal-protocol-agreed

[160] The Montreal Amendment (1997). (2022). The Amendment to the Montreal Protocol Agreed by the Ninth Meeting of the Parties (Montreal, 15–17 September 1997) | Ozone Secretariat. https://ozone.unep.org/treaties/montreal-protocol/amendments/montreal-amendment-1997-amendment-montreal-protocol-agreed

[161] The Beijing Amendment (1999): (n.d.). The Amendment to the Montreal Protocol Agreed by the Eleventh Meeting of the Parties (Beijing, 29 November - 3 December 1999) | Ozone Secretariat. https://ozone.unep.org/treaties/montreal-protocol/amendments/beijing-amendment-1999-amendment-montreal-protocol-agreed

[162] International Treaties and Cooperation about the Protection of the Stratospheric Ozone Layer. (2021, August 30). US EPA. https://www.epa.gov/ozone-layer-protection/international-treaties-and-cooperation-about-protection-stratospheric-ozone#:%7E:text=is%20found%20here.-,Amendments%20to%20the%20Montreal%20Protocol,by%202010%20in%20developing%20countries

Then it began to be noticed that in addition to problems with ships, it was also industries and their waste dumped in the oceans that were damaging biodiversity and fauna in the waters

To be further developed was a research called GESAMP which came from various scientists who had researched the damage that was being done to the marine environment by chemicals and oil.

The scientist today name five way of marine pollution :

- overfishing;
- habitat loss;
- pollution (mainly coastal);
- introduction of invasive species;
- climate change[163]

It should be noted that Marine Pollution is related to *climate change*, this association comes from the risk to the extinction of many flora/fauna that already are in danger.

Some of the related problems are

- *Coral bleaching,* [164]
- *Extrem Wether,* [165]
- *Moving homes of certain species,* [166]
- *Rising sea levels*, [167]

In terms of international law, a series of distinct actions are already known up to the codification of water protection, the first sparks we find as early as 1926 with the first conference called Preliminary Conference on Oil Pollution of Navigable Waters,[168], *held at Washington D.C and then the enrichment of international law was influenced by the first*

[163] Sands, P., Peel, J., Fabra, A., & Mackenzie, R. (2012). Cambridge, UK: Cambridge University Press

[164] Everything you need to know about coral bleaching and how we can stop it. (2022). World Wildlife Fund. https://www.worldwildlife.org/pages/everything-you-need-to-know-about-coral-bleaching-and-how-we-can-stop-it

[165] Tropical storms, rainfall can increase, and so will physical damage to rocks and other coastal ecosystems, and this comes directly from climate change

[166] Warming of ocean water can also cause different species to move to find better habitat so that they can survive.

[167] Rising water levels will have serious impacts on marine ecosystems. The process of photosynthesis and the amount of light that reaches the plants in the sea can be reduced and also the habitat can change. These projections can be frightening in the next 100 years if proper action are not taken

[168] See Preliminary Conference

treaty in this field, 1954 International Convention for the Prevention of Pollution of the Sea by Oil,[169].

Then other agreemenents were reached such as:

- *High Seas Fishing and Conservation Convention*[170],
- *1958 Convention on the Continental Shelf*[171],
- *1958 Convention on the High Seas*[172].

In addition to these agreements we will have many other efforts, some regional and some between states as more and more problems were appearing every day and after the Torrey Canyon Accident, the idea was created to do something more for marine pollution and it was 1982 when the community has adopted the United Nations Convention on the Law of the Sea (UNCLOS)[173], which has a global character and has been ratified by 166 countries, and its goals are multidimensional, with a primary focus on not allowing the degradation of Marine in particular.

UNCLOS explains in its preamble that it aims to create a new order of seas and oceans, to establish easier international relations between states, to preserve and protect the marine environment, to make the best use of resources, to have studies and researches on these areas.[174]

In addition, this agreement presents the possibility of penalties and liabilities in case of damages caused by a certain actor.[175]

What is important in terms of impact on international law is that the UNCLOS obliged signing state to create and adobt certain law when it comes to preservation and protection of the marine, and this is done by Article 21 Laws and regulations of the coastal State relating to innocent passage, where in point (D, E, F, G H), are explained the fields which are related to the Marine Pollution.[176]

In the meantime, there are other articles which deal with pollution as states are obliged to create and adopt laws but also to follow the general international rules in case of

[169] Signed on London 12.05.1954.
[170] Signed on Geneva, Switzerland on 29 April 1958 into force from 20 March 1966.
[171] Signed on Geneva, Switzerland on 29 April 1958 into force from 10 June 1964.
[172] Signed on Geneva, Switzerland on 29.04.1958, into force on 30.09.1962
[173] See the (UNCLOS), Signed on 10 Dember 1992, into force from 16 November 1994,
[174] See the (UNCLOS), Signed on 10 Dember 1992, into force from 16 November 1994,
[175] See the (UNCLOS), article 139
[176] See the (UNCLOS), article 21

irresponsibility and pollution. This was done with chapter 5 of this agreement which includes:

- *Pollution from land-based sources,*[177]
- *Pollution from seabed activities subject to national jurisdiction,*[178]
- *Pollution from activities in the Area,*[179]
- *Pollution by dumping,* [180]
- *Pollution from vessels,* [181]
- *Pollution from or through the atmosphere,* [182]

It is important that in the continuation of the agreement, Section 6 - Enforcment determines how the states should implement all the pollution methods mentioned above, and this is very important for the legal character of this agreement and for its impact that has had in international law.

24. Ultra Hazard Activities

The actions that states take on a daily basis, and the work they do to benefit themselves, can often be of high risk. These risks, in addition to being specific to the countries that deal with them, can also cause significant damage to the environment.

These actions are known as Ultra Hazard Activites which means actions that are dangerous that are done from certain state and for which states can and should be held responsible.

International law is often challenged by these activities as states do not pay attention to the actions they take. The most frequent activities with which states are challenged are

- Storage,transportation, and use of explosives,
- Storage,transportation, of hazardous chemicals,
- Storage,transportation, of radioactive materials that could harm the Environment,
- Nuclear or chemical waste disposal,
- Controlled burning of forest and fields.

[177] See the (UNCLOS), article 207
[178] See the (UNCLOS), article 208
[179] See the (UNCLOS), article 209
[180] See the (UNCLOS), article 210
[181] See the (UNCLOS), article 211
[182] See the (UNCLOS), article 212

The factors that determine if an activity is ultra-hazardous are conceived by the level of seriousness of the potential damage that could ocurr from certain activity, also it is determined as ultras hazardous activity if it has a risk that exceeds its value, which means that the damages from activity could be higher than benefits. Also it must take under the consideration the place where the activity will happen.

These and many other factors pose a permanent risk to the environment as they are activities that can cause damage not only in the place where they occur, but also in other countries.

There are many disputes between states for damages caused by these actions, while in international law as one of the conventions is also: *Convention on the Transboundary Effects of Industrial Accidents, this convent aims to protect human beings and the environment from industrial accidents in its article 1 point B specifies that Hazardous activity "means any activity in which one or more hazardous substances are present*[183].

This framework agreement has 4 other protocols which have helped in the drafting of International Environmental Law in this field, but are also events that have occurred by the negligence of certain factors and are known in history as environmental catastrophes.

It was caused by the release of methylmercury in the industrial wastewater from a factory called Chisso corporation, this water poisoning with these chemicals had caused various problems, where so far 1784 cases of death from mercury poisoning are known, also for for many years the fauna in this region was also affected, where many dogs, cats, pigs and other animals had died. As a result, so far this company that has polluted the water had paid around 86 million dollars in compensation, and at the same time was forced to clean the contaminated water.[184]

Also another case is known as Death in Bhopal which is one of the biggest environment catastrophes. From a company owned by India, America dealing with insecticides had a leak of 45 tons of a chemical, methyl isocalante, which was distributed very quickly. Since Bhopal was a very populated area the catastrophe was even bigger. Some 15 to 20 thousand people died instantly while hundreds of thousands of other survivors developed respiratory problems, eye irritation, blindness and many other diseases as a result of contact with toxins. The problems have continued into the 21st century, as the waters have remained

[183] See Convention on the Transboundary Effects of Industrial Accidents article 1, point b

[184] See the case - Poision on Minamata Bay.

contaminated. The problem had prompted India's parliament to pass a law obliging the government to provide drinking water to Bhopal residents.[185]

Also two actions which are related exactly to global warming and which come exactly from ultra hazardous activities are The Rape of Amazaon and Ice Melting of glaciers which we will explain in detail in the continuation of the research.

25. Outer Space

All the agreements we have mentioned so far have to do with the atmosphere and the protection of the environment, but beyond that there is Outer Space which, although it does not have a precise definition, is considered an area beyond the atmosphere.

In relation to the environment, three things have been identified which are considered as problems of Outer Space: *Orbital space debris, environmental damage caused on or to other planets as a result of human exploratory activity, environmental damage caused on Earth as a result of man-made objects falling from space.*[186]

Although it is a special field, there are some agreements that are important in this field of International Environmental Law,

- *1967 Outer Space Treaty (UNOSA, n.d.),*
- *1975 Space Registration Convention, 1979 Moon Treaty (UNOSA, n.d.).*

All these agreements have one thing in common, they try to regulate space beyond the atmosphere and the special thing is that the sovereignty of states can not be extended to these areas, and it is important that all states are commited to protect the outer space.

The 1967 Outer Space Treaty explains purpose in its first article where research and use of Outer Space will be in the interest of all countries and mankind. At this point everyone is equal and the general rules of international law apply for everyone. There should be freedom for scientific activities, researches and other activites and states should cooperate on eventual findings. [187]

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[185] Bhopal disaster | Causes, Effects, Facts, & History. (2022). Encyclopedia Britannica. https://www.britannica.com/event/Bhopal-disaster

[186] Sands, P., Peel, J., Fabra, A., & MacKenzie, R. (2012b). Principles of International Environmental Law. In Atmospheric protection and climate change - Outer Space. (3rd ed., pp. 299–300). Cambridge University Press.

[187] UNOSA. (n.d.). Outer Space Treaty. https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html

In general, this branch of IEL developed a lot and we can say that the mentioned agreements have influenced to have a detailed codification.

The relevance of this topic to Climate change is because the development of the Outer Space field has helped to raise awareness and a more accurate understanding of *climate change*. Development of space technologies, space information, played vital role in climate knowledge, climate science. If today we have more knowledge and can more carefully monitor climate change is also due to the possibility of monitoring problems precisely because of the development of outer space technology.

Today are held various conferences organized by *UNOSA* that aim to develop these areas, this office publishes reports almost every year related to Outer Space and Climate change and helps in the development of both fields.

26. Key challenges of EU climate change policy

To talk about climate change policies we definitely need to relate to the agreements and the legal aspect which has been achieved through the codification that has taken place by the UNFCCC, the Kyoto Protocol and the Paris Agreement (Shahiqi, 2021).

Europe is so far a leader in Green policy, also due to the non-participation and non-ratification of the Kyote protocol by important countries such as the US. The European leadership comes precisely from taking important steps at the right time, and from the consideration it has given to this field by making it a priority and harmonizing it with the economy (Shahiqi, 2021).

Some of the EU's challenges are to achieve the policies it has developed, and this will be extremely difficult, but if it does, it will have a major impact on improving the situation.

Europe initially aims to reach the target in gas emissions for 2020, also aims to reduce the period from 2020 to 2030 to 55% while aims zero net emission on 2050.

Also through *European Green Deal*, aims to make the draft European Climate Law that would be legally binding towards the goal for zero emission in 2050, also aims through the European Climate Pact to engage all society into Climte action (A European Green Deal, 2019). Europe also aims at sustainable economic growth, aims to create new jobs, aims to be competent in the development of technology, science, aims to disseminate its knowledge and experience throughout the EU.

In European Green deal there are several targets which Europe aims to fulfill in order to have zero emission of greenhouse gases :

- *Clean Energy - Prioritise energy efficiency and develop energy renewable sources, interconnected and digitalised with Eu energy market.*
- *Sustainable Industry (*A European Green Deal*, 2019).*
- *Building and Renovation (A European Green Deal, 2019)*
- *Farm to Fork (A European Green Deal, 2019)*
- *Eliminating pollution (A European Green Deal, 2019)*
- *Sustainable mobility (A European Green Deal, 2019)*
- *Biodiversity (A European Green Deal, 2019).*

Meeting all these criteria and programs means that by 2050 we will find Europe with zero emissions, it will find leaders in the fight against climate change and set an example for the rest of the world. If the Green Deal is to function and develop in these parameters, it will mean that Europe will be the first to win the fight against climate change.

Discussing the problems in EU policies as one of the largest organizations, we have projected a question in which we have asked for an opinion on : Do you think that governors should have green policies in their programs?

Opinions on this topic have been very positive where 80% of respondents, completely agree, 5% partially agree and 13% of respondents agreed that states and governments should introduce in their policies green programs, adding greenery and give world the breath it needs.

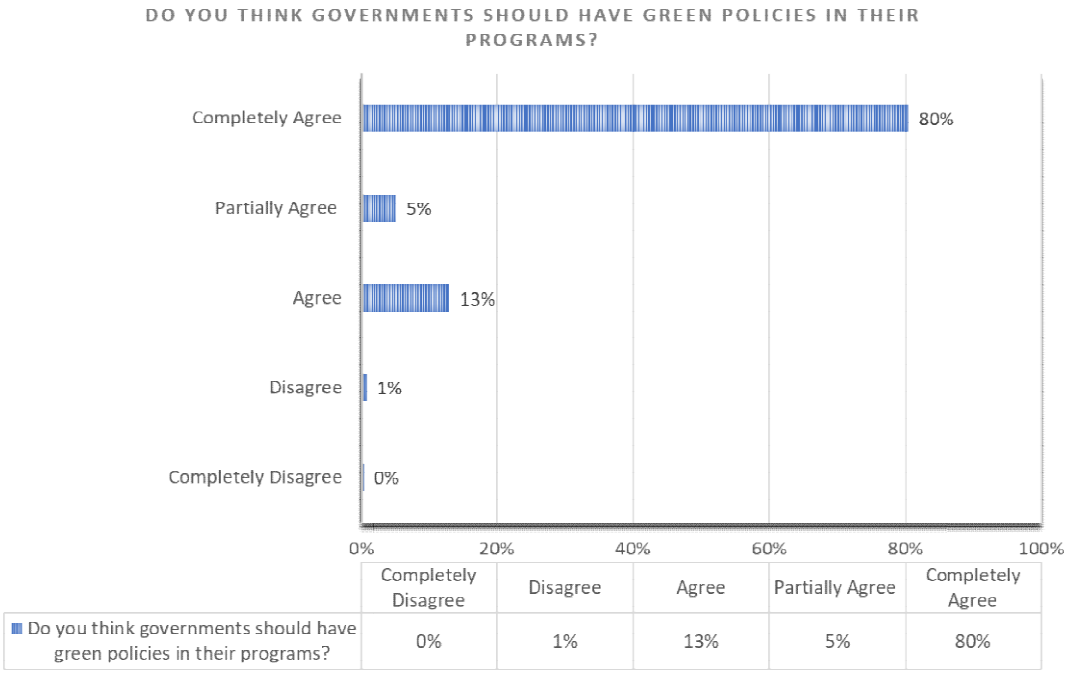

Figure 23 - Shahiqi, D. (2021) Unpublished raw data – The Impact of Climate Change on International law SEEU University. Do you think that governments should have green policies in their programs.

Today it is very important to have real development in this field as it is one of the preconditions for improving the situation that we are currently in.

More afforestation and green spaces means less CO2 in the atmosphere, and it also more oxygen and from this point of view we will have also less dust. It will also help to reduce the risk of respiratory diseases, it also means less exposure to climate change that would be fatal to agriculture and fauna.

Therefore we must act in order to improve the situation.

CHAPTER III

27. Case Study - Effects of Wildfires on Climate Change (Scientific and legal effects)

27.1 Introduction

Wildfires are hazards that can be natural or anthropogenicin in their origin. They can start in rural areas to escalate and spread to all areas. Usually wildfires are out of control burning of forest which can threat the entire human structure (Paul, 2020).

As in any damage done to nature, even in wildfires the key factor is the human factor, fires can spread in different forms, but more often it is the carelessness of people who start a campfire or discarding lit cigarettes, then from the strong winds can escalate and spread to a very large extent endangering the environment, human life, habitat of fauna living in those area, and releasing various gases while fires are active.

The reasons for these wildfires to be huge and more common are different, but most of the reasons are related to climate change. This is exactly what scientists are doing who are giving hypothesiz that climate change has made wildfires much more common. Sea level rise, global warming, earlier snowmelt, drying forest are the factors who are driving wildfires to be more frequent, larger, and more prevalent.

27.2 Human and Natural Ignition

As we can understand from what we mentioned above it is obvious that the causes for wildfires are different but can come from two factors. The first is the human factor and its carelessness, and the second is the natural factor.

The Ignition of wildfres by the human factor can come from many prisms. Most wildfires start up can be accidental and unintentional, and can come as a result of carelessness and negligence. The most common of the human factors are campfire, where people gather in mountains, and their negligence while they are coocking or warming can lead to burns. Often both waste burning and field burning have caused wildfires.

Also not infrequent is the ignition of wildfires through cigarettes and lights which are thrown while they are lit. Then there are other burns involving buildings, either from firewroks or exploding targets, or from power lines that are possible and often occur.

According to a study conducted in the US, related to the factors that affect wildfires, it turns out that the human factor from 1992 to 2012 was the initiator in wildfires with about 84% of the total burned parts, and 97% in wildfires that have endangered both homes and lives (Balch et al., 2017).

The other factor that can cause wildfires is nature, through lightning, which is the most common form but there are also other forms which occur less such as volcanic meteor and coal seam fires etc. Fire requires three components to ignite, Heat, Fuel and Oxygen, otherwise it is also called the “fire triangle”, and normally if there is a fire in nature then it will continue towards the places where these three components are present.

For this issue we have done a research which has taken the opinion of different people regarding the question : Do you think that the main cause of wildfires that damage the environment is the carelessness of people? And the answers are as reported on the table where we have a similar percentage to general studies that have been done in different countries without significant differences.

From the answers received it follows that people are aware of the causes that can cause wildfires, and which may be the dangers of carelessness. What remains to be improved is the correct and accurate information, the increase of responsibility by each person who has decided to use nature for different purposes.

Survey data provide a complete, partial or moderate agreement with about 95% who thought that the negligence of people is the main cause, with only 5% who do not agree with this statement.

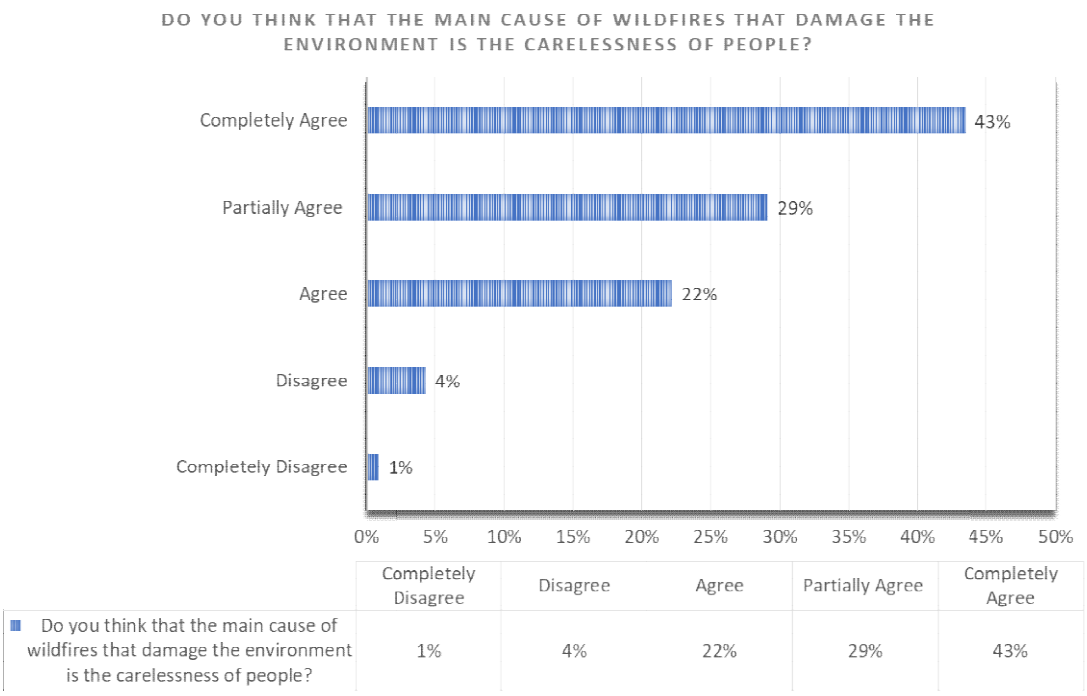

Figure 24 (Shahiqi, 2021).Unpublished raw data – The Impact of Climate Change on International law - SEEU University.

27.3 How Climate Change Can Affect Wildfires

Climate change has also changed the course of wildfires, escalating, increasing in frequency, and becoming more difficult to manage. What is worrying in normal conditions is that people are the main cause of all the problems that occur in the environment. More GHG, more severe the consequences of fires. These areas can not be unrelated as wildfires without these climate changes have been both smaller and less damaging to the environment. The number of fires in recent years has increased dramatically.

For this issue there are several factors that affect wildfires and we will list them below:

- *Global Warming – Temperatures are rising, this increase negatively affects the ignition and distribution of wildfires*
- *Snow melt earlier – because of Climate Change now we have a situation where snow melts earlirer for around 4 weeks compared with last decades*

- *Forest are drying - also this is related to climate change, the more drought and rising temperatures the more escalating wildfires will be,*
- *Fires are worse – in addition to being more frequent, they are also more numerous in number and as a result, gas emissions from fires will be more widespread.* [188]

In the research we have done we have also asked the question as mentioned on graph

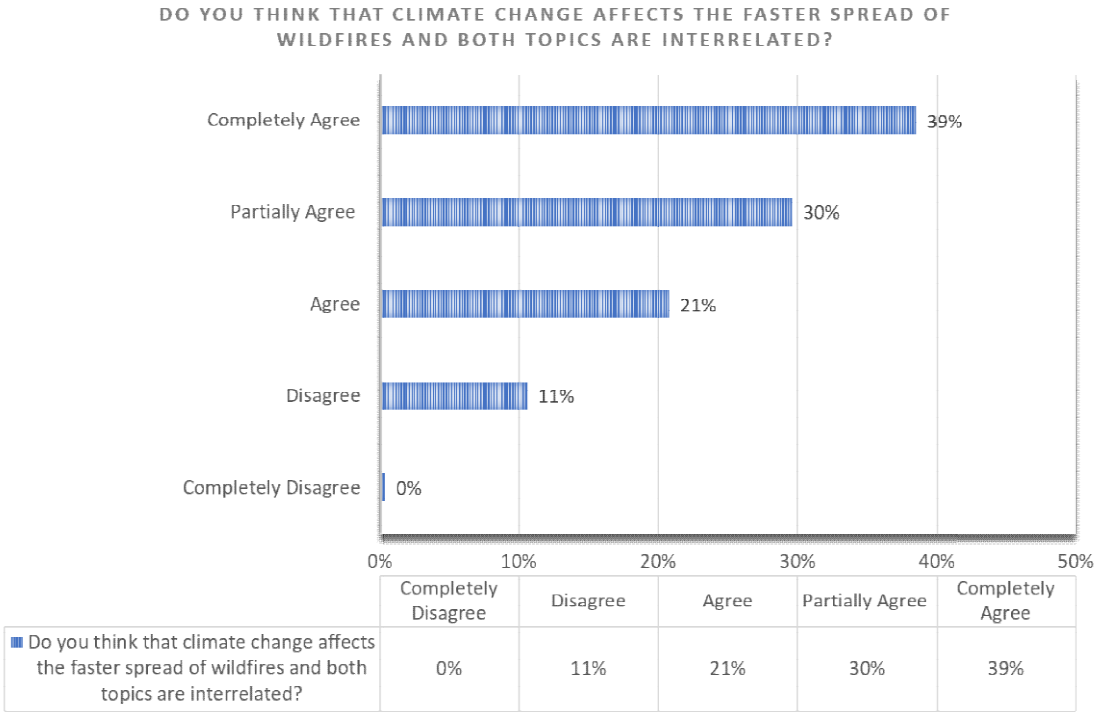

Figure 25 (Shahiqi, 2021).Unpublished raw data – The Impact of Climate Change on International law –SEEU University

Based on result of the survey 39% completely agree that wildfires are effected from Climate Change and these two fields are interrelated. Somewhere near are people who partially agree or just agree on these issues, 30% and 21%. In contrary thera are 11 % or respondents that disagree with these statements.

If we analyze in a proper way not just opinions of survey but also opinions and scientist facts we can conclude that climate change has led to changes in wildfires, both in scale and in number of wildfires.

[188] Infographic: Wildfires and Climate Change. (2022b). Union of Concerned Scientists. https://www.ucsusa.org/resources/infographic-wildfires-and-climate-change

These data are facts that have been made comparatively with the years before climate change. In U.S, the number of wildfires has increased significantly since 1990. The same has happened in all countries where the risk of wildfires is higher due to their climate. The hottest places are more endangered due to the great droughts in those places, add here the climate change and the facts mentioned above and immediately increases the risk of having uncontrolled and frequent fires.

27.4 Bunring of rainforest in Amazon and their impact on Climate Change

The Amazon, the largest rainforest in the world, located in the territory of 9 states, described by the Amazon River, home to 1 in 10 different species, the largest absorber of carbon dioxide, also called Lungs of the World.[189]

Climate change effects that have been observed, and caused great damage is also burning of rainforest in Amazon. Rising temperatures due to climate change and severe drought have made the rainforest uneasy in terms of fires.

It has become practical that the most important forests in the world are being burned, and with these burns, biodiversity is being endangered. In Brazil the Amazon forests are burning, while in Indonesia with the tendency to clear the land for oil palm plantations they are destroying the ancient forests (Nerger, 2021). These fires are most often caused in two ways, the first by carelessness and the second by the tendency of people to create new agricultural lands for agricultural purposes.

Many times states also do controlled bunring and deforestation for agricultural purposes, but this is very dangerous because of the risk of climate change, when it is known that these forests are the largest absorbers of carbon dioxide, and plays a key role in the global water cycle, stabilizing the global climate and rainfall (Bowman, 2020). It should be noted that with the burning of rainforest the problem appears in two related fields, the first is that the burning releases gases, it also destroys the habitat of the fauna that lived in those forests, endager the biodiversity and the second issue is that after burning it has fewer forests that can absorb the release of dioxide carbone. The more Greenhouse gases released the more effects of climate change we will experience.

[189] Brazil and the Amazon Rainforest: Deforestation, biodiversity and cooperation with the EU and international forums | Think Tank | European Parliament. (2022). EU. https://www.europarl.europa.eu/thinktank/en/document/IPOL_IDA(2020)648792

According to scientists' projections, the future looks do not very bright if important steps are not taken with time so that temperatures do not rise. According to these projections by 2050 temperatures in the rainforest may move by 2-3 degrees Celsius, which means lower rainfall and greater drought of rainforet. *It is also assumed that somewhere Between 30% and 60% of the Amazon rainforest could become a dry savanna.*[190]

Acording to INPE Rainforest in Amazon has lost somewhere around 20% from the records of 1970 onwards, from 4,100,000 hectares has fallen to 3,290,125 hectares by 2020, and this trend is constant and continuous, because the difference between the years has been almost the same, with a steady increase in recent years.[191]

This increase of burning of rainforest in Brazil has become even greater with the arrival as president of Jair Bolsonaro who from many countries of the world is accused for allowing the burning of forests for economic gain, there is even a statement by US President Joe Biden who had demanded that these burnings be stopped, that an economic plan to be made where $ 20 Billion would be given to Brazil in order to stop the destructive destruction, otherwise there would be economic consequences and sanctions.[192]

One thing is for sure, everyone should contribute in order to stop these burns as Raiforest on amazon is considered Lungs of the World as it is the largest absorber of carbon dioxide. President Bolsonero has also taken steps to do something about this situatuion, organizing military operations called: Operation Green Brazil 1 and 2[193], where he is trying to fight crimes against the environment, so as not to endanger the whole world as the rainforests are important even in global aspect.

Climate Change will accelerate if we continue to make uncontrolled burns in rainforest of Amazon, therefore states must be careful, the environment is an integral part of all. Projections are scary because carelessness is great. International agreements in the field of environment must be respected, it is the only way to succeed. Commitments arising from prior arrangements should be monitored and supervised.

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[190] INPE. (2022). Instituto Nacional de Pesquisas Espaciais. https://www.gov.br/inpe/pt-br

[191] Darlington, S. C. (2020, December 1). Deforestation in Brazilian Amazon surges to 12-year high. CNN. https://edition.cnn.com/2020/12/01/americas/deforestation-brazil-amazon-bolsonaro-intl/index.html

[192] CNN – Shashta Darlingron - Deforestation in Brazilian Amazon surges to 12-year high – Decmeber 1, 2020 - https://edition.cnn.com/2020/12/01/americas/deforestation-brazil-amazon-bolsonaro-intl/index.html

[193] Cook, G. (2022, April 7). Operation Green Brazil 2 Fights More than 7,500 Fire Outbreaks in the Amazon. Diálogo Américas. https://dialogo-americas.com/articles/operation-green-brazil-2-fights-more-than-7500-fire-outbreaks-in-the-amazon/

27.5 Burning in US. California

The hot weather, the drying up of forests, the people, the strong winds, the early melting of snow, are some of the reasons why California has persistent and recurring wildfires.

In recent years we have records in terms of number of wildfires and burned areas. Since 2015, California has suffered somewhere around 100 wildfires more than previous periods.[194]

These fires have affected many areas simultaneously, the first is that forests have been burned. Gases have been released during the combustion that aggravate the already aggravated state of climate change. Secondly every year the US economy is being affected due to these high costs for their control and shutdown, the third is very important and has to do with the lives of people, which is being endangered, along with their lives and wealth.[195]

Based on the latest data obtained from the California Department of Forestry and Fire Protection (CAL FIRE) in 2021 alone, from January 1 to March 29 there were somewhere around 717 wildfires, and somewhere around 1541 acres were burned.[196]

Many scientists have done research on the reasons for the frequency of cases, to try to find the causes and more and more are coming to the conclusion that Climate change is the main cause.

Below we present a table made by research, done on the impact of climate change on the number of fires in the western Us Forest (Balch et al., 2017).

[194] Infographic: Wildfires and Climate Change. (2022). Union of Concerned Scientists. https://www.ucsusa.org/resources/infographic-wildfires-and-climate-change

[195] On Year 2017 there were registered 39 deaths, on Year 2020 there were 85 people killed from wildfires, in 2020, six deaths were regjistered.

[196] Stats & Events. (2022). CAL FIRE. https://www.fire.ca.gov/stats-events/

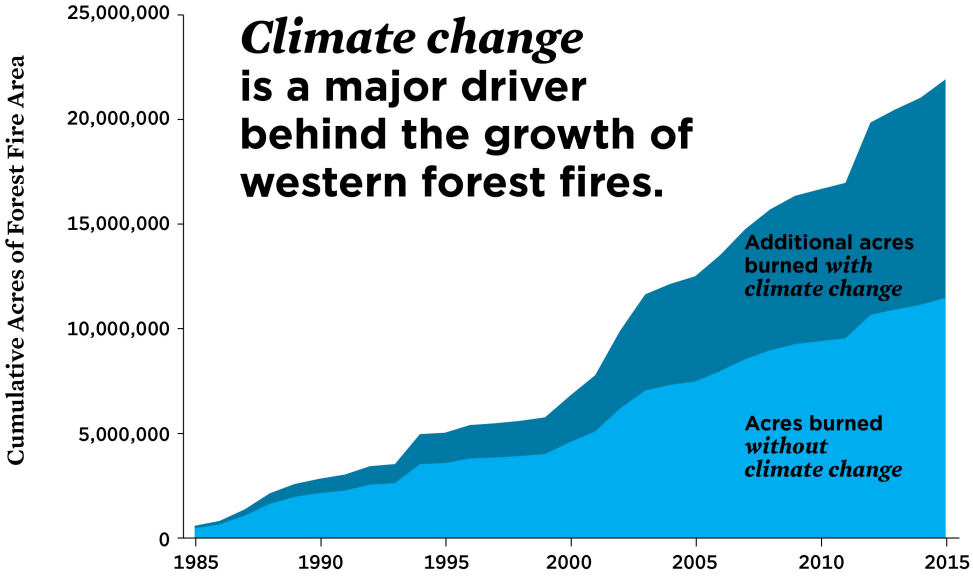

Figure 26. Climate Change Abatzoglou & Williams. (2016). Impact of anthropogenic climate change on wildfire across western US forest

From the notes in the diagram we can understand how the number of fires has increased and the amount of acres burned over the years which means that in the following years if appropriate measures are not taken and the legal framework for stronger and more effective protection is not created this problem will become even bigger.

The effects are the same, more wildfire, means more CO2, which makes current situation even worse.

The US has used several methods to manage this problem, one of which has been the attempt to thin the forest, so that wildfires can be controlled more easily, but the results have not been achieved. They have tried other methods that are through controlled burning to create spaces between trees but even this has not been very effective. So far the only way to fight wildfires is by reducing greenhouse gas emissions which would be the best long-term fight against wildfires.

27.6 Indonesia Wildfires

It is normal for the effects manifest in all countries of world, because as we have said, the environment is the common good of all people. In this concept we must also see the escalation of wildfires in different countries, how they are becoming more frequent, how

they are becoming uncontrollable, and what are the measures that are being taken to improve the situation. In Indonesia the biggest causes of wifldire are various companies which for the sake of economic benefits burn the forests to open oil palm plantation which are then used for their own economic benefits, not counting the great damage they do to the environement.

It should also be mentioned that in the last decade from 2010 we have had a continuous increase in wildfires with 2015 as the year where record data were recorded where according to *The global forest watch fires (GFW Fires) were once detected around 130,000 alert fires which have caused about 500 thousand people to seek medical help from the haze and the huge smoke that has appeared as a result of wildfires. From the data recorded in this environmental catastrophe, 24 people have lost their lives, and the gases that are released capture three times the gases that are usually released annually* (GFW, 2020).

It needs to be mentioned that in Palangkaraya, the capital of central Kalimantan, Air Pollutants Index (API) reached the value 2000 which is very hazardous. Many people were treated for respiratory disease, and skin irritations due to exposition to the haze and smog created by wildfires (McKirdy, 2015).

After the catastrophe of 2015, the president of Indonesia saw it inevitable to take measures so that this does not happen again, and in case it happens again because the factors are external, at least the situation could be managed. In 2018, a moratorium was adopted, adapted from that of 2011, which aimed to create the preconditions for managing the situation in case of any reapear. This improvement in legislation is expected to be seen in the coming years as to whether it will be a sufficient measure to prevent catastrophes that may occur as a result of wildfires driven by climate change.

From this situation it should be noted that the deforestration of a very large part of these provinces in Indonesia has been caused, and the effects have not been observed only in these countries as haze made by wildfires has spread to Singapore and Malaysia making haze to affect the air quality in these neighboring countries.[197]

[197] BBC News - In Malasyia during this time 29 Schools were closed do to bad air quality caused from haze. Air Pollutants Index (API) was registered at point 208 that based on air quality index is considered very unhealthyIn addition, they sent 500 thousand masks as a protective measure due to polluted air. An even more difficult situation was recorded in Singapore where the Air Pollutants Index went to 341 which according to the index is considered hazardous. Schools have also been closed in this country, as well as the food supply chain has been closed due to polluted air.

Such an experience of climate change as one of the factors has been experienced by Indonesia, which in 2020 has recorded wildfires in many of its regions (Jong, 2021).

One of the provinces in Indonesia had declared a state of emergency as 1.6 million hectares were razed due to dry weather, and local authorities feared they could not manage the crisis due to the Covid 19 pandemic, as human resources were fewer, as it was considered war on two fronts (Staff, 2020).

2021 has also started to have wildfires, based on statistics there are around 10 districts in which fires have been recorded, although the dry season period usually begins in Indonesia in June. The Government of Indonesia feels afraid that the year 2021 will be similar to 2019, since in this early period over 300 fire spots have been registered (Jong, 2021).

The Government of Indonesia has increased its performance and is trying to ban the actors who cause wilfdires, some 100 companies are being investigated, in order to bring to justice the actors who are endangering the environment and the lives of people.

27.7 European Wildfires

Europe as one of the continents of the world has not been immune to the fires that have occurred over the years. The countries with the most frequent fires that cover around 85% of the total fires in Europe are: *France, Spain, Portugal, Greece, and Italy. From 2000 to 2017 in Europe were burned about 8.5 milion hectares, where many lives were lost in trying to fight wilfdires, also the economic damages were colossal, based on Eu Report the economic damage is aroung 54 Billion dollars.*[198]

In addition to the above-mentioned countries, Sweden also in 2018 experienced wildfires which were the largest recorded in its territory in all history.

European Forest Fire Information System (EFFIS) In 2020 on Annual Fire Report declared that within EU 28 members during the year 2019 in Europe, from wildfires were burned around 335 thousand hectares, and 24 from 28 states were registered burned area over 30 hectares, with Romania as the most affected country.[199]

[198] Forest Fires: Sparking firesmart policies in the EU. (2022). European Commission - European Commission. https://ec.europa.eu/info/publications/forest-fires-sparking-firesmart-policies-eu_en

[199] Forest Fire in Europe, Midle East and South Africa 2019, Luxembourg : Publication Office of European Union. (2020). European Forest Fire Information System (EFFIS) – Annual Fire Report 2019 – Forest Fire in Europe, Midle East and South Africa 2019. Publication Office of European Union. https://effis-gwis-cms.s3-eu-west-1.amazonaws.com/effis/reports-and-publications/annual-fire-reports/2019

Looking at the historical aspect from 1980 onwards we can see that in Europe the trend of wildfires has been decreasing, due to good management but also due to the climate.

Menawhile in recent years, with climate change in the background the chances for wildfires have been increased. *According to the European Environment Agency projections if climate change effects raise the temperature over 2C0, the probability of wildfired to happen increseas by 40%. If the temeperatures will raise globally for 3C0 it would increase the chances by 100% to have wildfires*.[200]

According to research by the Joint Research Center (JSC) Forest fire danger extremes in Europe under climate change: variability and uncertainty, it is very well stated that climate change has affected rainfall, humidity and wind temperatures which could worsen the situation further in the future (de Rigo, 2017).

Taking scientific projections as a basis, the report concludes that Europe in the future with this trend of climate change could have an impact on the increasing of wildfires in regions where the climate is already hotter. According to the report, the most endangered are Mediterranean Europe countries, those who currently include 85% of fires throughout Europe.

In Balkan, where the carelessness of the people and the very hot climate have caused wildfires to appear in all countries including Kosovo, Albania and Greece, also a similar situation turns out to be in Turkey where some areas have become hotbeds of fire. This seriously damages the environment and is the most realistic reflection of recent events.

Also, the year 2021 was special for Europe since the highest temperature ever recorded in any country was recorded, it is exactly Cagliari of Italy, which recorded a temperature of 48.8 degrees Celsius.[201]

27.8 International Organization

The main role in this part is again played by the UN with its mechanisms such as FAO, which through forestry program - Fire Management takes care to improve the legal infrastructure but also the management of wildfires around the world. FAO regulations in legal terms are

[200] European Environment Agency – Forest Fires - Burnt area in European countries - Projections https://www.eea.europa.eu/data-and-maps/indicators/forest-fire-danger-3/assessment

[201] BBC News. (2021, August 12). Italy may have registered Europe's hottest temperature on record. https://www.bbc.com/news/world-europe-58130893

Non Binding, but are presented as guidelines that attempt to improve the general management of fires in different territories. This Volentary Guidline in point 1.3 reveals the objectives for which it was created and it's first point explains the purpose that this guide has in its legal aspect, as well as in the economic, socio-cultural and environmental aspect. [202] Also an objective is the creation and implementation of subnational policies to regulate and improve the legal framework. The objective is also to provide assistance, and advocate issues aiming to improve the situation in different regions.

FAO also cooperates with other organizations which are in these fields without being limited.

EU also has other mechanisms such as: Joint Research Center (JSC) which for matters of fire management and surveillance in the territory of Europe has created European Forest Fire Information System (EFFIS)[203] which as part of its program has these mechanisms:

- *Fire Danger Assessment*
- *Rapid Damage Assessment, which includes*
- *Active fire detection*
- *Fire severity assessment and*
- *Land cover damage assessment*
- *Emissions Assessment and Smoke Dispersion*
- *Potential Soil Loss Assessment, and*
- *Vegetation Regeneration*[204]

Also, the monitoring and surveillance is done at all times, after which the annual reports are published, which present in a scientifically detailed way each record of each fire that are identified.

[202] See Fire Management Working Papers – Article 1.3.
[203] EFFIS - About. (2022). EFFIS. https://effis.jrc.ec.europa.eu/about-effis
[204] EFFIS - About. (2022). EFFIS. https://effis.jrc.ec.europa.eu/about-effis

27.9 Legal Aspect

The legal aspect of stopping and spreading wildfires is deficient, as states are protected by the principle of state sovereignty by regulating with domestic law the issue of managing and banning wildfires within their territory.

In this part, more in the international spectrum are more developed bilateral agreements, where different states sign agreements aiming protection from wildfires.

Belove we will mention some of the legal frameworks/agreements between different states:

- *Northwest Wildland Fire Protection Agreement,* [205]
- *Agreement of joint control of forest fires between the Government of the People's Republic of China and the Government of Russian Federation*,[206]
- *Agreement on mutual assistance between the French and Spanish fire fighting and assistance services, 1960,*[207]
- *Wildfire protection agreement between the Department of the Interior and the Department of Agriculture of the United States of America and the Secretariat of Environment, Natural Resources, and Fisheries of the United Mexican States for the common border,* [208]
- *Agreement regarding the intervention by water bombers in case of mutual assistance for forest fires*, [209]
- Agreement between the Italian Republic and the Swiss Confederation on the cooperation in the field of fire risk prevention and on mutual assistance in case of natural catastrophes or human activities.[210]

[205] Northwest Wildland Fire Protection Agreement is multilateral agreement between USA and Canada, which has entered into force in 1998 and deal with : forest management, conservation, forest protection measures, and forest fires.

[206] Entry into force June 26, 1995 -

[207] Which intents to offer assistance in time of natural catastrophy coming from wildfires.

[208] Mexio – Usa Agreement – Entered into force on 1999, and in In Article 1 define Purposes

[209] Agrement between France and Italy in terms that they will ofer mutual assistance in case of any wildfires in boarders of both states.

[210] Switzerland – Italy Agrement – Entered into force 1995 - This agreement defines the conditions for assistance in case of any catastrophy caused by people activities.

Also the other mechanisms mentioned as FAO or EFFIS have helped to create the legal framework by creating non binding rules but with the aim of vulnetary implementing in order to make management of wildfires.

As can be seen the main problem lies in the lack of laws which would be more stringent for countries which deliberately provoke fires without caring about the environment. As in many other areas, here we have the dominance of domestic law, whith whom are regulated most issues.

History have proven that states for their economic needs become the cause of harming the environment, they do it without thinking about damages that they could cause.

CHAPTER IV

28. Case Study – Influence of Arctic Glacier on Climate Change (Open Sea regime versus Territorial waters of the surrounding states)

28.1 Introduction

Worldwide crisis is impactin all of as. One of the phenomena with great impact on climate issues are also artic glaciers as chain effects of *climate change* that is happening in the world.

Increase of temperatures brouth problems also in glaciers, in their melting, and these changes have chain effects in many areas which can be affected.

To look for the reasons and causes why this massive melting of ice is happening around the world is simple, the finger must be pointed in the direction of the human factor and its activities as the basis of the problem. The large greenhouse gas emissions have resulted in rising general temperatures in the world, as a result of this rise, the glaciers have started to melt.

In principle, it must first be understood what are these effects that can be interrelated and are important for the environment in general.

Some of these effects are: Sea level rise, extrem weather events, disapereance of the certain species, less fresh water, end other effects that we will explain further.

Arctic region includes Artic Ocean and some parts of Alaska, Russia, Norway, Iceland, Greenland, Finland, Canada, and Sweden (National Research Council, 2015).

This extension is in the geographical sense where most of the arctic glaciers are located but it should be noted that all countries are endangered by their melting due to the connections through water, air and land. In addition to the countries mentioned, there are Glaciers on all continents, starting from Europe, Asia, Africa, America, Antarctica and Oceania.[211] If the Arctic changes then the ecosystem will change, many of the resources we rely on will not be the same, the chain effects will be seen all over the world.

[211] The National Snow and Ice Data Center (NSIDC) -Where are glaciers located? – https://nsidc.org/cryosphere/glaciers/questions/located.html#:~:text=Where%20are%20glaciers%20located%3F%20%20%20%20Geographic,%20%20683.023%20%2049%20more%20rows%20

28.2 Glaciers

To understand the idea of glacier melting we must first talk about the facts that are necessary to understand the importance and essence of the problem. Based on statistical data from various agencies that do satellite monitoring, we can conclude that currently 10% of the earth is covered by glaciers.

According to the world glacier monitoring service glaciers are classified on:

- Continental ice sheet[212]
- Ice field[213]
- Ice cap[214]
- Outlet glacier[215]
- Valley glacier[216]
- Mountain glacier[217]
- Rock glacier[218]

These divisions are in the physical sense that implies that glaciers are found in different forms and round the world. *Historically, oldest glacier in world is Antarctica, it is assumed to be around 1 million years old, while very old in terms of formation is also the Greenland Glacier, which is assumed to be 100 thousand years old. In terms of size the largest glacier in the world is Antarctica's Lambert glacier, with 270 miles long, and 60 miles wide.*[219]

It is interesting that despite the large mass that the Artic Glaciers have, they move and in the form of a river, but in a very, very slow way. Another fact mentioned about glaciers is that they store 65 percent of fresh water. Just as a curiosity is that if each glacier melts then the water surface can rise over 260 feet acordind to scientists.

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[212] National Geographic Society. (2012, October 9). Ice Sheet. https://www.nationalgeographic.org/encyclopedia/ice-sheet/#:%7E:text=Ice%20sheets%20contain%20about%2099,is%20called%20an%20ice%20field

[213] Glacier Types: Icefields | National Snow and Ice Data Center. (2022). NSIDC. https://nsidc.org/cryosphere/glaciers/gallery/icefields.html

[214] Glacier Types: Ice caps | National Snow and Ice Data Center. (2022). NSIDC. https://nsidc.org/cryosphere/glaciers/gallery/icecaps.html

[215] outlet glacier. (2022). Encyclopedia Britannica. https://www.britannica.com/science/outlet-glacier

[216] Valley Glaciers. (2022). VG. http://www.geography-site.co.uk/pages/physical/glaciers/valley.html

[217] Glacier Types: Mountain | National Snow and Ice Data Center. (2022). NSCID. https://nsidc.org/cryosphere/glaciers/gallery/mountain.html

[218] Giardino, J. R. (2011). Rock Glaciers. SpringerLink. https://link.springer.com/referenceworkentry/10.1007%2F978-90-481-2642-2_453?error=cookies_not_supported&code=303e867d-d33a-4986-a11a-1862601ef82b

[219] Live Science –What's the World's Biggest Glacier? https://www.livescience.com/32641-whats-the-worlds-biggest-glacier.html

These are some of the characteristics and peculiarities of Glacier in general, but the effects and changes that have occurred and how they are reflected in the current state of the glacier will be explained later in this paper.

28.3 Artctic and climate change

Climate change observed in the *Arctic* more rapidly than anywhere else. Rising temperatures in this region are 2 degrees higher than in the rest of the world. This rise has been observed especially in the winter season where temperatures have been higher than usually.

Historically in the summer time the ice has melted in the artic, but in the winter season it has frozen again, this has been the logical course of the situation until lately. Now the situation changed, mass of ice melted in the summer is not freezing back in winter due to rising temperatures.

Based on this conditions, in the century we are living, we have witnessed the extinction of many glaciers. It is worth noting that once the world was about 30% covered with ice, compared to the current situation, this ice mass has been lost quite a lot, and now as we mentioned earlier the surface of frozen world has decreased to 10%, with a very large melting trend. Based on these projections it i likely that the 21st century will be era where icy mass in the world will decrease even more.

The risk of melting is multidimensional, they affect the ecosystem in different ways. One of the effects is the risk to species living in the Arctic, which are endangered for their existence. The most endangered are polar bears, seals and walnus which use the icy sheets to rest and prepare their hunt. Climate change is pushing these species to seek new territory suitable for their normal development.

The Arctic is also home to 4 million people who feel more and more endangered every day as their way of life changes. They have lived for thousands of years in these territories, and due to climate change they are forced to look for new ways of life as their situation is getting worse every day.

Changes in arctic are happening rapidly, and are irreversible and this is shown by the fact that 40 % of Milne Ice Shelf calved into sea, and this happened for 2 days, as a result of

high temeperatures.[220] Two weeks after this change, the scientists found that the Greenland ice sheet is in no return position. *The snowfall is not great to restore previous state. Last year there was a record loss of ice, equivalent to 1 million metric tons every minute. With this climate change trajectory, it is assumed that the Arctic could melt completely by 2035, although it was previously thought it would happen in 2050.*[221]

Despite the predictions, recent studies agree that by the middle of the century all the icy mass in the Arctic could be lost regardless of gas emissions, as the damage has already been caused, but this remains to be seen in the future, how the situation will evolve.

Different observations are made, different reports are made every year, and the conclusions and projections are frightening to the trend we are on.

One of the centers of study on the situation in the Arctic is also: National Oceanic and Atmospheric Administration (NOAA)[222] which prepares annual reports on the state and changes in the arctic. Below we will present some of the facts and findings of this agency taken from the 2020 report, as the last report.

The main fact is that the temperature in the Arctic in August 2020 was the highest ever recorded, the water surface was warmer by 1 to 3 degrees more than any period from 42-year monitored by satellites. Also the ice surface during August was the lowest after that of year 2010 (Nakamura, 2021).

Even the thickness of the ice according to this report is the second smallest recorded in history, which means that big changes are coming, and add the fact that states didn't do enough to improve the situation,there is the risk of creating an irreversible situation, where we have to face the consequences that may come and which we have explained above.

According to the current situation, during the summer time, see ice can disappear very quickly, and this is based on the data obtained from the field, at the same time major changes will be caused by chain effects which we will address below.

For this issue we have measured the opinion of people in our survey, where we have raised the question: Do you think Global Warming is the main Cause of Glacier Melting?

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[220] Warburton, M. (2020, August 7). Canada's last fully intact Arctic ice shelf collapses. U.S. https://www.reuters.com/article/us-climate-change-canada-idUSKCN2523JH

[221] Dickie, G. (2021, August 25). The Arctic is in a death spiral. How much longer will it exist? The Guardian. https://www.theguardian.com/us-news/ng-interactive/2020/oct/13/arctic-ice-melting-climate-change-global-warming#:%7E:text=In%20the%20Arctic%2C%20the%20warm,ice%20than%20it%20gains%20back.&text=August%202020%3A%20Following%20intense%20summer,record%2C%20nearly%20reaching%202012%20levels

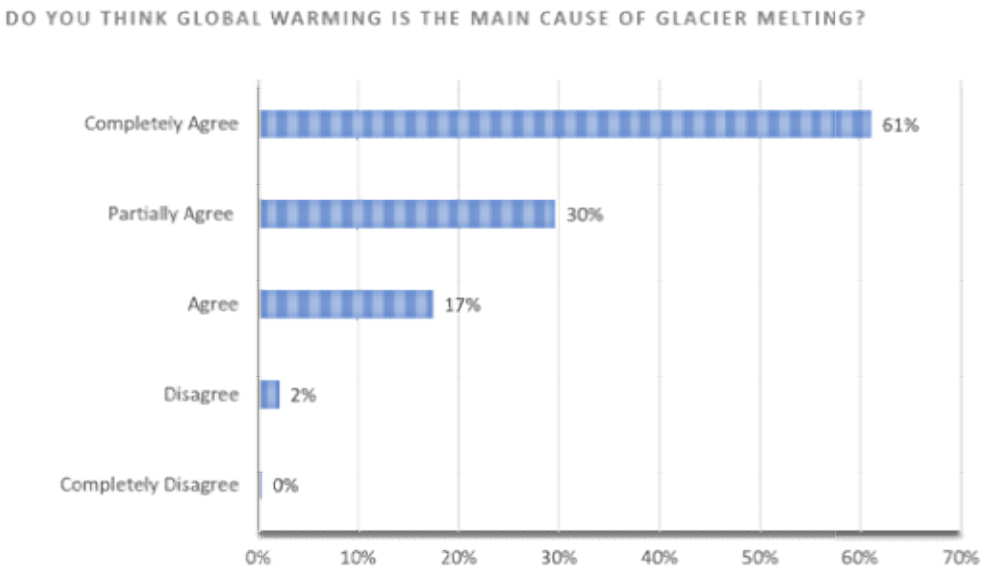
[222] National Oceanic and Atmospheric Administration. (2022). NOOA. https://www.noaa.gov/

Most of the people, exactly 61% of the respodents, have a similar opinion and Completely Agree with this statement. More moderate opinion have another 30% of the respondents who Partially Agree, along with them, there are 17% of the respondents who have ticked "Agree" and in one way their opinion is that global warming is a main cause that has created this condition.

On the other hand there are only 2% of respondents who disagree with our statement and think different than other people who have decided to take the survey.

From the data processed by the survey we can conclude that people accept the idea that Global warming is the cause of glacier melting, and based on this data we can understand that the problem maybe has been identified, now solutions must be found, in order to stop the melting.

In descriptive terms this condition will look like the table below :



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Do you think global warming is the main cause of glacier melting?	0%	2%	17%	30%	61%

Figure 27 (Shahiqi, 2021).Unpublished raw data – The Impact of Climate Change on International law –SEEU University.

28.4 Geopolitacal aspect of Ice melting in Arctic (Open Sea regime versus Territorial waters of the surrounding states)

In addition to the effects that are in nature and on the well-being of people as mentioned above, the geopolitical is also important. The Arctic as an area is part of the 8 major countries, such as the USA, Russia, Canada, Greenland, Finland, Iceland and Sweeden, with Denmark as the country representing Greenland. Abovementioned countries own the land and water areas located in this region. The climate change that is taking place certainly has side effects in terms of Geopolitics as the melting can move both land and water borders as they would be different from the moment when these borders were set previously.

These changes are not the same for all countries, for example America has the comodity to speak and project differently because its part in the Arctic does not have the same meaning and importance as it has the Arctic for Russia. Also the climate is not the same in all Arctic countries, *for example Russia, Scandinavian countries, and Iceland are characterized by storms and wet winters, with weak and cloudy summers. Interior regions of the Arctic differs when it comes to climate, they have a continental climate with dry weather, sunny summer and less snow in the winter.*[223] From this it should be understood that geopolitical interests also differs when it comes to states that are part of Arctic.

Geopolitical interests in the Arctic are encountered in many areas, one of them being oil and gas, as well as trade is one of the problemes, where many countries use this area to trade among themselves. Problems also appear in the conception of free passage, territorial waters, which are defined according to UNCLOSS and this interfere with the concept of state sovereignty, also interfere with the claims of states over territorial rights in the Arctic.

Melting could change the borders, based on this it could change also the claims of the states over the ownership of this area. Land behind the ice can be rich in oil and gas, which could open a serious discussion on who is the owner and who can exploit and benefit from it.

[223] Climate vs. Weather | National Snow and Ice Data Center. (2022). National Snow and Ice Data Center. https://nsidc.org/cryosphere/arctic-meteorology/climate_vs_weather.html

28.5 The arctit routes

Source of problem are also the two roads used for trade: The Northern Sea Route[224] dhe The Northwest Passage[225] which can very quickly be changed and introduced into the Territorial waters of different states as even these two routes may have changes as the ice continues to melt.

The Northern Sea Route has historically been a point of contention, with Russia claiming that the route is an integral part of their state, and with opponents who oppose this claim based on UNCLOSS principles of free passage. In the first 10 months of 2017 alone, 88 violations were recorded by 84 vessels of the Northern Sea Route rules, and these rules continue to be violated. [226]

The map above shows the countries in which these two trade routes are located and which may be a source of conflict and geostrategic aspects in the future.

[224] NORTHERN SEA ROUTE - Arctic Bulk. (2022). Arctic Bulk. http://www.arcticbulk.com/article/186/NORTHERN_SEA_ROUTE

[225] History.com Editors. (2021, March 3). Northwest Passage. HISTORY. https://www.history.com/topics/exploration/northwest-passage

[226] DeGeorge, K. (2017, October 19). Dozens of vessels violate safety rules on Northern Sea Route. ArcticToday. https://www.arctictoday.com/dozens-of-vessels-violate-safety-rules-on-northern-sea-route/

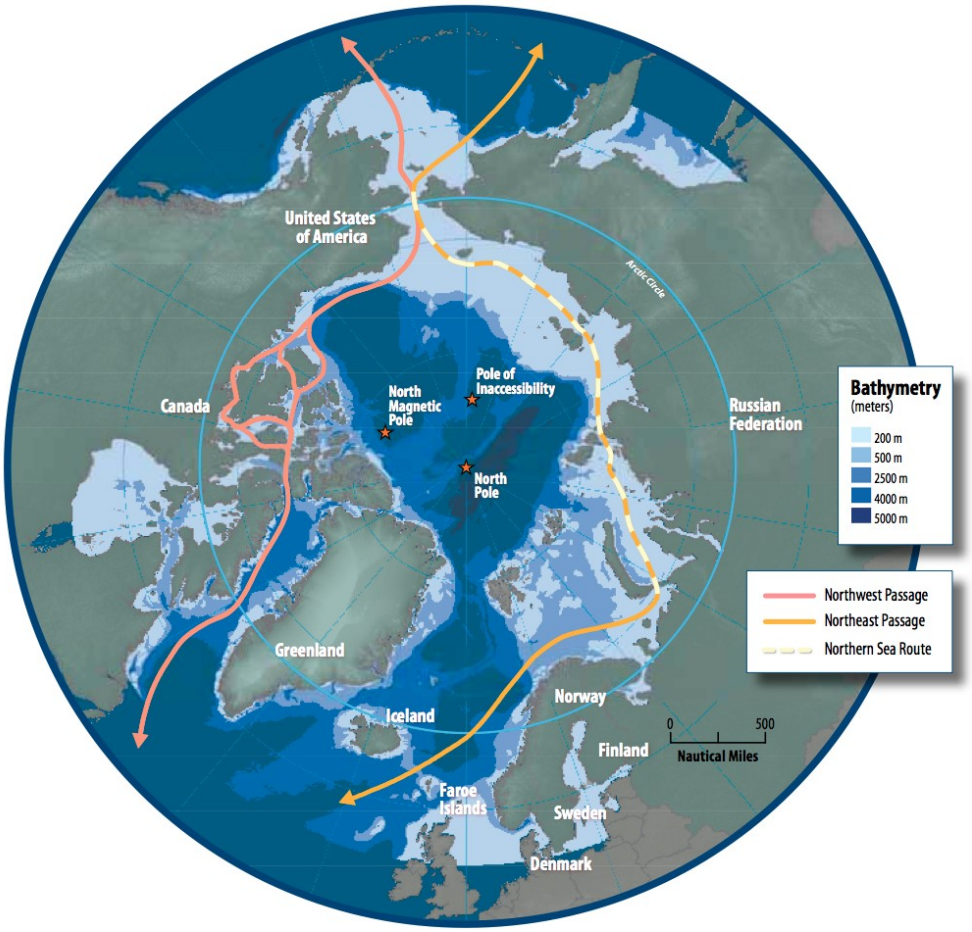


Figure 28 - Northern Sea Route. (2022, May 4). In Wikipedia.

That this area is considered important is the fact that Russia has oriented the economy in the development of this route, according to a statement Russian President Vladimir Putin had stated that he intends to increase transport from 20 million tons to 80 million tons by 2024 trying to do an important area for the global economy.[227]

China's implication is very important as it is cooperating with Russia in development of *Northen Sea Route* with justification that it considers important, as it could shorten trade routes through this route. On the other hand the US has had reservations about Russia's claims that this route is Within their territory, considering it as part of international free passage.

Scientific research has shown that these parts may be rich in gas and oil, and this will be part of the problems in the future if it reaches the position where claims should be made to whom the territory belongs in certain areas. These and other problems will lead to

[227] Mathews S, The Geopolitical implications of Arctic melting – Northen Sea Route – Pg 19

discussions and interpretations between the concepts of Sovereign Immunity and public international law.

Teritorial problems has alson the other route The Northwest Passage which includes the coast of North America, and connects Northen Atlantic with Pacific Ocean, via Arctic Ocean and Canadian Archipelago[228].

This route in terms of state sovereignty has always been part of the discussion between Canades and other states regarding ownership of this route. On the other hand, U.S intends that the part where it enters the territorial waters of Canada should not be considered as territorial waters but as an international part for free passage.

Bigger problems will occur when there may be melting of the ice where claims for territory would be opened.

Geopolitics in the Arctic is also being challenged with the opening of new ports, whether commercial or military, with Russia as the main force behind these developments. But history shows that geopolitical clashes are not new, for example many Americans had opposed the moment of buying Alaska, where they were bought for 7.2 million dollars 586,412 square miles of land from Russia, but this was a wise strategic move since with this had stopped the growth of Russia in the North Pacific. [229]

Exploitation of oil, natural resources, gas, transition to common areas, trade, and many other areas will always be part of the geo-strategic discussion, as always when it comes to territory there will be claims from all states that border each other.

Add to this the fact that after the Ice melts the boundaries can move then the future will have to wait to see how it will be done concretely. Until a major change occurs these states should take care to increase communication, draft legislation that would anticipate all possible hypotheses, respect applicable law, respect good neighborly relations and not incite resentment with each other.

28.6 Melting Efects – Changing Borardes

Similar effects to the situation of Arctic are occurring in other places, where the ice is melting and with it the boarders are moving, there are similar problems in Europe in the Alps.

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[228] Mathews S, The Geopolitical implications of Arctic melting – Northen Sea Route – Pg 25

[229] America in the Arctic. (2022). Center for Strategic and International Studies. https://www.csis.org/analysis/america-arctic

Twenty thousand years ago it was assumed that Switzernald was covered in ice, only the peaks of the applause looked like small islands struggling with the wind. From that time until today we have a radical change, where the icy mass is losing every year more and more.

Globally, the melting of glaciers has become a growing trend, which is continuing uncontrollably in the European Alps. From the observation it is noticed that Glaciers have lost thiknes up to 25.5 m from 1997 to 2018.[230] This melting continues to occur every year and mor, where extreme weather, sunny summers affecting the situation to be out of control.

In a similar situation are Italy and Switerland, where the possibility of Boundary revision in case alpine melting continues to occur. For Switzerland, the current legislation makes the revision easier, compared to Italy which has a more complicated procedure of adopting any possible change, as any change must be ratified in parliament.

Until now Italy, Switzerland and France have had borders in the Alps with the line which has been covered with ice, now after global warming has given its effects these borders have started to be non-existent, and the dividing lines that have been in preliminary agreements are disappearing. The same situation is with the rivers that are found in these areas, as their physiognomy has changed and new arrangements will be needed to define the new dividing lines.

Italy and Switzerland agreed in 2009 that their borders could move in line with climate change, but that has not yet happened.

A restaurant opened in 1984 in the Italian part can now be considered technically located in the Swiss area, and if this is confirmed, they would have to adapt their spaces in accordance with the laws which are in Switzerland.[231]

These changes needs to be moniutored carefully since it affect the territory of two big countries in euope and could be an issue that could make states to re-define boarders that are already defined in the past. And History has shown that this is not an easy task to do, since when It comes to territory all countries hesitate to achieve any agreement.

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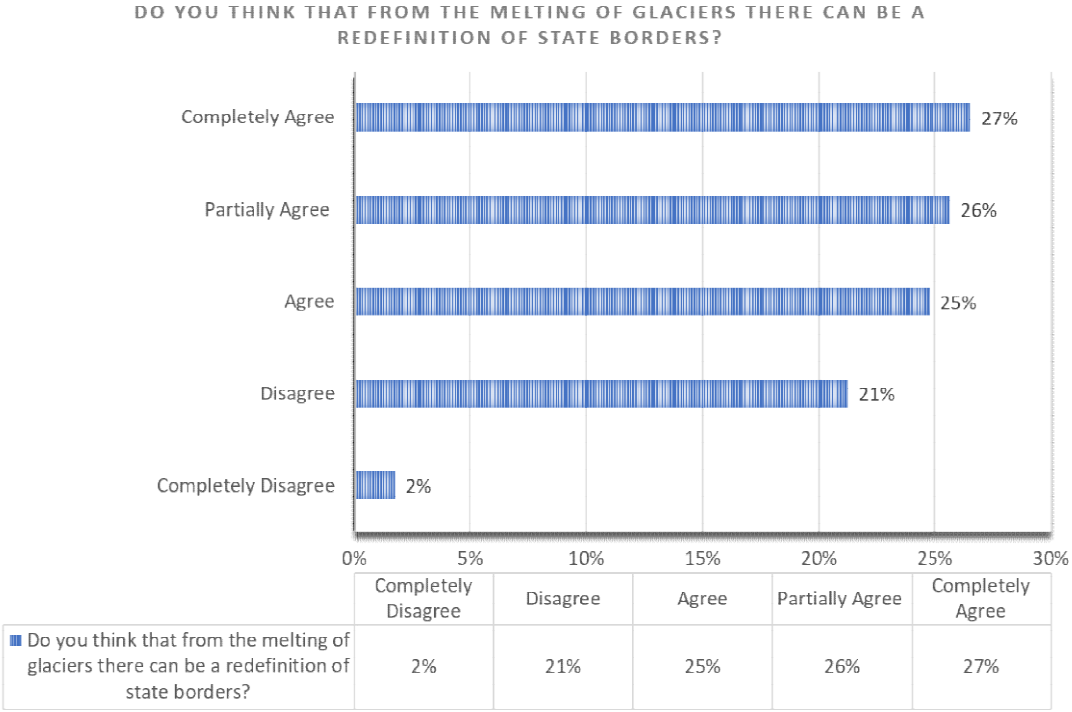
[230] European Commision – Copernicus - Extreme glacier melt in the European Alps - https://climate.copernicus.eu/alpine-glaciers

[231] Foen, F. O. F. T. E. (2022). Climate change in Switzerland (Management Summary). F.O.F.T.E. https://www.bafu.admin.ch/bafu/en/home/topics/climate/publications-studies/publications/climate-change-switzerland.html

That the European Alps affected by *climate change* is out of the question. In Switzerland, around 500 small glaciers are reported to have disappeared. The year 2019 was the year of the disappearance of one of the Glaciers such as Pizol glacier, where in a symbolic way there were crowds of people who had gathered to mourn for the loss of this glacier (BBC News, 2019).

To measure the opinion on this issue we have raised a question in our research: Do you think that from the melting of glaciers there can be redefinition of the boarders and the answers from respondent are different with 27 % that completely agree that there is a need for redefinition based on changes that are happening. Another 26% partially agree and somewhere near 25 % of respondents have a more reserved answer and only gave the answer I Agree with the question raised, compared to 21 % that Disagree and are sceptic that melting coud cause the redefinition of the boarders.

In one way or another these are only predictions of what people think regarding this issue, since we have to see in the future what will really happen. Unitl than we have to monitorate any change that is going to happen and we will have to see if big countries will corporate when it comes to territory since it is a very complex issue.



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Do you think that from the melting of glaciers there can be a redefinition of state borders?	2%	21%	25%	26%	27%

Figure 29 (Shahiqi, 2021). Unpublished raw data – The Impact of Climate Change on International law -SEEU University.

28.7 Disappearing Glaciers

The glaciers that are hit are numerous in number, but some of the most hit will be analyzed one by one, to explain the situation before and after, as well as to analyze the effects that may have in the future.

Any place where there are glaciers are in danger of disappearing, this is because the overall global temperature has risen by 1.1 degrees Celsius, an increase which is continuing to occur and the projections are frightening that the future will be even more dangerous versus different glaciers around the world.

If we look at the historical aspect, as it was in the past and as it is today, we can conclude that the big change in many of the glaciers has already happened, some have decreased, some have disappeared, some will disappear in the near future. NASA had published some data about the endangered Muir Glacier, if we look at the photos recorded via NASA satellites, we can see how the ice sheet had melted and this glacier had lost a large part of it, and now most parts of this glacier have melted.

The best illustration of the issue we can see in the photo below:

Figure 30 – NASA Climate 365 – Muir Glacier Alaska,

This change is from 2004 while the situation in 2022 is even more alarming, as many parts of this glacier have completely disappeared.

The same fate befell the Himalayan Glaciers which lost its mass and has melted in the last 4 decades more than it had disappeared in the last 4 centuries (Newburger, 2021).

According to reports published in scientific journals, this melting has had a very negative impact and seriously endangers the water supply for a part of South Asia, as about 40% of the ice mass has already been lost (Lee et al., 2021).

According to experts, these developments have always come from the human factor that has caused climate change, and as a result of these changes have occurred a series of chain actions that are manifesting themselves in various forms.

Fans of Toblerone chocolates may soon remember the Matterhorn Glacier as one of the glaciers that will be remembered through photographs as the massive melting of ice has begun there as well (*Matterhorn Is Melting as Climate Change Defaces Swiss Alps*, 2020). The Swiss Alps have generally lost a great tons of ice. We have mentioned some glaciers that have either disappeared or are on the verge of extinction, and the same fate is befalling the Matterhorn Glacier. This Glacier has been known for climbing mountains, but now with the melting of the ice, climbing for this mountain has become even more difficult as there are breaks of rocks, landslides and other dangerous conditions (Daley, 2019).

For Helheim Glacier in Greenland there will be a new study, where two scientists will use the most advanced technology through drones, laser scanners, to see the reasons that are leading to the melting of this glacier (Aronsohn, 2019). It should be noted in general that Greenland Iceshet is of great importance, as it is responsible for the sea level rise by 25% globally, making this country the largest individual contributor worldwide.

The same fate befalls the mountains of Kilimanjaro, where the Furtwängler Glacier is almost completely melted. This melting is negatively affecting the sports aspect as well, as as one of the highest peaks in the world it can not be frequented as before as most of the ice has already melted. This state of the world is always showing that we are dealing with a natural phenomenon where most of the mountains, glaciers have begun to disappear. Lost ice in these parts has negative effects in many areas of life, but the most dangerous of them all is rising sea levels and loss of drinking water reserves.

In the 1850s, Glacier National Park had around 150 Glaciers. Today this national park is quite shredded and now has about 25 glaciers, and the ones we see today are remnants of what they once were (Montana, 2022).

Based on scientific data from climate change, it is assumed that by 2035 there may be a general melting of glaciers, because with the current trend of climate change, a return to the time when these were large glaciers can not happen. Many glaciers have reached the point of no return, they are more depleted every winter. This risk is increasing, and will inevitably affect the well-being of people living in nearby areas, but it will also affect the well-being of people in general

28.8 Legal aspect

Melting ice from *climate change* still does not have the proper legal treatment as this is a new phenomenon which involves different countries.

The challenges are different, the hesitations of the states is present, the territorial claims are huge, and as such it makes the development of this field grow slowly.

However, there are some international agreements that are in this area and can be taken as a reference for future development.

There are two types of agreements, bilateral and multilateral agreements. As we know bilateral agreements are between two states, and in this situation are among states which border each other. Multilateral agreements in the other hand are signeds by all states that are part of the Arctic area.

The Arctic as the main Glacier in the world also has its own council which consists of 8 participating States. The Arctic Council has signed three agreements between the states and they are:

- *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic signed 2015* (Council, 2015).
- *Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic signed 2013 (Council, 2015).*
- *Agreement on Enhancing International Arctic Scientific Cooperation signed 2017 (Council, 2015).*

It should be noted that even in this area, the agreements have UNCLOSS as a reference point as a guide and as an international agreement which touches more or less all points that have to do with water.

If we analyze these agreements, they try to create preconditions that the states do not have problems with each other. *For Example Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic is specified through Annex 1 which defines the delimitation zone, expressed in coordinates for each participating state separately trying to avoid problems between the parties involved.*[232]

Also in this agreement is important the access of states to enter to other states which is regulated by Article 8, which specifies how is the possibility of access to the territory where the problem may have occurred and assistance is needed. States in which permission is required should respond as soon as possible. Also in the same article it is shown that the parties must at all times respect international law norms.[233]

Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic also has almost same rules, same objectives. This agreement also seeks to regulate the access of states through each other's territoriesin case of an event. *This agreement in the third article has specified the areas to which this agreement applies, specifying the data for each country separately.*[234] *Equally important for the Arctic is Article 6, which deals with the notification that states should make in the event of an oil pollution, determining the causes and determining which countries are affected in order to know who are responsible for any such incident.*[235] Also a very important agreement between the Arctic countries is the Agreement on Enhancing International Arctic Scientific Cooperation, this agreement unlike the other two is characterized by its legal binding aspect, which means that the parties are obliged to implement the commitments that they have signed, otherwise they may have legal consequences, and this is regulated by Article 10 of this agreement, which provides that disputes may be a contest for international law.[236] Even in this agreement you are

[232] See Agreement article 2, annex 1
[233] See Agreement Article 8
[234] See agreement – article 3
[235] See agreement – article 6
[236] See agreement – article 10

given the opportunity for the parties to resolve through negotiations a dispute, and this is done with Article 15. [237]

It should be noted that in general in conflicts between states whenever there is no agreement and the rules are violated, it opens the way for the general rules of international law to interviene. On the part of Ice melting issues, there are no genuine agreements that have the status of acceptance by all countries, usually bilateral agreements are used between states, or multilateral for countries that are located in certain area, but we can emphasize that a regulatory agreement for all problems still does not exist.

When there is a dispute or impossibility of resolving a problem, states refer to international law and its mechanisms. In terms of connectivity and as a reference point, is considered UNCLOSS, which is seen as one of the agreements that covers many areas, since some of the problems that occur between states can be found in this agreement.

To complete the analysis of the legal aspect we have prepared questions in the questionnaire, to research people's opinion on the question:

Do you think that states should do more on legal aspect to stop the melting of Glaciers and the responses are : 57 % of the people asked, completely agree that states should do more, around 22 %, partially agree with the statement and 21 % have made it clear that they agree with the statement. In countrary there are 5 % of the people that disagree with the question raised and another 2% that completely disagree with the question and they belive that there is a proper legal framework for melting of the glaciers.

[237] See agreement – article 11

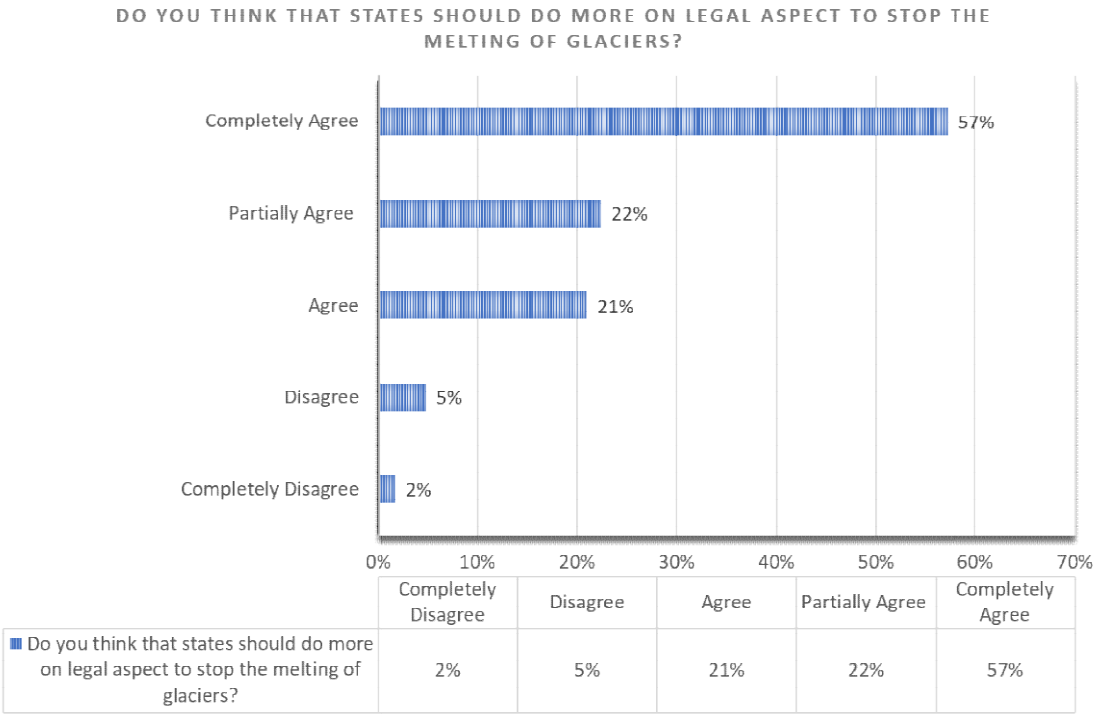


Figure 31 (Shahiqi, 2021). Unpublished raw data – The Impact of Climate Change on International law — SEEU University.

Based on what we already have seen I can say that there is a much need for this field to develop since there is no proper legal framework that could deal when it comes to disputes that are in this field. Ice melting will countinue to be a problem, and the outcomes we will not know until they happen.

28.9 Global Impacts

From what we discussed above we can say that the challenges from ice melting are becoming bigger and bigger and they can affect the whole world. We will try to list some of what are considered scientifically found as possible impacts that may be from ice melting.

The first and most important of the effects of ice melting is of course Sea Level rise, which can cause many problems, in many areas if the melting will be uncontrolled. When we have rapid growth in addition to rising water levels, it can also destroy the habitats of fish, birds and plants. In terms of rising water levels we can be exposed to various, more dangerous hurricanes. The number of rainfall can increase, as well as storms can be much more, and of larger size (Nunez, 2021). What are called bad weather events can be caused by Ice melting, and they can bring: Tornado, hurricane, havy rain, strong winds, flooding. Disapereance of the certain species is one of the possible problems, which damages the animal world in

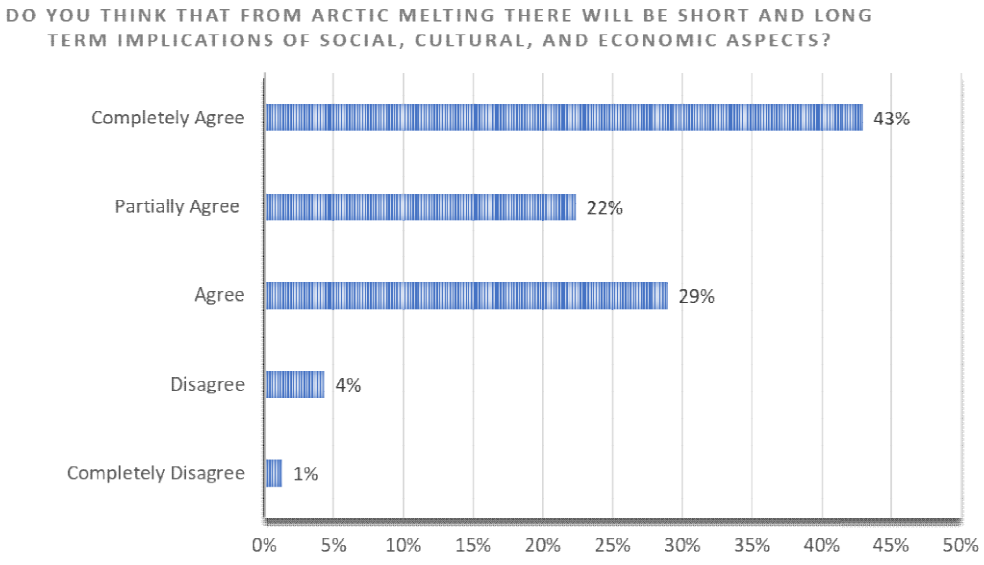
glaciers, this world which is of special importance for our ecosystem. Another problem with ice melting is that we will have less fresh water.

Other problems that can cause international conflicts can be the change of pre-defined borders during the period when the mountains of many countries have been surrounded by ice. The water borders of states defined by international agreements may also change. A concrete example is the crossings and routes explained above which are changing every year.

In the future we will see more effects, because every day from different studies are noticed new effects which are interrelated with this field, as this field is related to the basic problem which is c*limate change.*

Long-term effects that may have social, cultural and economic implications. And for this issue we have raised a questionnaire with which we have tried to measure the opinion on the impacts that may be in these three aspects.

The answers of the persons who answered the questionnaire are in the form that: 43% of people Completely agree, 22% of people partially agree, 29% of these people agree, which shows that most of the people think that ice melting could create an impact even in social, cultural and economic aspect, compared to 5% of the people who have different opionoin and disagree with our question.



	Completely Disagree	Disagree	Agree	Partially Agree	Completely Agree
Do you think that from Arctic melting there will be short and long term implications of social, cultural, and economic aspects?	1%	4%	29%	22%	43%

Figure 32 - (Shahiqi, 2021). Unpublished raw data – The Impact of Climate Change on International law — SEEU University.

Analyzing these data we can conclude that the effects will be numerous and dangerous, so as soon as possible chain steps should be taken which would make it impossible for these phenomena to occur. Improving the situation can only come through genuine policies and strict adherence to the Paris Agreement as the only way to stabilize the already very difficult situation.

CHAPTER V

29. State responsibility, rights, and obligations on protection of the environment

29.1 Introduction

The whole vortex problem of *climate change* and abovementioned related topics lies in how responsible states are, what their rights and obligations are in protecting and preserving the environment, and how these rights and obligations are fulfilled.

The main problem lies in state sovereignty and the conception of natural resources found within a state as an integral part of the state where they are located, and the inability of states to go beyond themselves and see that the environment is a common concept and can only be resolved by agreements and international cooperation.

The biggest violations and the biggest damages are made precisely based on the idea of state sovereignty, as a guaranteed right and a well-known concept within public international law.

International agreements have also stalled and have not been implemented precisely at this point. When they do not suit important states they do not become part of it, as was the case with the *KYOTO Protocol* which was not signed by US on the grounds that harms economy.

The big obstacle is that the International Environmental Law is not yet a field in itself but it is part of the public international law that made the problems in this field to be solved according to the principles which we mentioned above.

Although some aspects of *International Environmental Law* widely developed such as *Climate Change and Ozone Depeltion*, in which various agreements and treaties have been made, which have slightly strengthened the position of this field and also due to the universality that they achieved and of course they have become a law source for every state.

But what characterizes these agreements and what we have mentioned are that they are not legally binding in all its parts, then they are differentiated by the obligations that states

have, which are not the same for all, because also obligations and commitments that derive from these agreements are different for developed and developing countries.

All of the above can become a problem when it comes to resolving disputes that may arise between states, which leaves us to understand that for these disputes we must again refer to international law in general.

29.2 Stockholm 1972 and Rio Declaration 1992 regarding state responsibility

To talk about state responsibility we must always start from principles which come from Stockholm Declaration 1972 and later in the Rio Declaration of 1992 which are often used as a starting point in defining the main obligations on protecting the environment.

The first concept derives from *Stockholm Principle 21* and *Rio Declaration* principle 2 which speaks of the right of states to assets within its territory.

"States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction".[238]

This well-intertwined principle entitles states to use natural resources but always taking extra care that the development of the state does not affect any other state which means that you can not make favorable policies that develop your country using natural resources which may cause damage in the other State.

Another important principle that has been described as responsibility for states is principle 22 in the Stockholm Declaration which states:

"States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction".[239]

[238] See Principle 21,
[239] See Principle 22

It explains importance of cooperating, of working to improve proper legal framework, developing *International Environmental Law*, and they have had a great impact, since from the time they were mentioned until today there has been a great development of environmental issues, both in legal terms, as well as cognitive and informative terms. These two agreements speak of state responsibility, and are starting points, but from these principles have started many other agreements that are in the field of environment, which are derivatives of preliminary agreements.

30. National and Global Environmental Responsibility

The intertwining of national and global law has always brought problems in the implementation of laws that have a general international character. We mention some agreements where restrictions are given to states in the use of natural resources but what we can conclude is that so far there is no international agreement which precisely defines the competencies of states to the point where they can reach resources within the territories. *The general principles are always valid, territorial integrity is the responsibility, privilege, for certain states, but it should be emphasized that the environment should be considered as the "Common Concern" wich is also described on preamble of UNFCCC*[240] for which each all state should take care.

More agreements in environment field are expanding their range and are trying to have a legally binding character in order to be mandatory for all states. But it often happens that states get involved in legal problems between them precisely because of the differentiation they have in domestic laws.

Since we analyzed two agreements which spoke about the obligations that states have, it is time to analyze the other agreement that has to do with Climate Change, the Paris Agreement which has currently taken the lead in addressing these issues.

In the Paris Agreement, the terminology used as a common concern is found in its preamble, where climate change is presented as an issue that affects all mankind.[241]

Further in *Paris Agreement* generalization issues has to do with how the terminology is used such as "All Parties" where this definition can be interpreted as the responsibility of all

[240] See UNFCCC Preamble
[241] See Paris Agreeement – Preamble

member states, adding here fact this agreement has gained universality extending to most of world, and involved around 195 countries.

Also within this agreement there is the part where states have done commitments to keep temperatures at desired level, which means sacrificing all states in order to achieve the desired result.

One thing is for sure, without global effort we will not be able to achieve results that would change the situation. Also, the Paris Agreement seeks to be achieved through the cooperation that the states should have, which is talked about in many articles, as we have explained when we talked about this agreement. The assistance that developed countries should provide to those less developed is the responsibility arising from this agreement without which this agreement would not work.

What is inevitable in the years to come is that all states have to give from their sovreignity to regenerate dhe current situation. Principles of domestic law need to be reconsidered, need to be softened, and the idea of compromise need to grow. By giving something from your state will benefit not only the states that make these compromises, but all humankind.

31. Prevention of pollution and environmental damages

It has often been said that prevention is the best weapon. Based on this principle states are obliged to take steps to stop degradation. It would be futile and naive to think that only international law can address the issue of environmental damage. This requires a combination of domestic and international law. Only when we have harmonization of national legislation with international law, the desired success can be achieved. States needs to harmonize treaties and agreements they sign with domestic law, and to draft laws in accordance with these agreements.

Growth of cities, the increase in number of inhabitants and similar problems have made fight against pollution and damage to the environment even more difficult. This phenomenon appears even at developing countries. They do not guarantee adequate measures. Inadequate emission control of various gases due to lack of technology and

infrastructure. One thing is for sure that the fight against pollution will initially be won by developed countries, because of their economic power but also because of the awareness and tradition that these countries have.

Developing countries will need assistence by these countries to establish best practices to protect and improve the current state of the environment.

There are some small steps that everyone can follow, starting with saving energy, using alternative sources for energy gain, traveling by public transport, or not using plastic bags or plastic bottels, also the protection of the environment can come from not cutting down the mountains and doing new forestation, another aspect are fires as an important element and people should be more carefull when it come starting burning of a certain areas.

In the end most important step is to have a healthy legal structure with different environmental law. Only with adequate legal structure can be done more. Paris agreement has given a great impetus but the most important is that countries that approve these agrements to monitor and control the implementation of these laws.

32. Importance of conservation of natural resources

Conservation in these difficult times for humanity, where every day we face temperatures and events which in terms of climate are unprecedented before is not only a mission but should be the goal of everyone. But as we can understand the preservation of these assets is not always simple, because they are intertwined with the interests of other parties and are usually displayed in economic terms.

Everyone in the world can help preserve their nature and resources. Change can be made even with small actions, but which can improve the situation

Some of the individual actions that can help us in conserving natural resources:

- *Use three R– Reduce, reuse, recycle. Reduce means to cut the amount of trash that we daily generate. Reuse means to be innovative and find a way to use things that in normal situation we would have thown out, and Recycle means to turn something that we don't use anymore into something useful* (Recycling, 2018).

- Education – Educate yourself about climate change, educate yourself about the importanc of the nature, educate yourself about everything that is related to your own good,
- Conserve water – minimize any unnecessary use of drinking water for other purposes, minimize any wastewater, save rivers and lakes, do not throw unnecessary things in them,
- Shop Smart – Be a person who appreciates small details, buy fewer things based on plastic, try to use reusable shopping bags, try to contribute to a sustainable environment,
- Energy – As for electricity, buy efficient equipment which are produced with materials that have less damage to the environment, turn off the lights when you are not at home,
- Plant a tree plant as many trees as possible, they can serve us in many ways, in addition to releasing oxygen, they also bring us fruits, so plant trees because you can do it,
- Transport – Be the person that walks before he drives, be the person that uses bike more often,

All these actions and other actions that can be beneficial for the environment can be done by each of us, but in addition to what is individual, the state must also intervene by creating green policies, respecting international agreements, becoming part of them, putting the environment in front of eventual quick gains that may have from ingredients that are harmful to the environment. The state must also be the regulator, guardian and identifier of each problem. The state must have strict laws for violators, must create genuine policies, must be the main actor for protection of natural resources.

From what was said we can conclude that a joint effort of the state and the individual is needed. It's everyone's duty. State as a regulator and custodian, individuals by not harming.

33. Military Activities that damage Environment

Army activities always pose a risk to the environment, as they can affect the environment in many different ways. Actions in armed conflict have always caused problems in the

environment, and this dates back to ancient times when the perfection of today's weapons were not at the level they are today, but always tended to use the environment to achieve certain situations.

It is true that in times of war the reasons are probably lost and the focus shifts to something else, but preserving and protecting the environment during conflicts should be an inevitable part.

It must be said that there are many side effects that can be from armed conflicts, especially now that we have a great technological development, and weapons are of a very sophisticated level, and with the possibility of destroying the ecosystem.

Such was the situation in the Kosovo war, where Western countries, the NATO pact and the USA, had bombed for three months in a row the Republic of Serbia, within its territory, and also within the territory of Kosovo, in the parts where Serbian forces were stationed. In terms of the Environment in this war *UNEP* had decided Task Force to clear the environment from bomging consequences.

From the findings of the Task Force it was concluded that 4 cities such as Kragujevac, Bor, Novi Sad and Pancevo posed a permanent risk to the health of citizens.[242]

For such a project the Balkan Task Force had spent around 17 million euros and the focus was on 5 categories:

- *Environmental consequences of air strikes on industrial sites,*
- *Environmental consequences of the conflict on the Danube river,*
- *Consequences of the conflict on biodiversity in protected areas,*
- *Consequences of the conflict for human settlements and the environment in Kosovo,*
- *Possible use of depleted uranium weapons in Kosovo.*[243]

In Kosovo, this Task Force visited two important facilities in the city of Prishtina, which were bombed by the war, the first was Socially owned enterprise - SOE Jugoplastika, where after

[242] UNEP-led Balkans Task Force to continue its work in Yugoslavia - Serbia. (2000, February 8). ReliefWeb. https://reliefweb.int/report/serbia/unep-led-balkans-task-force-continue-its-work-yugoslavia

[243] UNEP-LED BALKANS TASK FORCE TO CONTINUE WORK IN YUGOSLAVIA | Meetings Coverage and Press Releases. (n.d.). UNEP. https://www.un.org/press/en/2000/20000208.unep58.doc.html

the war a KFOR base was established, fortunately only one the bomb had hit this enterprise, and had not managed to completely melt the materials, from the results obtained by the experts it had emerged that there was no great damage. Also another Socially owned enterprise bombed was Jugopetrol, which was a fuel depot, but at the time of the bombing fortunately there was no fuel left and no major damage was caused to the environment. [244]

In general, this task force had come to the conclusion that there was no environmental disaster during the war in Kosovo, which is good because of the problems it could have brought in the future.

Apart from the aspect of direct damage that armed conflicts can bring, worthwhile analyzing intertwining conflicts with the *climate change* that is taking place, taking different examples from countries that have to deal with these two aspects simultaneously.

According to a 2019 publication, a scientific study concluded that climate change could increase the risk of future armed conflicts.

Also another study had found that from climate change, respectively from the great droughts that are appearing, different areas had started migrating, striving for a better life.

Another Report prepared from *International Committee of the Red Cross (ICRC)*, "WHEN RAIN TURNS TO DUST" explains connection between armed conflicts and climate change in people's lives. From the Drought that had struck Mali, a new sense of fear had been created for its citizens. By 2012 the armed conflict in the north of the country had made it impossible for the Mali people to adapt to climate change, rains were very rare, and during the summer there were drought, which made it impossibility to cope. [245] Armed conflicts, in addition to the deaths of people, bring with them also the destruction of the Environment. Bombing campaign can contaminate the fields, as well the air and land, and many people later lose their life, from the inability to survive the consequences of war.

Scientists all agree that climate change does not cause direct conflict, but can be an indirect cause, increasing the risk of other factors that could lead to conflict. [246]

When asked about climate change by citizens of war-torn countries from Central African Republic, Iraq and Mali, most did not know the terminology and did not know what it was about, but when asked about the changes in the day-to-day work they do, they explained

[244] See the report Pg 58
[245] See the report pg 15
[246] International Committee of the Red Cross. (n.d.). ICRC. https://www.icrc.org/en/document/climate-change-and-conflict

exactly what has changed and how their family economy is at risk from changes in the environment. It must be said that in times of conflict even the state administration does not work at its full capacity, and the state somehow loses the ability to manage all other crises because the focus remains on the war, and this brings the inability of people to cultivate and bring good from the field of agriculture which are necessary for their life.

In legal terms, as part of the codified protection in war time are important agreements:

- *The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, (ENMOD Convention),* [247]
- *1977 Additional Protocols to the Geneva Conventions of 1949,* [248]

These two conventions are the most important, and have to do with the preservation and protection of the environment in times of conflict and war. Of course, these are not the only ones because they are related to other conventions. Important parts of environmental issues are the agreements we have already explained, such as the Rio and Stockholm Declaration. UNCLOS is also important as it sets out the rights and obligations of the sea water, as well as other environmental agreements, such as the Kyoto Protocol, the UNFCC, and the Paris Agreement. All these provide a special element which as a whole contributes to the preservation and protection of the environment.

ENMOD Convention in first Article specify: Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.[249]

Then its second point is decisive as it forbids other states and various organizations to encourage any state to undertake the activities prohibited in point 1.

Equally important is Article II of this convention, as it explains what it is "environmental modification techniques"[250] and Article V also explains how the member states of this

[247] Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) – UNODA. (n.d.). ENMOD. https://www.un.org/disarmament/enmod/

[248] International Committee of the Red Cross. (n.d.-b). ICRC. https://www.icrc.org/en/doc/resources/documents/misc/additional-protocols-1977.htm

[249] See Article 1

[250] See Article II

convention are obliged to give all their expertise in case of need to contribute in case of any possible conflict.

Like any other agreement, this agreement has the most difficult part of it being ratified by many states, as potentially strong states that are involved in wars are reluctant to sign any agreement that may appear to be blocking their claims.

Important is also "The Geneva Conventions of 1949 and their Additional Protocols", especially protocol I, and the environment benefits are initially illustrated in article 54 which prohibit attacks on “Objects indispensable to the survival of the civilian population” which states:

“It is forbidden to attack or destroy objects indispensable to the survival of the civilian population, namely, foodstuffs and food-producing areas, crops, livestock, drinking water supplies and irrigation works, whether it is to starve out civilians, to cause them to move away or for any other reason. These objects shall not be made the object of reprisals."[251]

Public international law seeks to regulate issues during conflicts, so that in terms of International Humanitarian Law, the lives of civilians are preserved and protected.

And this is passed by *Article 55 “Protection of the natural environment” Point 1, “Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population”.*[252]

The commentary on this article explains the terms used and how they should be interpreted in legal terms, what they mean, and how they can be understood. The term used “Natural Environment” covers the biological environment in which a population is living.[253]

ICRC, in addition to its commentary, has created guidelines that explain in a more general way the interpretation of the norms that come from the International Humanitarian Law, which have to do with "Protection of the natural environment". The guidelines are divided into 4 chapters:

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[251] Geneva Conventions of 1949, Additional Protocol I, Article 54 - Objects indispensable to the survival of the civilian population

[252] Geneva Conventions of 1949, Additional Protocol I, Article 55 - Protection of the natural environment

[253] Treaties, States parties, and Commentaries - Additional Protocol (I) to the Geneva Conventions, 1977 - 55 - Protection of the natural environment - Commentary of 1987. (2022). IHL. https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/Comment.xsp?action=openDocument&documentId=7B82DFCC11FAE4C5C12563CD00434DBC

- *Specific Protection Of The Natural Environment under International Humanitarian Law,*
- *General Protection Of The Natural Environment under International Humanitarian Law,*
- *Protection Of The Natural Environment afforded by rules on Specific Weapons,*
- *Respect for, Implementation and Dissemination Of International Humanitarian Law Rules Protecting The Natural Environment*[254]

From the listings above we can understand the IRCR tendency to explain through the guidelines how to interpret articles related to areas related to the Natural Environment, also this guide explains the rules of Specific Weapons which today pose the main risk if a conflict between states can escalate.

34. Environmental Crimes

Topics that connect us with the environment, every day are becoming more importan, as they have become part of our daily lives, also for the fact that the media have begun to give greater importance.

If we look at all the important acts in international environmental law we can understand that all these acts give importance to to taking care and protect the environment. *The Stockholm Declaration*, as one of the primary acts, with great importance, first article, gives people "solemn responsibility" preserve, protect Environment. *The World Charter for Nature* also gives special attributes for protectiong environment by individuals, but even here the main problem of state sovereignty appears where states have to regulate issues on environmental crime with domestic legislation.

“Environmental crimes are infringements of relevant legal obligations that can cause significant harm or risk to the environment and human health and are or can be addressed

[254] International Committee of the Red Cross. (n.d.-b). ICRC. https://www.icrc.org/en/doc/resources/documents/misc/additional-protocols-1977.htm

through criminal law". [255] This is the definition you can find at the European Council when it comes to environmental crimes. Concil of Europe has contributed on drafting "Convention for the Protection of the Environment through Criminal Law" [256] to have codification regarding preservation and protection to be done globally. This convention aims to create general, common policies so that criminal liability is regulated with same methods in different countries. This is the biggest challenge because states reserve their rights within their territory. Most of the states in order to gain economic benefits uses their environment in certain ways, by cousing damagese to the nature. In this convention, *Section II, Measures to be taken at national level*[257] explains the duties and responsibilities that states have to put into domestic criminal codes, issues related to environmental degradation and as such to be sanctioned by domestic law all actions that are contrary to this convention. Below we will analyze the case of Kosovo, the codification that Kosovo has made in its criminal code of issues related to crimes against the environment.

35. Environmental Crimes - Kosovo Case

Kosovo as a small country, emerged from the war, with many socio-economic problems, with a democracy which is being built every day and more, aims to have domestic legislation in harmony with the European Union, as the goal and Kosovo's state agenda since declaring its independence is Euro-Atlantic integration. Mandatory laws approved by the Assembly of the *Republic of Kosovo* intend to compliance with European legislation.

A similar situation is the issue of preservation and protection of the environment, which Kosovo has placed in its Criminal Code.

Article 338 of the Criminal Code "Polluting, degrading or destroying the environment" provides for imprisonment of up to 5 years for persons who intentionally pollute the environment. If these criminal acts degrade the environment in an irreparable form then the perpetrator can be sentenced from 1 to 8 years in prison.[258]

Article 339 regulates "Unlawful handling hazardous substances and waste" determines the possible penalties for persons who transport hazardous substances and waste. This article

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[255] Environmental Crime - Legislation - Environment - European Commission. (2022). EC. https://ec.europa.eu/environment/legal/crime/#:%7E:text=Environmental%20crimes%20are%20infringements%20of,be%20addressed%20through%20criminal%20law.&text=Environmental%20crime%20often%20affects%20society%20as%20a%20whole%20rather%20than%20individuals.

[256] Council of Europe - European Treaty Series - No. 172, Strasbourg, 4.XI.1998

[257] See the convetion – section II

[258] See Article 338

provides which acts can be consider as criminal acts and what are the punishments for this types of crimes. *If the offense provided for in paragraph 1 or 2 of this Article results in the death or serious bodily injury of a person or in substantial material damage to property, animals or plants or in substantial material deterioration of the air, water or soil quality, the perpetrator can be punished with a fine or imprisonment of three (3) to twelve (12) years.*[259] *Sanctioned with a criminal code in the Republic of Kosovo is construction or unlawful operation of plants and installations that pollute the environment*[260], as is punishable by applicable laws and damage to buildings that are in environmental protection. The Criminal Code of Kosovo has also provided for the prohibition of inhuman treatment of animals, and has sanctioned by law the illegal and inadequate treatment of veterinary assistance to animals.

Special parts of this law sanction the issues related to forests. Article 347 prohibits the destruction of vegetation and provides for criminal penalties for persons who commit these acts intentionally. If forests are declared protected and considered national assets, their destruction can be sanctioned with imprisonment from 1 to 5 years.[261] Also sanctioned is theft in the forest, where anyone who exceeds the depth of the forest in more than two cubic meters can be sentenced to up to 1 year in prison.

Important parts of this law make us understand that Kosovo has taken some actions in an attempt to prevent ill-treatment of environment, which may come from irresponsible persons.

What is much more important for the future is that this codification, this introduction of these issues in the criminal code, be accompanied by law enforcement, as the only way to stop the daily degradation of the environment.

Kosovo is faced every day with real problems related to the environment, if we look at the air quality in the capital of Kosovo we can see that we have a very serious situation. In addition, there must be a constant war againsts deforestation, which is degrading more and more every day.

Also a very big problem of the state of Kosovo is the production of electricity that is based on coal, and to this we must add the fact that thermal power plants in Kosovo are of

[259] See Article 339
[260] See Article 340
[261] See Article 347

outdated technology and the greatest pollution of the environment comes exactly from thermal power plants.

CHAPTER VI

36. Research/Survey on Climate Change issues

For the purpose of research and giving greater credibility to the topic addressed Impact of Climate Change on International law we have made a questionnaire that deals with related topics and gets people's opinion on these topics.

The questionnaire was offered to two different groups of people, and then the data of these two groups were compared through several methods.

The survey consisted questioned below:

1. Do you think that Climate Change is the main problem of the 21st century, in the field of environment?
2. Do you think there is a proper legal framework to address all Climate Change issues?
3. Do you think that agreements in the field of Climate Change should be Legally binding on all countries?
4. The human factor is considered to be the main cause of Climate Change. Do you agree with this statement?
5. Emissions of "Greenhouse Gases" are the main causes of Climate Change. Do you think that your country should do more to limit the emission of these gases?
6. Do you think governments should have green policies in their programs?
7. Do you think there is a lack of proper information on the importance of Climate Change?
8. Do you think air pollution is a key problem in your country?
9. Do you think that forestation can improve the current state of Climate Change?
10. Do you think that the main cause of wildfires that damage the environment is the carelessness of people?
11. Do you think that climate change affects the faster spread of wildfires and both topics are interrelated?
12. Do you think global warming is the main cause of glacier melting?
13. Do you think that from the melting of glaciers there can be a redefinition of state borders?
14. Do you think that from Arctic melting there will be short and long term implications of social, cultural, and economic aspects?
15. Do you think that states should do more on legal aspect to stop the melting of glaciers?

Figure 33 Questions of the Survey

The questionnaire was made with the platform provided by the company Google, and has been active for a period of 15 days.

Notes:

Variables are coded as it follows:

For descriptive:

- *Male*
- *Female*

Questionnaire codes – Liker Scale used:

- *Completely agree*
- *Partially agree*
- *Agree*
- *Disagree*
- *Completely Disagree*

RESULTS:

Statistical approach: T- test
Two different groups are tested:
First Group – Marginalized group, which deals with environmental issues (91 Respodents)
Second Group – Random People (143 Respodents)
Date of Survey – 10.03.2021 – 25.03.2021

T TEST - is a type of inferential statistic used to determine if there is a significant difference between the means of two groups, which may be related in certain features.[262]

[262] T-Test Definition. (2022, March 12). Investopedia. https://www.investopedia.com/terms/t/t-test.asp#what-is-a-t-test

First Group – First Group – Marginalized group, which deals with environmental issues (91 Respodents)
28.14 average for first group with standard deviation 8.24
T – Value for first group is 39.7
Second Group – Random People (143 Respodents)
27.45 avarage for second group with standard deviation 8.03
T-Value for Secound Group is 30.7
Alpha Value – 0.1 which means it is significant, and statistically can be interpreted that there are similar opininions with both groups
Result: The two groups surveyed have relatively the same opinions on issues/questions without any significant difference based on the results of the T-TEST

Extra Analisys – Gender differences for both groups
Mean for females = 29
Mean for males = 25.47
Alpha value for both groups is 0.12 which meand that there are no differences on genders regarding issues related to questions raised.

Also another part of this research have been the descriptive way done through diagrams which are part of the paper which reflect the responses of the parties in general how they look statistically. This method has made it possible to see the answers of the respondents for certain topics and also the placement of these diagrams has been puted during the treatment of topics which are related to this survey.

In descriptive methods, the answers of all respondents were made together, from where the results were derived as we have seen in the diagrams.

The questionnaire was distributed in different groups of social platforms, from where it was tried to have as many respondents of different profiles to have a diversity of opinions.

37. Conclusion

Climate change, a new topic of international environmental law, is relatively well developed and this is thanks to the raising of awareness of the problem that is threatening the world every day. This awareness raising is serving as a method to improve the state of the environment in general.

Today, world is facing changes every day, changes which come mainly from the "human" factor.

The environment and mankind have an inescapable connection. The right for clean environment, unpolluted air, quality food and water, safe life, is now being guaranteed not only by international law, but these rights related to the environment are included also in domestic Laws.

Various topics are addressed in our topic. We first started from sources of IEL, method how it has developed in the past, as well as how the current situation is with topics related to Climate change. In addition, all international mechanisms have been analyzed, whether governmental or non-governmental, but which have contributed to the development of topics related to these issues. It can be concluded that the role of these mechanisms it is very important. They have made it possible that the knowledge obtained from the scientific and social fields to be disseminated and brought to people in order to raise awareness of the importance they have.

The climate change in world has given great impetus to the idea that this discipline should be developed even more and have an important role within public International Law, and maybe soon it can become an important discipline of Law.

In terms of the development of this discipline we can conclude that we have a general development in terms of law, where as we have mentioned there are around 1000 multilateral agreements signed between countries, which address various issues related to the environment. Add to this the fact that the states have also contributed by signing about 1500 bilateral agreements which give the necessary dynamics to the further development of this new discipline.

The role and importance of codification and the impact of climate change on international law is undoubtedly played by international organizations that deal with these issues and which we have addressed in a special way. Today there are many important mechanisms and among them it makes an extraordinary contribution *The United Nations Environment*

Programme (UNEP), which program diverse, it deals with every Environmental field such as Climate Change, Air, Biosafety, Forest, Green Economy also it has Sustainable development Goals. UNEP is very important, in the Climate Change sector. The work of UNEP with different governments, intending to integrate Climate Change into their national policies, have given UNEP the importance that it has today.

Iimportant role have played, UNDP with its programs worldwide, *IUCN - International Union for Conservation of Nature,* especially its program, *Law and climate change* with two mechanisms, *World Commission on Environmental Law (WCEL) and Environmental Law Center (ELC).*

In general, with climate change, there are some concerns, among which are that the global temperature is rising, since 2017 an increase has been seen and there is a projection that this is constantly increasing. (Shahiqi, 2021). The sea level has increased by about 20 cm and at the same time, some actions must be taken because this level can go much higher, and on these topics we can conclude that much more needs to be said, much more information needs to be disseminated, so that even ordinary people are aware of the importance of climate change (Shahiqi, 2021).

Our conclusions also come from the information and opinions we received through the survey, where questions were asked about whether we possess the necessary information, what impact the "human factor" has, and whether climate change is considered the biggest problem of the 21st century.

From a scientific point of view, the key problem that has caused this condition are "Green House Gases" with CO2 as the main source of the problem, not to mention the other 6 gases which are equally harmful and cause global warming. As a result of global warming there are some effects that scientists have noticed and among them the most special are: sea levels are rising, Glaciers are melting, air pollution is higher, more acidic oceans, more heats, more storms.

What can be concluded at this point is that the biggest polluters are developed countries, with developed industries that have coal as a primary product for the functioning of industry. Among these countries the biggest polluter is China, which alone accounts for 28% of Green House Gases emissions worldwide. The biggest contributor in scientific terms is *(IPCC) The Intergovernmental Panel on Climate Change* which aims to provide information to governments at all levels with scientific data on the impact that climate change may have.

The focus is to be inclusive of the impacts it can have, whether political, natural or economic. The idea is to use scientific data to guide governments in designing better policies to combat climate change.

The topics covered in relation to climate change are different, among them the most important are air pollution, protection of the ozone layer, marine pollution, ultra hazard activities, and other topics to which we have analysed their main agreements. , which aim to prevent these activities harmful to the environment. The contribution and connection of these topics among themselves have made International Law to take a lot from all, and in some form to create its sub discipline that deals with environmental issues. Agreements are numerous, but their implementation sometimes encounters great difficulties, and the conclusions are that there are good agreements but many times it happens that these agreements are not respected by various states.

The phenomena related to climate change that are today part of various treatments, which we have analysed are also Wildfires and Arctic Glaciers.

Today the course of wildfires are escalating, they are increasing in frequency, and becoming more difficult to manage. What is worrying in normal conditions is that people are the main cause of all the problems that occur in the environment. The more greenhouse gas emissions, the more severe the consequences of fires. These areas cannot be unrelated as wildfires without these climate changes have been both smaller and less damaging to the environment. The number of fires in recent years has increased dramatically, this year even in Balkans there were several wildfires which crated a great damage to environment. The legal aspect of stopping and spreading wildfires is deficient, as states are protected by the principle of state sovereignty by regulating with domestic law the issue of managing and banning wildfires within their territory. History have proven that states for their economic needs become the cause of harming the environment, they do it without thinking about damages that they could cause.

With the increase of temperatures as a result of climate change, problems have also appeared in glaciers, in their melting, and these changes have chain effects in many areas which can be affected. Some of these effects are: Sea level rise, extreme weather events, disappearance of the certain species, less fresh water. In addition to the effects that are in nature and on the well-being of people as mentioned above, the geopolitical aspect in the Arctic is also important. The Arctic as an area is part of the 8 major countries, such as the

USA, Russia, Canada, Greenland, Finland, Iceland and Sweden, with Denmark as the country representing Greenland.

Geopolitical interests in the Arctic are encountered in many areas, one of them being oil and gas, as well as trade is one of the problems, where many countries use this area to trade among themselves. Problems also appear in the conception of free passage, territorial waters, which are defined according to UNCLOSS and this interfere with the concept of state sovereignty, also interfere with the claims of states over territorial rights in the Arctic.

Melting could change the borders, based on this it could change also the claims of the states over the ownership of this area.

The Arctic as the main Glacier in the world also has its own council which consists of 8 participating States. The Arctic Council has signed three agreements. All agreements have UNCLOSS as a reference point as a guide and as an international agreement which touches more or less all points that have to do with water.

But let us return to the most important issue, T*he impact of climate change on international law*, by analysing the agreements that gave the most to this field. Two declarations can be considered as starting points, the *Stockholm Declaration* and the *Rio Declaration*, which are often used as a starting point in defining the obligations that states have.

The biggest impact in terms of legeal aspect are certainly the most important international agreements in the field of *climate change*, starting with, *The UN Framework Convention on Climate Change 1992, Kyoto Protocol, Paris Agreement.* It also remains to be seen how the Glasgow agreement will affect the future, as it aims to lower the threshold to 1.5 degrees Celsius.

The UN Framework Convention on Climate Change 1992, as first agreement in field of *climate change*, has given its input. In legal terms there is a problem, even this agreement is not binding, although it provides some opportunities for new protocols that may be binding on the state which signs them (Shahiqi, 2021).

This is the first obstacle of this agreement, SOFT LAW aspect, precisely because of its non-binding nature, which means that states have no legal obligations, and are not legally penalized for failing to deliver on commitmentsThe impact of this agreement is given in the part that enables the development of new protocols, based on the preliminary agreement, as happened with the Kyoto Protocol (Shahiqi, 2021).

In the Kyoto protocol, the legal aspect is very important, also it is important what gives this protocol to the International Environmental Law and international law. Unlike UNFCCC which can be considered as soft law, the Kyoto protocol can be considered as both soft law and hard law. Its relation with the countries with developed industry is stronger, and here binding rules apply. Kyotot is one of the first agreements that have binding rules, it is considered as one of those agreements that have an impact on International Environmental Law, in its development (Shahiqi, 2021). Kyoto's failure may be related to the non-ratification of this agreement by major powers such as the USA, then the withdrawal of Canada from the agreement, which in a way diminishes its importance in international law, as it had not received the proper universality and extended to all countries.

The impact of climate change on international law has been growing, because after the failures and shortcomings in the Kyoto protocol, an attempt has been made to correct these shortcomings in the next agreement, that of Paris. *From a legal point of view, the Paris Agreement is also binding on the signatory parties and its purpose is to limit global warming and keep it below 2 degrees Celsius (Shahiqi, 2021).* There are many pros and cons regarding the legal aspect and its impact on international law. What is important is that the Paris Agreement has a Binding character, which means that it is considered a Treaty, and then the principles deriving from the Vienna Convention, the Latin maxima Pacta Sunt Servanda, apply. *The most common interpretations are that the agreement is legally binding but not in all its parts, and this is related to the fact that not every part of the agreement creates legal obligations* (Shahiqi, 2021).

In any case, the Paris Agreement has gained weight after most countries in the world have signed it. How important it is, shows that one of the first three decisions of the newly elected president of the USA was the decision to return to the Paris Agreement after his predecessor had left the agreement (Shahiqi, 2021).

From the research we have done we can conclude that the Paris Agreement has the greatest impact on international law of all other agreements related to climate change. Seeing the degradation of nature every day, people have begun to think that we are all responsible for improving the situation, and this can be concluded with their answers, where almost everyone have stated that international agreements should be legally binding.

Another discussion can be opened whether all these agreements are enough to successfully codify this field, the answer is NO, as this can be evidenced by the repeated need to re-

examine the targets, re-codify issues which have not been foreseen before, to provide additional funds, to make more efforts for the states in the national aspect to have harmonized the legislation conform to these agreements.

One thing is for sure, the future will be even more difficult, because geopolitical interests, economic interests, often outweigh the general interests, and states think about these interests before thinking about the environment as a common good.

38. Recommendations

But what are the recommendations, what can be improved in the future in order for this situation to change, and I would categorize them in several areas.

Legal Recommendations:

1. The most important is the legal aspect. In this section we could recommend that initially it would be very important that agreements on issues related to climate change be legally binding,
2. It would be ideal for *International Environmental Law* become special discipline of law,
3. The other recommendation is to establish an International Environmental *Court of Justice* to deal with the implementation of the agreements, and to deal with cases where there are crimes against the environment,
4. States to harmonize all international legislation and agreements with domestic law,
5. Current international agreements, to have review periods, in accordance with scientific findings,
6. Glasgow Climate Pact to become legally binding when it comes to reducing targets from 2 degree Celsius into 1.5,
7. Every country sign *Paris Agreement*, so that we can have a more universal extension,
8. Sanctions for violators of agreements, severe penalties for environmental degradation,
9. The right toclean environment, unpolluted air, quality food and water, safe life, to be guaranteed for every person in the world,

10. Adjustment of the financial part, commitments to be made legally binding, in order to provide sufficient funds

Social Recommendations:

1. Education – Educate yourself about climate change, educate yourself about the importance of the nature, educate yourself about everything that is related to your own good,
2. Raise your Voice, be the part of the people who reacts for environmental degradation,
3. Use three "R" – Reduce, reuse, recycle,
4. Conserve water – minimize any unnecessary use of drinking water for other purposes, minimize any wastewater, save rivers and lakes, do not throw unnecessary things in them,
5. Shop Smart – Be a person who appreciates small details, buy fewer things based on plastic, try to use reusable shopping bags, try to contribute to a sustainable environment,
6. Energy – As for electricity, buy efficient equipment which are produced with materials that have less damage to the environment, turn off the lights when you are not at home, choose green energy,
7. Plant a tree plant as many trees as possible, they can serve us in many ways, in addition to releasing oxygen, they also bring us fruits, so plant trees because you can do it,
8. Transport – Be the person that walks before he drives, be the person that uses bike more often.
9. Demand sustainable measures in order to have a quality life,
10. Share information, tell your family and friends for everything that you know about the environment.

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