



Facultad de Ciencias Humanas y Sociales  
Grado en Relaciones Internacionales

Trabajo Fin de Grado

**COMPARATIVE ANALYSIS OF  
APPROACHES TO THE PROBLEM  
OF CLIMATE CHANGE:  
USA, FRANCE AND CHINA**

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Madrid, Mayo 2019

## **Abstract**

Climate change has consolidated as one of the fundamental issues on the political agenda of the states. The increasing number of scientific reports that warn about the catastrophic consequences of temperature rising leave no doubt about the necessity to implement measures that mitigate the adverse effects of our lifestyle and consumption patterns. However, Donald Trump has decided to ignore this phenomenon, promoting the withdrawal of the United States from the Paris Agreement. Meanwhile, Macron and Xi Jinping have emphasized the urgency to strengthen this agreement and maintain international dialogue to find solutions to challenges posed by climate change.

This situation leads me to wonder why these three states have decided to act in different ways regarding the same problem? To answer this question, I focus on analyzing in first place the climate policies that have been adopted to later analyze the influence that four variables have had on these policies, first the ideology of the political leaders and their electorate, second the influence of the fossil energy industry, third the health problems of the population and finally the geostrategic interests. The analysis shows that in the case of the United States as well as in the case of France and China, there is a great influence of the ideology and geopolitical interests when drawing the climate strategy. The influence of the industry is very significant in the US while in France it is less evident and in China it does not represent a determining factor, contrary to what happens with public health where in that country, it is a decisive factor when it comes to implement policies that are more respectful with the environment. On the other hand, in the US and France, health problems caused by climate change cannot yet be considered as a determinant element of political transformation.

## **Key Words**

**Climate change, Paris agreement, rising temperatures, renewable energies, fossil fuels, health, energy independence.**

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## 1. INTRODUCTION

In recent years, both ecosystems and the world's population have begun to suffer the catastrophic consequences of climate change, motivating states and international organizations to take measures in order to stop a process of which human beings are highly responsible. But how are the main world powers acting?

On the one hand, the president of the United States Donald Trump, has always been a great denial of climate change to the point that one of the main promises during his election campaign, was the withdrawal of the country from the Paris Agreement. On the other hand, given the fear and pessimism that generated the distance adopted by the US in terms of its environmental commitment, French Prime Minister, Emmanuel Macron, hastened to ensure that his country would lead the fight against climate change, however, is Macron really implementing the necessary measures to achieve his promise?

In addition to this, what role is China playing, as one of the main economic powers, in this whole process? A priori, the departure of the US from the agreement, far from dragging the great Asian giant as many expected, seems to have reinforced its commitment in an area that has always been the great handicap of China.

All the above mentioned, evidences different proceeding ways of three main world powers facing the same problem, therefore, this has led to ask myself, Why the United States withdraw from the Paris Agreement while France and China reinforce their environmental commitment instead of following the same path? Is there a real concern to stop climate change or do France and China hide interests beyond?

In this sense, this project aims to analyse the actions being carried out by the governments of the USA, France and China, as well as the possible explanatory factors that have led these states to adopt different roles in the international fight against climate change. To achieve this purpose, I will explain in first place what is climate change and the current situation that the world is facing regarding this problem. In second place, recent measures adopted by the United States, France and China are going to be described. Finally, I will analyse the possible factors that encourage states to make different decisions to face

climate change. Among them, I will study in detail, first, the ideology of the party and the political leaders themselves with respect to climate change. Second the consequences that climate change has on public health. Third, the economic interest of each state and, in last place, the geopolitical strategies that climate change has provoke.

## **2. CONTEXT OF THE ISSUE: WHAT IS CLIMATE CHANGE**

For some time now, the topic of climate change has been widespread installed in academic studies, newspaper articles, television and political debates, or even in films. In addition, scholars, NGOs and also large International Organizations such as the United Nations have warned that climate change has become one of the great challenges faced by humanity in the 21st century.

As a result, the concept of climate change is increasingly present in our daily live and in our everyday conversations; however, do we really know what it is? Is climate change a natural process? What is the greenhouse effect?

All these questions must be resolved in order to analyse later the reason that leads states to adopt different institutional responses to the same problem.

On the one hand, before tackling the more complex question of what climate change is, we must approach what climate is. According to the World Meteorological Organization, climate can be defined as "the average state of the atmosphere for a given time scale and generally for a specific geographical region" (World Meteorological Organization, 2002). Multiple variables can be included within this term depending on what is being studied, for example precipitation, temperature, cloudiness, etc. All these terms can lead to confuse climate with atmospheric weather, nevertheless, it should be considered that the sooner analyses an average of the atmospheric conditions that occur during a prolonged period of time, from which predictions and parameters can be established, while the later, merely refers to the description of the atmospheric state at a specific moment.

On the other hand, many argue that climate change is a natural process, due to the fact, that the Earth has suffered intense climatic variations through its history, ranging from warmer periods to extremely cold ones, known as glaciations; thus, they maintain

that humanity is currently attending to another natural climate change process in which human beings have nothing to do. This is true up to a point, due to the reason that “climate variability on different timescales is caused by cycles and trends in the Earth’s orbit, incoming solar radiation, the atmosphere’s chemical composition, ocean circulation, the biosphere and much more”. (World Meteorological Organization, 2013).

However, the main problem that we can identify in this argument is that natural climate change process is due to natural causes, that take place over a long period of time. In fact, “human influence on the climate system is clear. This is evident from the increasing greenhouse gas concentrations in the atmosphere, positive radiative forcing, observed warming, and understanding of the climate system” (IPCC, 2013). In this sense, “most climate scientist agree the main cause of the current global warming trend is human expansion of the ‘greenhouse effect’ ” (NASA, n.d.) But what are greenhouse gases and in what consists this process?

To begin, it is important to notice that solar energy is the main element that determines the climate of the earth depending on whether our planet is closer or farther from the Sun.

When solar energy reaches our planet, part of this energy is directly reflected into space by the atmosphere, another part, is also reflected by clouds and poles and a third part, is absorbed by the oceans and land making the Earth warmer.

This heat is released from the land in the form of on-infrared radiation, and upon reaching the atmosphere, the main gases that compose it, nitrogen and oxygen, do not interact with it, hence, much of the heat escapes back into space. Nonetheless, in the atmosphere there are also certain amounts of gases such as carbon dioxide, methane, water vapour or nitrogen, which do absorb the infrared radiation, re-radiating it back to the earth and maintaining an average temperature of 15 degrees. For this reason, they are called greenhouse gases, as they act like glasses from a greenhouse.

Contrary to what many people may think, greenhouse gases are beneficial due to the reason that they make the planet habitable. Without them the temperature of the planet would be -18 degrees, 33 degrees on average below the current average temperature, making it impossible for live to develop in it. As a consequence, all this process is known as natural greenhouse effect.

However, the major issue, as it has been explained in the beginning, is that human activities, are emitting to the atmosphere a disproportionate amount of greenhouse gases, among which we also find chlorofluorocarbons (CFCs), which are artificial chemicals. This process exaggeratedly prevents infrared radiation from entering space and remains inside the atmosphere overheating the Earth's surface, leading to a phenomenon that has been baptized by scientifics as “enhanced greenhouse effect” (Australian Government, n.d.), which provokes the current climate change.

In this way, taking up the initial question about what climate change is, and considering all the above mentioned, it can be defined as an "alteration in the patter of climate (including weather and related changes in oceans, land surface and ice sheets) over a long period of time and may due to a combination of natural and human induced causes" (Australian Academy of Sicences, 2015).

Some examples of these human induced causes that increase the amount of greenhouse gases in the atmosphere, can be found in industry, the burning of fossil fuels, deforestation, livestock farming and also the use of fertilizers.

Firstly, industry is the main responsible of CFCs production, considered to be synthetic greenhouse gasses that has provoke the Earth’s ozone layer destruction.

In second place, burning of fossil fuels such as oil and coal release carbon to the environment, which interacts with oxygen in the air creating carbon dioxide (CO<sub>2</sub>). This CO<sub>2</sub>, as previously mentioned, is one of the greenhouse gases that can be naturally found in the atmosphere due to volcanic eruptions or respiratory processes. Nevertheless, it “is the greenhouse gas most commonly produced by human activities and it is responsible for 64% of man-made global warming. Its concentration in the atmosphere is currently 40% higher than it was when industrialisation began” (European Commission, n.d) (*See Annex, Figure 1*).

Thirdly, deforestation is also one of the major causes that increase CO<sub>2</sub> emissions into the atmosphere since rainforests act as regulators of the environmental quantities of CO<sub>2</sub>. Therefore, when massive logging of forests occurs in order to obtain land surface for human agriculture plantations and wood for human consumption, the concentration of atmospheric CO<sub>2</sub> increases significantly.

In fourth place, in terms of agriculture and intensive livestock farming, we must take into account that these practices release relevant amounts of methane to the atmosphere, mainly as a result of the digestion process of ruminants and the decomposition of waste from large agriculture plantations, especially of rice. Methane, is a much more active greenhouse gas than CO<sub>2</sub>, however, originally, it is found in much lower concentrations in the atmosphere, a fact that has been radically changed by human action.

Finally, commercial fertilizers that are used in farmlands are highly damaging, as they emit nitrous oxide, another very powerful greenhouse gas.

All of these activities that humanity is carrying out indiscriminately, are having a direct impact not only on the environment and the ecosystems but also on the lives of human beings, even if we are not aware of it.

On the one hand, with respect to the transformation of ecosystems, we can appreciate how the temperature of the planet has increased disproportionately since the pre-industrial era. (*See Annex, Figure 2*). In this regard, the Intergovernmental Panel for Climate Change indicates that, “there is high confidence that the increase in global mean surface temperature (GMST) has reached 0.87°C (±0.10°C likely range) above pre-industrial values in the 2006–2015 decade” (2018).

This increase in the Earth’s surface temperature has made that “more water vapor is evaporated. Since water vapor is itself a strong greenhouse gas this is a positive feedback which will tend to amplify the warming effect of (for example) carbon dioxide emissions.”(National Institute of Water and Atmospheric Research of New Zeland, 2016). Consequently, many regions of the world have experienced an increase in droughts, as well as we are facing an intensification of the world's dry climates.

This generalized temperature increase has a direct and evident impact on the melting of the polar ice caps (*See annex, Figure 3.1 and 3.2*), which has a double negative dimension. First, the most obvious consequence that derives from the poles’ melting, is an increase in the level of the sea and the oceans, which in addition to experiencing a significant increase in temperature (*See annex, Figure 4*), have also suffered a great acidification due to the accumulation of CO<sub>2</sub> in the environment. This fact, is leading to the loss of many species very sensitive to the composition of the water of the habitat in which they are found, such as corals or mollusks. Second, polar ice caps act as thermal



regulators of the planet, in such manner, the more the poles melt, the more extreme and radical the climates become.

On the other hand, regarding the impact of climate change on human beings, we are witnessing an alteration of the natural patterns that will cause a transformation of the way of life that we had until now.

According to the latest report from the Intergovernmental Panel for Climate Change “Global warming of 1.5°C will have consequences for sustainable development, poverty and inequalities. This includes residual risks, limits to adaptation, and losses and damages. Some regions have already experienced a 1.5°C warming, with impacts on food and water security, health and other components of sustainable development.” (2018)

Considering the increase in the radicality of climates, that has just been mentioned, we can witness how floods, hurricanes or droughts, are becoming more frequent and intense. In this sense, "the number of natural disasters between 1980 and 1990, they averaged 149 per year, between 2004 and 2014, this figure increased to an average of 332 per year" (Fundación Biodiversidad, 2018). This aspect not only causes innumerable damages and significant economic losses in cities of developed countries but has a particularly negative impact on people with fewer resources living in the most disadvantaged areas of the planet.

According to the Food and Agriculture Organization, the way of life of more than 75% of these people, is based exclusively on agriculture, the sector most affected by climate change, since it suffers 84% of the economic impact caused by droughts and also, between 2003 and 2013, agriculture absorbed around 22% of the damages caused by natural catastrophes (Food and Agriculture Organization, 2018). Therefore, the economic and food security of thousands of people in the world, is compromised as floods destroy their crops and droughts wither their fields and kill their animals, to which we must add a change in the cycles of cereals as a consequence of the increase in temperatures.

As a result, in recent years there has been a "significant reduction in the production of corn and wheat in different regions of the world (global average of 4 and 5% respectively)" (Rivera-Ferre, 2014). In the end, it is estimated that “Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year, from malnutrition, malaria, diarrhea and heat stress”(World Health Organization,

2018b). Furthermore, this situation generates conflicts, wars, perpetual poverty and hunger, which makes it impossible to achieve the sustainable development objectives of the 2030 agenda.

In addition to all this, the high levels of pollution in the air, have important consequences for the health of the world population. As the World Health Organization, warns:

Ambient (outdoor) air pollution in both cities and rural areas was estimated to cause 4.2 million premature deaths worldwide per year in 2016; this mortality is due to exposure to small particulate matter of 2.5 microns or less in diameter (PM2.5), which cause cardiovascular and respiratory disease, and cancers (2018a).

Having explained all the above mentioned, it is clear how climate change is a real event in which man is influencing to a great extent and that is having important consequences for both ecosystems and human health. So, if strict measures are not adopted immediately, the effects of climate change can be devastating and irremediable. In this sense, I will now analyze what is the role that the United States, France and China have adopted regarding this problem.

### **3. THEORETICAL FRAMEWORK: INACTIVITY VS. COOPERATION**

Whenever there is an alteration of the international reality that compromises the future of the states as well as their national, economic or political security, they are forced to take decisions in order to safeguard their interests. Therefore, "in international relations, a state can typically take three approaches: cooperation, unilateralism or inactivity. Within the realm of climate diplomacy, we witness states playing all these roles" (Khan, 2016).

These three approaches necessarily correlate with the realistic and liberal theories that have prevailed in the international relations scope, which main highlights are going to be analyzed below.

#### **3.1 Realist Theory**

In first place, when referring to the realist paradigm, a differentiation among its two main variants, classical realism and structural realism, must be accomplish.

On the one hand, Hans Morgenthau, one of the greatest exponents of classical realism explained in *Politics among nations* that realism:

Believes that the world, imperfect as it is from the rational point of view, is the result of forces inherent in human nature. [...] This school, then, sees in a system of check and balances a universal principle for all pluralist societies. It appeals to historical precedent rather than to abstract principles and aims at the realization of the lesser evil rather than the absolute good. (1954, p.3)

In short, Morgenthau comes to say that states act in consonance with human nature, in this way, the state tends to satisfy a national interest and the accumulation of power due to the fact that they are natural motivations of human beings.

On the other hand, “for structural realists, sometimes called neorealists, human nature has little to do with why states want power. Instead, it is the structure or architecture of the international system that forces states to pursue power” (Mearsheimer, 2013).

Furthermore, the essence of this theory is that “in anarchic space with no order, nations are guided by unitary rational actors by maximizing interest based on power politics. In this pursuit countries employ the mechanism of power at their disposal to turn the deals into their favor” (Khan, 2016). Hence, according to this definition, there can be determined five elements that represent the basic cornerstones of neorealism (Mearsheimer, 2013):

First, states are the main actors within a system of anarchy. Realist scholars identify sovereign states as principal entities in international relations, granting them enough legitimacy to implement authority within their borders.

In addition, international arena lacks of a supranational organism that regulates relationships between sovereign states. At this point we could debate the fact that there are currently numerous intergovernmental organizations at international level which adopt binding norms among member states. Nonetheless, it must be taken into account the previously mentioned realistic thesis by which the state is the main actor in international relations, therefore, the rest of the international actors "do not possess the legitimacy or military capabilities that a state do" (Pearson, 2015).

Second, all states are rational actors, which enables them to develop strategies to achieve their national interests.

Third, all states own some cert of military capabilities. Although, the offensive capacity of each state is not static, but can increase and decrease over time in accordance with the circumstances, all states have the power to promote a potential attack against neighboring states.

Fourth, the natural end of all states is survival. Consequently, "in a system which lacks a global authority (anarchy), states will inevitably seek power to survive" (Waltz, 1979).

“Realism can understand power in a variety of ways—eg militarily, economically, diplomatically—but ultimately emphasizes the distribution of coercive material capacity as the determinant of international politics.” (Slaughter, 2011) But in practice, how does the power obtained by states materialize? According to what Kenneth Waltz pointed out in Theory of international Politics (1979):

First, power provides the means of maintaining one's autonomy in the face of force that others wield. Second, greater power permits wider ranges of action, while leaving the outcomes of action uncertain. Third, the more powerful enjoy wider margins of safety in dealing with the less powerful and have more to say about which games will be played and how. Fourth, great power gives its possessors a big stake in their system and the ability to act for its sake. For them management becomes both worthwhile and possible.

Fifth, other states actions are unpredictable. In other words, an anarchic system which lacks of an international arbitrator that marks the rules of the game, along with the scarcity of resources and the unequal distribution of power, leads to an uncertain and hostile world, in which any state can be sure about its neighbor states intentions. Thus, in order to guarantee the survival and national integrity, states must acquire a high level of power as previously explained.

Notwithstanding, the increase of the defense capacity irremediably leads to the realist security dilemma. The central premise of this dilemma, according to John Mearsheimer (2013) is that

any country that improves its position in the global balance of power does so at the expense of other states, which lose relative power. In this zero-sum world, it is difficult for a state to improve its prospects for survival without threatening the survival of other states. Of course, the threatened states then do whatever is necessary to ensure their survival, which, in turn, threatens other states, all of which leads to perpetual security competition.

Finally, “anarchy impedes cooperation not only because it generates cheating problems but also because it causes states to worry that partners might achieve relatively greater gains from collaboration” (Grieco, 1993, p. 729). This is traditionally known as the relative gains problem which implies that realists do not only focus on the absolute gains their state can obtain, but compare them with the relative gains of its competitors, which can lead to a relative weakness, although in absolute parameters the state continues to be more powerful (Sofer, 2015).

As a consequence of all the above mentioned “for realists, a prudent foreign policy is one that aims to secure the national interest, protect a state's survival and obtain more power. Conversely, an imprudent foreign policy entrusts the wellbeing and survival of state to international institutions” (Heffron, 2015).

All in all, realist, are by nature, reluctant to cooperation between states. However, there are circumstances in which a disproportionate threat may encourage states to band together and restrain the danger.

“The proposition that states will join alliances in order to avoid domination by stronger powers lies at the heart of traditional balance of power theory. According to this hypothesis, states join alliances to protect themselves from states or coalitions whose superior resources could pose a threat” (Walt, 1985).

Relating realism with the climate change question, it can be determined that “for realist theorists focused on hard power and interstate warfare, debates about peak carbon dioxide emissions and global temperature goals are ancillary at best to the primary challenges facing states” (Sofer, 2015). Even though the consequences of climate change pose, currently, an important threat to all states in the world.

However, the main problem that realist face regarding this issue, is that climate change, cannot be included in the traditional security agenda according to the realistic conception of threats. This is due to the fact that, the phenomenon of climate change is not part of a plan drawn up by a state to destabilize and win its opponent, but is the consequence of our consumption patterns and the lifestyle of our current society. In addition, climate change affects states without distinction of borders.

As a consequence, we can deduce that the traditional methods of state protection are not useful in the fight against climate change, since no matter how much is invested in

armaments, there is no state to deter the attack. “Thus, improved military capabilities will not render states secure from climate change, although these may assist in responding to emergency situations caused by floods or storms” (Heffron, D. 2015) .

Realism has long been the dominant stand of thinking in the U.S national security circles and undergirds much of the U.S. foreign policy (Sofer, K. 2015) . Consequently, this has been the approach adopted by the Trump administration with respect to climate change, which would explain its lack of commitment to international cooperation, leading to the withdrawal of the Paris agreement. In addition, following the above explained, the fact that climate change is not a realistic traditional threat, does not produce the same alarmism or incentive to act as if any state of the world would have launched a direct military attack against the United States.

Nevertheless, Ken Sofer has pointed out “as climate change intensifies existing conflicts and exacerbates instability, states are increasingly being forced to grapple with and defend against it, just as they would a hostile adversary. [...] Climate change is threatening lives, destabilizing states, disrupting economies in ways an adversarial state might using different means” (2015).

Although from my point of view, this fact could be a reason for the United States to abandon their policy of inactivity against climate change and to decide to bet on international cooperation as Stephen Walt explained, realist might only “support a climate treaty with mandatory limits to greenhouse gas emissions if national interests are better served with these than without” (Khan, 2016) .

Currently, for the national interest of the United States prevails to remain economically ahead of China, which according to Trump, is absolutely incompatible if belonging to an international agreement that implies the self-limitation of the CO<sub>2</sub> emissions, since from his perspective, this entails the reduction of production, leading to much less competitive capacity against his great opponent. Hence, it can be determined that the United States’ support of the Paris Agreement does not properly serve the national interest.

### **3.2 Neoliberal Theory**

“Most have argued that realism has not provided sufficient explanation for the interests and strategies pursued in the climate negotiations, and the outcomes of the international climate negotiations and strategies have not been fully consistent with an

exclusive focus on national interests and relative power positions among states.” (Cass, 2017, p. 8)

For this reason, we must pay attention to the proposals of the other great theoretical doctrine of international relations. Liberalism, and more specifically its later version, neoliberalism.

Neoliberalism “is a variant of liberal International Relations theory that focuses on the role international institutions play in obtaining international collective outcomes” (Sterling – Folker, 2013, p. 115). More in detail it is

a theory of political economic practices proposing that human well-being can best be advanced by the maximisation of entrepreneurial freedoms within an institutional framework characterised by private property rights, individual liberty, unencumbered markets, and free trade (Harvey, 2007, p.22)

Neoliberalism follows the same path as realism recognizing three fundamental premises to which reference has been made previously, first that the state is the main actor of international relations within a system of anarchy, second that states act in a rational and third way that said entities seek mainly influence and power. But we must bear in mind that “neoliberalism qualifies its position by establishing that although the State is the most relevant actor, it is not the only one; that although it acts in a rational manner, it does not have complete information for decision-making and its search for influence is clearly differentiated” (Patiño, n.d, p.4).

In addition, as Professor Habib points out,

they see the international system as anarchic but believe it is possible for states to escape the security dilemma. They reject the realist assertion that warcraft between states is inevitable and believe that humankind can transcend conflict through the pacifying influence of economic interdependence, international institutions and the spread of liberal democratic political systems (2011, p. 14).

Definitely, “in comparison to realism, neoliberalism has relatively greater faith in the ability of human beings to obtain progressively better collective outcomes that promote freedom, peace, prosperity, and justice on a global scale” (Sterling – Folker, 2013, p. 115). And this, is motivated mainly by the interdependence that globalization and internalization of global economy generates among the different nations of the world, in

this sense, one of the main proposals of neoliberalism, is the theory of complex interdependence, which the authors Keohane and Nye explain as follows:

In common parlance, dependence means a state in which one is determined or significantly affected by external forces. Interdependence, in its simplest definition, means mutual dependence. In world politics, interdependence refers to situations characterized by reciprocal effects between countries or between actors in different countries. Often, these effects result from international exchanges (flows of money, goods, people and messages that cross international borders) (1988, p. 22).

Moreover, Torres illustrates that complex interdependence theory is developed

from three essential assumptions that give rise to different political processes, which translate the resources of power into control of the results:

- 1) Multiple channels connect the societies, between governmental elites or, also, informal links among non-governmental elites;
- 2) Absence of hierarchy in the issues, there is no longer any differentiation between internal and external policy issues;
- 3) Lesser role of military force, this is not used by governments against other governments when complex interdependence predominates (2017, p. 3)

And precisely regarding this last point, neoliberal ideology advocates soft power, understood as “the ability to obtain what you want through attraction rather than through coercion or rewards. attractiveness of a country's culture of its political ideals and policies” (Nye, 2004, p.128).

However, we should not fall into the error of thinking that simply, due to the fact that the interdependence between states has increased, they will be willing to cooperate with each other without any kind of suspicion. As Sterling - Folker explains:

Having common interests in an effective resolution does not lead easily or automatically to that resolution. States may fail to cooperate because they lack information about one another's true preferences. They may fear that others will take advantage of a cooperative arrangement by cheating. They may be concerned that others will free-ride on the back of their cooperative efforts. They may believe, in short, that the transaction costs, or the unknown consequences and penalties, of even a potentially beneficial agreement are simply too great to risk the effort. Thus, even when all actors share a common interest and would gain from a cooperative effort (2013, p. 118).

But under the neoliberal prism, the absence of cooperation motivated by the lack of information could be remedied by the creation of international organizations, conceived as safe spaces where the exchange of perspectives between states is possible. Thus,



international dialogue can be fostered, while the promotion of order within anarchy is strengthened. As Riley well explains:

The liberal view is that international cooperation is in fact possible and it stresses the possibility of absolute gains as opposed to relative gains. Liberals do not disagree with realists that states will try to work towards their own national interest, but instead argue that it is in states' national interests to cooperate. In terms of absolute advantage, states should wonder, "How much do I benefit compared to not cooperating?" While it might not be in a state's interests to benefit less than other states, the fact that a state is benefiting at all nonetheless in its national interest (2014).

And this is exactly the stand that both liberalism and neoliberalism hold with respect to environmental problems. As Ibrahim and Uke clarify, "the issue of curbing global climate change is something of collective responsibility. Due to its universality, states must have a collective bargaining principle, and must all come together in order to deal with the issue" (2013, p. 145). In addition,

green politics is not seen from the perspective of realistic ground, but rather as a legalistic phenomenon which has to do with international law, human rights and survival of humanity. The liberalists uphold the issue of climate change from this particular perspective and call for the implementation of the legal frame work, which is an outcome of agreement reached by the members of the United Nations within the framework of international politics (2013, p. 145).

It can be clearly seen, how this has been the tendency adopted by France and surprisingly also by China while defending international partnership within the Paris Agreement, against the unilateralism adopted by the United States.

However, for cooperation to take place it is essential the existence of a common goal for all states. In this regard, we tend to generalize when talking about the threat of climate change, but the reality is that the effects of this phenomenon are very varied and affect to states in very different ways so that not all of them face the same challenges. As a result, international cooperation in this field may be diminished. It is clearly, explained by Collins:

For one, a nation's financial and technological capacity to adapt to the effects of climate change can affect its interest in addressing the problem. Moreover, some nations, like Canada and Russia for example, might actually benefit from a slightly warmer climate through increased agricultural yields and greater access to arctic resources. These interest disparities notwithstanding, though, all nations share an interest in avoiding abrupt or 'catastrophic' climate change, defined in terms of drastic sea level rise, dramatic temperature increases, or various other destabilizing climatic events. Thus, a common interest in avoiding this worst case scenario forms a baseline assumption for cooperation, but there is still much room for fluctuation among individual interests (2012, pp.3-4).

However, we should not forget that under the influence of liberal and neoliberal theories, important international organizations have been created that play a crucial role both when it comes to informing about the effects of climate change and proposing measures to mitigate it as well as increasing the resilience of world society. In this sense, we can find for example the United Nations Environmental Program created in 1972, the Intergovernmental Panel on Climate Change or the World Meteorological Organization.

#### **4. MEASURES ADOPTED BY STATES WITH REGARD TO CLIMATE CHANGE.**

##### **4.1 United States**

As already mentioned at the beginning of this essay, the United States' exit from the international agreement of Paris sponsored by the United Nations, has been one of the most striking and controversial measures that President Donald Trump has adopted with regard to climate change. However, it has not been the only one.

It must be recalled that President Obama made a considerable effort to build and leave a very strong legacy in terms of environmental protection against climate change. According to Joseph Ellis, Pulitzer Prize winner and one of the leading academics of history of the United States, "before Obama, no American president had taken global warming seriously, despite the fact that many scientists in the world point to it as the greatest threat to the world and to national security" (As cited in Bermúdez, 2017).

In this sense, one of the first measures that Obama proposed was the Clean Energy and Security Act (ACES) of 2009 whose main objective was based on the reduction of 17% in greenhouse gas emissions until 2020 and the creation of a carbon market similar to the one that exists in the European Union, however, this bill faced the rejection of a large part of the Senate.

Later, Obama adopted the Climate Action Plan, also known as the 2013 Directive, where the fight against global warming was based on three fundamental areas; First, to promote and favor the development of clean energies, second, to increase the response capacity of the population in the face of environmental catastrophes caused by the impact of climate change and, finally, to lead international efforts to combat climate change. But the

President of the White House at that time, was aware that once again he would meet the rejection of the Senate, so Obama used the Environmental Protection Agency (EPA) to get around the camera and be able to regulate CO<sub>2</sub> emissions, due to the fact that this agency has the power, since 1970, to issue regulations that control air pollutants which are detrimental to American public health, according to the Clean Air Plan.

Finally, in 2014, the Clean Power Plan was launched. It was an ambitious strategy whose primary objective was to restrict greenhouse emissions from power plants, and then to regulate other areas such as natural gas, oil or the heavy industry.

Despite the obstacles that Obama had to face from his detractors, at the end of his term in the White House, he had gotten the United States to reduce emissions of carbon dioxide to the atmosphere by 9% at the same time. that reached an economic growth of 10% with what managed to demonstrate that the sustainable development was not incompatible with the economic competitiveness of a country.

In addition to this, between 2008 and 2016, the use of clean energy increased drastically. In this sense “solar energy increased from 865,000 megawatts per hour to 45 million megawatts, while the production of wind energy tripled from 55 million megawatts per hour to 165 million” (Bermúdez, 2017).

However, it can be observed that the main objective of president Trump has been to paralyze and reverse any measure adopted by his predecessor in the field of climate change. For it, the current president of the United States has opted for two main strategies:

On the one hand, relevant climate change deniers from the United States had been appointed to run the Environmental Protection Agency. In this sense, Trump first designated one of the main promoters of the lawsuit that brought the Clean Power Plan before the Supreme Court of the USA, the Attorney General of Oklahoma, Scott Pruitt.

In addition, his important ties and implications with the lobbies of the oil industry and coal led him, during the Obama legislature, to systematically try to prevent any law regarding the reduction of CO<sub>2</sub> emissions and the conservation of the environment from coming forward. Nevertheless, Donald Trump has paradoxically described him as a “national leader in the war against coal of the EPA that has fought the regulation without limits and the interference of the federal government” (As cited in Pedrera, 2016).

While it is true that Pruitt was forced to leave office last year due to the multitude of scandals to which he was linked, Trump's objective has not been impaired, since he has put the EPA back under the control of a new negationist, Andrew Wheeler. Given this situation, the president of the Environmental Defense Fund (EDF), Fred Krupp, has warned that:

Mr. Wheeler's leadership at EPA would be a continuation of the dangerous approach forged by his predecessor, Scott Pruitt, the first EPA Administrator whose nomination EDF ever opposed. Andrew Wheeler becomes the second. For EDF, such opposition is an extraordinary step. In Mr. Wheeler's case, as in Mr. Pruitt's, it is warranted. Our country needs an EPA Administrator guided by science, who respects our environmental laws and values public health. [...] In short, Mr. Wheeler fully embraces President Trump's anti-environmental agenda. His policies will lead to dirtier air and water and unchecked climate pollution (2019).

On the other hand, Trump has made a clear commitment to fossil energies in detriment to the renewable ones.

First, one of the earliest executive orders that Trump signed upon reaching the White House, gave the go ahead to the completion of the construction works of the Keystone XL pipeline, through which oil would be imported from Canada to the US territory, due to the fact that "former President Barack Obama refused to approve the cross-border project, saying the environmental review was not adequate in light of its route through the Sandhills ecosystem in Nebraska" (DiChristopher, 2017). Likewise, Trump also authorized the completion of the Dakota pipeline, to which Obama had also opposed the possible environmental risks.

In second place, Trump's projected spending for the development of renewable energies has been reduced considerably, for instance, according to the organization Friends of Earth, "his administration's budget for 2018 saw funding for the Office of Energy Efficiency and Renewable Energy cut by 72%" (2018). Meanwhile, as reported by Mir,

The Trump Administration has made vast tracts of public lands available to the oil companies to be used for the exploration of hydrocarbons. In the last fiscal year alone, which closed in September, it auctioned off 5.1 million hectares, twice the area of the state of Massachusetts and three times more than what Barack Obama averaged during his second term. Almost all the properties are in the west of the country and include habitats of threatened species or national monuments of enormous historical and cultural value as the guns of the Pueblo Indians in Colorado (2019).

Finally, in August 2018 the Trump administration announced the replacement of Obama's Clean Energy Plan, by the Affordable Clean Energy Rule.

According to Hidalgo García:

The Clean Power Plan was Obama's biggest bet to leave a solid legacy on climate issues since it established a reduction objective for home state while providing a flexible framework to achieve them. According to Obama himself, this plan was the most important step to date by the US in the fight against climate change. " On the contrary, its detractors described it as "the war against coal" so they began to look for legal ways to stop it (2016, p. 6).

More in detail, the Clean Power Plan “sought to reduce emissions from power plants by 32 percent below 2005 levels by 2030. The Trump administration’s new plan, however, erases this requirement, sets no national emissions reduction targets, and gives states the authority to decide how much to cut emissions from power plants” (*Trump Administration Rolls Back the Clean Power Plan*, 2018).

Although the climate issue is not a priority in Trump's political agenda, the international community seems to have maintained its commitment to the Paris agreement, in this sense, the director of the think tank Center for Energy at the French Institute for International Relations, Marc Antoine Eyl-Mazzega, stated in the Washington Post that “France and President Macron want to play a leading role in the global climate governance, and I think there are just two leaders who are credible there: Macron and [Chinese President] Xi Jinping” (As cited in McAuly, 2017). For this reason, I will describe below the measures adopted by France and China in this field, in order to show if they are really exercising that leadership role or not.

## **4.2 France**

The same day that Trump announced its withdrawal from the Paris Agreement, French President Emmanuel Macron offered a press conference in which he manifested his clear position:

Today the president of the United States, Donald Trump, announced his decision to withdraw the United States from the Paris Agreement. I do respect his decision. But I do think it's an actual mistake, both for the US and for the planet. [...] I reaffirm clearly that the Paris agreement remains irreversible and will be implemented not just by France but by all other nations. Over the coming hours I will have the opportunity to speak with our main partners to define a common strategy and launch new initiatives. I already know that I can count on them. I call on you to remain confidence. We will succeed because have fully committed. Because wherever we live whatever we are, we all share the same responsibility: make our planet great again (2017).

In this way, Macron turned around the famous slogan Make America Great Again, of Trump's electoral campaign and used it to launch a daring call inviting all the experts concerned about climate change and whose career is focused in this field, to develop a research project in France for a period of 3 to 5 years. In addition, “this platform is also designed to encourage events that highlight the ecological transition and French leadership in the fight against climate change” (*Make our planet great again, convocatoria internacional del Presidente de la República Francesa, 2017*). In words of Macron himself:

To all the scientific engineers, entrepreneurs and responsible citizens who were disappointed by the decision of the president of the United States., I want to say that they will find in France their second homeland. I call on them, come and work here with us to work together on concrete solutions for our climate, for our environment. I can assure you France will not give up the fight (2017).

Of all the applications presented, 30 experts were finally selected (16 of them from the United States), who will be granted a total of 30 million euros to finance their research in order to stop the increase in temperatures worldwide. Hence, Macron began in June 2017 his particular campaign as leader of the global movement to curb climate change. Natalie Nougayrède, describes the position of the United States as a clear diplomatic opportunity for France:

With the United States looking inward and Trump having torn up the traditional foreign policy rule book, France's new president, Emmanuel Macron, is seeking to reinvigorate the European project as a way of restoring French leadership. French power is no substitute for American power, of course. But with the United States' image, global role, and reliability newly uncertain, Europeans feel a void that someone must fill—and France thinks it should at least try to do just that.

As Macron acknowledged in an interview given to Jeff Glor on CBS:

The withdraw created a huge momentum to me to create a counter momentum.

We have two phenomenon so withdraw of the US, which for me it's a mistake, but it creates an impulse for lot of others to say ok, we have to react and do something because it is impossible to leave the floor to a sort of dismantling of the Paris agreement. Second a deep wakeup call for the private sector where someone has to say, we have to react. If we decide not to move and not to change our way to product, to invest, to behave, we will be responsible for billions of victims. I don't want to be a leader in such situation so let's act right now (2017).

Thus, a few days after the US announced its withdrawal from the Paris agreement, the Minister of Ecological and Solidarity Transition, Nicolas Hulot, presented the "Climate

Plan", a very enthusiastic strategy with revolutionary measures through which France intended to demonstrate its firm determination to maintain global temperatures below 2°C or even 1.5° centigrade with respect to preindustrial levels.

The purpose of this Climate Plan to contribute to this mobilization which must be that of the States, but also the whole society, companies, associations, research, communities, territorial partners, social partners. While climate change policies are widely recognized as sources of prosperity, job creation, innovation and quality of life, now is the time to scale up the mobilization of all sectors: building, transport, energy, agriculture and forestry, industry and waste. Solidarity with the most vulnerable, in the North as in the South, is a common theme for all the actions planned by the plan, to leave no one behind and provide solutions to all. (Ministère de la Transition Écologique et Solidaire, 2017, p.3)

Consequently, “the Climate Plan consolidates the mobilization of France diplomatic structure before Europe and the International Community with the aim of implementing the Paris Agreement and confirming the solidarity towards the most vulnerable countries” (Demailly and Berghmans, 2017).

According to the Ministère de la Transition Écologique et Solidaire:

The Climate Plan incorporates new objectives and the neutrality of greenhouse gas emissions by 2050, by drastically reducing national emissions to be less than or equal to the amount of gas absorbed by anthropogenic ecosystems (ie, the natural environments managed by man: forests, agricultural land, etc.) and certain industrial processes (capture and storage or reuse of carbon) (2018).

Some of the concrete measures promoted by this strategy, highlight the radical difference between Trump and Macron, since the former, as we previously saw, has decided to reinforce energy sources such as oil or coal, while the latter, has bet in a decisive way by the transition towards renewable energies. In this regard, France, is supporting

the development of renewable energies, by calling for tenders in metropolitan France and overseas. Measures will further simplify the development of offshore energy, geothermal energy, anaerobic digestion, and experiments will be conducted to reduce the average development time of these projects (Ministère de la Transition Écologique et Solidaire, 2018).

The objective is to increase the weight of renewable energies by 32% by the year 2030.

Another specialty measure is that the Macron government will close "up to 17" nuclear reactors before 2025, in order to meet the goal of lowering the atomic component of electricity generation by up to 50%.

In addition, France has decided to achieve a total decarbonization of the economy. For this purpose, the government has “ban any new hydrocarbons exploration project. This

decision also refers to unconventional fossil fuels, such as shale gas and oil” (Ministère de la Transition écologique et solidaire, 2018). In addition, Macron announced the rise in fuel prices, as a first step in his strategy that by 2040 only electric cars will circulate in the country.

All these measures seemed very promising until September 17, 2018, the first large mobilization of yellow vests took place in France. As Bassets explains:

Roundabouts on the outskirts of dozens of small towns were filled with French people struggling to make ends meet. They were tired of seeing the bills pile up, the salary receded-or did not increase-and the diesel, necessary to travel to work in peripheral or rural areas badly connected by public transport, became more expensive with new rates designed to protect the environment (2019).

At the outset of the protests, Macron was firm in guaranteeing that he will maintain the rise fuel rate measures, but the virulence that the protests of the yellow vests in the French streets adopted, forced the government to give a step back in December 2018, granting a moratorium of six months for the entry into force of such legislation that should have been implemented since January 1, 2019 (*La protesta de los “chalecos amarillos” fuerza a Macron a retrasar seis meses la subida del impuesto de los carburantes*, 2018).

Under Bassets' point of view:

Rectification is a cure for humility for a politician who has not tired of repeating that he would maintain his course against the odds, and that many French people see as an arrogant leader disconnected from real France. [...]

Macron rectifies something more than a fiscal measure and a style of government. It indicates the limits of the fight against climate change when the cost of this combat falls excessively on certain layers of the population (2018b).

And it is that, many people recognize that the measure disproportionately damages the humblest classes of the French population. In this sense, Joss Garman, director of the European Climate Foundation and former political director of Greenpeace, has expressed that

If Macron had been paying attention, he would have noticed that the most effective climate policies are not about taxing the poor. To the contrary, they're about investing in the green alternatives while legislating to stop the worst polluters from unnecessarily using outdated, dirty technologies.

I have spent more than a decade campaigning for a more hawkish approach to the climate crisis, but I'd also be the first to argue it was right that Macron was forced back to the drawing board over his plan.



Any leader who is serious about addressing climate change must also be serious about getting permission from their electorate to do so (2018).

However, French President is at a crossroads since a sector of the population considers that its measures are excessive, while “French environment campaigners have warned Emmanuel Macron is doing too little to combat climate change and must radically rethink his environment policy if he is to honor his promise to “make this planet great again” ” (Chrisafis, 2018).

These critics have intensified, especially since Francois Hulot resigned as Minister of ecological transition and solidarity last August. As El País reports,

Hulot [...] resigned live, during an interview on the radio, without notifying the president beforehand. And he announced it with harsh reproaches to Macron: for his lack of commitment to the environment and for the influence of pressure groups that, according to the already ex-minister, distort democracy in France (Bassets, 2018a).

Hulot himself said: "I do not want to continue lying to me, I do not want to give the illusion that my presence in the Government means that we are up to [environmental policy]" (2018).

Consequently, ten important French environmental organizations manifested that

the march of the now former Minister of Ecology reveals the superficiality of Emmanuel Macron's ecological commitment, opting for an ecology of words, favoring discourses to acts, hoping that the mere presence of Nicolas Hulot justify a policy well away from the break announced again and again (Juez, 2018).

### **4.3 China**

When the US abandoned the Paris agreement, many predicted that China would be the next country is to renounce its obligations. However, these predictions have been completely wrong since “the erosion of American engagement in climate diplomacy has already allowed China to become the de facto world leader on global environmental policy” (Atkins, 2018, p.11). In other words, the Asian country has reaffirmed its position and commitment to the international society, something that Xi Jinping himself expressed in 2017 in the Office of Geneva of the United Nations, with the following words:

We should pursue green, low-carbon, circular and sustainable way of life and production, advance the 2030 Agenda for Sustainable Development in a balanced manner and explore a model of sound development that ensures growth, better lives and a good environment. The

Paris Agreement is a milestone in the history of climate governance. We must ensure this endeavor is not derailed. All parties should work together to implement the Paris Agreement. China will continue to take steps to tackle climate change and fully honor its obligations.

These declarations have special importance, since China is the most polluting country nowadays. According to the United Nations High Commissioner for Refugees “The Asian giant lives off exports and therefore the size of its industry has ended up becoming a danger to the planet. The five provinces in which this industry is concentrated emit more carbon dioxide than any other country in the world” (2017).

The main representatives of the regime are aware of this reality and do not deny it, but analyzing the direction that Chinese policies have taken in the environmental field, it can be seen how there is a clear commitment to reduce the emission of greenhouse gases causing the change climate. This places China on the same line as France, markedly contrasting with the US trend.

In such a manner, He Jiankun, deputy president of China’s National Expert Committee on Climate Change, recognized last December at the Conference of Parties to the United Nations (COP24), in Poland, that “China surpasses other countries in carbon emissions, as it is large not only economically but also in territory and population. The country, however, is making great efforts in transforming its energy structure and it tops other countries in the growth of new and renewable energies” (As cited by Liquiang, 2018).

In this regard, the International Renewable Energy Agency already pointed out in 2014 the following: “China has become a global leader in renewable energy. It has vast resources and great potential for future development. In 2013, China installed more new renewable energy capacity than all of Europe and the rest of the Asia Pacific region” (p. 3).

More recently, the United Nations Environment Programme report on Global Trends in Renewable Energy Investment 2018 revealed that

The leading location by far for renewable energy investment in 2017 was China, which accounted for \$126.6 billion, its highest figure ever and no less than 45% of the global total. There was an extraordinary solar boom in that country in 2017, with some 53GW installed (more than the whole world market as recently as 2014), and solar investment of \$86.5 billion, up 58% (p.11).

Meanwhile, the United States decreased its investment at 40.5 billion dollars and the European Union at 40.9 billion dollars. This means that the former country experimented a decline in renewable energy investment of 6%, while the latter, of 36% (UNEP, 2018, p.11).

In addition, as Geall says:

China also leads the world in the technologies needed to mitigate climate change. Chinese companies account for five of the top six global solar photovoltaic manufacturers, and seven of the top 15 wind turbine manufacturers. Four of the five biggest renewables deals in 2016 were made by Chinese companies. China is also the dominant manufacturer of the world's lithium-ion batteries, which among other things are used in electric cars (2017, p.3).

However, the Development of renewable energies has not been the only measure adopted by China. In this sense, numerous strategies have been implemented in order to mitigate the impact of climate change, such as the adjustment of the industrial structure, the optimization of the energy structure, the promotion of savings and energy efficiency or the construction of a market of carbon emissions. There is also a greater participation and involvement of the government in the international processes of climate negotiation.

## **5. FACTORS THAT LEAD EACH STATE TO ADOPT DIFFERENT MEASURES**

### **5.1 Leaders' Ideology and Political Parties Tendency**

On the one hand, Donald Trump has publicly reiterated, on numerous occasions, that he does not believe that the climate change we face today is the product of human practices.

For instance, in November 2012 he published a tweet in which he claimed that the concept of climate change was an invention of the Chinese to make the United States less competitive.

Moreover, "The Global Change Research Act of 1990 mandates that the U.S. Global Change Research Program (USGCRP) deliver a report to Congress and the President no less than every four years" (U.S. Global Change Research Program, 2018), consequently, on November 23, 2018, was published The Fourth National Climate Assessment. It is "the most complete scientific research that exists to date in which the effects that climate

change will have on infrastructure, the economy, public health and the country's coasts are detailed with pinpoints accuracy” (Mongue, 2018), notwithstanding President Trump manifested that he just does not believe all the data contained in the 1656 research that the White House itself has published.

The current president of the United States, clearly marked his position on climate change during the election campaign. First, he strongly criticized Obama's climate policy, secondly, he showed his determination to modify the Environmental Protection Agency in order to prevent it from being used to control CO2 emissions, and finally, he announced his intention to abandon the Paris Agreement.

And, unlike what happens in Europe, where “the anthropogenic nature and evidence of climate change are hardly questioned, in the US, the opposite happens. Climate change is closely related to political ideology and was one of the issues that most confronted at the beginning of the electoral campaign for the presidential elections” (Hidalgo, 2016).

In this sense, the Pew Research Center published in 2015 a graph which perfectly showed the relationship between climate change and republican or democrat ideology (See Annex, Figure 5). There can be appreciate how only 20% of Republicans believe that climate change is a serious problem, compared to 68% of Democrats. It is also striking that only half of the Republicans surveyed would be willing to support the reduction of CO2 emissions, compared to 82% of Democrats.

Facing the statement "I am very concerned that climate change personally harms me", only 12% of Republicans agreed, which is a significantly low percentage compared to 42% of Democrats who are concerned about the fact that climate change can directly affect them.

Finally, they were asked if they believed that climate change was harming the general population nowadays. Once again, a low percentage of Republicans, specifically 24% answered yes, while the percentage of Republicans aware of this fact, rose to 53%.

Consequently, as it can be deduced from the study, President Trump’s electorate feel scarcely linked to the phenomenon of climate change, giving little or no importance to this problem in their day to day.

On the other hand, Donald Trump thinking, sharply contrast to Emmanuel Macron's point of view about climate change, whose perspective was clearly established during his discourse Make our planet great again:

Climate change is one of the major issues of our time. Its already changing our daily lives but it is global, everyone is impacted and if we do nothing our children will know a world of migration, of wars, of shortage: a dangerous world. It is not the future we want for ourselves, it is not the future we want for our children, it is not the future we want for our world (2017).

However, despite the fact that Donald Trump have earned the criticism of the international community, environmental NGOs and a large part of civil society as a result of his climate change denialism, he has something fundamental for a government's president, the unconditional support of his electorate in this field, which is something that the French president cannot boast about as he has been accused of deliberately implementing top down measures.

Emmanuel Macron, who was defined as the people's president, seems to have won the popular enmity in the last months after the announcement of fuels rates rising, which unchained the yellow vests protests, as it was explained previously. According to Garrett, "Macron's approach is hardly surprising. From the beginning, he has believed top-down government action and corporate policies are most effective in bringing about change by altering demand in the marketplace of greenhouse gas-producing products" (2018).

Aronoff argues that,

With just twelve years to curb emissions — per the Intergovernmental Panel on Climate Change's latest report — we can't afford for other policymakers to make the same kind of blunders Macron has, looking to bolster his credentials as an environmental hero (allegedly "Makind The Planet Great Again") while making life harder for ordinary people. The causes of climate change, after all, aren't French commuters but the one hundred fossil-fuel producers responsible for 71 percent of greenhouse gas emissions since 1988 (2018).

Sauer points into the same direction, by maintaining that the yellow vest movement "has come to symbolize a broadly-held view of Macron's governing style as arrogant, top-down and loading social costs on to the poor and middle class" (2019).

Macron, although late, seems to have realized about the importance of having personal ambitions correlate with the wishes and capacities of the electorate. Therefore, after the

violence and tension generated by the protests, he decided to launch a national consultation from the 15 from January 2019 to March of this year, with the purpose of knowing the population's concerns in four crucial areas: public spending and taxes, democracy, citizen participation and, of course, climate change.

“With the Trump administration having pulled out of the Paris COP21 agreement [...] and Macron paying such a significant price for his efforts, leaders of all political stripes must wonder how to effectively tackle climate change without facing uprisings, dissent and stock market downturns” (Garret, 2018). This is something that President Xi Jinping would not have to face due to the authoritarian nature of his political regime.

It should not be forgotten, that the Chinese president manifested at the United Nations, that

we should make our world clean and beautiful by pursuing green and low-carbon development. Man coexists with nature, which means that any harm to nature will eventually come back to haunt man. We hardly notice natural resources such as air, water, soil and blue sky when we have them. But we won't be able to survive without them. Industrialization has created material wealth never seen before, but it has also inflicted irreparable damage to the environment. We must not exhaust all the resources passed on to us by previous generations and leave nothing to our children or pursue development in a destructive way. Clear waters and green mountains are as good as mountains of gold and silver. We must maintain harmony between man and nature and pursue sustainable development (2017).

This forceful statement demonstrates the willingness of the Chinese president to implement strict top down measures regarding the protection of climate change.

Some of the most controversial measures implemented by the regime are based on intentionally cutting electricity to achieve the proposed pollution reduction limits, preventing the most polluting companies from accessing bank loans or deliberately closing certain industries. In this sense, in the year 2017, China closed up to 80,000 factories that were considered extremely damaging for the environment (Nace, 2018). However, as Engels emphasizes “non-participation by both citizens and business actors seemingly allows the implementation of unpopular and costly measures in situations where such participation would prevent or slow changes in many liberal democracies” (2018, p. 3).

## 5.2 Industry Influence

According to a New York Times publication,

No parts of the federal government during the Trump era have been more aggressive in rolling back rules than the Environmental Protection Agency and the Interior Department, which between them regulate much of the intersection between the environment and the economy. Together their rule changes have touched nearly every aspect of environmental protection, including air pollution caused by power plants and the oil and gas industry, water pollution caused by coal mines, and toxic chemicals and pesticides used by farmers nationwide (Lipton, Eder, Branch, 2018).

This surprising situation leads us to ask ourselves, why are two of the US agencies that should promote the protection of the environment the most, acting totally against it?

The reality is that most of the management positions of both agencies are commanded personalities with important ties in the oil, gas or coal sector, beginning, as we saw before, by the director of the EPA Andrew Wheeler who was a former coal lobbyist and following by the EPA Senior Deputy General Counsel, Erik Baptist, who worked for the American Petroleum Institute, or Palich Christian, Deputy Associate Administrator who belonged to the Ohio Coal Association.

In the case of the Department of the Interior,

those connections include Assistant Secretary of Land and Minerals Joe Balash, a former Alaska natural resources official who in 2014 traveled to China, Japan, and South Korea with BP staffers to pitch a liquefied natural gas project; Preston Beard, an advisor in Interior's Bureau of Safety and Environmental Enforcement and a former PAC manager for the Louisiana Mid-Continent Oil and Gas Association; Deputy Secretary of the Interior David Bernhardt, who was a longtime lobbyist for mining, oil, and gas interests; and Associate Deputy Secretary James Cason, the former president of the industrial supplier Unifrax Corporation (Keller, 2018).

Furthermore, the Center for American Progress, boosted the creation of a database called Dirty Deputies which describes in detail how many of Trump's deputies have ties to the energy sector and what are the positions they hold within the Trump administration. Currently, it is estimated that there are about “67 ties in the fossil fuel industry” (Trump’s Dirty Deputies, n.d.) among which are included the aforementioned names.

Therefore, it is obvious how the fossil energy sector has a great influence on the environmental policies of Trump, who does not hide this reality, when appointing

personalities with clear interests in the industry so they try to prevent the transition to the renewable energies clean, keeping coal oil or gas.

The case of France is paradoxical, at first glance it might seem that the decarbonization policies of the country are exempt from any influence of the oil industry since they are clearly against their interests. However, it has been recently appreciated that the rise of taxes on fuel, is a measure which only harms citizens and especially those with fewer resources that cannot renounce to gas oil or gasoline to move, while producers, who are the real pollutants, they continue to act with impunity without being affected.

In this regard, by “imposing this tax, Macron took a top-down approach, not consulting the very people who would be most adversely affected by it: his fellow countrymen. He listened to economists and top French business leaders who, correctly, named taxation as one way to drive down fossil fuel use and decrease France's carbon footprint” (Garrett, 2018).

Aronoff points out:

That the people hardest hit by Macron-style climate plans aren't the people doing most of the polluting is precisely why taxing carbon is the policy of choice for oil companies ranging from ExxonMobil and Royal Dutch Shell to BP — the fifth, ninth, and eleventh biggest polluters in the world, respectively (2018).

In addition, as well explains Nicolas Haeringer regarding the yellow vests' mobilizations

this movement is reminding us that the problem is supply, not demand of fossil fuels. Whenever you try to act on demand first you put the burden on individuals — not on structures, and not on transnational companies. It's also a reminder that those transnational companies that are responsible for the destruction of climate, livelihoods, and neighborhoods are not paying at all (As cited in Aronoff, 2018).

In contrast to the influence that the oil industry exerts on Trump's and Macron's government decisions, it can be appreciated how it does not happen in the same way in China.

The Asian country, has five major National Oil Companies (NOCs), however, although they have some cert of power and independence, the regime of Xi Jinping has various control mechanisms over them. As Chinese energy expert, Erica Downs, explains:



The primary instrument of power that the party-state exercises over China's NOCs is the power to appoint, dismiss, and promote the companies' general managers. The ultimate authority over the top positions in the NOCs rests with the Chinese Communist Party's Organization Department, whose decisions are ratified by the Politburo Standing Committee. This authority extends, indirectly, to the NOCs' internationally listed subsidiaries because an individual appointed general manager of a parent company usually concurrently serves as the chairperson of the board of its listed subsidiary. Consequently, NOC managers must balance corporate and party-state interests, especially if they want to advance their political careers. Executives who demonstrate managerial prowess while not running afoul of the Chinese Communist Party can often use their tenure in the oil patch as a springboard to national leadership.

The party-state also controls the NOCs through its investment approval system. Domestic investments in oil and natural gas fields, pipelines, refineries, oil storage facilities, and liquefied natural gas terminals require government approval (2010, pp. 76-75)

### **5.3 Impact on citizens health**

The World Health Organization warns that,

Although global warming may bring some localized benefits, such as fewer winter deaths in temperate climates and increased food production in certain areas, the overall health effects of a changing climate are likely to be overwhelmingly negative. Climate change affects social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter (2018c).

In fact, “between 2030 and 2050, climate change is expected to cause approximately 250.000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress” (World Health Organization, 2018c).

On one side, the U.S. Global Change Research Program stresses out that

Climate-related changes in weather patterns and associated changes in air, water, food, and the environment are affecting the health and well-being of the American people, causing injuries, illnesses, and death. [...] Changes in weather and climate can degrade air and water quality; affect the geographic range, seasonality, and intensity of transmission of infectious diseases through food, water, and disease-carrying vectors (such as mosquitoes and ticks); and increase stresses that affect mental health and well-being (2018, p. 541).

On the other side, the French Institute for Public Health Surveillance recognized that:

A great many national reports are available, listing the potential health risks. They all agree that the impacts will be of three principal types:

- an increase in the frequency and intensity of extreme climatic events
- the emergence or re-emergence of infectious diseases;
- gradual changes to the environment and to ways of life that will modify existing exposures or even bring about new exposures.

These potential impacts indicate that climate change is indeed a threat to human health. Health and safety and public health have been identified as the priority objectives in the French national strategy for adapting to climate change (2010, p.5)

We must bear in mind that previously mentioned aspects such as heat or cold waves, food insecurity or the consequences of natural disasters, affect mainly the most disadvantaged communities with fewer economic resources since they have less capacity to respond to climatic adversities. However, there is an environmental problem that affects the entire population equally regardless of the social class to which they belong, it is air pollution.

It is estimated that every year 108,000 American passed away due to the illnesses associated to air contamination (Health Effects Institute, 2019, pg. 11). In the same way, the European Environment Agency published in 2018 the last Air quality in Europe Report, which carried out a comprehensive study of environmental pollution in the member states of the European Union. The study revealed that throughout 2015, a total of 442,000 premature deaths had occurred in the EU (p.8). Specifically, a study carried out by the public health agency in France in 2016 determined that air pollution is the third cause of death in the country, behind tobacco and alcohol, which translates into 48,000 deaths per year (As cited in Cañas, 2016).

Although the figures are shocking and worrisome, they are still far from reaching the premature deaths that occur annually in China for reasons of environmental pollution. According to the last State of Global Air Report which was published last year, China leads the top “ten countries with the highest mortality burden attributable to air pollution in 2017” (Health Effects Institute, 2019, pg. 11), with 1.2 million deaths. More specifically, a study by the University of Berkeley in the United States, revealed that Every day around 4,400 people die in China from diseases caused by air pollution, such as lung or throat cancer, strokes or heart attacks (As cited in *Air pollution in China is killing 4,000 people every day, a new study finds*, 2015).

The issue of the pollution of air in China, has much to do with the coal industry, which is the biggest contributor to reduce the air quality as ensures Meng Fan, expert of the Research Academy of Environmental Sciences of China. The 60% of electricity in China is provided by coal, it means “China consumes almost as much coal annually as all other countries combined” (As cited in Wong, 2016), this suppose a very serious problem for Chinese citizens health since the coal burning release several PM 2.5 and PM 10 particles to the air.

PM 2.5 and PM 10 particles, consist on fragments of unburned coal that are small enough (less than 2.5 or 10 microns) to reach the lungs or even the bloodstream while being breath. It is frequent that Chinese big cities reach a total of 600 particles by cubic meter of air, while the WHO has recommended no exposure to concentration levels above 25 particles by cubic meter.

According to this, in December 2016 China suffered an unprecedented wave of air pollution so that the authorities were forced to ask people to remain at their homes without leaving. Unfortunately, episodes like this are not isolated, but, are repeated frequently. For instance, last February the Chinese province of Shandong, which has more than 96 million inhabitants, declared the red alert for pollution in its entirely territory, furthermore cities like Tianjing or several cities from the Huebei province, the epicentre of coal contamination, suffered this red alert for three weeks. In Beijing for example hundreds of flights were cancelled, as the fog caused by pollution was so thick that seriously hampered pilots' visibility (Isan, 2019).

All of this is encouraging people that live in big cities such as Beijing to reconsider whether to remain there or move to less contaminated areas of China, as is the case of Jia Yi, a Chinese woman mother of two girls who says that "There are so many people and cars in Beijing and that will influence the health of my children. I think this is not a good place to live, so, if the education of my girls is not affected, I would rather go somewhere in southern China with better air and environment" (As cited in Shukman, 2014).

### **5.3 Geopolitical Interests**

Energy independence has always been one of the main concerns of states in foreign policy since it is seen as a manifestation of state power and constitutes an essential tool for negotiation. However, there are few countries in the world that enjoy a complete energy autonomy, in this sense Escribano reminds that,

The combination of rising prices of hydrocarbons and deterioration of the international geopolitical situation, especially in regions and countries important in the gas and oil market as producers or transit countries, has generated a sense of urgency in the governments of the countries consumers to face the challenges related to energy security (2017).

Furthermore, climate change has highlighted the unsustainability of the excessive social dependence on fossil fuels such as oil, gas or coal, representing a turning point in the

geopolitical energy strategies of many governments. However, we can appreciate different ways to face these challenges:

On the one hand, the United States have decided to put aside the climate issue and strengthen the traditional internal energy industry as a way to achieve its goals. Consequently, in 2011, the United States became a net exporter of oil and later, in 2016, a gas exporter, consolidating itself as one of the leading world powers in oil and natural gas production. (Micallef, 2018)

In addition, “in 2018, about 68% of total U.S. crude oil production came from five states. The top five crude oil-producing states and their shares of total U.S. crude oil production in 2018 were Texas 40.5%, North Dakota 11.5%, New Mexico 6.3%, Oklahoma 5.0% and Alaska 4.5%” (U.S. Energy Information Administration, 2019).

The United States is aware of the power it grants to be an exporter of energy resources and of the potential mistrust that this situation may generate in the rest of the states, for this reason, the Secretary of Energy, Rick Perry, endeavored to clarify in 2017 that:

When you do business with America on energy, you can be sure we will not use energy as a weapon. We will only use our energy resources to advance our shared aspirations and goals. We reject the view that one nation can benefit only at another nation’s expense. We do not subscribe to this “zerosum” analysis. Rather, we view the amazing bounty we possess as a gift that can... and should...be shared with the world. We realize that our energy abundance can...and should...be used as an instrument for freedom and security.

On the other hand, due to the fact that the USA has decided not to pay attention to the development of clean energy, we see a leadership vacuum in the international sphere that wants to be occupied by France and China.

Both countries have an excessive dependence on foreign energy imports. France, is an important referent on electricity production through nuclear energy, nevertheless, it has a very important external energy dependence in terms of oil and natural gas. For its part, China, has large reserves of coal but as noted by Engels, “the abundance of domestic coal was not enough to satisfy the needs of the hyper-growth of industrial production in the 1990s, and the exploding numbers of motor vehicles increased the demand for oil. Increasing energy imports were a response to this scenario” (2018). As a result, the current dependence on oil imports from third countries has become a serious concern for the government.

Consequently, both Macron and Xi Jinping have seen the transition to renewable energy sources as the opportunity to become pioneers in the production of alternative energies which would allow them to expand their influence, while consolidating themselves as international leaders. In this regard, according to the Ministère de la Transition Écologique Et Solidaire:

With the Climate Plan, France reaffirms its commitments to support developing countries, particularly through the French Development Agency. In particular, it will support the replenishment of the two funds of the financial mechanism of the Paris Agreement: the Global Environment Facility and the Green Climate Fund. The President of the Republic has pledged to mobilize € 5 billion in 2020, including € 1 billion for adaptation (2017)

At the same time, “China’s overseas investments, represent another way that China could assume a leadership role on climate issues internationally” (Geall, 2017, p.11). This can be perfectly appreciated in the China’s Policies and Actions for Addressing Climate Change Report, where the Chinese Ecology and Environment Ministry ensures that during 2017,

China actively pushed forward the South-South cooperation on climate change, and helped other developing countries to improve their capacities on addressing climate change by carrying out climate change mitigation and adaptation projects, donating energy-efficient and low-carbon materials and monitoring and warning facilities, and holding climate change South-South cooperation training workshops. (2018, p. 46-47)

However, a fundamental difference between France and China can be seen: China is affected by two problems that France does not have to face, the shortage of clean water and fertile land scarcity.

Scientists calculate that more than three-quarters of China’s running water is contaminated and it is so harmful to human health, that is not only useless for drinking, but also cannot be used to develop activities such as fishing, irrigate crops, showering or doing housework as washing clothes or dishes. As it ensures the researcher from The Economist, Jhon Parker, “There are large portions of the urban water supply that are not only dangerous to drink, they are too dangerous to touch, you cannot even bathe with it.” (As cited in Jiang, 2014).

Moreover, The Ministry of Water Resources of China has released a report this year, which states that the 80% of Chinese grown water, is also under extremely poor health standards, so the result of scarcity and pollution, leads to 300 million Chinese people to drink non-potable water, out of which, approximately 190 million of them drink so

contaminated water, which contains arsenic, iodine and fluoride so they are susceptible to develop mortal diseases. According to The Oriental View Magazine, “more than 60,000 people throughout the country are exposed to arsenic contamination, which causes skin diseases and various types of cancer and more than 30 million people have severe thyroid problems due to an excessive amount of fluoride in drinking water” (As cited in *Más del 80 por ciento del agua subterránea del China está contaminada*, 2016).

In addition to this, in recent years, the landscape of this country has changed overwhelmingly, there is scarcely anything left of huge forests of the pre-industrial period, due to the fact that Chinese industrialization involved a massive tree logging for the use of land for cultivation leading the nation to a desertification with the subsequent loss of natural resources and wealth that entails. Furthermore, much amount of soil is poisoned by the use of fertilizers and chemicals that boost crop growth.

In this sense, The State Forest Administration from China has ensured that a quarter of the Chinese territory, approximately an area of the same dimensions of the United States, has currently turned into a desert being useless for any type of agricultural activity. Moreover, experts determine that this surface will continue to rise rapidly, being the main cause of rural exodus, affecting approximately 30 million Chinese farmers and families whose main incomes are provided by many diverse agricultural activities.

As a consequence, “China is home to around 20 per cent of the world’s population, yet has only 5 to 7 per cent of global freshwater resources and less than 10 per cent of the world’s arable land. Greater climate uncertainty is likely to exacerbate existing stresses on energy, food, and water, and even lead to catastrophic shocks” This reality places China in an emergency situation that would lead it to be especially decisive in the energy transition. In addition, we must remember that France is framed within the European Union and as such, it is subject to policies adopted at the community level, while China is a country independent of any international supranational organization, which allows it to act in a unitary way.

Overall, it should not be forgotten what the World Economic Forum points out:

Environmental preservation can be a “value for China to uphold”, and any successes in delivering on it can legitimize Beijing’s governance practices. If China’s centralized system of government proves better equipped to address it than a fractured liberal democracy (such as the US), then it could be harder for the global community to be critical of China’s system of governance (2018).

## 6. CONCLUSION

It has been proved that the climate change we are currently witnessing, it is a real problem motivated by human action that affects both the ecosystems and the world population. However, despite the general academic consensus that exists about the disastrous consequences that the increase in temperatures will have, not all the states are adopting measures to prevent it. As a consequence, I wondered at the beginning: What motivates the states to adopt such different policies regarding the same problem? In this sense, the following can be concluded:

First, with respect to the United States:

1. It has not been enough for President Trump to withdraw the country from the Paris agreement, but he has endeavored to reverse the ambitious measures that his predecessor, Barack Obama, implemented for environmental protection and fight against climate change.
2. By betting on the exit of the Paris agreement, the United States moves away from the international cooperation path as a tool for the solution of the problem of climate change, hence, the influence of the realistic theory that has traditionally characterized the foreign policy of the United States can be appreciated.
3. Donald Trump's personal ideology is perfectly correlated with the measures he is adopting as well as with the ideology of his electorate. In other words, Trump has publicly reiterated that he does not believe in climate change, in this same sense, polls show that Republicans give little importance to this phenomenon and very few of them would be willing to accept measures that limit CO<sub>2</sub> emissions.
4. Regarding the influence of the fossil energy industry, it has become clear how this is very high since a large number of deputies of the Trump administration have strong connections with the sector. The most obvious case is the director of the Environmental Protection Agency, who was a former coal lobbyist.
5. In the field of public health, national agencies recognize the serious impact of climate change on health, despite the greatest consequences would be suffer by

the most disadvantaged groups so it cannot be considered a widespread national concern.

6. Energy autonomy is a priority for the United States. Trump is aware that consolidating as an oil exporting country is the key to controlling and influencing to a large extent the political and economic decision of the purchasing countries.

Second, with respect to France:

1. Given Trump's sloppiness with regard to climate change, Macron has promoted numerous measures to prevent the increase of temperatures, such as the Make our planet great again program, the closure of nuclear power plants, the development of renewable energies or the rise of taxes on fuels.
2. Macron moves away from American realism and bets on cooperation, having firmly reiterated the necessity for international dialogue within the Paris Agreement.
3. Macron has shown a clear personal concern about climate change. However, unlike what happens in the United States, we cannot see a correlation between his will and the electorate's one since citizens are not willing to accept the strict measures that their president proposes.
4. A priori, it seems that the measures of Macron threaten the interests of the fossil fuel industry, however, it has been proved that increasing taxes on fuel only harms citizens while the industry continues to benefit.
5. With regard to public health, France is in a situation similar to that of the United States, since the effects of climate change, above all, affect those with fewer resources.
6. France must overcome the dependence on foreign oil and natural gas. In addition, Macron's promise to close numerous nuclear power plants undoubtedly requires strengthening the renewable energy industry, which can help France to consolidate its global influence.

Third, with respect to China:



1. Despite being one of the biggest polluters and consumers of fossil fuels in the world, China is adopting key measures in the fight against climate change, such as the development of renewable energies.
2. Xi Jinping himself has advocated for international dialogue and compliance with the Paris agreement in order to mitigate the effects of climate change. Thus, China aligns with the French trend of cooperation.
3. Regarding the personal ideology of Xi Jinping, we can appreciate, as in the case of Macron, he has also expressed a concern for environmental problems. However, we must remember that China's authoritarian political system allows the government to implement measures without having necessarily popular support.
4. Focussing on the influence that the oil industry can have on the President's decision-making process, it has been described above that although it has some independence when it comes to acting, the government controls the main oil producing companies, so their influence is very low.
5. The public health factor is a clear determinant that prompts the government to adopt measures to mitigate the effects of climate change, since the Chinese population has to face serious problems especially of air pollution.
6. Geopolitical interests also play a crucial role in China's climate policy since, on the one hand, the contamination of water and land is such that it has caused an authentic challenge for the supply of the population. On the other hand, excessive dependence on the import of foreign fossil fuels can destabilize the regime, while the development of renewable energies can turn China into a world energy leader.

For all the above, I believe that the reason that has driven Trump out of the Paris Agreement has been the result of a combination of factors, such as his own ideology, that of his electorate, the influence of industry and the strategy of energy independence based on fossil fuels. In the case of France, the two determinant factors have been the personal vision that Macron has about climate change as well as the geopolitical concerns. Finally, in the case of China, its interest in taking measures against climate change, would respond to a question of supply, energy security and public health, rather than a true conviction of environmental protection of President Xi Jinping.

## 7. REFERENCES

- America's Energy Abundance: An Instrument of Freedom and Security. (2017). *Vital Speeches of the Day*, 83(12), 361–362. (Retrieved on April 26, 2019 from <http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=128834450&authtype=shib&lang=es&site=ehost-live&scope=site>).
- Air pollution in China is killing 4,000 people every day, a new study finds.* (2015). The Guardian. (Retrieved on April 25, 2019 from <https://www.theguardian.com/world/2015/aug/14/air-pollution-in-china-is-killing-4000-people-every-day-a-new-study-finds>).
- Aronoff, K. (2018). Macron's Climate Tax Is a Disaster. *Jacobin Magazin*. (Retrieved on April 24, 2019 from <https://www.jacobinmag.com/2018/12/yellow-vests-movement-climate-macron-cop24>).
- Atkin, E. (2018). Undoing American Climate Diplomacy. *New Republic*, 249(5), 10–11. (Retrieved on April 24, 2019 from <http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=128988870&authtype=shib&lang=es&site=ehost-live&scope=site>).
- Australian Academy of Sciences. (2015). *The science of climate change: Questions and answers*. Canberra, Australia: (Retrieved on October 20, 2018 from [www.science.org.au/climatechange](http://www.science.org.au/climatechange)).
- Australian Government. (n.d.) Observed changes in our climate system. *Australian Government: Department of Environment and Energy*. (Retrieved on October 15, 2018 from <http://www.environment.gov.au/climate-change/climate-science-data/climate-science/understanding-climate-change/indicators>).
- Bassets, M. (2018a). El ministro estrella de Francia dimite por sorpresa en la radio sin avisar a Macron. *El País*. (Retrieved on April 20, 2019 from [https://elpais.com/internacional/2018/08/28/actualidad/1535440849\\_164355.html](https://elpais.com/internacional/2018/08/28/actualidad/1535440849_164355.html)).
- Bassets, M. (2018b). Macron cede ante los “chalecos amarillos” y suspende el alza del impuesto de los carburantes. *El País*. (Retrieved on April 20, 2019 from

[https://elpais.com/internacional/2018/12/04/actualidad/1543909722\\_922159.htm](https://elpais.com/internacional/2018/12/04/actualidad/1543909722_922159.htm)  
l).

Bassets, M (2019). Macron y los “chalecos amarillos”. *El País*. (Retrieved on April 20, 2019 from [https://elpais.com/economia/2019/02/08/actualidad/1549640019\\_338912.html](https://elpais.com/economia/2019/02/08/actualidad/1549640019_338912.html)).

Bermúdez, A. (2017). 7 Cosas que cambiaron en Estados Unidos durante el gobierno de Barak Obama. *BBC*. (Retrieved on April 14, 2019 from: <http://www.bbc.com/mundo/noticias-internacional-38626482>).

Cass, L. (2017). The politics of Climate Change. *Oxford Research Encyclopedia of International Studies*, 1-32. Doi: 10.1093/acrefore/9780190846626.013.112

Cañas, G. (2016). La contaminación mata prematuramente en Francia a 48.000 personas cada año. *El País*. (Retrieved on April 25, 2019 from [https://elpais.com/internacional/2016/06/21/actualidad/1466504309\\_633776.htm](https://elpais.com/internacional/2016/06/21/actualidad/1466504309_633776.htm)  
l).

CBS Evening News. [CBS] (2017, Dec. 11) Macron: “Mistake” for U.S. to withdraw from Paris climate accord [Video]. Retrieved from: <https://www.youtube.com/watch?v=x0r2FQeWcJg>

Chrisafis, A. (2018). Emmanuel Macron under attack over climate change. *The Guardian* (Retrieved on April 20, 2019 from <https://www.theguardian.com/world/2018/sep/04/emmanuel-macron-under-attack-over-climate-change>).

Collins, J. (2012). Assessing International Cooperation on Climate Change: A neoliberal Analysis of Effectiveness of Formal International Environmental Institutions. *Mapping Politics*, 4, 1-7.

Demilly, D. and Berghmans, N. (2017). Plan para el Clima en Francia: un marco coherente y ambicioso aún por concretar. *Revista Contexto*. (Retrieved on April

20, 2019 from: <https://ctxt.es/es/20170719/Politica/14001/clima-acuerdo-Paris-COP23-CTXT.htm>).

Demorand, N. L'invité de 8H20: Le grand entretien. [Radio Interview] France Inter August 28, 2018. (Retrieved from: <https://www.franceinter.fr/emissions/l-invite-de-8h20-le-grand-entretien/l-invite-de-8h20-le-grand-entretien-28-aout-2018>).

DiChristopher, T. (2017). Trump signs executive actions to advance Keystone XL, Dakota Access pipelines. *CNBC*. (Retrieved on April 15, 2019 from <https://www.cnbc.com/2017/01/24/trump-to-advance-keystone-dakota-pipelines-with-executive-order-on-tuesday-nbc.html>).

Engels, A. (2018). Understanding how China is championing climate change mitigation. *Palgrave Communications*, 1-6. DOI: 10.1057/s41599-018-0150-4

EPA. (2016). Climate change indicators: Sea surface temperature. Retrieved on October 25, 2018 from <https://www.epa.gov/climate-indicators/climate-change-indicators-sea-surface-temperature>).

Escribano, G. (2007) Geopolítica de la seguridad energética: Concepto, Escenarios e Implicaciones para España y la UE. *Fundacion Manuel Giménez Abad*. (Retrieved on April 27, 2019 from <https://dialnet.unirioja.es/download/articulo/5766559.pdf>

European Commission. (n.d.). Causes of climate change. *European Commission*. (Retrieved on November 2, 2018 from [https://ec.europa.eu/clima/change/causes\\_en](https://ec.europa.eu/clima/change/causes_en) ).

European Environment Agency. 2018. *Air quality in Europe 2018 Report*. (No 12/2018). Retrieved on April 25, 2019 from <https://www.eea.europa.eu/publications/air-quality-in-europe-2018>).

Food and Agriculture Organization. (2018). *Resilience to natural hazards and resulting disasters*. (Retrieved on October 20, 2018 from <http://www.fao.org/resilience/areas-of-work/natural-hazards/en/>)

Folland, C.K., T.R. Karl, J.R. Christy, R.A. Clarke, G.V. Gruza, J. Jouzel, M.E. Mann, J. Oerlemans, M.J. Salinger and S.-W. Wang, 2001: Observed Climate Variability and Change. In: *Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change* [Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell, and C.A. Johnson (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 881.

Fundacion Biodiversidad. (2018). Cambio climático hoy.

French Institute for Public Health Surveillance. (2010). The health impacts of climate change in France. (Retrieved on April 26, 2019 from [http://invs.santepubliquefrance.fr/publications/2010/impact\\_sanitaire\\_changement\\_climatique/impact\\_sanitaire\\_changement\\_climatique\\_rapport\\_uk.pdf](http://invs.santepubliquefrance.fr/publications/2010/impact_sanitaire_changement_climatique/impact_sanitaire_changement_climatique_rapport_uk.pdf)).

Garman, J. (2018). Macron's mistake: Taxing the poor to tackle climate change. *Politico*. (Retrieved on April 20, 2019 from <https://www.politico.eu/article/macrons-mistake-taxing-the-poor-to-tackle-climate-change/>).

Garrett, L. (2018). Macron's top-down approach to fighting climate change serves as a cautionary tale. *CNN*. (Retrieved on April 24, 2019 from <https://edition.cnn.com/2018/12/06/opinions/macron-yellow-vest-protest-lesson-garrett/index.html>).

Geall, S. (2017). Clear waters and green mountains: Will Xi Jinping take the lead on climate change? *Lowy Institute*. (Retrieved on April 23, 2019 from <https://www.lowyinstitute.org/publications/clear-waters-and-green-mountains-will-xi-jinping-take-lead-climate-change> ).

Grieco, J. (1993). The relative gains problem for international cooperation. *American Political Science Review*.

- Habib, B. (2011). *Climate Change and International Relation Theory: Northeast Asia as Case Study*. La Trobe University. Australia.
- Harvey. (2007). *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Health Effects Institute. (2019). *State of Global Air 2019. Special Report*. Boston , MA: Health Effects Institute.
- Heffron, D. (2015). What do realists think about climate change? Retrieved from [http://cgsrs.org/files/files/publications\\_30.pdf](http://cgsrs.org/files/files/publications_30.pdf)
- Hidalgo, G. (2016). Donald Trump y el legado de Obama en materia de cambio climático. *Instituto Español de Estudios Estratégicos*, 70/2016, pp 1-11.
- Hoegh-Guldberg, O., D. Jacob, M. Taylor, M. Bindi, S. Brown, I. Camilloni, A. Diedhiou, R. Djalante, K.L. Ebi, F. Engelbrecht, J.Guiot, Y. Hijioaka, S. Mehrotra, A. Payne, S.I. Seneviratne, A. Thomas, R. Warren, and G. Zhou, 2018: Impacts of 1.5°C Global Warming on Natural and Human Systems. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I.Gomis, E. Lonnoy, T.Maycock, M.Tignor, and T. Waterfield (eds.)]. In Press, pp. 186.
- Ibrahim, S. and Uke, I. (2013). From Kyoto protocol to Copenhagen: A theoretical approach to international politics of climate change. *African Journal Of Political Science and International Relations*, 7, 142-153. Doi: 10.5897/AJPSIR11.089
- IPCC, 2013: *Summary for Policymakers*. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker,T.F., D. Qin, G.-K.

Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)].Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 6-15.

International Renewable Energy Agency. (2014). *Renewable Energy Prospects: China*. (Retrieved on April 22, 2019 from [https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2014/Nov/IRENA\\_REmap\\_China\\_summary\\_2014\\_EN.ashx?la=en&hash=807F1019E27CA5C3D36FBA445EC48F150D58A6B5](https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2014/Nov/IRENA_REmap_China_summary_2014_EN.ashx?la=en&hash=807F1019E27CA5C3D36FBA445EC48F150D58A6B5) ).

Isan, A. (2019). Contaminación en China: estado de alerta roja. *Ecología verde*. (Retrieved on April 25, 2019 from <https://www.ecologiaverde.com/contaminacion-en-china-estado-de-alerta-roja-460.html>).

Jiang, H. (2014). Catástrofe ambiental en China. *La Gran Época*. (Retrieved on April 26 from: <http://www.lagranepoca.com/archivo/32824-catastrofe-ambiental-china.html>).

Juez, B. (2018). Ecologistas piden a Emmanuel Macron “un cambio de rumbo” tras la dimisión del ministro de Medio Ambiente. *El Mundo*. (Retrieved on April 20, 2019 from <https://www.elmundo.es/internacional/2018/08/30/5b87d53746163f9b228b463b.html>).

Keller, J. (2018). Oil and gas ties run deep in the Trump Administration. *Pacific Standard*. (Retrieved on April 24, 2019 from <https://psmag.com/environment/oil-and-gas-ties-run-deep-in-trump-administration>).

Kenneth N. Waltz. (1979). *Theory of international politics* Addison-Wesley Pub. Co.

Keohane, R. and Nye, J. (1988) Poder e interdependencia: la política mundial en transición, Buenos Aires: GEL.

Khan, M. (2016). Climate change, adaptation and international relations theory. *Global Policy*. (Retrieved on January 20, 2019 from <https://www.globalpolicyjournal.com/blog/15/07/2016/climate-change-adaptation-and-international-relations-theory>).

Krupp, F. (2019). EDF Opposes the Nomination of Andrew Wheeler to Lead EPA. *Environmental Defense Fund*. (Retrieved on April 15, 2019 from <https://www.edf.org/media/edf-opposes-nomination-andrew-wheeler-lead-epa>).

La protesta de los “chalecos amarillos” fuerza a Macron a retrasar seis meses la subida del impuesto de los carburantes. (2018). *El Huffingtonpost*. (Retrieved on 20 April, 2019 from [https://www.huffingtonpost.es/2018/12/04/macron-cede-y-suspende-la-subida-de-la-tasa-de-los-carburantes\\_a\\_23607801/](https://www.huffingtonpost.es/2018/12/04/macron-cede-y-suspende-la-subida-de-la-tasa-de-los-carburantes_a_23607801/)).

Lipton, E., Steve, E., Branch, J. (2018). The Real-Life Effects of Trump’s Environmental Rollbacks: 5 Takeaways From Our Investigation. *The New York Times*. (Retrieved on April 24, 2019 from [https://www.nytimes.com/2018/12/26/us/trump-environment-regulation-rollbacks.html?rref=collection%2Fbyline%2Feric-lipton&action=click&contentCollection=undefined&region=stream&module=stream\\_unit&version=latest&contentPlacement=1&pgtype=collection](https://www.nytimes.com/2018/12/26/us/trump-environment-regulation-rollbacks.html?rref=collection%2Fbyline%2Feric-lipton&action=click&contentCollection=undefined&region=stream&module=stream_unit&version=latest&contentPlacement=1&pgtype=collection)).

Liquiang, H. (2018). Expert: nation is leader in growth of new energy. *China Daily*. (Retrieved on April 22, 2019 from <http://www.chinadaily.com.cn/a/201812/06/WS5c08692ea310eff30328f59f.html>).

Macron, E. (2017). Make Our Planet Great Again. [Facebook publication]. (Retrieved on April 19, 2019 from <https://www.facebook.com/EmmanuelMacron/videos/1973855302847046/>).

Make our planet great again, convocatoria internacional del Presidente de la República Francesa. (2017). *Campus France*. (Retrieved on April 19, 2019 from



<https://www.campusfrance.org/es/make-our-planet-great-again-convocatoria-internacional-del-presidente-de-la-republica-francesa>).

Más del 80 por ciento del agua subterránea de China está contaminada. (2016). *La Gran Época*. (Retrieved on April 26, 2019 from <https://www.lagranepoca.com/china/59162-mas-del-80-por-ciento-del-agua-subterranea-de-china-esta-contaminada.html>)

McAuly, J. (2017). France's Macron takes lead in climate change battle, with the U.S. absent. *The Washington Post*. (Retrieved on April 13, 2019 from [https://www.washingtonpost.com/world/frances-macron-takes-lead-in-climate-change-battle-with-the-us-absent/2017/12/12/2da019aa-de88-11e7-b2e9-8c636f076c76\\_story.html?noredirect=on&utm\\_term=.736b67e39e34](https://www.washingtonpost.com/world/frances-macron-takes-lead-in-climate-change-battle-with-the-us-absent/2017/12/12/2da019aa-de88-11e7-b2e9-8c636f076c76_story.html?noredirect=on&utm_term=.736b67e39e34)).

Micallef, J. (2018). The Strategic Implications of American Energy Independence. *Military.com*. (Retrieved on April 27, 2019 from <https://www.military.com/daily-news/2018/09/27/strategic-implications-american-energy-independence.html>).

Ministère de la Transition Écologique Et Solidaire. (2017). Intensifier la mobilisation internationale sur la diplomatie climatique. *Ministère de la Transition Écologique Et Solidaire*. (Retrieved on April 26, 2019 from <https://www.ecologique-solidaire.gouv.fr/intensifier-mobilisation-internationale-diplomatie-climatique>).

Ministère de la Transition Écologique Et Solidaire. (2017). *Plan Climat: 1 planète, 1 plan*. (Retrieved on April 20, 2019 from <https://www.ecologique-solidaire.gouv.fr/sites/default/files/2017.07.06%20-%20Plan%20Climat.pdf>).

Ministère de la Transition Écologique Et Solidaire. (2018). En finir avec les énergies fossiles et s'engager vers la neutralité carbone. *Ministère de la Transition Écologique Et Solidaire*. (Retrieved on April 20, 2019 from <https://www.ecologique-solidaire.gouv.fr/en-finir-energies-fossiles-et-sengager-vers-neutralite-carbone>).

- Ministry of ecology and Environment. (2018). China's Policies and Actions for Addressing Climate Change. *Ministry of ecology and Environment People's Republic of China*. (Retrieved on April 22, 2019 from [http://english.mee.gov.cn/News\\_service/news\\_release/201812/P020181203536441502157.pdf](http://english.mee.gov.cn/News_service/news_release/201812/P020181203536441502157.pdf)).
- Mongue, Y. (2018). Trump sobre el informe del cambio climático: "No me lo creo". El País. (Retrieved on April 19, 2019 from [https://elpais.com/internacional/2018/11/27/estados\\_unidos/1543283242\\_634443.html](https://elpais.com/internacional/2018/11/27/estados_unidos/1543283242_634443.html)).
- Nace, T. (2017). China Shuts Down Tens Of Thousands Of Factories In Widespread Pollution Crackdown. *Forbes*. (Retrieved on April 23, 2019 from <https://www.forbes.com/sites/trevornace/2017/10/24/china-shuts-down-tens-of-thousands-of-factories-in-widespread-pollution-crackdown/#21caa8c34666>).
- NASA. (n.d.) A blanket around the earth. *Global Climate Change: Vital Signs of the Planet*. (Retrieved on October 20, 2018 from: <https://climate.nasa.gov/causes/>).
- National Institute of Water and Atmospheric Research of New Zeland. (2016). The greenhouse effect. (Retrieved on September 26, 2019 from <https://www.niwa.co.nz/our-science/climate/information-and-resources/clivar/greenhouse>).
- NOAA. (2018). Trends in atmospheric carbon dioxide. *National Oceanic and Atmospheric Administration*. (Retrieved on October 20, 2018 from: [https://www.esrl.noaa.gov/gmd/ccgg/trends/gl\\_full.html](https://www.esrl.noaa.gov/gmd/ccgg/trends/gl_full.html)).
- Nougayrède, N. (2017). France's Gamble: As America Retreats, Macron Steps Up. *Foreign Affairs*. (Retrieved on April 21, 2019 from <https://www.foreignaffairs.com/articles/western-europe/2017-08-15/frances-gamble>).

- Nye, J. (2004). *El poder blando y la política exterior americana*. Soft Power, Public Affairs: New Hampshire.
- Patiño, R. (n.d.). *Neorrealismo y Neoliberalismo en las Relaciones Internacionales. Posibilidades de acercamiento y evolución*. Universidad del Valle. México.
- Pearson, A. (2015). *Realism and politics among states in the 21st century.*, pp. 1-11.
- Pedrerá, C. (2016). Trump elige a un negacionista del cambio climático para liderar la agencia medioambiental de Estados Unidos. *El País*. (Retrieved on April 10, from [https://elpais.com/internacional/2016/12/08/estados\\_unidos/1481165064\\_394182.html](https://elpais.com/internacional/2016/12/08/estados_unidos/1481165064_394182.html)).
- Riley, J. (2014). Realism vs. Liberalism in International Climate Governance. COP 20: Lima, Peru. Global Climate Change Mosaic: COP 20. (Retrieved on April 13, 2019 from <https://blogs.dickinson.edu/cop20/2014/09/12/realism-vs-liberalism-in-international-climate-governance/>).
- Rivera-Ferre, M. (2014). In: *Cambio climático: Impactos, adaptación y vulnerabilidad*. Fundación Biodiversidad, Oficina Española de Cambio Climático, Agencia Estatal de Meteorología, Centro Nacional de Educación Ambiental: Madrid.
- Roy, J., P. Tschakert, H. Waisman, S. Abdul Halim, P. Antwi-Agyei, P. Dasgupta, B. Hayward, M. Kanninen, D. Liverman, C. Okereke, P.F. Pinho, K. Riahi, and A.G. Suarez Rodriguez, 2018: Sustainable Development, Poverty Eradication and Reducing Inequalities. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press, pp 452.

Sauer, M. (2019). Under fire. France's 'King Macron' surveys nation on climate policy. Climate Home News. (Retrieved on April 24, 2019 from <https://www.climatechangenews.com/2019/01/17/fire-frances-king-macron-surveys-nation-climate-policy/>).

Schreurs, M. (2017) The European Union and the Paris Climate Agreement: moving forward without the United States, *Chinese Journal of Population Resources and Environment*, 15:3, 192-195, DOI: [10.1080/10042857.2017.1343910](https://doi.org/10.1080/10042857.2017.1343910)

Shukman, D. (2014). Las estrategias de China para combatir el smog. *BBC*. Retrieved on April 26, from: [http://www.bbc.com/mundo/noticias/2014/01/140108\\_ciencia\\_verde\\_smog\\_china\\_estrategias\\_np](http://www.bbc.com/mundo/noticias/2014/01/140108_ciencia_verde_smog_china_estrategias_np)

Slaughter, A.M. (2011). International relations, principal theories. Retrieved from: [https://www.princeton.edu/~slaughtr/Articles/722\\_IntlRelPrincipalTheories\\_Slaughter\\_20110509zG.pdf](https://www.princeton.edu/~slaughtr/Articles/722_IntlRelPrincipalTheories_Slaughter_20110509zG.pdf)

Sofer, K. (2015). The realist case for climate change cooperation. *Center for American Progress*.

Sterling – Folker, J. (2013). Neoliberalism. In Dunne, Kurki and Smith. *International Relations Theories: Discipline and Diversity* (pp.114-132). Italy: Oxford University Press.

Torres, P. (2017). Teoría verde, cambio climático y seguridad desde la teoría de las relaciones internacionales. *Centro de investigación y estudios estratégicos*, 6, 1-21.

*Trump Administration Rolls Back the Clean Power Plan* (2018). Yale School of Forestry and Environment. (Retrieved on April 16, 2019 from <https://e360.yale.edu/digest/the-trump-administration-rolls-back-the-clean-power-plan>).

- UNHCR. (2017). ¿Cuáles son los países más contaminantes? *La Agencia de la ONU para los Refugiados*. (Retrieved on April 22, 2019 from <https://eacnur.org/blog/cuales-los-paises-mas-contaminantes/>).
- U.S. Energy Information Administration. Oil Crude and Petroleum Products Explained: Where Our Oil Comes From. *U.S. Energy Information Administration*. (Retrieved on April 27, 2019 from [https://www.eia.gov/energyexplained/index.php?page=oil\\_where](https://www.eia.gov/energyexplained/index.php?page=oil_where)).
- U.S. Global Change Research Program. (2018). *Fourth National Climate Assessment. Volume II. Impacts, Risks and Adaptation in the United States*. (Retrieved on April 19, 2019 from <https://nca2018.globalchange.gov/chapter/front-matter-about/>).
- Walt, S. (1985). Alliance formation and the balance of world power. *International Security, Vol. 9, no. 4*, pp. 3-43.
- Wong, E. (2016, Aug). Coal Burning Causes the Most Air Pollution Deaths in China, Study Finds. *New York Times*. (Retrieved April 25, 2019 from [http://www.nytimes.com/2016/08/18/world/asia/china-coal-health-smog-pollution.html?\\_r=1](http://www.nytimes.com/2016/08/18/world/asia/china-coal-health-smog-pollution.html?_r=1)).
- World Economic Forum. (2018). The geopolitical impact of China's approach to fighting climate change. *World Economic Forum*. (Retrieved on April 28, 2019 from <https://www.weforum.org/agenda/2018/12/the-geopolitical-impact-of-china-s-approach-to-fighting-climate-change/>).
- World Health Organization. (2018a). Ambient (outdoor) air quality and health. *World Health Organization*. (Retrieved on October 16, 2018 from [http://www.who.int/news-room/fact-sheets/detail/ambient-\(outdoor\)-air-quality-and-health](http://www.who.int/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health)).

World Health Organization. (2018b). Climate change and health. *World Health Organization*. Retrieved from April 22, 2019 from <http://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

World Health Organization. (2018c). Climate Change and Health. *World Health Organization*. (Retrieved on April 20, 2019 from <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>).

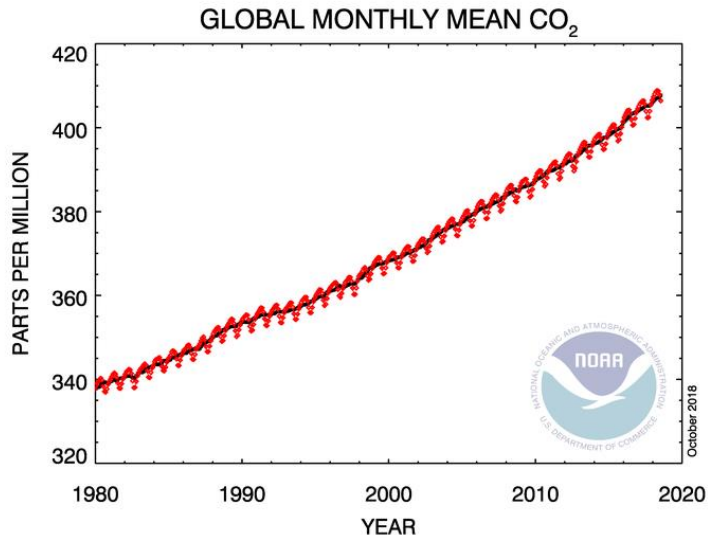
World Meteorological Organization. (2002). *Introduction to climate change: Lecture notes formeteorologists*.

World Meteorological Organization. (2013). *The global climate 2001–2010 A decade of climate extremes. summary report*. Geneva: Switzerland.

64 Ties to the fossil fuel industry and the Koch brothers. (n.d.) *Trump´s Dirty Deputies*. (Retrieved on April 23. 2019 from <https://dirtydeputies.org/>).

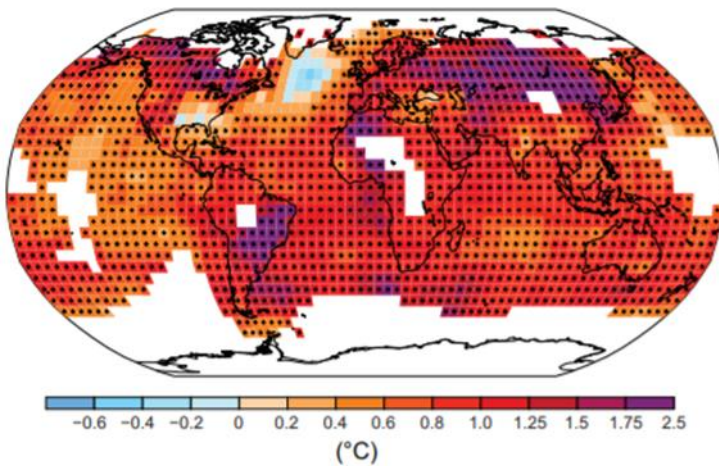
## 8. ANNEX

**Figure 1.** Atmospheric Carbon Dioxide Concentration (1980-2018)



*Source: NOAA (National Oceanic and Atmospheric Administration), 2018.*

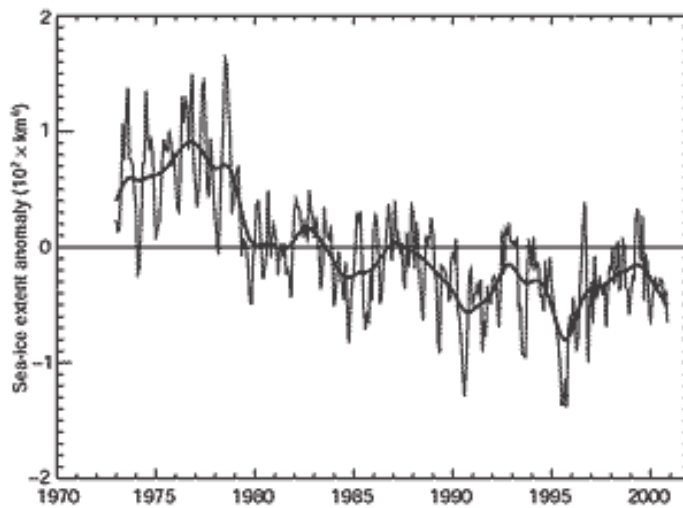
**Figure 2.** Observed Change in surface temperature (1991-2012)



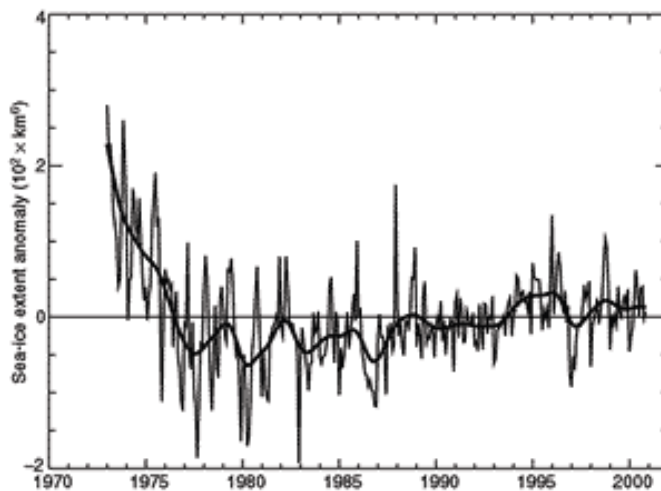
*Source: IPCC, 2018.*

**Figure 3.** Polar Ice Caps Extent And Thickness (1973-2000)

**Figure 3.1.** Artic sea-ice extent and thickness (1973-2000)



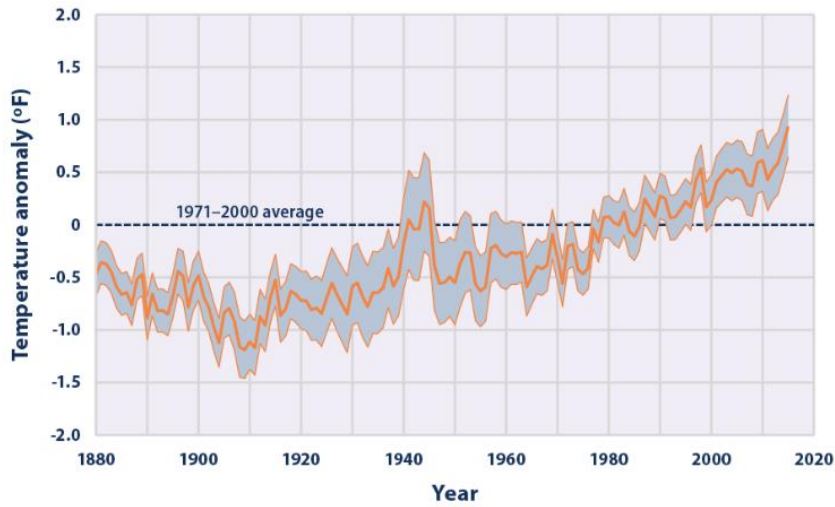
**Figure 3.2.** Antarctic sea-ice extent and thickness (1973-2000)



Source: Folland, C.K., T.R. Karl, J.R. Christy, R.A. Clarke, G.V. Gruza, J. Jouzel, M.E. Mann, J. Oerlemans, M.J. Salinger and S.-W. Wang, 2001: *Observed Climate Variability and Change*. In: *Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change* [Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell, and C.A. Johnson (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 881pp



**Figure 4.** Global Sea Surface Average Temperature Trend (1880-2015)



Source: EPA  
(United States)

Environmental Protection Agency)

**Figure 5.** Republicans and Democrats point of view about climate change issues

