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# CLIMATE CHANGE: IS CHINA BEING UNFAIRILY PORTRAYED AS AN ENVIRONMETAL VILLAIN?

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# *Research question*

*China has often been criticized in the western mainstream media when it comes to climate change, particularly since 2007 when it surpassed the US and became the world's largest $CO_2$ emitter. It is accused of altering the problem of climate change, and has been criticized for refusing to make binding commitments when it comes to reducing its emissions. It is evident that China cannot continue to emit such large amounts of greenhouse gases, and that it must participate in mitigation and adaption. However, its historical contribution to climate change is small, and the Chinese per capita emissions is still low compared to developed countries There is thus no escaping the fact that a large of the climate-related problems we face today can be attributed to industrialized countries.*

*Moreover, when criticizing China for its current, national emissions, important aspects tend to be left out. The fact is that over the years we have outsourced much of our own production to China and other developing countries, and China now produces a large share of what we consume. Thus, we have lowered our own emissions by transferring a large share of them elsewhere, and this leads to a skewed picture.*

*Additionally, China's domestic environmental governance has experienced a remarkable transformation. Considering that environmental challenges and climate change once used to be neglected by the authorities, the development of environmental laws, institutions, and agencies demonstrates a major shift in government priorities. As the worlds' largest emitter of carbon dioxide, the Chinese authorities are well aware of the need to take action. China is doing a lot domestically to address the environmental issues, and has also become the world's largest investor in renewable energy.*

*Based on this, the aim of this thesis is to find out whether China has been unfairly perceived as an environmental villain in the west. It is important to keep in mind that the media tend to frame "us" as the good guys, and the "others" as the bad guys. This happens in all countries, and the problem is that it only gives us one side of the story. Thus, it might be helpful to look at the climate change debate from a different point of view.*

# *Methodology*

*The data for this thesis come from a range of written primary and secondary sources. The former includes official documents such as policy papers, agreements, scientific publications, as well as quantitative data and statistics. The latter include academic sources, reports, research publications, and news articles.*

*To my parents*

# TABLE OF CONTENTS

# CHAPTER 1
# INTRODUCTION: CLIMATE CHANGE AND DISTRIBUTIVE JUSTICE

Among the many challenges the world is facing today, climate change (CC henceforward) is certainly one of them, if not the biggest. It has become a key topic in the media and at the international arena, and is universally recognized as a global problem (Markandya & Halsnaes, 2002, p. 1). But even though we have known about it for decades, actions to combat the climate-related challenges have not been adequate. It has proven especially difficult to attribute responsibilities, and negotiations at the international arena have often failed because of the great divide between the global south and the global north. This is a challenge that must be overcome because immediate action is needed to prevent the worst-case scenarios, and time is starting to run out. In many parts of world, we are already witnessing an increase in extreme weather events, with millions of people and animals suffering the consequences. In addition, CC is interconnected with many other issues, such as health, food security, migration, and human rights. This is what makes it such a complex topic, and why adequate action is desperately needed.

In regards to the mainstream media in the west, it has been common to blame the countries in the global south, especially the BRICS (Brazil, Russia, India, China, South Africa). We are often told that developing countries refuse to accept their share of the responsibility, and that they try to place all the blame on the industrialized countries, while continuing to increase their own emissions (Young Friends of the Earth Europe, 2015). Yet, it seems odd if developing countries are not willing to accept responsibility. Not only are many of them the most vulnerable to CC, but they also tend to be the least capable of tackling climate-related crises. Most of these countries are poor and thus do not have sufficient means to handle such catastrophes. One would therefore think that efforts to minimize climate-related risks are in their interest as well.

However, it is true that the global south insists that developed nations take on a much larger share of the responsibility. They would also like to see the rich countries pay for the technologies needed to reduce the emissions, and this is an argument often advocated by China. This does not seem to be unreasonable though, if we consider that developed countries are responsible for approximately 80 percent of the historical $CO_2$ emissions, mainly from the burning of fossil fuels (Young Friends of the Earth Europe, 2015). Thus, not only have they spent much of the so-called "carbon budget", but they have benefited economically too. It therefore seems fair that they pay a larger share of the costs. Nonetheless, from the developed countries' point of view, the main problem is not their past emissions, but the new emerging economies that alters the problem.

China has often been framed as an environmental villain in the mainstream media, particularly since 2007 when it surpassed the US and became the world's largest $CO_2$ emitter. Due to its rapid economic development in the past three decades, China is often accused of altering the problem. The continuous growth in its manufacturing industries has been identified as the cause that could push us over the edge of dangerous CC. In American and Australian media, China is typically portrayed as a major threat and obstacle to the international community's effort to fight CC. Its economic development is often presented as a burden, and the US has frequently used this against China, urging that the Chinese must take major responsivity. Additionally, it has often been referred to as "a destructive force that is non-cooperative and unwilling to curb its emissions" (Wu, 2009).

Likewise, the same goes for the Chinese media, where the US is blamed for having created the problem in the first place. China clings to the argument that developed counties' responsibility must be in accordance with historical and per capita emissions. This blame-game between developed and developing countries has taken place since the very beginning of the global climate negotiations, and it has widened the gap among them. It is easier to blame "the other", and this is a typical feature of the media's coverage of CC, which has an immense power to frame people's perception of it. They leave out some parts of the reality out and pick out the pieces they need to express their point of view, and usually the good guys are "us" and the bad ones "them". Consequently, China is often portrayed as the villain the west, while little

attention is attributed to what China is doing in the fight against CC, especially at the domestic level (Wu, 2009).

During my studies at LUISS, I got the opportunity to spend one semester at Renmin University of China in Beijing. The stay fuelled my interest in CC, and in particular China's role. Before my arrival, my knowledge of Chinese climate policy was rather limited, and to a certain extent my perceptions were framed by Norwegian and western media. When I came to learn what China is doing at home, I realized that the picture we have of China in our part of the world tend to be incomplete. I was also surprised to see that the Chinese media seemed to be more open about CC than I had imagined. Moreover, with my interaction with Chinese students, I learned that they are very concerned with the effects of CC, especially the hazardous air pollution that causes much harm to people's health.

The aim of this thesis is thus to illustrate the point view of "the other" to get a comprehensive understanding of the elements that constitutes China's position in the climate debate. In the following chapters, we will see why many of its arguments are both fair and reasonable, and how China's environmental policies have developed over the years. It is important to underline that this does not entail that China has no reasonability at all. As the world's number one $CO_2$ emitter, it is evident that it should make efforts to curb emissions. Nonetheless, there is no escaping the fact that climate-related challenges we are faced with today have largely been caused by the industrialized countries.

In this introductory chapter, we will start by taking a look at CC to get a better understanding of what it is and how it works. Then, we will briefly discuss some of the possible and disastrous scenarios that will occur if the world community proves uncappable of taking immediate and adequate actions. At last we will see that CC should not solely be treated as a matter of science, technology or politics, but that it can, and should, be treated as a philosophical issue as well. It is something that affects the whole world, but as we will see, the harms will disproportionately affect the poor whose contribution to the problem is minimal. A core question that arise in the climate debate is thus how we should distribute the benefits and (especially) the burdens. CC is thus an issue of global environmental justice, and will go deeper into this.

## 1.1 WHAT IS CLIMATE CHANGE?

The United Nations Framework Convention on Climate Change (UNFCCC), established in 1992, defines the concept as follows:

"*a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods"* ((*Art. 1.2)* (UNFCCC, 1992, p. 7)).

There is hence a distinction between natural and anthropogenic CC. The climate system changes naturally over time (Riebeek, 2010), and Earth has developed over a period of billions of years. According to many scientists, changes in the natural world provided the conditions for the evolution that made our planet habitable for humans and other life forms. The Earth has gone through warmer periods and ice ages, and these natural changes have also had a massive impact on human lives. In fact, CC may have played a key role in the rise and fall of civilizations (Penna, 2010, pp. 3, 282). Moreover, natural CC has also affected our way of life. During the Pleistocene Epoch[1], the climate was dry and the $CO_2$ levels in the atmosphere were low, which provided conditions favourable for hunting, but unsuitable for farming. The glaciers started to retreat in the following and most recent period, the Holocene[2]. Rising $CO_2$ levels and a warming climate are features of this interglacial period, making the transition from hunting to farming possible due to an environment compatible with plant cultivation (Penna, 2010, pp. 32-33).

Still, natural climatic changes cannot explain the rapid temperature increase in the past century because their processes are too slow (Riebeek, 2010). The transformation from hunting to agriculture can though, due to its connection with developments that later set in motion anthropogenic CC. While farming remained physical demanding for very long, innovations and inventions eventually resulted in greater productivity and led to larger settlements and villages. Some evolved into cities

[1] 1.8 million years ago to 11,600 **BP**. Th Pleistocene was a glacial period in which most of the northern hemisphere was covered by ice sheets. See: The Human Footprint (Penna, 2010, p. 32)
[2] The past 11,600 years. The Holocene is an interglacial period characterized by a warming climate. See: The Human Footprint (Penna, 2010, p. 32)

with administrative, economic and social hierarchies, which again led to an increase in human skilled capital. This paved the way for the transition to agrarian societies that became a prerequisite to population growth, industrialization, and manufacturing. These transformations were accompanied by a rise in energy consumption that resulted in large amounts of GHG emissions, placing great pressure on the ecosystems. The Industrial Revolution played a central role, with the upsurge of factories, mass production, consumer goods, increased urbanization, and population growth (Penna, 2010, pp. 3-6).

According to the World Meteorological Organization (WMO), the accumulation of GHGs during the 20th century is a consequence of the growing use of energy and the expansion of the global economy. The result is that the build-up of GHGs have altered the radiative balance of the atmosphere. Energy in the form of heat, from the sun, passes through the atmosphere and warms the Earth's surface. As the temperature increases, the Earth sends heat energy (infrared radiation) back into the atmosphere. Some of this heat is then absorbed by GHGs in the atmosphere (e.g. water vapour and carbon dioxide). The immense quantities of these, largely due to the burning of fossil fuels, have caused temperatures to rise (UNFCCC, 2011, p. 1). The problem is that GHGs remain in the atmosphere for a very long time. This means that past emissions, e.g. from cars in the early days of the 20$^{th}$ century, are still present in the atmosphere and affect the current climate (Penna, 2010, p. 294).

There is hence no doubt that humans have had a great impact on the climate, and we have known about it for a long time too. Some of the first and most significant climate studies were carried out in the 19$^{th}$ century, and John Tyndall and Svante Arrhenius were among the most important scientists at the time. The former demonstrated the physical basis of the greenhouse effect, and the latter showed that variations in the concentration of $CO_2$ in the atmosphere had an impact on the Earth's surface temperature (Fleming, 1998, p. 65). However, it was not until the 1960s that scientists started to sound the alarm. Old theories were debunked and scientists understood that the climate could change rapidly. They also realized that the rising temperatures were connected to the growing concentrations of GHGs in the atmosphere, and it started to become clear that humans played a central part in this (UNFCCC, 2014). CC slowly started to gain attention, and a lot has changed over the years.

Nowadays there is a very large scientific consensus on anthropogenic CC, with 97 percent[3] of climate experts agreeing that global warming has largely been caused by human activity, mainly through the burning of fossil fuels. This wide consent is essential to make people accept that CC is happening, and it is also vital in receiving public support for policies that tackle the problems (Cook, et al., 2013). But even though we have been aware of it for many decades, we have achieved relatively little. This is due to the complexity of CC. It is a collective-action problem that requires policy coordination, multi-level governance and international collaboration (Luterbacher & Sprinz, 2001, p. 7). We also know that developed countries are responsible for most the historical emissions, and yet it has proven to be very difficult to attribute responsibilities (Markandya & Halsnaes, 2002, p. 1). In addition, we know that it is urgent. To better understand why we must act now, the next section will look at what might happen if effective measures are not adopted soon.

## 1.2. CLIMATE CHANGE IMPACTS AND POTENTIAL RISKS

In the future, the world will have to deal with many environmental challenges, and several life forms on earth are already under theat. Numerous species risk to suffer the same faith as the dinosaurs did 65 million years ago, but this time mainly due to human activity. In fact, it has been estimated that about one hundred species are being extinct every day (Des Jardins, 2006, p. 5). The World Wildlife Fund's (WWF) Living Planet Report 2016 states that we have already lost more than half of the world's vertebrates since 1970. If we get stuck in the business-as-usual scenario, this downward trend will continue, and by 2020 about two-thirds of all animals could disappear. The climate is hence changing so fast that most animals and plants cannot keep up (WWF, 2016).

[3] This number is based on an analysis of 11 944 peer-reviewed scientific papers on climate change between 1991 and 2001. See *Quantifying the consensus on anthropogenic global warming in the scientific literature.* Available at: http://iopscience.iop.org/article/10.1088/1748-9326/8/2/024024/pdf)

CC can also indirectly affect changes in animal behaviour. Temperature changes may trigger migration and reproduction, causing them to happen at the wrong time (e.g. during a period of food scarcity). Additionally, more and more people are becoming victims of CC as the natural resources necessary to sustain life on earth (e.g. clean water, air and soil) are being polluted at alarming rates. Because of human activity, some scientists have even suggested that we have transitioned from the Holocene into a new epoch: the "Anthropocene". If this degradation and depletion continues, we are facing a potential catastrophic future (WWF, 2016).

### 1.2.1. EXTREME WEATHER

The temperature rise caused by CC leads to more frequent and more intense extreme weather events, and we are already witnessing an increase of flash floods, heatwaves, severe droughts, and wildfires in several regions (UNFCCC, 2011, p. 1). In 2009, the World Wildlife Fund published a report in which it was estimated that global sea levels will rise by more than one meter before 2100. If this were to happen, it would pose a great threat to low-lying island states and coastal areas. These are likely to experience inundation more frequently, and in the worst-case-scenario they may become uninhabitable or even disappear under water (Hung & Tsai, 2012, p. 104). This would affect the 600 million people living in these vulnerable areas, e.g. Bangladesh, Kiribati, and Vietnam, forcing millions of people to migrate (Armstrong, 2012, p. 215).

Additionally, according to a research by the Max Planck Society in Germany, large areas in the Middle East and North Africa will become so hot in the future that human habitability is compromised. More frequent and longer heating waves, in addition to increased sand storms, will make it impossible for people to live there. The goal of limiting global warming to less than two degrees Celsius will not be sufficient to prevent this scenario, because temperatures in these areas are expected to increase more than two times faster than the average global warming. The researchers believe that by mid-century, during the warmest periods, temperatures will not fall below 30 degrees at night. In addition, heat waves could occur ten times more often than they do today. It is hence possible that the environmental conditions could become intolerable. A possible

outcome is that many people (in a region of 500 million inhabitants) will be forced to migrate (Lelieveld, et al., 2016).

It is not hard to imagine that hundreds of millions of environmental refugees would put great pressure on the countries receiving them. This could lead to disputes both within and outside national borders, causing more international instability and ethnic conflicts. These events may also threaten food security, and struggles over scarce resources may cause conflicts to rise and challenge national security (Hung & Tsai, 2012, p. 106). It seems logic to assume that it will be in everyone's interest to reduce the potential pressure form environmental refugees, and we may wonder why the international community has not achieved more.

### 1.2.2. HUMAN RIGHTS VIOLATIONS

Anthropogenic CC may also cause human rights (HR) violations. A publication[4] by the United Nations Environment Programme (UNEP) and the Satin Center for Climate Change Law at Columbia University, states that CC is now one of the largest threats to HR. It violates basic rights to life, clean water, food, and shelter. (UNEP, 2015). We can easily see how all of them could be endangered by the extreme weather events mentioned above. If areas in the Middle East and North Africa will become extremely hot, an increase in droughts will lead to crop failure, which can cause food crises, famines and eventually deaths. Moreover, HR violations will certainly be the case of the people living in low-lying coastal areas and island states, whose very existence is threatened by the rising sea levels. Agriculture and infrastructure are also at great risk there, and we know that a possible scenario is that millions of people may be forced to leave their homes. Thus, CC could also be a case of cultural injustice because entire cultures and traditional ways of living are at risk (Caney, 2015).

In the future, it is expected that there will be far more climate displaced refugees than those fleeing from war and persecution. The problem is that climate refugees do not have any legal statue under the current international law. There are no conventions

[4] Available at: http://www.unep.org/delc/HumanRightsandTheEnvironment/tabid/54409/Default.aspx

or frameworks concerning the protection of climate refugees, and we might ask ourselves where they will receive assistance without any legal rights. Considering how Europe has been handling the current refugee crisis, we can only imagine what will happen when millions of climate refugees are forced to leave their countries (Young Friends of the Earth Europe, 2015).

According to the United Nations High Commissioner for Refugees (UNHCR), the number of people displaced by CC can reach 250 million by 2050, and the world is not capable of handling such numbers (Young Friends of the Earth Europe, 2015). Nonetheless, a convention protecting the victims of CC is not within reach, and there seems to be no consensus within the international community whether such a document is feasible or not. Climate refugees thus continues to be ignored and risk being deprived of their basic HR. What is unfair is that these people usually come from poor countries, and therefore become victims of something that has largely been created by the developed countries (Glahn, 2009).

### 1.2.3. HEALTH ISSUES

CC may also pose great risks to people's health, and the World Health Organization (WHO) has estimated that the direct damage costs will be between 2-4 billion US$ a year by 2030 (WHO Fact Sheet, 2016). In a recent publication, the WHO has identified 100 diseases that could be attributed to the environment, such as respiratory infections, cancers, malaria, diarrhoeal diseases, malnutrition, stroke, and asthma. Air pollution and unsafe drinking-water are two well-known factors influencing people's health, and may cause several of the aforementioned diseases. In 2012, 12.6 million[5] deaths globally were environmental-related (WHO , 2016), and CC is expected to cause 250 000 additional deaths per year between 2030 and 2050 (WHO Fact Sheet, 2016).

[5] 8.1 of the 12.6 million were estimated by comparative risk assessment methods, and the remaining 4.5 million by a combination of methods, including expert opinion. The full WHO report is available at: http://www.who.int/quantifying_ehimpacts/publications/preventing-disease/en/

The majority of deaths and diseases attributable to the environment occur in low-and middle income countries, which often lack the means for preventive measures (WHO , 2016). There are also large differences within countries, and typically the burdens fall on the most disadvantaged, like the poor or minority groups. Robert Bullard, who has investigated environmental risks in communities of colour in the US, found that toxic waste and highly polluting industries were often situated in poor, minority communities. Another study found that pollution was less likely to be cleaned up in these neighbourhoods, and that the polluters would receive lighter punishments when compared to white neighbourhoods. The same trends can be found at the global level, where environmental degradation like air and water pollution are more likely to happen in poor countries. Usually, it is also the "poorest of the poor" who bear the brunt of the burdens, with most of the harms falling disproportionately on women and children (Des Jardins, 2006, pp. 231-33).

For instance, approximately 58 percent of all cases of diarrhoea in low- and middle-income countries are attributable to the environment. Globally, it causes 842 000 deaths annually and children are especially vulnerable. In fact, diarrhoeal diseases are accountable for 20 percent of all children under-five deaths, and hence among the main contributors for global child mortality. Every year about 6.6 million children under five years die, and more than one quarter is attributable to environmental factors. If environmental risks were removed, up to 26 percent of under-five child deaths could be prevented. Feasible solutions like access to safe drinking-water and hygiene and sanitation could reduce the global morbidity by 45 percent (WHO , 2016). Additionally, air pollution is one of the largest environmental threats. According to researchers at Berkeley Earth, it has been assumed that it kills more people in the world than breast cancer, malaria, AIDS, and tuberculosis. Particulate matter (PM) pose great risks to people's health, and it has been estimated that it causes between 3 and 7 million deaths annually (Rhode & Muller , 2015).

Many measures can be taken immediately to reduce the disease burden attributable to environmental factors, e.g. through the promotion of safer household water storage and the use of cleaner fuels for cooking and heating. The WHO recommends that all sectors that have an impact on environment should cooperate closely with the health sector to address the root environmental causes that have a

negative effect on people's health. In the long run, the improvements to human well-being and a higher quality of life will outweigh the costs of environmental policies by reducing the costs related to ill health (WHO , 2016).

From what we have discussed so far, we know that CC is urgent and that it will have devastating effects if the global community is unable to take adequate actions. It is evident that action and policy changes are urgently needed to meet the climate challenge, and they must be applied immediately and aggressively. But why haven't we come further? And how can we make the right decisions? How do we distribute the benefits and burdens fairly? CC is a delicate and complex topic, and one challenge is the fact that GHGs remain in the atmosphere for very long. Many of the problems we are facing today are the result of the decisions of past generations, most made at a time when humans were not aware of the harmful consequences. Is it then right to make developed countries bear the brunt of the burden? Many would agree because the development provided both past and present generations with great benefits, e.g. economic development and increased welfare. Thus, it is only fair that they pay a larger cost (Des Jardins, 2006, pp. 6, 8). In the next section, we will look deeper into some of the philosophical issues that are related to the ongoing climate debate.

### 1.3. WHY PHILOSOPHY?

There has been a tendency to treat CC as scientific, technological, or political problem. It is understandable that people turn to science and technology to find answers, and many believe they are our only hope for solving the climate-related problems. There is no doubt that these subjects play a crucial role. Science has provided us with the evidence of human-induced CC and estimates of its potential consequences. It also gives us factual answers, and it therefore seems logic to turn to experts when addressing the problem of CC. Technology is important as well, and plays a crucial role in the development of safer, cheaper and cleaner energy sources (Des Jardins, 2006, p. 6).

Nevertheless, some technological innovations aimed at improving our well-being have caused serious damage to the environment. One example is the overuse of pesticides, especially in the decades after WWII. Because of population growth,

increased demand for food and a reduction in the number of farmers, larger productivity was necessary. At first, the use of pesticides seemed like an efficient innovation as crop loss was reduced and hence enabled farmers to meet demand. No one raised questions about the ecological effects, and it was not until the publication of Rachel Carson's *Silent Spring* in 1962 that people started to pay attention to the possible dangers of pesticides. In fact, scientists have later found evidence that overall crop loss has increased since the 1940s, which shows that the vast use of pesticides has actually been ineffective. Thus, even though technology is helpful in the fight against CC, it has also created new problems (Des Jardins, 2006, pp. 3-5).

Furthermore, although letting the experts provide us with the answers to environmental problems may seem like the most logical thing to do, we should take it with a pinch of salt. After all, scientists receive financial support to examine specific cases, and those paying for the research are often private corporations and governments. Thus, the scientists often seek answers to questions asked by others, but it does not mean that the conclusion tells us the whole story. Some aspects are probably left out, and if the question were formulated differently, it is possible that we would arrive at a completely different conclusion. Both would give us objective and factual answers, but separately they are incomplete. Hence, we should not always trust scientific results blindly, and neither should we consider CC exclusively as a scientific, technological or economic issue (Des Jardins, 2006, pp. 10-12).

Environmental challenges also raise important ethical and philosophical questions, such as how we ought to live our lives and to whom or what we have responsibility. As Des Jardin point out, even the use of fertilizers and pesticides, which may seem harmless, raise philosophical questions. Do we have a duty to protect all life-forms in nature? Or can we call some of them pests and use chemicals to kill them? Should we adopt a precautionary principle to avoid potential harm, or should we keep using these chemicals until scientists can prove that it harms both humans and the environment? The idea is hence that ethics and philosophy can provide guidance and help us to establish judicious environmental policies, but this does not mean that we should exclude science. Rather, we should recognize that both science and ethics are pivotal when we address the environmental challenges (Des Jardins, 2006, pp. 6-7).

## 1.4. GLOBAL DISTRIBUTIVE JUSTICE

We will treat CC as an issue of global environmental justice, i.e. the global distribution of environmental benefits and burdens (Caney, 2005, p. 748). We know that CC may cause great harm and that the costs will be huge. Unfortunately, those who are least capable of addressing the costs are likely to be the hardest hit, and typically their historical contribution to CC is tiny. Two of the main ethical issues raised by anthropogenic CC are attribution of responsibility and the distribution of GHG emissions rights. The former asks who should bear the burden, i.e. how to distribute the costs of adaption, mitigation, and compensation. As we have seen earlier, a typical argument is that the responsibility should lie with those who created the problem (i.e. "the polluter pays principle"). Consequently, developed countries should pay a larger share of the costs since their ecological footprint is much larger, and this is basically what the UNFCCC's "common but differentiated responsibility" is based on. The latter looks at how we can distribute emission rights in a fair way. If we want to avoid a dangerous temperature rise, we must reduce the overall emissions. We may think of the atmosphere as a limited common good, and thus we need to distribute emissions fairly among people. A widespread argument it that developed nations should reduce their emissions because they are much larger compared with those of developing countries (Caney, 2015, pp. 373, 380).

A good way to explain this is the so-called bathtub effect, developed by Linda Booth Sweeney and John Sterman. Basically, we should think of the atmosphere as a bathtub into which we pour our GHG emissions. The problem is that the bathtub has limited capacity, and right now we are filling it up so fast that we have more water flowing in than draining out. If we get stuck in the business-as-usual scenario, the water level will rise and eventually there will be a flood, which may cause severe damages. In fact, the world's current GHG emission level is so high that natural carbon sinks like oceans and forests are unable to absorb them. Stabilizing emissions at the present level will therefore not be helpful because the inflow is much larger than the outflow. Thus, the only way to avoid a dangerous temperature rise is to reduce emissions (Sweeney & Sterman, 2000). The distribution of responsibility and emission rights are clearly issues of distributive justice, but before we address these issues more deeply, we will take a

brief look at the disagreements among theorists when it comes to the scale of our duties and to whom we have duties.

### 1.4.1. POSITIVE VS. NEGATIVE DUTIES OF JUSTICE

Many theorists distinguish between positive and negative duties. John Rawls referred to the former one as doing something good for another person, which can be understood as giving money to charity or volunteering. Many would say that this is not an enforceable duty of justice, but rather a humanitarian duty (i.e. what we ought to do). However, we might also have negative duties of justice that involves *not* acting in a way that harms other people, e.g. by polluting their community. The thought that negative duties are stringent and enforceable is widespread, and Thomas Pogge would certainly agree on this. He recognizes that even though we might not have positive duties to someone living on the other side of the planet, there are still things we should not do to them (Armstrong, 2012, pp. 23-24). For instance, we know that the effects of CC are transnational. Thus, if we agree on having negative duties, we may violate them because emissions in one location can eventually lead to environmental problems in another.

### 1.4.2. RELATIONAL VS. NON-RELATIONAL APPROACHES

Theorists of global justice also disagree on why global justice is necessary, and we distinguish between relational and non-relational approaches. It is also important to mention that there are differences within these approaches too. Regarding the former, some believe distributive justice is important and relevant because we live in a globalized world. We are interconnected with each other on many levels, e.g. through the global economy, common institutions, and international conventions and agreements (like the UNFCCC or the Paris agreement). This institutionalist account thus believes that justice applies to the global institutions, and without their existence, we would not need global justice. Others again claim that distributive justice is applicable only when we have an impact on each other's life. If we think about the climate, it is possible to extend the duties of justice to *everyone* in the world. After all, we share a global ecosystem and thus have the potential to affect each other lives. We know that GHGs remain in the atmosphere for a very long time, and as mentioned before, they often have

transnational effects. The case of low-lying coastal areas and island states is a good example of this. While their ecological footprint is very small compared to the developed countries, they are among the most vulnerable to CC. Hence, if our actions have caused temperatures to rise, which leads to the shrinking of ice sheets and rising sea levels, this means that our ecological decisions have influenced people living in these areas. As we discussed earlier, the rising sea levels may eventually force islanders to leave everything behind as their homes could disappear under water. Thus, given the potential impact we have on each other, global justice becomes relevant and applicable (Armstrong, 2012, pp. 25-27).

However, there are also those who believe that justice does not depend on a relational account. According to the non-relationists, we all have entitlements and duties of justice simply because we are humans. Because our humanity must be respected, regardless of where we live, we need global distributive justice. The inhabitants of small island states should not have to suffer just because they happened to be born there, and we might have duties to help them. Furthermore, for the non-relationists, the distinction between domestic and international is not relevant. We might have more in common with our co-nationals, but we are all humans. Thus, if we believe principles of justice are important within our own country, they should also apply at the global level (Armstrong, 2012, pp. 30-33).

### 1.4.3. HISTORICAL EMISSIONS

Who should be bear the brunt of the responsibility for CC? And how can we distribute the burdens (mitigation, adaption, and compensation) in a fair way? If we think it is fair that those who have caused a problem should pay for it, we might agree with one of the leading approaches in the ethical analysis of CC, namely the polluter pays principle. Because GHG emissions remains in the atmosphere for very long, past emissions still have a significant impact on our climate. Moreover, we know that industrialized countries are responsible for approximately 80 percent of the historical emissions, and thus is it only fair that they are held responsible. Since their emissions have contributed to the temperature rise, and hence changes like melting glaciers and

rising sea levels, they have imposed unfair costs on many others. The disadvantaged should thus be entitled to some kind of compensation (Caney, 2015, p. 380).

As Caney point out, the polluter pays principle usually entails that an individual has acted in a way that causes pollution, and thus he or she should pay for the reparation. However, there is a problem with this micro-version because it means that we can only attribute responsibility to a certain person if we can identify the specific harm that action has caused. This is not feasible because we cannot point out exactly which individual action caused a particular burden. Therefore, Caney stress that we must apply the macro-version. This entails that several individual actions taken together cause heavy pollution, and that each should pay according to the amount they have caused. Thus, polluters as a group should pay for the harm that they have caused as a group. Although we still cannot say that one actor caused a specific bit of CC, we can say that the actions of this group has collectively contributed to global warming. The macro-version also makes it possible to attribute more responsibility to some groups if they have polluted more than other groups. Moreover, we need to decide which kind of group the polluter is, and it is common to refer to a nation state as the responsible entity (Caney, 2005, pp. 753-754).

The historical responsibility of countries has been a core element in the international negotiations and agreements on CC. We know that the majority of the accumulation of GHGs in the atmosphere is attributable to industrialized countries, and it easy to understand why the global south has been reluctant to commit themselves to mitigation targets when their historical contribution is insignificant. Thus, the only way to reach an international agreement that included the majority of the world's countries was to recognize this difference. As a result, the common but differentiated responsibility (CBDR henceforth) was used at the first Conference of the Parties (COP), and later it was implemented into the UNFCCC and Kyoto Protocol. According to this principle, all countries are responsible for addressing CC, but they are not equally accountable. The developed nations must take the first step and reduce their emissions, and they are subject to binding commitments. The wealthiest of them are also responsible for providing developing nations with financial aid and new technologies to help them reduce emissions and better adapt to CC. Developing countries on the other hand are not required to reduce their emissions, but are expected to do so over time.

This gives them a chance to focus on economic development and poverty eradication. The UNFCCC also recognizes the special situation of the least developed nations and those most vulnerable to CC, like the small island states (Bortscheller, 2010, p. 50).

The principle of CBDR is equitable and hence enjoys extensive support in the international community. Without it, it would probably have been impossible to establish a global climate regime, and the principle will continue to be a cornerstone in the developing countries positions (Bortscheller, 2010, p. 51). However, the historical responsibility has also been subject to critique. First, people have contributed to the problem for nearly two hundred years and many of the harms that have been caused are the result of past policies. Many of the polluters not alive any more, and some find it unfair to make current generations pay for something that is attributable to their ancestors. Moreover, many of the actions were made in good faith because at the time people did not know about the harm of emissions. If they were not aware of the negative effects, how can we hold them responsible? (Caney, 2015, pp. 380-381)

Well, it might not be that unfair to make them pay after all, and Caney provides some possible answers. First, we have known about CC for quite some time now. Many have suggested that historical responsibility should only count after 1990, but scientists warned about CC in the early 1960s. So, from when should the excusable ignorance become inexcusable? Second, even though there might have been a lack of proof for a connection between past actions and the hazardous outcome, the suspicions should make us adopt a precautionary principle. Third, we could apply a strict liability approach, which says that even if the polluters were ignorant, they should still be held accountable if they benefited from the actions of their ancestors (Caney, 2015, pp. 380-381). People living in developed countries still enjoy benefits from the development and industrialization their countries experienced from the Industrial Revolution and onwards, mainly through fossil fuel consumption. Some of these include high living standards, infrastructure, solid institutions, and welfare services. Hence, it is not only fair that developed countries bear the biggest burden due to their historical contribution, but also because they can afford to do it (Bortscheller, 2010, p. 51).

Caney refers to this as the “beneficiary pays principle”. If the policies they have benefited from have caused harm on others, they should pay the cost. Again, he says we

should think of the beneficiaries as a collective, e.g. a country, because it is difficult to make current individuals pay for pollution caused by past generations. Moreover, if the industrialization had not happened they probably would not have been born in the first place, so one cannot say that people in developed countries today enjoy higher standards of living than they would have had without this development. However, industrialization did not necessarily bring about countries that would not have existed if it did not happen. We can therefore say that industrialized countries have attained benefits that they would have been without if industrialization did not take place. So, if we take the collectivist approach, we could say that the US (the collective), whose historical contribution to CC is large, may be required to pay for the harm caused by its past emissions. As Caney point out, to make the collective pay is to make the polluter pay. Thus, the argument that many of the individual polluters do not exist anymore and hence cannot pay for the harm, falls short. (Caney, 2005, pp. 758-759).

Nevertheless, Caney also criticizes the collectivist approach and concludes that it is not attractive because it is unfair to impose the costs of previous generations on the current individuals who did not participate in the policy-making. They may not have been consulted about it, or perhaps they were strongly against it. Thus, they should not suffer from decisions made by the others. Nevertheless, this does not change the fact that industrialized countries have polluted a great deal in the past, and that this has contributed to global warming. Even if were they unaware of the harms and it might seem unfair to hold them responsible, Shue stresses that it is still not unfair to make them pay for something they broke. Nor does it change the fact that citizens in developed countries do benefit from some of these past decisions. In addition, they tend to have much higher per-capita emissions than people in developing countries (Caney, 2005, pp. 760, 762)

However, the PPP alone is not adequate because it could impose heavy burdens on the impoverished. If a country has polluted a lot in the past, but has remained poor, we might think that it would be unfair to make it pay it. However, if the country becomes wealthy in the future, it should be required to pay since they can afford it. Therefore, the PPP should be accompanied by the poverty argument. It should also include the ability to pay approach because it attributes duties to those who can easily bear the cost, i.e. the most advantaged. This entails that they have a duty to help solve

the problem even if they did not cause it, and Caney refers to Singer's famous example of a drowning child to underline the point: even if one did not throw the child into the puddle, it does not mean that one does not have an obligation so help the child. Moreover, he believes that the least advantaged in the world are entitled to higher GHG emissions than the advantaged (Caney, 2005, pp. 764, 769-770). The historical responsibility, the PPP and the ATP are in vain with what developing countries have always argued in international climate negotiations, and they also reflect the aspects of the UNFCCC and in particular the principle of CBDR.

### 1.4.4. EQUAL PER CAPITA EMISSIONS

There are huge differences in per capita emissions across the world, and there is no doubt that some are using a lot more than their fair share. Global egalitarians are likely to have problems with this uneven share of GHG emissions, and many have embraced the principle of equal per capita emissions. As we saw with the bathtub effect, the atmosphere's capacity to absorb GHGs is limited if we want to avoid a radical temperature rise, and some are putting a lot more into it than others. If we accept that the atmosphere is a global common, we might agree that everyone has an equal right to use it. As Armstrong points out, this is in line with Peter Singer's argument, which, instead of using the word bathtub, suggests we should think about the atmosphere as a sink which we can fill with a sustainable amount of $CO_2$. Because it is a global sink, everyone has an entitlement to it, and there is no reason why some should have a bigger piece of the pai than others (Armstrong, 2012, pp. 199, 202).

If we consider the current distribution of annual per capita emissions, an American citizen pollutes more than twice as much as a Chinese (The World Bank, 2017). When the amount emitted by Americans (or citizens in other developed countries) is so large, they limit the possibility of developing nations to add their fair share into the bathtub. Henry Shue has criticized the global north for emitting far more than necessary to have their basic needs met, what he calls "luxury emissions". However, it is difficult to decide what that fair share should be. If we want to prevent a dangerous temperature rise, it is evident that every person in the worlds cannot pollute as much as an American is currently doing today. Therefore, people in developed

nations should reduce their emission because they are too high. The cost would not be very high since they only need to sacrifice some of their excessive luxury emission, while their basic needs are not endangered. People in the developing world on the other hand, should be allowed to increase their emissions to a sustainable level. This argument is strongly advocated by China and developing countries who are trying to increase living standards and reduce poverty. They claim they have the same right to economic development as the developed nations experienced during the Industrial Revolution, which was largely based on fissile fuel consumption. Considering this, it seems fair that developed countries reduce their per-capita emissions (Armstrong, 2012, pp. 200-202).

The discussion of equalized emissions is similar to the debate on common ownership of resources, which can be traced back to John Locke (Armstrong, 2012, p. 154). Originally, all land in the world was unowned and no one could claim a right to it. However, people owned their labor. Thus, if someone found a piece of unowned land and started to grow food on it and built a home, that person has an entitlement to the land, which becomes his or her private property. There is nothing wrong about this as long as a satisfactory amount of good land is left for others to use, so that no one gets excluded (Des Jardins, 2006, p. 229). We could easily apply this idea to the atmosphere, i.e. a commonly owned bathtub to which everyone has an equal claim.

As Armstrong underlines, Singer also argues along this line, i.e. the global sink which we can fill with a sustainable amount of GHGs. Because everyone has an entitlement to it, no one should be able to add more than their fair share into the sink. Yet, this is exactly what developed countries have been doing. Thus, a scheme for equal per capita emissions seems like a plausible solution, because it would stop them from emitting unproportionate and unsustainable quantities. However, when this is accomplished, Singer goes one step further. Because different countries have different needs, some countries would have to make large sacrifices to reduce their emissions, while others will not be able to spend their quota. Thus, a compromise could be to allow emission trading (Armstrong, 2012, pp. 202-203). Without this compromise, it is hard to imagine that it would be feasible to distribute emissions rights equally across countries. After all, developed counties tend to have much higher capita emissions, and they would be required to make extreme cuts.

However, as Armstrong point out, this could seem like a contradiction because it would allow rich countries to continue to emit much more than others. Critics of emission trading would find it unfair that they can buy emission rights and keep emitting large amounts of GHGs, just because they are rich. However, Singer holds that this is not a problem because many poor societies possess unused emissions, and thus they can benefit from selling the leftovers. The result would be a wealth transfer from the rich to the poor, and perhaps the latter would invest some of the money in cleaner technologies so that they could sell even more of their quota. It would also have a positive effect on the rich countries as they would avoid radical GHG reductions, and hence may preserve their lifestyles (Armstrong, 2012, pp. 202-203).

Critics on the other hand, might say that the principle of equal per-capita emission is unjust. Because different countries have different energy needs, it would not make sense to equalize emissions across the world. And it might be considered unfair if those who have greater needs must buy emission rights from people who have received more than what is necessary to cover their needs. For minimalist, who tend to be less ambitious than egalitarians, the important thing is to ensure that people have enough to live a decent life. When the requirement of a minimum standard is fulfilled, the inequalities above this point are not relevant. There is hence a clear line between what is necessary to get by and what follows, and there is no reason why we should distribute the goods that lie above the minimum standard. Accordingly, the fact that some people have more than others is not considered to be unjust if everyone have enough to get by. Moreover, most minimalists usually do not worry about inequalities between countries. As relationists, they tend to embrace an egalitarian distributive justice within their own societies, while refusing to extend this to the global level (Armstrong, 2012, pp. 36, 71, 73).

Miller recognizes that GHG emissions are too high and that they must be reduced. He also argues that rich countries should bear the burden because living standards are so high in these countries. They can thus afford to make sacrifices without having to give up their basic rights. Moreover, he argues that the poorest countries should not bear any responsibility because poverty in itself is such a large issue. People in these societies already struggle to get by, and have no means to pay for mitigation costs. Thus, we should allow them to increase the emissions if this can help to eradicate

poverty and help them meet their basic needs. Up to this point, an egalitarian would probably agree with him. However, Miller rejects the equal per capita principle because countries have different needs and capacities. An equal emission rate would be strongly unfair, as those who already have high emissions would end up paying the full price, while those emitting much less may only spend a fraction of their carbon budget. Instead, he suggests a "principle of equal sacrifice", where everyone (excluding the endemic poor societies) pays according to their capacity. Therefore, some countries would continue to pollute much more others. Further, the reduction in emissions would depend on the costs of doing so, and some would end up making larger sacrifices if they are able to do so without harming themselves. Hence, he distributes the cost addressing CC rather than emissions rights (Armstrong, 2012, pp. 196-198).

Armstrong (2012, pp. 194, 198-199) is skeptical to this. Because the US' emissions are already so high, he believes they would be disproportionately high even after they have made their sacrifices. Further, he says that the countries who are currently emitting less could end up reducing their emissions to a much larger extent than industrialized countries if the costs are lower. In fact, many developed countries have argued that developing nations should adopt greener solutions because it will be less costly for them. But why should they reduce their emissions radically when they are much lower than those of industrialized countries? Also, even if it is cheaper for them, many of these societies are poor so it is unlike that they will have the means to switch to cleaner energies without financial aid and technologies from developed countries. Hence, this approach seems very unfair, especially when we consider that the US has the highest per-capita emissions and the largest historical responsibility, and Armstrong criticizes Miller for not addressing this inequality (2012, p. 198).

Many theorists have been attracted to the principle of equal per-capita emissions. It is simple and fair, and there is no good reason why some people should be allowed to pour more emissions into the atmospheric bathtub than others. Nevertheless, it is not easy to figure out what the per capita emission quota should be. First, it depends on how much we want allow the climate to change, and because the climatic impacts vary largely from region to region, countries are likely to have different perceptions of what is acceptable. Second, scientists can only provide us with suggestions of how much more we can pollute before the worst-case scenarios occur. The results are not precise

so we cannot be certain of what will happen in the future. Moreover, it will be hard to reach an agreement as different sources might suggest different amounts. Still, if we were to agree, let's say on one metric ton, an equal emission right could prove to be effective, especially if coupled with emission trading (Armstrong, 2012, pp. 201, 204).

However, it should still be supplemented by other principles. Even though the principle is plausible, we should not ignore the historical responsibility of countries. If we do that, the equal per capita principle could turn out to be too favorable to industrialized countries as their past contributions would not count any more. That would be unfair since we know that these past emissions have contributed to CC. Moreover, some might claim that developed countries have already exceeded their fair share, and hence should have lower emissions rights than developing countries. Nevertheless, both should be addressed when distributing the costs of CC, and they are often mentioned in the international negotiations. The historical responsibility of countries has played a greater role in shaping the agreements (think of the CBDR), but developing countries also address the unequal distribution of per capita emissions. They do not necessarily advocate for equalized emissions, but argue that they should be allowed to increase their emissions to a sustainable level while developed countries should cut back on their excessive emissions (Armstrong, 2012, pp. 202, 204-205).

# CHAPTER 2
# THE PEOPLE'S REPUBLIC OF CHINA: RAPID INDUSTRIALIZATION AND ENVIRONMENTAL CHALLENGES

In this chapter, we will first take a brief look at the PRC's history. Then, we will see that the accelerated economic growth and rapid industrialization have caused severe environmental problems for China, and we will discuss two of the main issues, namely water scarcity and air pollution. Next, we will present China's international position on CC to get a better understanding of her position. At last, we will go deeper into some of the aspects behind the economic development. China has often been criticized by the west for only caring about their own economic development, while refusing to take on responsibility when it comes to CC. However, the critics tend to leave out important aspects behind the GHG emissions, namely that developed countries have outsourced much of their production, and consequently their emissions, to China to take advantage of the cheap labor. In addition, the PRC produces much of what we consume, and we will see that a great deal of the emissions can be attributed to consumers in the global north.

## 2.1. THE PEOPLE'S REPUBLIC OF CHINA: FROM MAO ZEDONG TO DENG XIAOPING

World War II left several power vacuums in Asia as well, and the war had weakened the Nationalist government in China, while the Chinese Communists had increased their power. Initially this came as a surprise to both the US an USSSR, as both believed the Nationalist would regain control of China after Japan's surrender. Earlier, the Chinese Communists had been conceived as a group of revolutionaries no one took very seriously, and neither superpower expected them to be so successful. At first, Washington and Moscow even tried to convince Mao to cooperate with Nationalist leader Chiang Kai-Shek, but neither side were interested in this. The Communists continued to advance in the years after the war, and eventually the Chinese people sided

with them. This paved the way for Mao's victory, and on 1 October 1949, he officially proclaimed the People's Republic of China (Gaddis, 1997, pp. 55, 58, 60, 68).

Mao considered himself a Marxist, and he believed the soviet system could help to bring China out of its decline (Gaddis, 1997, p. 63). To recover from the Civil war, the Communist Party (CCP) confiscated assets from the former Nationalist government, carried out an agricultural reform, and introduced a centrally planned economy. However, China was still lagging behind. Thus, Mao announced the Great Leap Forward in 1958, which aimed at rapid industrialization and economic growth. One of the goals was to double the steel production, and Mao encouraged everyone to produce it in backyard furnaces. Many peasants abandoned the crops in order to increase steel production, and soon it became clear that the steel was useless. The consequence was a wide-spread famine that led to tens of millions of deaths. The authorities claimed the crop failures were a result of a "natural disaster", but both the CCP and the people knew the Great Leap Forward was to blame (Shen, 2000, pp. 3-4, 8).

The economy suffered greatly and Mao was criticised by members of the Central Committee of the CCP. Mao had to step aside, but he soon re-entered the stage. He claimed that there were "class enemies" within the CCP leadership that threatened the proletariat class, and power could only be regained through revolution. Thus, in 1966 Mao launched the Cultural Revolution and ordered a clean-up to remove the bourgeois. Mao's followers responded by forming the Red Guard, which mainly consisted of youths. They travelled for free and searched through factories and homes all over the country to find people that did not comply with Mao's ideology. In addition, many government officers were removed from their positions and imprisoned, among them Deng Xiaoping (Shen, 2000, pp. 9-15).

However, the Red Guard also met strong resistance, especially from skilled workers, and there was an upsurge of violence and armed conflicts. Mao's followers still managed to remove the "class enemies", and the Chairman regained power. Nevertheless, the cost was enormous and the Chinese economy suffered. The political turmoil also prevailed because he targeted anyone who challenged his authority, which made economic recovery difficult. Then, Mao died in 1976. Under him, the economic development was slow, there was a shortage of consumer goods, and China was

relatively isolated. However, he managed to unify the country and has remained an icon despite disastrous policies (Shen, 2000, pp. 9-15).

Mao was succeeded by Xiaoping, who paved the way for economic development. As mentioned before, China was lagging behind the west and also its neighbouring countries, and the new leader sought to pull China out of its backwardness. The planned economy had turned out to be difficult to manage, and change was urgently needed. Thus, in 1978, a new economic reform was introduced, and the planned economy was gradually replaced by a market-oriented model. This was welcomed by the people because many had suffered under the central planning. Deng also launched the four modernizations (of agriculture, industry, defence, and science and technology). Originally, they were developed by Zhou Enlai in 1964, but the plan was interrupted by the unpopular Cultural Revolution. Now that Mao was gone and the revolution was history, Deng re-announced the modernization plan (Chow, 2004, pp. 127-128).

In 1978, the "household responsibility system" in agriculture was introduced. The Commune system introduced by Mao was changed, and the teams started to redistributed land to individual households so they could farm separately. After the fixed amount was delivered to the team, households were now allowed to keep the surplus to themselves. The reform turned out to be a great success as agricultural output grew substantially. The food supply increased, farmers earned more, and it convinced the CCP that the market economy was favourable. Therefore, the success in agriculture has been considered to be the cornerstone of the upcoming reforms that were carried out in the other sectors. One of them was a reform of the state enterprises. At first, they received greater autonomy and were allowed to make some decisions regarding the production, investments and marketing. Second, along the lines of the agriculture reform, a "contract responsibility system" was introduced. This allowed the enterprises to keep the profits after they had paid the fixed taxes, which they could redistribute as they whished (Chow, 2004, pp. 129-30).

However, the most important reform may have been the so-called open-door policy, which welcomed foreign trade and investment. Under Mao the economy was closed, and when Deng took over the total volume of China's foreign trade only

amounted to 7 percent of the national income. By 1987, the volume was 25 percent of GDP, and in 1998 it reached 37 percent. Export companies were favoured and they were granted special loans and favourable exchange rates. Foreign investors were also encouraged to build factories because they would bring with them technological knowledge and provide people with work. In return, the foreign investor received cheap labour and tax breaks. Between 1978 and 1998, FDI in China increased from $1 billion to $ 30 billion (Chow, 2004, pp. 131-132). There is no doubt that it has played a crucial role in the post-1978 economic growth, and it has benefited the Chinese people greatly. In fact, without the FDI, it is likely that China's economic growth would have been substantially lower (Chen, Chang, & Zhang, 1995, pp. 701-702).

The key elements of China's growth have been based on rapid industrialization, liberalization of financial markets, and trade openness. This model is similar to the one used by other East Asian countries that have accomplished similar successes. (Kniivilä, 2007, p. 301). The post-1978 reforms have certainly been successful, and in the decades after the opening-up China's economy has had an impressive annual GDP growth rate of about 10 percent (Chow, 2004, p. 127). Today, it is the second largest economy in the world. Moreover, since the reforms were introduced about 800 million people have been lifted out of poverty, which is way more than any other country in the world. However, China is still considered a developing country because the per capita income is still low compared to developed countries. Additionally, there are still large inequalities within China and it is estimated that there are 70 million poor in the rural areas. Still, the accomplishments are impressive, and the economy is still going strong. Unfortunately, as we will see below, the economies development has also led to severe environmental challenges (The World Bank, 2016).

## 2.2. THE DARK SIDE BEHIND THE ECONIMIC DEVELOPMENT: ENVIRONMENTAL DEGRADATION

It is well-known that China has experienced an impressive development over the past forty years, and some of the positive side-effects have been advances in technology and increased energy efficiency (The World Bank and the PRC, 2007). However, there is also a downside to this economic development: grave problems of resource scarcity

and environmental deterioration, which have resulted in massive challenges to the world's most populous country. China is likely to be one of the countries most affected by CC, with more frequent flash floods, droughts, heath waves, and typhoons. During the past 100 years, the mean surface temperature has increased by nearly 1 $^{o}$C, and according to China's Third Assessment Report, it has been estimated that temperatures may increase by 1.3 to 5 $^{o}$C by 2100, which is higher than the estimated global average (Tseng, 2015, pp. 16-17).

China is already experiencing a rapid increase in environmental challenges at home, and CC is becoming a huge threat to its national security. Because China has such a large territory, the world's largest population, and high emissions, it has an extremely vulnerable environment. The most common problems are decertification, air/soil/water pollution, agricultural challenges, and water scarcity. In the worst-case scenario, this could bring about political instability, increased migration into urban areas, and domestic conflicts over scarce resources. Thus, even if some areas could benefit from CC, e.g. by more rainfall, they would have to fight over the resources in the case of large-scale immigration from the poorer regions. Consequently, CC is an issue of national security (Hung & Tony, 2011, pp. 363-65). Below, some of the main challenges are outlined.

### 2.2.1. WATER SCARCITY

According to Scott Moore, one of the main environmental challenges for China is the quantity and quality of water resources. If the business-as-usual scenario persists, it has been estimated that China will encounter an increase in droughts in the north and more floods in the south. Water flows in rivers are also likely to change due to the melting of glaciers, which makes it difficult to estimate water supply. In the western regions, the melting of the Himalayan glaciers will eventually lead to water scarcity, which may threaten food security and induce desertification and soil degradation. An increase in agricultural losses due to floods and droughts is also becoming more common (Moore , 2009). According to estimates from Greenpeace, China will have an inadequate food supply by 2030. Moreover, if the temperature continues to rise, it is possible that overall food production could be reduced by 23 percent (Jing, 2008).

Coupled with population growth, this poses immense costs on China and threatens its economic development (Moore , 2009).

The most vulnerable and poor areas, like Tibet and Xinjiang in the north-west, are likely to be the most affected by these changes. Water scarcity may give rise to disputes, and the struggle over resources may result in ethnic conflicts between Tibetans, Uyghurs, and Han people. This is already an issue in these areas and a challenge to the authorities in Beijing. In the worst case, people will be forced to move to other regions in China, and the main cities are already crowded with migrant workers. In fact, it has been documented that they contribute to climate-related conflicts. Moreover, those migrating are often farmers, and therefore struggle to make a living when they move towards urban areas, as they lack many of the skills needed to work in factories. Consequently, many end up in the slums and live under worse conditions than before (Moore , 2009).

Moreover, this also affects China' neighbouring countries, as many of the rivers cross national borders, like the Mekong River. Pakistan is especially vulnerable to changes in the melt water in the Himalayan glaciers because it could be devastating for agriculture, which is an important income source. A variety in water availability could thus lead to conflicts, which affects not only China's security policies, but the whole region. Because the PRC controls the headwaters of some of the Asian rivers and build dams on its own territory, this reduces the flow to its neighbours. The discontent is therefore likely to rise in the surrounding countries, and China must cooperate with them if wants to avoid regional conflicts (Moore , 2009).

While scientists cannot predict exactly how hard China will be hit by CC, it is certain that water availability will vary largely from region to region. Consequently, some areas will probably lack water when they need it the most, and have too much when they don't need it. And while some regions will suffer greatly, others may only be slightly affected (Moore , 2009). Furthermore, water scarcity is also closely linked to water pollution, which is another big problem. According to a report by the World Bank and Chinese authorities, about 54 percent of the seven main rivers contained unsafe water. Findings suggest that around two-thirds of the rural population has no access to piped water, which increases the risk of diarrheal diseases and deaths (especially for

children under five) and digestive system cancers. The report found that the overall costs of water scarcity and pollution was estimated to be 147 billion yuan, i.e. 1 percent of GDP (The World Bank and the PRC, 2007, pp. xiv-xvi). Thus, even though economic development is still the main concern of the Chinese leadership, they must also devote large economic resources to mitigation and adaptation policies if they want to avoid severe water-related crisis, and minimize the risk of large scale political and social unrest.

### 2.2.2 AIR POLLUTION

When the main stream media writes about China, air pollution is among the most common topics. When you hear the word "smog", I think the probability of associating it with China is quite high. Having spent the fall semester of 2015 in Beijing, the main thing my family and friends asked me about was the pollution. I was lucky because the situation is much worse in winter, and during the first two months I didn't even experience any significant pollution. However, there was one week in which the smog was extreme. When I looked out my window, I couldn't even see the nearest building straight across the street. When I went outside, I had chest pains from breathing the air. It almost seemed as the end of the world was coming, and for the first time the authorities in Beijing announced a "red alert", which is the highest pollution level. The timing was certainly inconvenient, as president Xi Jinping was in Paris for the COP21. All eyes were looking toward China, and pictures of the hazardous smog were everywhere.

Particle pollution, also known as particulate matter (PM), are solid and liquid particles found in the air. It is one of the most common air pollutants, and it is believed to be the most harmful. There is a distinction between $PM_{10}$ and $PM_{2.5,}$ where the latter is the most dangerous because the particles below that level are so small that they can get deep into the lungs and blood streams. $PM_{2.5}$ is commonly used in the measurement of real-time air quality indexes (AQI) (WHO, 2016). In China, it was the American Embassy in Beijing who first started to measure the air quality in the form of $PM_{2.5}$ in 2011, while the authorities in Beijing followed in 2012 (Daily, 2012). A level between 0

and 50 is considered as good, while levels above 300 is hazardous. Yet, according to the WHO, a $PM_{2.5}$ level above 25 is thought to be unhealthy (WHO, 2016).

During the COP21, the air-quality-index app on my cell phone indicted 700 at the most. However, I heard that numbers above that was not include in the AQI, and in some areas of Beijing the level was estimated to be as high as 1000. It was horrible, but luckily it did not last for more than five days. Also, because I only stayed in China for five months, the pollution did not bother me that much. In the end, I had more "blue sky days" than polluted days, and hence the smog was not a big deal. However, for those living in Beijing or other highly pollutes cities permanently, the situation is different. To live under such circumstances poses great risks to people's health. It is thus understandable why many expats are fleeing China, and why so many Chinese wish to do the same.

Air pollution has become one of the largest challenges for the Chinese authorities. According to the report by the World Bank and the PRC's Environmental Protection Administration, outdoor air pollution cause between 350,000 and 400,000 premature deaths annually. The cost is estimated to be around 157.3 billion yuan, i.e. 1 percent of GDP. Moreover, air pollution is closely linked to respiratory infections, cardiovascular and cerebrovascular diseases, bronchitis, hospitalization etc. (The World Bank and the PRC, 2007, p. xiii). According to a study from Berkeley, air pollution in China cause a total of 1.6 million deaths a year, killing about 4000 people per day. The areas south of Beijing contains the highest particulate concentrations, however the problem is extensive and affects almost all of China's population (Rohde & Muller, 2015).

An additional challenge for the authorities is that the public is becoming more conscious about the health impacts. In a research report conducted by the Norwegian Climate Foundation, China is witnessing an increased awareness of the environmental consequences of the economic development, and in particular the health impacts caused by pollution. Just a few years ago, the Chinese word for smog, *wumai*, was still unknown to most people. Nowadays it on everyone's lips, and according to the authors even children know about $PM_{2.5}$ and its harmful effects (Ahlers & Hansen, 2016). A study shows that many Chinese now prefer health improvements over productivity

gains, and several surveys confirm that the willingness to pay to reduce risks is high all over the country. Good health and longevity thus appears to be important values (The World Bank and the PRC, 2007), and the public has high expectations for the authorities when it comes to a healthy environment. Air pollution could thus be a source to social unrest, and the CCP is therefore trying to control emissions, while informing the public about the environmental policies. However, the Chinese leadership still struggles to find a balance between the cracking down the increasing number of climate-related protests and the attempt to increase people's awareness of CC (Ahlers & Hansen, 2016).

With these severe environmental problems at home, it is evident that China must strengthen the efforts to address the issues for the sake of the environment and people's health, but it will also be necessary if the CCP is to maintain its power. CC has in fact become a key priority, and we will do deeper into China's environmental policies in the next chapter and see what is being done at home. However, at the international level, China has been largely criticized for not doing enough, especially after 2007 when she became the world's largest emitter. However, as the PRC is often accused of altering the problem, we should also ask what got us in this situation in the first place. In the next section, we will look at China's arguments for justifying voluntary commitments rather than binding ones.

## 2.3. CHINA'S POSITION

Many developed countries have expresses concern over China's GHG emissions, population size, and unprecedented economic development, and they are often perceived as major threats that could push us all over the edge of dangerous CC. It is obvious that the high reliance on coal is a problem and that emissions must be reduced, but China did not create the problem. Moreover, because she has refused to accept binding commitments, developed countries believe the Chinese economy will benefit largely from this, while their own economies will suffer while the sacrifices will be useless if China continues to refuse binding cuts. In addition, the PRC has long been considered to be one of the main obstacles for the progress in global climate talks, and

now it seems like the west feels threatened both by its economy growth and by its competitive clean-energy industries (Ong, 2012, pp. 1138-39).

China adopts the CBDR principle outlined in the UNFCCC and the Kyoto protocol. As we have seen earlier, only developed countries are obligated to reduce emissions, while developing countries have no binding commitments. Thus, for China it has always been important to be recognized as a non-Annex 1 country[6], and it still insists to be a developing country, despite being one of the largest economies in the world. The reasoning behind this claim is that GDP per capita still ranks 133. Also, approximately 35 percent of the Chinese population still live on less than $2 a day, and many lack access to clean water and electricity. For this reason, economic development and poverty eradication remains the key concerns and China is constantly reminding the global north that it is their right to do so. The PRC thus argues along Singer's argument, and distinguishes between basic needs and luxury emissions. Because people in developed countries have an overflood of material goods, it is only fair that they make sacrifices and change their luxurious habits. Further, China has always argued that any international commitment made by developing countries are exclusively voluntary. Thus, a cornerstone in China's position on CC it the equity principle, which we can divide into three parts: per capita emissions, historical responsibility, and the ability to pay for mitigation and adaption policies (Ong, 2012, pp. 1143-1144).

[6] Many developed countries disagree that China is a developing country. One problem with the principle of CBDR is that countries are divided into two categories, namely Annex I and Non-Annex I. Therefore, it does not make sufficient distinctions between countries like China and Ethiopia (the only distinction we find is the special needs of the most vulnerable countries). It is evident that there are large differences among the two, and the CBDR is criticized for not having included a third category that fits China better: emerging economies. One problem is that countries themselves are vested with the power to decide which category they belong to. The only thing they must do it to inform the UN Secretary General about their decision. Thus, China has no obligations even though developed countries tries to push her to accept binding commitments. See: Bortscheller (2010), *Equitable But Ineffective: How The Principle Of Common But Differentiated Responsibilities Hobbles The Global Fight Against Climate Change, pp 49-51.*

Island states and the poorer nations in the G77 also argue that China can no longer be perceived as a developing country. See: Ong (2016), *The Apparent "Paradox" in China's Climate Policies, p 1143.*

### 2.3.1. PER CAPITA EMISSIONS

Based on data from the World Bank, I selected seven countries from different continents, and observed their per capita emission trends from 1970 until the most recent available data from 2013. I inserted the numbers in the following table:

| | 1970 | 1980 | 1990 | 2000 | 2008 | 2013 |
|---|---|---|---|---|---|---|
| **Australia** | 11.8 | 15.0 | 15.5 | 17.2 | 18.2 | 16.4 |
| **Brazil** | 1.0 | 1.5 | 1.4 | 1.9 | 2.0 | 2.5 |
| **China** | 0.9 | 1.5 | 2.2 | 2.7 | 5.4 | 7.6 |
| **Kiribati** | 0.4 | 0.5 | 0.3 | 0.4 | 0.6 | 0.6 |
| **Morocco** | 0.5 | 0.8 | 0.9 | 1.2 | 1.7 | 1.8 |
| **Norway** | 7.2 | 9.3 | 7.4 | 8.8 | 11.7 | 11.7 |
| **United States** | 21.1 | 20.8 | 19.3 | 20.2 | 18.5 | 16.4 |

Source: The World Bank[7]

[7] These data from World Bank were based on the Carbon Dioxide Information Analysis Center, the Environmental Sciences Division of the Oak Ridge National Laboratory, in Tennessee, United States. Data for $CO_2$ emissions include gases from the burning of fossil fuels and cement manufacture, but excludes emissions from land use. Available at: http://databank.worldbank.org/data/reports.aspx?source=2&series=EN.ATM.CO2E.PC&country=USA#

From these numbers, there have been, and still are, great differences between developed and developing countries when it comes to the quantity emitted per person. Americans and Aussies are leading, and even if the per capita rate has been reduced in the US, it is still very high compared to others. The numbers also prove once again how unfair CC is. Kiribati, a small island state in the Pacific Ocean, whose per capita (and also national) emissions are low, happens to be one of the most vulnerable countries in the world when it comes to CC. In China, the per capita rate has increased significantly since the new millennia due to economic development and increased welfare. Since the opening-up, more than 800 million Chinese have been lifted out of poverty, and in fact, China is the main reason why global poverty has declined (Mandle , 2006, p. 104).

Nevertheless, despite a per capita reduction in the US and an increase in China, an American still emits more than twice as much as a Chinese. It is therefore easy to understand why China has chosen this as one of the main arguments in the global climate talks. If we were to consider current national GHG emissions, she would certainly look like a villain, being the number one $CO_2$ emitter in the world. This makes China look bad and contribute to the undermining of its core arguments. Therefore, when we shift the focus toward per capita emission, the picture of China is completely different. It is thus evident why this is one of the core principles in China's position.

### 2.3.2. HISTORICAL RESONSIBILITY

Another important aspect of China's position is historical responsibility. It has been proved that industrialized countries have contributed the most to CC, and historically they are responsible for approximately 80 percent of the emissions. We also know that GHGs remains in the atmosphere for hundreds or even thousands of years, and thus the past emissions of the global north still have a large impact on our climate. Therefore, China, along with all the other developing countries, demand that they bear the largest cost of both mitigation and adaption. China continues to argue that they should not be forced to make any binding commitments as their country did not start to industrialize until the end of the 1980s. In other words, this argument is in line with the principle of CBDR (Ong, 2012, p. 1144). The historical emissions are demonstrated in the figures below:

**Figure 1**[8]

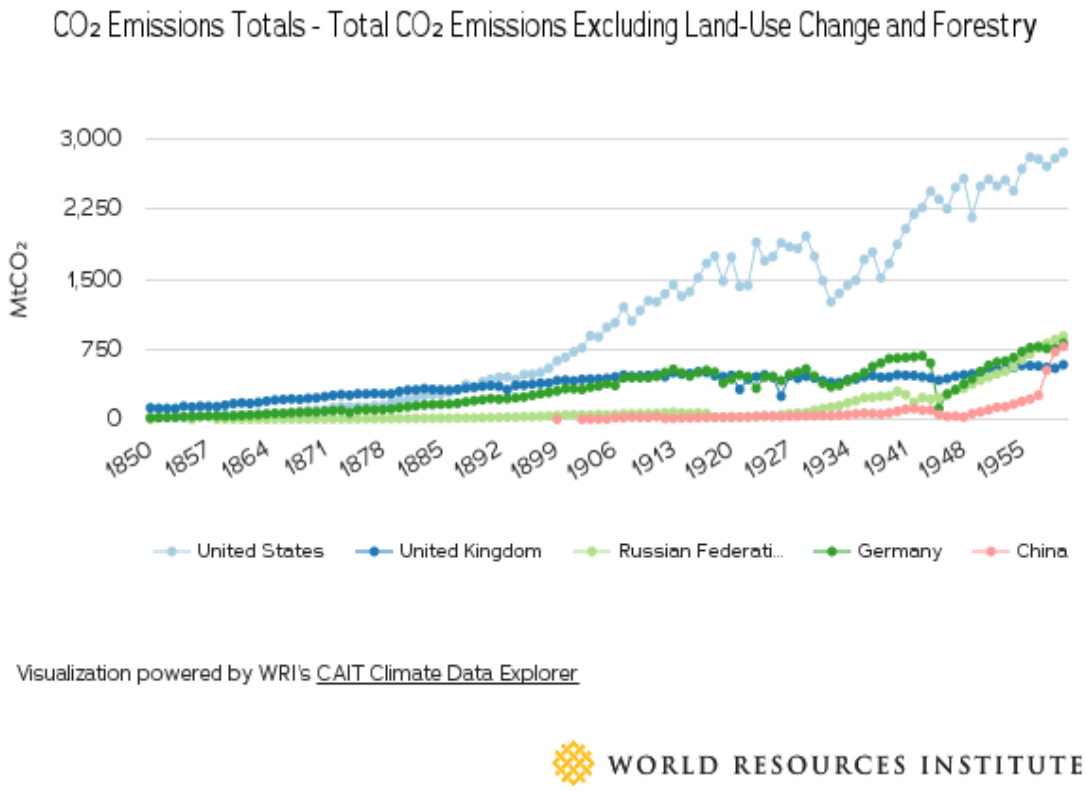
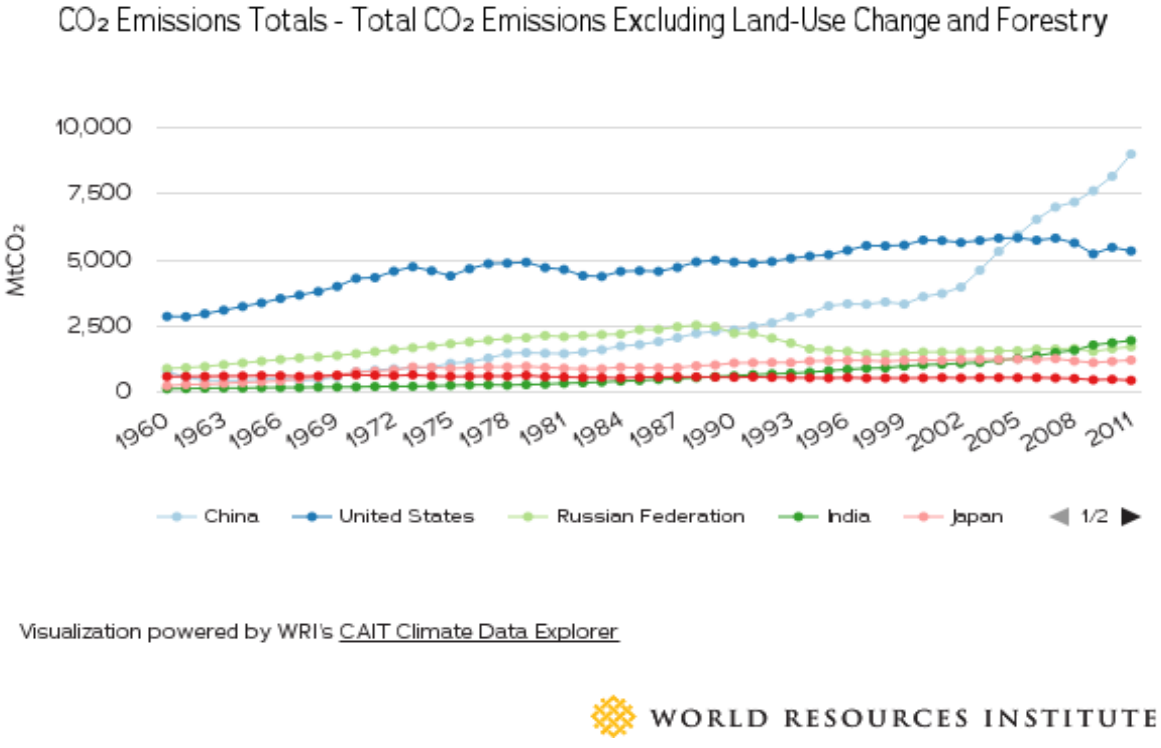



**Figure 2**.




[8] Both figures are retrieved from the World Resources Institute (WRI).
Avaialble at http://www.wri.org/blog/2014/05/history-carbon-dioxide-emissions

The first figure provides an overview of estimated emission trends over a period of 160 years. During the first hundred years, the world witnessed a constant increase in emissions. We know that this was mainly caused by the Industrial Revolution and population growth. We also see that the US started to surpass the other countries in the beginning of the 20th century, and soon became the largest emitter. The graph is quite steep and when compared over time, the WRI found that the US emissions in 2011 were 266 times greater than those in 1850. Most importantly, we see that China's contribution was low during the whole period. Only from the late 1950s can we identify a slight increase, but the number seems insignificant compared to the US (World Resources Institute, 2014).

The second figure represents the current top five $CO_2$ emitters and the UK, and we see that things started to change in the 1960s. The emissions in the UK and Japan stabilized, while those of India have increased since the 1980s. Moreover, Russia reduced its emissions substantially because of the dissolution of the Soviet Union. But the most significant change has happened in China, mainly thanks to Deng Xiaoping's opening-up policy in the late 1970s. The US emissions have remained relatively stable since the 1970s but the country remained the world's largest $CO_2$ emitter until 2007, when it was surpassed by China. The US still holds the second spot, followed by India, Russia and Japan (World Resources Institute, 2014). Nevertheless, despite the rapid increase in China, we have seen that developed countries are still responsible for approximately 80 percent of the historical emissions.

Another study found that 10 percent of the total accumulation of GHGs and aerosols in the atmosphere over the industrial period is attributable to China. Moreover, despite the rapid upsurge in emissions in the past three decades, the relative contribution to CC has remained stable at around 10 percent for the past 150 years. The research also emphasizes the importance of the knowledge about individual countries contribution to CC, which is crucial for a successful and just implementation of the principle of CBDR (Li, et al., 2016). It is thus understandable why historical responsibility was one of the key elements of the UNFCCC. It would have been extremely unfair to impose the same level of responsibility on developed and developing countries when there are such large differences between their contributions to the problem. It would also have been impossible to reach an international agreement if this had not been included.

### 2.3.3. ABILITY TO PAY

The last piece of the equity principle is the economic capacity to pay for mitigation and adaption policies. One of the main requirements by China is that developed countries should provide developing countries with new and cleaner technologies (Ong, 2012, p. 1144). As the former two principles, this puts more responsibility on developed countries, and ease the burden of developing countries so that they have a greater chance of securing a minimal standard of living there. It is also common to combine this principle with that of historical responsibility. From an egalitarian point of view, the polluter should be held responsible for his/her choices, but only as long as it does not harm the agent. The core idea behind this principle is thus that the most advantaged should pay a higher price than the less advantaged (Caney, 2015, pp. 381-82).

It is evident why China and developing countries have urged developed countries to take a leading role in reducing their emissions. In addition to their historical contribution, many developed countries still have high emissions and the per capita emissions tend to be very high in too. Moreover, they also have the necessary technology and financial means to switch to cleaner energies. It is thus understandable why China been sceptical and reluctant to accept binding commitments. Yet, as Stalley points out, this opposition has often been seen in connection with the protection of domestic economic interests. There is no doubt that this has been an important aspect in China's position, however, it is important to understand that it is also based on justice, fairness and equity. For China, the three abovementioned arguments are thus considered to be important to guarantee justice in CC agreements (Stalley, 2013).

## 2.4 THE WORLD'S FACTORY

In the beginning of this chapter we have seen that there is a clear connection between the economic growth and the rise of environmental challenges. Moreover, we have observed the arguments behind China's international position, and we might argue that they are quite persuadable. The historical contribution to CC is low and so are present per capita emissions. In addition, millions of Chinese still live in poverty and

consequently, economic development and poverty alleviation are the chief concerns. Hence, the Chinese argue that it is their right to emit, just like the developed countries did when they industrialized. However, as mentioned before, China is repeatedly criticized for its high emissions, and has often been portrayed as posing a risk to the global climate. Given that China is the world's largest $CO_2$ emitter this is understandable, but we will see that some of the critique might be unfair since the focus is on the national emissions. We know that they are high, but what we also should do is to ask *why* China pollutes so much. It simply is not enough to point fingers at China because the emissions within the geographical borders are high when other countries and consumers are partly responsible. The global north has outsourced much of its own production, and hence emissions, to China and it imports large amounts of consumer goods.

This does not entail that China does not bear any resistibility. It is evident that it has benefited greatly economically, and millions have been lifted out of poverty. The living standards have increased substantially and the Chinese have more purchasing power. They travel more and the number of cars have increased from 16 million in 2000 to an incredible 150 million in 2014. This is obviously contributing to the pollution problem (Ahlers & Hansen, 2016). Action must be taken, but this will be dealt with the next chapter where we will concentrate on what China is doing in the fight against CC. However, most emissions still derive from manufacturing and agriculture, and there is no escaping the fact that the west has transferred some of their own emissions to China. Moreover, China is producing a great deal of our consumer goods. In fact, about 70 percent of the world's Christmas decorations is now produced in Yiwu, also known as "Santa's real workshop" (Svaar, 2016). After all, there is a reason why China is referred to as "the world's factory".

### 2.4.1. OUTSOURCED EMISSIONS

There is no doubt that the global north's outsourcing of production and increased imports from China and other developing countries have led to an increase in global GHG emissions. The reason is that production in developing countries still depend largely on high carbon-intensive fuels, and thus emissions are higher than they

would have been if produced in a developed country. For instance, the emission intensity in China's exports is four times higher than exports from the United States (Blanco, et al., 2014, p. 386). The reason is that China is still highly reliant on the use of coal, and much of the carbon pollution comes from factories that produce consumer goods to the US and Europe. Thus, on the one hand, the global north has increased the production in China, and on the other, it criticizes China for its high emissions. Thus, it does not seem fair to put all the responsibility on the producer or a country, and there is a growing debate on whether some of the costs should be transferred to the importing countries and the consumers (Goldenberg, 2014).

Still consumption has attained relatively little attention compared to production, while it should be an important element in the global climate debate. We know that China is producing much of what the world (and especially the west) is consuming, and since this is not taken into consideration when calculating national GHG emissions, the numbers are distorted. It makes is easy to put much of the fault on China, while we, the consumers, tend to overlook the fact that our consumption patterns have a large environmental impact as well (Young Friends of the Earth Europe, 2015). Then, should we not stop assigning all the responsibility on the producers or the country in which they are located, and require that consumers bear some of the costs as well? When we gladly buy cheap products from China and deep down know that the production process leads to high $CO_2$ emissions and heavy air pollution there, are we not partly responsible? If we add consumption-based GHG emissions to production-based inventories, calculations certainly appear to be more fair (Peters & Hertwich, 2008, p. 55).

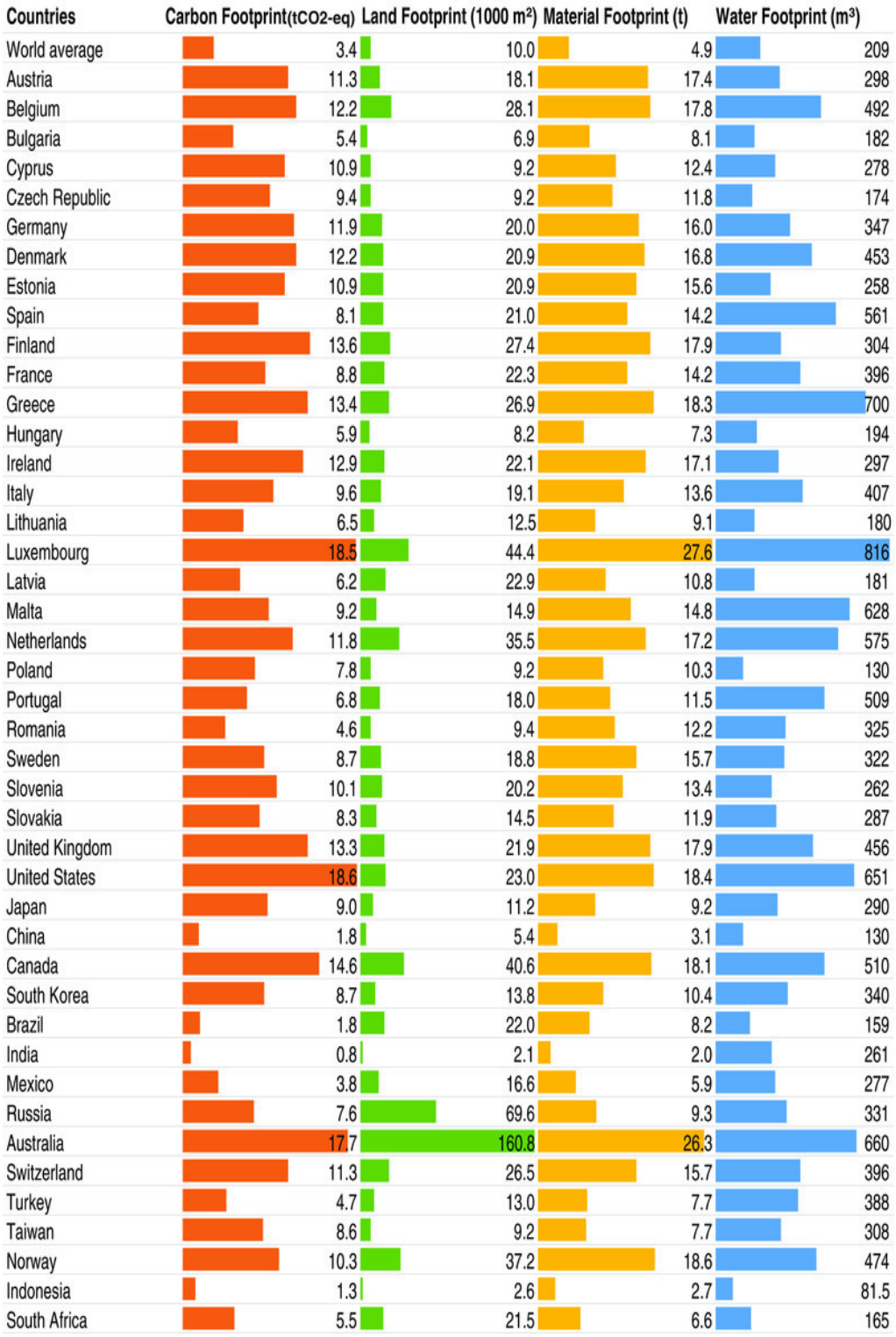
To do this, the emissions embodied in imports are included, while those embodied in exports are excluded: consumption = production[9] + imports – exports. Thus, the emissions needed to produce the exports are assigned to the country importing them, which makes each country responsible for the emissions released during the production process of the purchased goods (Peters & Hertwich, 2008, p. 57). According to another study, 23 percent of all $CO_2$ emissions from the burning of fossil fuels in

[9] Production includes the whole process, i.e. from raw materials extraction to the sale of the final product. See: Peters & Hertwich, 2008. *Post-Kyoto greenhouse gas inventories: production versus consumption.*

China in 2004 were attributable to the production of export goods. The US, Japan, the UK, Germany, and France were the largest net importers of emissions. China was the largest net exporter of emissions, followed by the Middle East, South Africa, Ukraine, and India. Approximately 22.5 percent of the emissions in China were exported to consumers elsewhere (Davis & Caldeira, 2009), and several studies confirm that China has experienced a rapid increase in trade-related emissions (He & Fu, 2014, p. 333). The US is by far the largest net importer of trade-embodied emissions with approximately 400 million MT of $CO_2$ imported in 2004. In 2007, China accounted for 79.6 percent of the US' carbon imports. Moreover, while the carbon emissions in China doubled between 2002 and 2007, about half of that growth was a result of an increase in Chinese manufacturing exports (Ke, 2014, p. 16).

A study from the Norwegian University of Science (NTNU) reviled that 60 percent of global GHG emissions and 80 percent of the global water use are attributable to consumers (Ivanova, et al., 2015, p. 528). For instance, it requires about 10 000 liters of water to produce one pair of jeans in China, which is crucial for a country that already suffers from water shortage (Stensdal, n.d.). As expected, the researchers found that there are large differences in consumption patterns between developed and developing countries. Households with high disposable incomes purchase more products, and thus have larger impacts on the environment. The average American households emits 5.6 Gt $CO_2$, which makes them responsible for one-quarter of global emissions. It is evident that consumers have a large impact on the environment, and it is important that this topic is included in the discussions about CC. Therefore, we should stop putting all the blame on the producers or the country in which the emissions take place. By only calculating emissions within national borders, this gives us an inaccurate picture of who is responsible (Ivanova, et al., 2015, pp. 528, 533). The figure below demonstrates the environmental footprints of household, which confirms that there are immense differences between consumption patterns in developed and developing counties.

**Figure 3**[10]



| Countries | Carbon Footprint(tCO2-eq) | Land Footprint (1000 m²) | Material Footprint (t) | Water Footprint (m³) |
|---|---|---|---|---|
| World average | 3.4 | 10.0 | 4.9 | 209 |
| Austria | 11.3 | 18.1 | 17.4 | 298 |
| Belgium | 12.2 | 28.1 | 17.8 | 492 |
| Bulgaria | 5.4 | 6.9 | 8.1 | 182 |
| Cyprus | 10.9 | 9.2 | 12.4 | 278 |
| Czech Republic | 9.4 | 9.2 | 11.8 | 174 |
| Germany | 11.9 | 20.0 | 16.0 | 347 |
| Denmark | 12.2 | 20.9 | 16.8 | 453 |
| Estonia | 10.9 | 20.9 | 15.6 | 258 |
| Spain | 8.1 | 21.0 | 14.2 | 561 |
| Finland | 13.6 | 27.4 | 17.9 | 304 |
| France | 8.8 | 22.3 | 14.2 | 396 |
| Greece | 13.4 | 26.9 | 18.3 | 700 |
| Hungary | 5.9 | 8.2 | 7.3 | 194 |
| Ireland | 12.9 | 22.1 | 17.1 | 297 |
| Italy | 9.6 | 19.1 | 13.6 | 407 |
| Lithuania | 6.5 | 12.5 | 9.1 | 180 |
| Luxembourg | 18.5 | 44.4 | 27.6 | 816 |
| Latvia | 6.2 | 22.9 | 10.8 | 181 |
| Malta | 9.2 | 14.9 | 14.8 | 628 |
| Netherlands | 11.8 | 35.5 | 17.2 | 575 |
| Poland | 7.8 | 9.2 | 10.3 | 130 |
| Portugal | 6.8 | 18.0 | 11.5 | 509 |
| Romania | 4.6 | 9.4 | 12.2 | 325 |
| Sweden | 8.7 | 18.8 | 15.7 | 322 |
| Slovenia | 10.1 | 20.2 | 13.4 | 262 |
| Slovakia | 8.3 | 14.5 | 11.9 | 287 |
| United Kingdom | 13.3 | 21.9 | 17.9 | 456 |
| United States | 18.6 | 23.0 | 18.4 | 651 |
| Japan | 9.0 | 11.2 | 9.2 | 290 |
| China | 1.8 | 5.4 | 3.1 | 130 |
| Canada | 14.6 | 40.6 | 18.1 | 510 |
| South Korea | 8.7 | 13.8 | 10.4 | 340 |
| Brazil | 1.8 | 22.0 | 8.2 | 159 |
| India | 0.8 | 2.1 | 2.0 | 261 |
| Mexico | 3.8 | 16.6 | 5.9 | 277 |
| Russia | 7.6 | 69.6 | 9.3 | 331 |
| Australia | 17.7 | 160.8 | 26.3 | 660 |
| Switzerland | 11.3 | 26.5 | 15.7 | 396 |
| Turkey | 4.7 | 13.0 | 7.7 | 388 |
| Taiwan | 8.6 | 9.2 | 7.7 | 308 |
| Norway | 10.3 | 37.2 | 18.6 | 474 |
| Indonesia | 1.3 | 2.6 | 2.7 | 81.5 |
| South Africa | 5.5 | 21.5 | 6.6 | 165 |

[10] Environmental footprints (carbon, land, material and water) of household consumption across countries. The researches selected 43 countries from EXIOBASE. See: Ivanova et al., *Environmental Impact Assessment of Household Consumption.*

In a report conducted by WWF Norway and WWF China Programme Office, an increasing amount of the goods consumed in OECD countries are produced in China and other developing countries. Therefore, they are partly responsible for the rising $CO_2$ emissions in the developing world. Between 2001 and 2006, Norway's $CO_2$ footprint in the developing world increased from 37 percent to 45 percent (18 Mt), with the largest share found in China. In the same period, Norway's carbon footprint in the PRC grew from 2.4 Mt to 6.8. The report says that every Norwegian was responsible for approximately 1.5 Mt in 2006, and the annual consumption of a typical Norwegian household caused about 3.3 tons of $CO_2$ emissions in China. This was almost as much as the Chinese per capita emissions (3.8 tons) at the time (Skedsmo, et al., 2008, pp. 3-4, 24).

As Davis and Caldeira underlines, we should start considering the emissions attributable to consumers as well because they are clearly benefiting from this. Firstly, they get to buy cheap consumers goods, and secondly, the hazardous emissions from the production process happens far away from their own environment. Nevertheless, the national inventories conducted by the UNFCCC only considers the emissions that occur within national borders. The authors also point out that if a share of the responsibility for GHG emissions is transferred to consumers, this could facilitate international cooperation, as the global climate debate has been hindered by the on-going discussions over historical responsibility. We can imagine that this is something China and other developing countries might favor. However, it will not be easy to do because it would make developed countries responsible for a much greater share of emissions than they currently are, and it is doubtful that they would be in favor of that (Davis & Caldeira, 2009, p. 57).

One of the main arguments in favor of consumption-based inventories is that it could be a useful tool to reduce carbon leakage within international trade (Peters & Hertwich, 2008, p. 55). Carbon leakage occurs when emissions are reduced in one location while it increases in another. The reason behind this is cost-related, and typically happens when a country either impose restrictions on emissions, or when it raises the carbon taxes. The aim with these costs is to reduce emissions and increase innovations in clean technology. However, the result is often that businesses in these countries transfer their production to countries with lax emission constraints to avoid

the additional costs brought by the climate policies. If the production methods in the new location is dirtier, carbon leakage can thus result in a net increase in global emissions. This would undermine the efforts of the countries who seek to curb emissions, and make it much harder to mitigate global emissions. Moreover, there is a risk of free-riding, which could further complicate international cooperation. Thus, to avoid this, all countries should implement climate policies into their jurisdictions, such as carbon pricing and emissions limits (The World Bank Group, 2015, p. 1).

For instance, an increasing amount of the production of Norwegian consumer goods are outsourced to developing countries that do not have emissions constraints under the Kyoto Protocol. In 2006, it was estimated that Norway "saved" as much as 357 million € by purchasing goods from developing countries instead of importing them from EU member states that have stricter environmental policies. The findings in the report proves how important it is to impose global restrictions in $CO_2$ emissions if we are to reduce the risk of carbon leakage. It also illustrates that high-income OECD countries are part of the problem of rising emission in developing counties. Therefore, they should make changes in their own consumption patterns rather than criticizing developing countries. Since the global north imports large amounts of goods from the global south, and also outsource their own production there to take advantage of cheap labor and low production costs, they should transfer more know-how and clean technologies where the production is dirty and cause a global rise in GHG emissions. (Skedsmo, et al., 2008). After all, one reason why developed nations have managed to curb their emissions is because production activities have been outsourced to China and other developing countries (Ke, 2014, pp. 16-17). It is thus crucial that both developed and developing countries cooperate and make joint efforts in the transition towards low-carbon economies (Skedsmo, et al., 2008).

# CHAPTER 3
# DOMESTIC EFFORTS AND INTERNATIONAL COOPERATION

In this chapter, we will start by addressing the evolution of China's domestic climate policies. While China is often criticized for refusing to accept binding targets for emission reductions, she has carried out many policies at home. Initially CC change was largely left to scientists, but as the scientific consensus on human-induced CC grew, policy-makers started to pay more attention to CC. Then, when it became clear that China's environment is vulnerable to climatic changes, CC turned into a domestic development issue. Since then, much has been done at home and in the recent years CC has become a top-priority. Next, we will see that China has also initiated a path towards a low-carbon economy, and she has even become the world's largest investor in renewable energy. This reflects a major attitude change and proves that the authorities are taking CC seriously. Lastly, we will look at the development of China's role in the international climate negotiations. While the official position has not changed, we will see that the PRC has become more flexible and that it has taken on the role as one of the leading countries in the global climate regime.

## 3.1. THE EVOLUTION OF CHINA'S DOMESTIC ENVIRONMENTAL POLICIES

China's CC policies have developed gradually over the past four decades. The first strategies and policies for environmental protection started in the beginning of the 1970s with the preparations for the United Nations Conference on the Human Environment (UNCHE) in Stockholm in 1972. A year a1fter, the first national conference on human environment was held (Guo, 2015). These efforts were followed by several strategies during the late 1980s and the 1990s as the interest in global warming grew. However, it was first in 2007 that CC truly became a domestic policy issue. Since then, it has been included in China's Five Year Plans (FYP henceforward) and it has become a top-priority for Chinese policy-makers. In addition, the

development of domestic policies has often reflected the development of the international climate regime, and Chinese policy papers on CC often refers to the UNFCCC. Thus, in order to understand China's domestic policies, we also need to take into account the international process (Stensdal, 2012, pp. 1, 4)

### 3.1.1. INSTITUTIONALIZATION: 1987 – 1997

In the 1980s, most countries left the issue of global warming to the scientists. The Chinese National Climate Committee (CNCC) was created in 1987 to coordinate the research on CC, and soon two projects were set up to investigate the potential impacts it could have on China's environment. The government listened to the scientists' findings, but CC was treated exclusively as issues of science and foreign policy at the time. In addition, there were still scientific uncertainties regarding CC, and Chinese leaders were reluctant to address it domestically. Economic growth remained the key concern, but when the WMO and UNEP created the IPCC in 1988, CC as a policy issued entered China as well (Stensdal, 2012, pp. 4-5). The Chinese government thus decided to set up a group that would coordinate the climate-related policies, namely the Environmental Protection Commission of the State Council (Liu, 2011, pp. 69, 71). Moreover, the Environmental Protection Law of the People's Republic of China went into force in 1989, with the aim of "protecting and improving people's environment and the ecological environment, preventing and controlling pollution and other public hazards, safeguarding human health and facilitating the development of socialist modernization" (Art.1 (China.org.cn, 1989)).

Because China wished to participate in the international climate talks, mainly to advocate the interests of the G77, it also needed to formulate its official position on CC. The official statement made by the State Council's Environmental Protection Commission in 1990 stressed that developed countries had created the problem, and thus they should fix it too. Moreover, the Commission emphasized the need of developing nations to pursue economic development to eradicate poverty, in addition to their right to maintain control over their natural resources. Economic growth would thus prevail over environmental protection. At the time, it was widely believed that economic development and mitigation policies were incompatible, and Chines officials

often referred to the scientific uncertainties when justifying their priorities (Stensdal, 2012, pp. 4-5).

Nonetheless, things started to change at home after the IPCC published its first Assessment Report in 1990, which stated that that the Earths' surface temperature had increased as the result of human activity and the burning of fossil fuels. Anthropogenic CC received more attention and several political negotiations followed. Then, when the UNFCCC was established in 1992, the State Council's Environmental Protection Commission responded by creating the National Climate Change Coordination Group (NCCCG) (Liu, 2011, pp. 69-71). The group was headed by the State Meteorological Administration (SMA) though, which reflected that CC was still perceived as a scientific issue (Wang B. , 2009, p. 3).

However, an important change arrived in 1998 when the responsibility of the climate policies was transferred to the State Development and Planning Commission (SDPC, later renamed National Development and Reform Commission, NDRC) (Wang B. , 2009, p. 3). This indicated that CC had finally become a development issue, and the aim was to improve the coordination of the climate-related policies. It became clear that China was faced with several environmental-related issues, and the leaders needed to figure out a balance between economic growth and environmental protection. The rapid economic growth had led to an increased demand for natural resources and energy, and coal consumption doubled between 2000 and 2007. Consequently, CC received greater attention after 2000 and there was increased focus on the environmental degradation caused by the unprecedented economic growth after the opening-up in 1978. This altered the climate policies and Chinese officials started to develop measures to tackle the problems (Stensdal, 2012, pp. 6-7, 15).

In 2001 the 10$^{th}$ FYP was released (2001-2005) and for the first time, CC was mentioned in a FYP. It was stated that China would adopt an active role in international climate talks and that it would implement mitigation measures at home. Another important step forward happened in 2002 when China decided to ratify the Kyoto Protocol. By doing so, the Clean Development Mechanism (CDM) became a part of the domestic jurisdiction, and it thus accepted to pursue mitigation efforts at home, albeit not binding. Up until then, China had always stressed that developed countries needed

to reduce their emissions while developing countries should be allowed to increase theirs. But now the Chinese leadership started to realize how vulnerable the domestic environment was to CC, and they needed to act in order to reduce the risk of environmental disasters (Stensdal, 2012, pp. 4, 7-8).

The scientific consensus also grew in this period, and the IPCC's third Assessment Report in 2001 debunked many of the previous doubts regarding anthropogenic CC. It is possible that this pushed the Chinese leader to increase their focus on CC (Stensdal, 2012, p. 8). In parallel, China's emissions grew rapidly from 2002 and it was starting to catch up with the US. It soon became clear that immediate action was needed, and when Hu Jinatao (President) and Wen Jiabao (Premier) entered the stage in 2003 they were determined to address the problem. It was decided that the further development needed to be sustainable (Liu, 2011, pp. 80-81) and the scientific advice was to play an important role in the policy-making (Stensdal, 2012, p. 7).

Even though economic growth and poverty alleviation remained the most important concerns for the authorities, sustainable development has played an important role in the economic development since 2003 (Wang B. , 2009, pp. 13-14). The Renewable Energy Law went into force in 2005, with the aim of developing more solar, wind, and hydro power. This was an important step in the right direction, and it proved that CC had evolved into an important domestic policy issue (Stensdal, 2012, p. 8). Because China faces numerous environmental challenges at home, it has no choice but to curb emissions if the worst-case scenarios are to be avoided. In the National Assessment Report on Climate Change (2006), the researchers found that China could experience a two degree increase by 2020, which will worsen the conditions considerately. It is therefore understandable why the Chinese leadership started to prioritize energy efficiency and emission reductions (Wang B. , 2009, pp. 13-14, 16).

Furthermore, China's previous scepticism about the CDM became history when it realised it was beneficial both in terms of FDI and in terms of improving its image abroad. Hence, after 2005, China initiated several new CDM projects and started to pay more attention to the development of renewable energy (Liu, 2011, p. 82). China has also adopted policies to limit the increase in energy consumption while still ensuring economic growth, and the 11$^{th}$ FYP (2006-2010) set out to reduce energy intensity.

Thus, under the leadership of Hu and Wen there was an increased concern about CC, which is mirrored in the official reports during their leadership (Liu, 2011, pp. 83-84).

### 3.1.2. INCREASED EFFORTS: 2007 – 2010

A very important change came in 2007 when the National Climate Change Program was released, which focused on mitigation, adaption and international cooperation (Liu, 2011, pp. 83-84). After that, a range of new policies followed and CC started to play an increasingly important role at home. The NCCCG was reshuffled again and was placed under the State Council in 2007, which is the highest political organ. This proved that CC was now taken seriously by the leaders. As part of the restructuring, it was also decided to change the name of the NCCCG into "the National leading working group on addressing climate change". Further, energy conservation became a national policy in 2007, and the National Climate Change Program was launched (Stensdal, 2012, pp. 9-10).

Furthermore, the first White Paper on CC was published in 2008 (Stensdal, 2012, p. 10). Then, the National Climate Change Leading Group (NCCLG) was set up to coordinate policies related to emission reduction and energy consumption. Local governments also started to be involved in the climate policy (Liu, 2011, p. 85). In 2008, the NPRC established the Provincial Programme for Climate Change Mitigation and Adaption. The government set up provincial low-carbon programs in seven pilot provinces (among them Hebei, Tibet and Inner Mongolia), and within the next four years many other provinces had followed. The aim of the program was to facilitate the implementation of CC policies at the local level by helping them to achieve the mitigation and adaption goals laid out in the national plan. The program also received financial and technical support from the EU, the Norwegian government, and UNDP (Wang B. , 2009, p. 4).

In this period, China also experienced more extreme weather, and this pushed the government to intensify the climate policies. In 2009, a scientific report concluded that an energy transition to a low-carbon economy was both possible and profitable, and suggested that China could become a global leader in renewables. The State Council's

response was China's first carbon-reduction goal. The aim was to increase the use of renewables and reduce carbon intensity by 40-45 percent by 2020. The number of publications addressing CC grew substantially in this period, from about 1000 in 2006 to 8000 in 2010 (Stensdal, 2012, pp. 10-11). Also, an increasing amount of information was made available in English (Wang B. , 2009, p. 9).

### 3.1.3. 2011 – PRESENT: A NEW ERA?

China has continued to develop its CC policies and we could say that they have become more comprehensive and specific since 2011. When the 12th FYP (2011-2015) was launched, it was said to be the greenest strategy document China had ever released. After many years with a double-digit annual economic growth, the new plan aimed at reducing it to around seven percent to ease the burden on the environment (The Guardian, 2011). As Song and Ye (2015) points out, the plan proved that China's climate policies have entered a new era. While the previous FYPs included ambitious goals and priorities, the 12th plan contained specific targets. Some of the goals were to reduce energy intensity by 16 percent, reduce $CO_2$ emissions intensity by 17 percent, and to increase clean energy by 11 percent by 2015.

According to Xinhua (2015), the PRC's press agency, the 12th FYP was a remarkable success. The most important targets were met, and China had an average GDP growth of 7.8 percent between 2011 and 2015. This reflects the so-called "new normal", i.e. a slower and sustainable economic growth. The economic development is slowly shifting away from being export-driven and reliant on heavy industry to become more focused on innovation and quality. Song and Ye (2015) says that energy intensity decreased by approximately 13.4 percent in 2014, while carbon intensity was reduced by 15.5. Xinhua (2015) highlights that China's $CO_2$ emissions per unit of GDP has decreased by 33.8 percent compared to the 2005 level. Further, renewable energy accounted for 16.9 of energy consumption in 2014, and coal consumption was reduced by 2.9 percent. Also, the total energy consumption increased by 2.2 percent from 2013 to 2014, which is good news considering the 7 percent increase from 2009 to 2010. In addition, the authorities introduced carbon-trading pilots in seven regions.

The 13th FYP (2016-2020) is a continuation of the previous one, but it is greener and more specific (China Dialogue, 2016). Renewable energy is a key topic in the plan, and the Chinese leadership has promised to increase the investments to accelerate the transition to a low-carbon economy. The blueprint states that non-fossil energy sources will account for 15 percent of total energy consumption by 2020. China is investing a lot in renewables, as we will see in section 3.2. There are also several measures to increase green transportation, such as new high-speed trains and tax levies for electric and hybrid cars. Moreover, coal consumption is to be further reduced, and China has already gotten rid of some of the dirtiest coal plants (Gåsemyr, 2016). The aim is to reduce $CO_2$ emissions per unit of GDP by 18 percent by the 2020, while carbon intensity is set to decrease by 40-45 percent compared to the 2005 level. Moreover, the plan includes China's first specific $PM_{2.5}$ target, and the goal is to reduce factory emissions of the particulate by 25 percent of total output (China Dialogue, 2016). The aim is to ensure that the major cities will have an acceptable air quality 80 percent of the year (Ahlers & Hansen, 2016).

Economic growth is still the chief concern though, but a process of de-linking economic development with emission growth has begun (Gåsemyr, 2016). The annual GDP growth is now set at around 6.5 percent. China has long been criticized for being obsessed with economic growth rates, but at least the reduced annual targets proves that the leadership is becoming more tolerant when it comes to slower economic growth (Xinhua, 2016). Nevertheless, China also faces many challenges. This winter proves that the authorities have failed to improve the air quality in major cities, and it has a long way to go. The willingness of the central and especially the local governments to curb emissions over the next years will thus be crucial if the air quality is to reach an acceptable level. This will also require a substantial increase of renewables in the energy mix, which requires that local government follow up the goals set out in the 13th FYP (Gåsemyr, 2016).

Unfortunately, corruption is still widespread and local officials tend to favour economic growth, which often includes the coal industries. However, one of the main goals of President Xi Jinping is to crack down the corruption, and many officials have been arrested. In addition, a recent amendment of the Environmental Protection Law brings new hope. The changes include large daily fines for heavy polluting industries

who exceeds the permitted emission levels, and it has become easier for social organizations to file lawsuits against these industries. It is too early to predict whether China will achieve the same of level success as it did with the previous FYP, but it is reassuring that CC has become a top priority (Gåsemyr, 2016).

China's law and regulatory framework is in fact similar to western ones, and compared to other developing countries the PRC has a well-developed system with more than 2 000 laws on environmental protection. The most important one is still the Environmental Protection Law, which covers the basic principle for coordinated development between economic construction, social progress and environmental protection. In addition, a recent criminal law makes provisions for sanctions in case someone violates the law. China also has a range of administrative regulations and documents, and there is an environmental information release system in which ENGOs, the media, academic institutions, and individuals can put pressure on the government to release important information (Guo, 2015). In addition, a new environmental law is under way, but it is unclear when it will enter into force (Gåsemyr, 2016).

To sum up, China's domestic environmental governance has experienced a remarkable transformation. From the 1970s until the mid-1990s, China's climate policies were largely based on the government's belief that CC was a scientific and foreign policy issue. China stressed that the industrialized countries had created the problem, and insisted that they had to reduce their luxury emissions. China was not willing to curb emissions because of the fear that it would restrain the economic growth, and stressed that she should be allowed to emit as much as needed to develop (Stensdal, 2012, p. 6). This changed due to the increasing scientific consensus and the evidence of severe environmental degradation at home, which altered the climate policies. CC thus turned into a domestic development issue in the late 1990s, and Chinese officials started to implement measures to tackle the problems (Stensdal, 2012, p. 15). Since then much has happened, and so far, China has successfully met, and sometimes exceeded, the major targets of its past FYPs.

The State Council has been a crucial player in the development of China's CC policies, especially since 1998. It leads the coordination and policy-making of all the ministerial agencies involved with the topic. The CCP and the National People's

Congress (NPG) have also been important because their support for the mitigation policies has been crucial (Liu, 2011, pp. 89, 91). The State Council still dominates CC policies, but research institutions have gained a greater place in the policy-making (Liu, 2011, p. 107). Moreover, several other internal factors have shaped the direction of the policies. As mentioned above, the environmental problems at home is one reason for the increased focus on CC. This can be further connected to social unrest and the CCP's legitimacy. If the Chinese leadership fails to tackle the environmental problem at home, such as the choking smog, people will be greatly dissatisfied. The last thing the CCP wants is a loss of public support and large-scale protests. Additionally, the CC-policies can also be connected to economic growth because mitigation at the present stage is likely to be much cheaper than future adaption (Stensdal, 2012, p. 16).

Another important development that has not been mentioned is the establishment of the first Chinese environmental non-governmental organizations (ENGOs) in the early 1990s. Thanks to the support from the media, and especially the environmental newspapers, they were able to spread knowledge about CC and to raise people's awareness (Wang B. , 2009, p. 417). The number of ENGOs has increased rapidly since then, and the close collaboration with international ENGOs has been crucial for their survival because most of the financial aid comes from abroad (Stensdal, 2012, pp. 7-8). In addition, think-tanks, local governments, businesses and citizens are involved with CC issues, but they do not enjoy the same degree of influence as the researches (Liu, 2011, pp. 100, 107). The media coverage on CC has also increased rapidly over the years, but the authorities struggle to find a balance between information and censorship (Ahlers & Hansen, 2016, p. 26). Still, the transformation of the domestic policies has been impressive, and the development of environmental laws, institutions, and agencies demonstrates a major shift in government priorities.

### 3.2. THE GREAT GREEN LEAP FORWARD

The unprecedented development of green energy deserves attention. Although economic growth remains the chief concern, China also aims at a low-carbon future. Recently it was announced that the PRC will spend more than $6,600 billion between 2020 and 2030 in order to fulfil the goals in its climate plan. To succeed, China must

alter its energy structure and the transition to clean energy is already well underway (Eikeland & Cheng, 2015). Perhaps not everyone is aware of the fact that China has actually become the world's largest investor in renewable energy, and the National Energy Administration recently announced that China plans to continue to play a dominant role in the renewable energy industry. By 2020 it aims at spending at least $360 billion in the field, which will curb GHG emissions and help reduce outdoor air pollution. The agency also stated that more than 13 million new jobs will be created in the renewable energy sector, especially in the solar and wind industries (Forsythe, 2017).

The ambitious plan for renewables is backed up by several policies and regulations that are aimed at boosting energy efficiency and support the domestic renewable energy deployment. One important step was the passing of the Renewable Energy Law in 2005 (amended in 2009) (Chu, 2015, p. 2). The aim of the law is to encourage the development and utilization of renewable energy, improve energy security, safeguard the environment, and promote sustainable development. The law also offers government funding that supports renewable energy, such as scientific and technological research, preferential loans, and tax benefits (The National People's Congress of the People's Republic of China, 2009).

In 2016, China also implemented a renewable energy quota system to facilitate the transition to a green economy. In accordance with the system, each province must make sure that a certain percentage of its electricity consumption derives from non-hydro renewable sources, mainly solar, wind and biomass. If a province proves unable to meet the quota, it may be asked to either suspend or reduce the energy projects based on fossil fuel power (Chu, 2015, p. 4). Thus, the provinces will no longer be allowed to decide their own energy policies. The aim is to make them prioritize solar and wind power, and reduce the green-energy curtailment. Large amounts of solar and wind energy are still wasted each year because local governments try to protect the coal industries, and the central government now hopes to solve this problem (Publicover, 2017) .

China's willingness to increase the investment in renewable energy comes at a crucial time as many cities are struggling with lung-choking smog, especially in the winter. As the world's largest emitter, it also important that it pursues the necessary

measures for a low-carbon future. By 2020 it is expected that China will account for approximately 30 percent of global emissions, and it will likely produce 70 percent more $CO_2$ than the US. President Jinping has made a promise to the world community that China will do everything it can to limit its emissions, and make sure that non-fossil fuels will make up a larger share of the primary energy consumption. The authorities' commitment to renewables is therefore an important weapon in the war on pollution, and hopefully it will accelerate the reduction of emission (Chu, 2015, p. 3).

In fact, the expansion of renewable energy has already lowered the demand for coal-fired power generation. As a result, the government has recently suspended 104 coal power projects due to overcapacity. Among those, 47 are under construction in Beijing, and according to Greenpeace, the estimated combined cost of stopping these projects is $30 billion. However, the cost of fulfilling the construction of unneeded coal energy plants would be far larger than the developers' losses. The suspensions are also necessary if China is to fulfil the targets laid out in the latest Five Year Plan (Lauri Myllyvirta / Greenpeace, 2017). Hopefully the workers that are laid off in the coal industry will manage to find new job opportunities in the renewable energy sector, and to ease the pain, the central government will allocate about $15.27 billion over two years to relocate the workers (Reuters, 2016).

The shift from dirty to clean energy is hence well underway, but it will not be an easy task. The authorities are facing political pressure from the powerful coal industry and as mentioned earlier, corruption is still a major problem (Forsythe, 2017). This is understandable because the coal industries have played a key role in economic growth, employment and poverty alleviation. Moreover, China is also rich in coal, while it is scarce in oil and gas. Coal accounts for about 94 percent of its fossil reserves, and it will thus be challenging to restructure the energy system. However, increased central control over the coal industry is believed to facilitate the energy transition (Eikeland & Cheng, 2015, pp. 18-19, 21) Still, despite the halting of many projects, China also continues to build new coal-fired plants at alarming rates, adding about 1 gigawatts of coal-fired capacity per week (Forsythe, 2016).

In addition, about 68 percent of China's $CO_2$ emissions still derives from coal combustion, and this poses great challenges to the green shift (Eikeland & Cheng, 2015,

p. vi). The government has said that it will decrease to 58 percent by 2020, and it seems likely that it will meet this commitment. The number it still too high of course, but at least China is heading in the right direction (Jaeger, Joffe, & Song, 2017), and coal consumption is declining. Due to a large decrease in energy intensity in the past seven years, 2014 proved to be the year with the slowest growth in overall energy consumption since the turn of the century (Eikeland & Cheng, 2015, p. vi).

The slowing economic growth has also led to a decrease in electricity demand, and some of the coal-powered stations only operate 40 to 50 percent of the time (Forsythe, 2016). The government is also determined that non-fossil fuel sources will account for 15 percent of the overall energy sources by 2020 and 20 percent by 2030. (Eikeland & Cheng, 2015, p. vi). Coal use remains the largest energy source, but the extensive investments in renewable energy illustrates that China is on the right track. According to Greenpeace, China still builds one coal plant a week, but they also build one wind turbine per hour. From 2014 to 2015, the electricity produced from wind and solar sources increased by 21 and 64 percent respectively (Lauri Myllyvirta / Greenpeace, 2016). To summarize, it seems like China is successfully ensuing its ambitious targets for a low-carbon future.

### 3.2.1. SOLAR POWER

In 2015, China surpassed Germany and became the world's largest solar power generator (Reuters, 2016). About 16.5 GW of solar power capacity was installed, which was twice as much as the amount installed in Europe combined (Kristoffersen & Haugland, 2016, p. 49). To paint a picture of what this means, the number of solar panels installed in 2015 covered a surface area equivalent to 10 000 football pitches (Lauri Myllyvirta / Greenpeace, 2016). In the first half of 2016, 20 GW of solar power capacity was installed, which was three times larger compared to the same period of 2015 (Reuters, 2016). China's total solar power capacity is now approximately 40 GW, however, by 2020 it could rise to 200 GW, which is close to the current global capacity (Kristoffersen & Haugland, 2016, p. 49).

The accelerated development of solar power energy thus proves that China is more than capable when it comes to energy transition. In a report from the Norwegian Climate Foundation, two of the authors claim that the so-called "war against pollution" and the aim of increased energy security are the main drivers behind the transition towards renewable energy. They also believe that it may be possible that China's energy needs could be fully covered by solar energy in the future. However, in order to succeed, China must make sure that it takes full advantage of the country's potential. This is easy in the western regions where it is sunny and the available areas for installations are plentiful. The challenge lies in the eastern regions where a large brunt of the population lives, usually in big cities with up to 20 million inhabitants. It will therefore be challenging to provide these cities with energy from solar power alone (Kristoffersen & Haugland, 2016, pp. 48-49), especially since up to 70 percent of China's population will live in urban areas by 2030, i.e. about one billion people (The World Bank; Development Research Center of the State Council, the People's Republic of China, 2014, p. 3).

However, China is trying hard to make the cities greener. For example, the "Beijing Sunshine Schools" program was introduced in 2012 to make schools greener. The capital installed 100 mega-watts of solar photovoltaic (PV) systems on the rooftop of 1000 public schools and educational institutions. The project was coupled with courses in environmental sustainability to educate the students and increase their knowledge about the environment (The World Bank; Development Research Center of the State Council, the People's Republic of China, 2014, p. 512). Moreover, electric and hybrid cars are also becoming more popular. The Chinese company Risen Solar Energy is currently building the country's largest solar charging station for cars in Hangzhou. With a capacity of 55 GW, it has enough power to fit about 20 000 cars (Kristoffersen & Haugland, 2016, p. 51).

China now possess five of the world's sixth largest solar manufacture firms. The good news is that the construction costs are declining and the solar industry is becoming more efficient, which allows the authorities to cut down on the financial subsidies. As the price goes down, the solar industry becomes more competitive and this is exactly what has happened in the global energy markets (Bloomberg News, 2016). Solar power is now the cheapest source of new electricity, and it is starting to outmatch coal and

natural gas. Moreover, it has become less costly than wind power too. One of the main drivers behind this price reduction is China's immense development and investment in solar power. The global transition to clean energy will take time though, and fossil fuels are still the cheapest option where solar and wind energy are absent. However, a positive and impressive transformation is happening (Bloomberg Technology, 2016).

In addition to increasing the use of solar energy domestically, China is also investing a lot in renewable energy globally, and many Chinese firms are searching new investment opportunities to continue their growth. For the more developed markets, the Chinese firms are expanding their activity in Australia, North America and Latin America. However, they are also present in developing countries where renewable energy tends to be less costly and many countries suffer from energy shortages. A huge solar power project worth $1.5 billion in under construction in Pakistan, and smaller projects have been carried out in Chad, Ethiopia, and Namibia. The Institute for Energy Economics and Financial Analysis (IEEAF) expects that Chinese firms will continue to increase their presence in the international energy market and fill any vacuum left by other countries. This trend is in line with the 13$^{th}$ Five Year Plan, which highlights that China will benefit greatly from exporting its renewable energy abroad. This will also help them succeed in the much-wanted role as the world's leader in clean energy (Buckley & Nicholas, 2017, pp. 5-6, 40).

### 3.2.2. WIND POWER

China is also the global leader of wind power. The current installed wind power capacity accounts for more than one-third of the world's total volume, and the amount added in 2014 counted nearly half of the global volume (Eikeland & Cheng, 2015, p. 15). In total, more than 92 000 wind turbines have been installed across China, and the potential energy capacity of 145 GW is almost twice as large as that of wind farms in the US (The New York Times, 2017). By 2020 it may rise to 200 GW, and it is estimated that a quarter of China's domestic electricity mix could derive from wind energy by 2030. This is in line with the pledges of the Paris agreement, and will help curb emissions, reduce outdoor air pollution, and improve people's health (Davidson, Zhang, Xiong, Zhang, & Karplus, 2016, p. 1).

The costs of the wind projects have also decreased substantially thanks to better technology and more efficiency in the construction process. Wind energy prices has thus become competitive with coal and natural gas (The New York Times, 2017). Moreover, as with the solar power industry, the Chinese wind energy companies are also increasing their presence overseas, especially after the authorities have announced they will cut the subsidies over the next years. The firm Goldwind has become the world's largest wind-turbine manufacturer, and Chinese companies now make up half of the ten largest wind turbine suppliers. According to the IEEAF, China will install approximately 40 percent of all worldwide wind energy between 2015 and 2021 (Buckley & Nicholas, 2017, pp. 2, 7, 41).

Nevertheless, as mention earlier, much of the renewable energy in China is left unused. This is mainly due to a weak demand and the local governments' protection of the coal industry. Another problem is that solar and wind energy plants are mainly located in the scarcely populated western provinces, and there is a lack of transmission lines to the populated eastern provinces. Thus, it is not possible to generate enough renewable to the areas where the energy need is largest. The authorities have recognized that there is an imbalance, and plan to develop more renewables in and around the largest cities. However, this is challenging because access to undeveloped land is limited, and there are also many coal plants in the east. Therefore, China must continue to build more long-distance transmission lines that can bring electricity to the metropolises (The New York Times, 2017).

But despite the challenges, there is still light at the end of the tunnel. The authorities are well aware of the problems linked to the renewable energy sector and they are trying to solve them. Additionally, it seems like China will be able to meet the targets set out in the new FYP, and some researchers have predicted that it may even exceed the goal of a 40-45 percent reduction in carbon intensity. In fact, coal consumption may have reached its peak in 2014 (The New Climate Economy, 2016, p. 45). Chinese officials are also convinced that the investments in renewables will pay off in the long run, and they are determined to continue to build it out (The New York Times, 2017).

Furthermore, the International Energy Agency provides additional good news. Global $CO_2$ emissions have remained quite flat since 2013, and the main driver behind this positive trend is the impressive expansion of renewable energy, which produced almost 90 percent of new electricity generation. This development is largely a result of China's investment in renewables**.** Moreover, as global emissions have flattened out, the global economy has kept growing. This is good news for the climate because it proves that the link between economic growth and emission growth is becoming weaker. We may therefore hope that developing countries will not follow in the footsteps of developed nations and become reliant on fossil fuels, and that renewable energy will play a dominant role in their economic development. This will of course require financial and technical support from the global north, but the benefits would likely outdo the costs (The International Energy Agency , 2016). It remains to be seen whether China will manage to succeed in its energy transition, and if it happens soon enough, but the current prognoses looks good. The PRC has already started to de-link economic development and emissions, which was perceived as impossible in the past. This has encouraged the Chinese leadership to further boost the development of green energy sources. The size of the investments in renewables is impressive and it mirrors China's efforts to reduce the reliance on coal and to curb the hazardous air pollution.

### 3.3. FROM PASSIVE TO ACTIVE PARTICIPANT IN INTERNATIONAL CLIMATE TALKS

As the world's largest emitter, China plays a pivotal role in the international negotiations on CC. It used to be reluctant about mitigation efforts, but its recent proactive role proves that CC has become a key priority. This is reflected in the development of its domestic policies, but it has also become one of the leading countries in the international climate regime. As a rising power, China also seeks to use its authority to shape the international public policies, especially in the environmental regime. Consequently, CC has become an important component in its grand strategy (He L. , 2010, p. 5). Moreover, as China has increased its presence and power in international affairs, it also wants to be perceived as a responsible country. It turns out that the positive attitude toward mitigation can be a strategic tool for improving its image, and China seems to be taking advantage of it (Wang B. , 2009, p. 8).

### 3.3.1. FROM KYOTO TO COPENHAGEN

China's attitude in international negotiations has gone from being reluctant in the 1990s to proactive in the 2000s (Wang B. , 2009, p. 402). Since the beginning of the negotiations, the developing countries right and need to develop has been a cornerstone in China's position. Consequently, economic growth was the main concern because it was a means to reduce the widespread poverty (He L. , 2010, p. 16). Also, as we have seen earlier, since developed countries were largely responsible for having brought about CC in the first place, they should take the lead and adopt binding emission targets. Further, the targets should also be based on the per-capita emissions, which were, and still are, many times higher compared to developing countries. Moreover, we have seen earlier that China has always stressed that developing should not be required to take on binding commitments, and that they should be allowed to increase their emissions (Wang B. , 2009, p. 402).

An additional reason why China has refused to accept binding emission targets is the strong scepticism toward foreign intervention (especially from the west) in internal affairs. This originates in the PRC's history of foreign invasion (e.g. the Opium wars) and the period of isolation from the west under Mao. National integrity is thus very important, and one of the building blocks in China's foreign policy is the principle of non-intervention. From China's stand, a binding commitment to reduce its GHG emissions meant that she would have to give up part of her right to develop into a rich country because mitigation efforts could hinder economic development. Moreover, it would be unfair given that the industrialized countries' economic growth had been largely based on fossil fuels (Wang B. , 2009, pp. 11-12). Nevertheless, this has not kept China from wanting to participate in international negotiations, nor has it meant that China has been unwilling to adopt (non-binding) measures to limit its GHG emissions. However, it has always been important to underline that any decision to reduce emissions is to be made within the domestic policy agenda, deprived of external pressure (Yi , 2011, pp. 144-145).

In 1995 the first COP was held in Berlin. The main goal was to initiate talks on a protocol that consisted of legally binding commitments for developed countries, in addition to joint activities by all the participating parties. The G77, more or less headed

by China, was sceptical and urged developed countries to take the lead (Liu, 2011, p. 73). China also made it clear that she would not accept any kind of binding commitments nor carry out mitigation efforts at home until the PRC had become a mid-level developed country. When that was achieved, she would start to consider her responsibility (He L. , 2010, p. 9)

The Kyoto Protocol was adopted two years later at the COP3 in Japan. The agreement was based on the CBDP under the UNFCCC, and included the following mechanisms: CDM, international emission trading (IET), and joint implementation (JI) (Liu, 2011, p. 73). At the time, China was against both IET and CDM, arguing that it let developed countries off the hook. It was also sceptical about the JI because it feared that it would force developing countries to undertake binding targets. However, the Non-Annex I parties successfully avoided binding targets (Liu, 2011, pp. 75-77). They also hindered the implementation of an article on voluntary commitments because it was thought to be in contradiction with the CBDP. The developing countries worried they would lose the financial aid and technology transfers if they accepted voluntary commitments. Moreover, China was concerned it would lead to an establishment of a third category of parties under the UNFCCC, which would dissolve the unity of G77 and weaken their position against the developed counties (Yi , 2011, pp. 140-141).

The negotiations that followed were based on the Kyoto Protocol, and both sides tried to figure out how the agreement would enter into force. In 2001, the Marrakech Accords were implemented at the COP7 in Morocco, which clarified the procedures for adhering to the mechanisms laid out in the KP. The aim was a rapid ratification by Annex I parties, and many ended up signing the agreement. The Bush administration refused to ratify it due to the lack of emission restrictions on Non-Annex I countries. The US was the world's largest emitter at the time, but the KP was thought to be too costly. A year later, Chinese Premier Zhu Rongji confirmed that China was going to ratify the KP, and the NCCCC started to work on several development and capacity projects. After the KP became effective in 2005, China's participation in international negotiations increased. The scepticism about the CMD became history, and China realised it was beneficial both in terms of FDI, and in terms of improving its image abroad (Liu, 2011, pp. 76, 79, 82).

Simultaneously, emissions in China grew rapidly from 2002 and it was starting to catch up with the US. Consequently, the international pressure for mitigation grew. (Liu, 2011, p. 80). A turning point came in 2007 when the State Council launched its CC plan, which emphasized an active role in accordance with international expectations to prove that China was a responsible country. China gradually became more flexible and advocated technological cooperation among countries. It also became in favour of the CDM mechanism in the Kyoto Protocol, which it had long criticized for being a loophole for the developed nations to escape from their responsibilities. China still adhered to the positions mentioned before, but the idea about developing countries responsibilities changed at the Bali Road Map negotiations in 2007. The Chinese still neglected binding commitments, but accepted that developing countries would carry out mitigation actions in accordance with their capability (Wang B. , 2009, pp. 401-405).

China's global power also increased, and the low profile in international climate talks soon became history. China's behaviour in the negotiations changed radically when it became clear that it could use climate-diplomacy to strengthen its international role, especially if it managed to lead the developing countries and increase their bargaining power against the developed countries. China has always spoken on behalf of the G77, and has managed to promote its own interests through their support. She has also aligned with other emerging economies, like Brazil, to create a stronger united front against the industrialized nations. At the COP15 in Copenhagen in 2009, China, Brazil, India, and South Africa (BASIC) managed to avoid binding targets for developing nations. They argued that Annex I countries needed to increase their mitigation efforts, and support the Non-Annex I parties with additional financial aid if they wanted the poor, developing countries to increase their environmental protection (He L. , 2010, pp. 14-15)

At the COP15, China also suggested that a post-Kyoto framework should contain a mechanism whereby developed countries transfers technology and provide financial aid to developing nations. The US stressed that China would receive no such thing from them as the Chinese could afford it themselves. Nevertheless, developed countries agreed to give the poorest Non-Annex I parties $30 billion a year between 2010-2012 to help them adapt to CC. Nevertheless, the gap between China and the US, the world's two largest emitters, was too large. The meeting also reaffirmed that the

divide between developed and developing countries persisted. The parties hence failed to reach a legally, binding agreement. The world was disappointed and the hope for a future, adequate agreement was hanging by a thread (He L. , 2010, pp. 6, 24, 27).

Almost immediately after the meeting had ended, countries started to point fingers at each other. It was clear that the blame-game that had been going on since the very beginning of the negotiations persisted. Some blamed the US and criticized the small coalition it had gathered to draw up a deal, excluding most of the member states at the COP. It was also argued that President Obama had pushed the Chinese into a corner when "he demanded concessions while offering nothing". George Monbiot, who runs the Guardian's blog on the environment, believes the intention was so create intransigence so that China would be blamed for the result the US had wished for (The Guardian, 2009).

And China was indeed blamed by many for having wrecked the deal at the last meeting between two dozen countries. Beforehand, it had been decided that industrialized countries would cut their emissions by 80 percent by 2050, while the world emissions should be reduced by 50 percent by 2050 compared to 1990 levels. At the final meeting, China's representative insisted to remove these targets and the 2020 peaking year from the deal, and he got what he wanted. According to Mark Lynas, China succeeded because she did not really need a deal, and hence had a strong position at the negotiation table. He also thinks that China wanted to eliminate the binding targets for the industrialized countries because she thought the Annex I parties, and especially the US, would be blamed for the accord's weak result. In addition, it was believed that China cut the other targets to weaken the climate regime and thus make sure that she did not have to accept additional targets in the near future (The Guardian , 2009).

The Chinese obviously denied all of this, and stressed that they had always had a cooperative and responsible attitude during the negotiations (Xinhua, 2009). Martin Khor, another journalist at the Guardian, sided with China. He did not deny that China contributed to the deal-wrecking, but claimed the Danish government ruined the deal when it arranged a meeting with 26 leaders in the two final days, thus excluding the majority. The leaders were given a draft document produced by the Danish

Government, which apparently represented the interests of the developed countries. The Danish Presidency was criticised for having marginalized the developing countries and for undermining the multilateral process (The Guardian, 2009).

Moreover, Khor defended China for getting rid of the long-term targets because he believed they would lead to an inequitable outcome where the Annex I parties could escape their responsibilities and shove the burdens onto the Non-Annex I group. Developing countries would be required to decrease their total emissions by approximately 20 percent and the per-capita emissions by 60 percent by 2050, and this would curb their economic growth. Also, the developed countries would afford to make the cuts as they have finalized their industrialization based on cheap coal, and now have the technological and financial means to transfer their economies onto the low-carbon path. For a fair an equal deal, they should cut their emissions by 200-400 percent, according to Kohr. Additionally, the proposed targets would still give the industrialized countries an unfair share of the carbon budget, and erase much of their historical responsibility. Thus, it was a good thing that they were left out (The Guardian, 2009).

Despite the widespread disappointment of the COP15 around the world, China believed it signified a new and important beginning. The meeting was perceived as successful because the CBDP was upheld and there was broad consensus on financial support to developing countries (Xinhua, 2009). However, it would take some years before a new treaty came along. At the COP16 in Cancún in 2010, a green climate fund was set up a to help the poorest countries and it was decided that all the major economies needed to curb their emissions. However, it was not decided how large the cuts should be, and many feared a temperature increase far above the two degree goal (Vidal & Goldenberg, The Guardian , 2011).

Then, at the COP17 in Durban the following year, the parties agreed that the next COPs would focus on negotiating a new climate treaty by 2015 that would enter into force by 2020, although there was still large disagreement about the legal status (Vidal & Harvey, The Guardian, 2011). The emissions goals were still considered to be insufficient, and many questioned whether it would be possible for developed and developing countries to reach a consensus by 2015, especially after the failed attempt in

Copenhagen in 2009. Fortunately, an important and desperately needed boost suddenly popped up in 2014.

### 3.3.2. US-CHINA JOINT ANNOUNCEMENT ON CLIMATE CHANGE

On November 11 2014, after several months of secret talks, US President Barack Obama and Chinese President Xi Jinping announced a joint agreement on climate change and clean energy cooperation. The accord was a breakthrough in international climate policy and it was considered a remarkable step towards a possible multilateral climate agreement at the scheduled COP21 in Paris the following year (The White House, 2014).

The agreement included targets for a net reduction of GHG emissions, which was important since the two countries are the largest emitters in the world, accounting for more than one third of global GHG emissions. The US announced that it would reduce its emissions by 26-28 percent below 2005 levels by 2025. Further, the pace of the annual reduction of $CO_2$ was to increase from 1.2 percent during the 2005-2020 period to 2.3 - 2.8 percent between 2020 and 2025. Meanwhile, China expected emissions to peak by 2030, but hoped to do so earlier. Additionally, Jinping announced that that the PRC aimed at increasing the share of zero-emission energy sources to around 20 percent by the peaking year (The White House, 2014). This was an important step forward because the rest of the world expects the United States and China to take the lead, and the agreement highlights the critical role they play in addressing CC. In fact, the purpose of the agreement was to encourage all major emitters to take responsibility, and the two leaders hoped their actions would be reciprocated (Hart, 2014, pp. 5-6).

Since 2012, climate change has climbed to the top of the Sino-US bilateral political agenda. Being the biggest GHG emitters in the world, they face similar problems. This makes it easier to find a common ground when they need to look for solutions to the climate-related challenges, which increases the possibility for a successful bilateral cooperation. While the US provides technological innovation, China generally stands for the employment in the production process. This gives the two countries the opportunity to combine strengths in order to solve the climate-related

problems. More importantly, the bilateral cooperation has influenced the dynamics of the global climate negotiations, and demonstrated to the rest of the world that it was possible to find common ground despite large differences. This was crucial for reaching a global climate deal, and by joining forces they paved the way for a COP21 success the following year (Wang K. , 2014, pp. 13-15).

### 3.3.3. THE PARIS AGREEMENT

After years of finger-pointing and harsh negotiations, the Paris agreement was finally approved by the 195 nations present at the COP21 in Paris on December 12 2015. It was hailed as a major diplomatic success and a historic turning point. For the very first time, all the countries are required to cut their emissions so that the global temperature rise does not exceed the safety threshold of two degrees. The agreement still recognises the different scale of responsibility between developed and developing countries, but all countries must take action. The accord contains a legally binding commitment on all parties to deliver new carbon-cutting plans every five years and a transparency agreement to prevent cheating. The aim with this is to make sure that everyone is doing their fair share (Independent , 2015).

Nonetheless, the agreement has also been widely criticised for being insufficient. It has been estimated that even if all the countries fulfil their voluntary emission cuts, the global temperature will increase by at least 2.7 C compared to the pre-industrial time. The parties will thus have to increase their efforts substantially if we are to keep within a two-degree threshold, and preferably 1.5 C. However, the agreement was still a huge step in the right direction, especially if we consider the failure to reach an agreement in Copenhagen six years earlier (Independent , 2015). On 4 November 2016, the Paris agreement went into force and at the time of writing 127 parties have ratified it (UNFCCC, 2016).

This was hence the first time China was bound to cut emissions, although the amount is voluntary. Ahead of the summit, Chinese authorities pledged to curb $CO_2$ emissions per unit of GDP by 60-65 percent from 2005 levels and to increase renewables in the energy mix by 20 percent by 2030. In addition, China announced that

it would provide $3.1 billion to set up the South-South Cooperation Fund on Climate Change to help other developing countries cope with CC. This reflects a major attitude change given that China has always required developed nations to provide financial means to developing nations. At the COP 21, China proved that it was willing to take on more responsibility, and the efforts were applauded by many. In 2009, many believed China left the Copenhagen summit as the villain, and now it seemed like China was setting a good example for the other parties (China Daily, 2015).

To summarize, China was rather reticent in the international negotiations in the 1990s, but in the beginning of the 2000s she became increasingly proactive. China still holds on to the same principles as before (CBDP, developing countries right to development etc.), but has shown greater flexibility, especially in the last decade. Internationally speaking, China's change in attitude has been largely driven by the desire to be integrated into the global system. The Chinese leadership has realised it is better off when it participates actively at the international arena because it gives them the possibility to influence the direction of the climate regime. This was shown at Copenhagen when developing countries were not required to undertake binding commitments. China's increased power thus allows her to shape the new rules according to domestic interests (He L. , 2010, p. 19).

At the same time, China has taken unilateral decisions to reduce emissions at home. The authorities hope this will improve the PRC's image abroad and further strengthen its bargaining power in the negotiations. Further, the voluntary emission reductions give policy-makers more flexibility in the transition toward a low-carbon economy, while ensuring continued economic growth. China thus manages to hit two birds with a stone because it is beneficial for the future development and it is in accordance with the international requirements (He L. , 2010, pp. 22-23, 31). International cooperation has also been convenient because China has received both financial and technological support through multi-and bilateral agreements. The assistance from industrialized countries has thus helped China to prepare for future binding commitments (Wang, 2007, pp. 9, 13, 18).

However, Chinese leaders still wants to postpone legally binding targets for the benefit of the future economic growth (He L. , 2010, p. 23). China also continues to insists to be a developing country, although it becomes increasingly difficult to defend this position. The reason is that the emphasize with developing nations and the CBDR legitimizes China's lack of binding emission-reduction. However, this cannot last forever because as time passes on, China's ecological footprint grows. The proactive attitude has partly been an attempt to improve China's image abroad, but developed countries keep pushing her to accept binding commitments (Wang B. , 2009, p. 13). It still remains to be seen how much responsibility the Chinese are willing to take on, but what we can say for sure is that they will continue to reduce emissions at home, and it is expected that China will accept binding cuts when she is ready (He L. , 2010, p. 31).

### 3.4. THE TRUMP PRECIDENCY – AN OPPUTRUNITY FOR CHINA TO TAKE THE LEAD?

As soon as it became clear that Donald Trump had won the US presidential election in November 2016, many worried about what impact this may have on the Paris agreement and on several of Barack Obama's measure to fight CC. Trump famously called CC a hoax invented by the Chinese a few years ago, claiming they were tempting to gain economic advantage. That he is a climate sceptic is well-known, and he has warned that he will withdraw from the Paris agreement. China on the other hand, has confirmed that she will continue to fight CC whether the US upholds the Paris agreement or not. It is still uncertain whether Trump will manage to cancel the agreement, but what we can say for sure is that the US will step back and abandon its leadership role in the international fight against CC. This will leave a vacuum, and the world expects China to fill it. This could be a unique opportunity for the PRC to prove its image. While it has been rather unsuccessful in soft power, the possible role as the leader in the fight against CC might be just what China needs to improve its international image and to gain more power in other international affairs (Reuters, 2016). It is too early to say whether China is up for it, but we are definitely heading into a new world order.

# CHAPTER 4
# CONCLUSION

China has often been framed as an environmental villain in developed countries, especially since 2007 when it surpassed the US and became the world's largest $CO_2$ emitter. The economic development and the high emissions have been identified as the cause that could push us over the edge, and China is typically portrayed as a major threat and obstacle to the international community's effort to fight climate change. But has this critique been accurate? Or has China been unfairly portrayed as the baddie? In order to answer this, we have analyzed China's point of view to gain a comprehensive understanding of the arguments that constitutes its position in the global climate debate. We have also searched for answers in the domestic climate policies, and we have looked at China's role in the international climate regime.

As the backbone, we have discussed two of the most common questions that arise in the global justice debate on climate change, namely how to distribute the burdens and how to allocate emission rights. These are also important elements in the international negotiations and in China's own position. First, we looked at how to distribute the burdens, that is the costs of mitigation, adaption and compensation. A largely shared view is that those who are responsible for breaking something should foot the bill. Thus, it is the polluters who should pay, and it has been common to use countries historical contribution as the starting point of the distribution of costs. Since industrialized countries are largely responsible for having brought about human-induced climate change, it is believed to be fair that they bear the brunt of the burdens. This argument was also an important component in the UNFCCC and the principle of common but differentiated responsibility.

Because China's historical contributions is small, this has been a cornerstone in her position. As a (self-designated) developing country, the PRC did not have any legal obligations under the Kyoto Protocol. The refusal to accept binding targets has thus been justified by the agreement, but developed countries, and especially the US, have tried to push China to undertake binding commitments too. The Chinese have kept

refusing, arguing that developing countries have an equal right to development like the industrialized countries had in the past. Therefore, they should not be obliged to reduce the emissions until they have finalized the industrialization and eradicated poverty. We have also touched upon the principle of ability to pay, and it has been suggested that it should supplement the polluter pays principle so that burdens do not fall upon the poor, even if they have polluted in the past. This takes us to another element of China's position, namely that the rich developed countries should provide developing countries with new technology and financial aid to help them cope with climate change mitigation and adaption.

Further, we looked at the allocation of emission rights. The atmosphere can be considered as a limited global common, and there is hence no good reason why some should be allowed to pour more emissions than others into our commonly owned atmospheric bathtub. Yet, this is exactly what has happened. Citizens in developed countries tend to have much higher per capita emissions than people in developing countries, and it is often argued that they have used up their fair share a long time ago. When China has been criticized for having high national emissions, per capita emissions have been used as a counter-argument. By using data from the World Bank, we saw that an American still pollutes more than twice as much as a Chinese despite the fact that per capita emissions in China has increased over the past two decades due to the economic growth. Some might argue that it does not matter since the PRC has the world's largest population, but this does not change the fact that per capita emissions in the US, or other developed countries, are disproportionate and unsustainable. Hence, the Chinese have argued that they should be allowed to increase their emissions to a sustainable level while people in developed nations reduce their luxury emissions.

But even though these arguments are persuasive and fair, China has been portrayed as a threat due to the high emissions. However, we have seen that the picture is skewed when we only focus on the emissions that occurs within national borders. One of the reasons why China is emitting so much it that developed countries have outsourced their production, and consequently their emissions, to China to take advantage of the cheap labor. As a result, they are partly responsible for the high emissions. Additionally, we can attribute part of the net increase in global emission to them because the production in developing countries tend to be dirtier, and the

emissions would have been lower if the production had taken place in developed countries. Moreover, as "the world's factory", China produces a large share of our consumer goods and therefore the consumers should also be held responsible and pay a part of the costs. By doing so, we get a more balanced picture and it shows that we should not jump to conclusions and blame solely China for the high emissions.

Furthermore, we have seen that China has done quite a lot at home even though she has refused to accept binding international commitments to reduce emissions. The domestic environmental governance has experienced a remarkable transformation, especially from the mid-1990s due to the increased scientific consensus and the evidence of severe environmental degradation at home. China has a well-developed law and regulatory framework, and the recent amendment of the Environmental Protection Law aims to punish the worst polluters with daily fines. As part of the "war on pollution", the authorities have also shut down many of the dirtiest coal plants and they have ordered the suspension of several initiated projects. China has already started to de-link economic development and rising emissions, and invests a lot in renewable energy to boost the transition towards a low-carbon economy. The PRC has become the world's largest investor in green energy, and it leads the production of both solar and wind power. This mirrors the efforts to reduce the reliance on coal and to curb the harmful air pollution.

Lastly, we have also seen that the attitude in the global climate regime has become more proactive over the years. In addition to the domestic efforts, the PRC has become increasingly flexible in the negotiations, and especially in the past decade. For instance, we have seen that China now agrees that developing countries should reduce their emissions too, although the quantity is to be decided by the respective country. The official position on climate change has not changed much and the PRC still wishes to lead the G77, it has been willing to take on more leadership. As a rising power, China has realized that she can take advantage of the increased authority in international affairs by using it to shape the global environmental regime and to improve her image abroad. With the Trump presidency, it is also possible that China will become the prime leader in the fight against climate change, which was unthinkable a few years ago.

Throughout this thesis, we have seen that China has had good reasons for not wanting to accept binding commitments. At the same time, domestic efforts like the curbing of emissions and the increase of renewables proves that climate change has become a top priority. China still needs to overcome many challenges in the transition to a low-carbon economy, but she is on the right track. We may therefore conclude by saying that much of the critique over the years has been unfair, and that the image of China as the villain in the international climate debate should be nuanced.

# Bibliography


Ahlers, A., & Hansen, M. H. (2016). Kinas luftforurensining - Kimen til sosial og politsk forandring? *Norsk Klimastiftelse (Norwegian Climate Foundation) - Rapport nr. 4*, pp. 23-26.

Armstrong, C. (2012). Global Justice and Climate Change. In *Global Distributive Justice - An Introduction.* New York: Cambridge University Press.

Blanco, G., Barrett, J., de Coninck, H. C., Diaz Morejon, C. F., Mathur, R., Nakicenovic, N., . . . Zhou, P. (2014). Drivers, Trends and Mitigation. In O. R.-M. [Edenhofer, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 351-411). Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Bloomberg News. (2016, May 23). *China's Solar Prices Can Fall 38%, Become Competitive With Coal*. Retrieved from https://www.bloomberg.com/news/articles/2016-05-23/china-s-solar-prices-can-fall-38-become-competitive-with-coal

Bloomberg Technology. (2016, December 15). *World Energy Hits a Turning Point: Solar That's Cheaper Than Wind*. Retrieved from https://www.bloomberg.com/news/articles/2016-12-15/world-energy-hits-a-turning-point-solar-that-s-cheaper-than-wind

Bo, W. (2007). *Exploring China's Climate Change Policy From Both International and Domestic Perspectives.* the Energy Technology Innovation Policy Research Group at the Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University.

Bortscheller, M. J. (2010). Equitable But Ineffective: How The Principle Of Common But Differentiated Responsibilities Hobbles The Global Fight Against Climate Change . *Sustainable Development Law & Policy*, pp. 49-53, 65-68. Retrieved from http://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1036&context=sdlp

Buckley, T., & Nicholas, S. (2017). *China's Global Renewable Energy Expansion - How the World's Second-Biggest National Economy Is Positioned to Lead the World in Clean-Power INvestment .* Institute for Energy Economics and Financial Analysis (IEEFA). Retrieved from http://ieefa.org/wp-content/uploads/2017/01/Chinas-Global-Renewable-Energy-Expansion_January-2017.pdf

Caney, S. (2005). Cosmopolitan Justice, Responsibility, and Global Climate Change. *Leiden Journal of International Law*, pp. 747-775. Retrieved from http://philosophyfaculty.ucsd.edu/faculty/rarneson/phil267fa12/CANEYcosmop.pdf

Caney, S. (2015). Environmental and climate ethics. In D. Moellendorf, & H. Widdows, *The Routledge Handbook of Global Ethics.* New York / Abingdon: Routledge.

Chen, C., Chang, L., & Zhang, Y. (1995). The Role of Foreign Direct Investment in China's Post-1978 Economic Development. *World Development, Vol. 23, No. 4*, pp. 691-703. Retrieved from https://www.researchgate.net/profile/Chung_Chen7/publication/4978831_The_Role_of_Foreign_Direct_Investment_in_China%27s_Post-1978_Economic_Development/links/5631a6b208ae506cea679842.pdf

Chen, K. (2016, July 22). *Reuters*. Retrieved from Global Energy News: China installed 20 GW of solar power in first-half; triple from a year ago: http://www.reuters.com/article/us-china-solar-idUSKCN1020P7

China Daily. (2015, November 30). *World / Paris climate conferance*. Retrieved from China sets good example to combat climate change: http://www.chinadaily.com.cn/world/XiattendsParisclimateconference/2015-11/30/content_22590608.htm

China.org.cn. (1989, December 26). *China.org.cn.* Retrieved from Environmental Protection Law of the People's Republic of China : http://www.china.org.cn/english/environment/34356.htm

Chow, G. C. (2004). *Economic Reform and Growth in China.* Annals of Economics and Finance 5, Department of Economics, Princeton University, USA. Retrieved from http://www.aeconf.com/Articles/May2004/aef050107.pdf

Chu, J. (2015). *RE100 China analysis - China's Fast Track to A Renewable Future.* The Climate Group. Retrieved from https://www.theclimategroup.org/sites/default/files/archive/files/Re100-China-briefing-ENGLISH-jv-final.pdf

Cook, J., Nuccitelli, D., Green, S., Richardson, M., Winkler, B., Painting, R., . . . Skuce, A. (2013). *Quantifying the consensus on anthropogenic global warming in the scientifc literature - Environmental Research Letter 8 (02404).* IOP Science.

Davidson, M. R., Zhang, D., Xiong, W., Zhang, X., & Karplus, V. J. (2016). Modelling the potential for wind energy integration on China's coal-heavy electricity grid. *Nature Energy* , pp. 1-7. doi:10.1038/NENERGY.2016.86

Davis, S. J., & Caldeira, K. (2009). *Consumption-based accounting of CO2 emissions.* Cambridge: Harvard University. Retrieved from http://www.pnas.org/content/107/12/5687.full

Des Jardins, J. R. (2006). *Environmental Ethics - An Introduction to Environmental Philosophy, Fourth Edition.* Boston: Wadsworth, Cengage Learning.

Eikeland, P. O., & Cheng, H. (2015). *China's political economy of coal - Drivers and challenges to restructuring China's energy system (FNI Report 10/2015).* Lysaker, Norway: Fridtjof Nansens Institute. Retrieved from https://www.fni.no/getfile.php/132020/Filer/Publikasjoner/FNI-R1015.pdf

Fleming, J. R. (1998). John Tyndall, Svante Arrhenius, and Early Research on Carbon Dioxide and Climate. In *Historical Perspective on Climate Change.* New York / Oxford: Oxford University Press.

Forsythe, M. (2016, April 25). *The New York Times*. Retrieved from China Curbs Plans for More Coal-Fired Power Plants: https://www.nytimes.com/2016/04/26/business/energy-environment/china-coal.html

Forsythe, M. (2017, January 5). *The New York Times*. Retrieved from Asia Pacific - China Aims to Spend at Least $360 Billion on Renewable Energy by 2020: https://www.nytimes.com/2017/01/05/world/asia/china-renewable-energy-investment.html?smid=fb-nytimes&smtyp=cur&_r=0

Gaddis, J. L. (1997). *We Now Know - Rethinking Cold War History .* New York: Oxford University Press.

Glahn, B. (2009). *The International Bar Association* . Retrieved from Climate refugees'? Addressing the international legal gaps : http://www.ibanet.org/Article/NewDetail.aspx?ArticleUid=B51C02C1-3C27-4AE3-B4C4-7E350EB0F442

Goldenberg, S. (2014, January 19). *The Guardian* . Retrieved from CO2 emissions are being 'outsourced' by rich countries to rising economies : https://www.theguardian.com/environment/2014/jan/19/co2-emissions-outsourced-rich-nations-rising-economies

Guo, L. (2015, October 17). China's environmental situation and governance. *Lecture no. 1, course of China's Grand Strategy*. Renmin University of China, Beijing.

Gåsemyr, H. J. (2016). Den nye femårsplanen: tiltak, aktører og utfordringer. *Kinas Grønne Revolusjons (China's Green Revolution)*, pp. 17-22. Retrieved from http://klimastiftelsen.no/wp-content/uploads/2015/09/NK4_2016_Kinas_gr%C3%B8nne_revolusjon.pdf

Hart, M. (2014, November). Expanding U.S.-China Climate Cooperation Beyond the Bilateral. (M. Hart, Ed.) *Exploring the Frontiers of U.S-China Strategic Cooperation*, pp. 5-12.

He, J., & Fu, J. (2014). *Carbon leakage in China's manufacturing trade: An empirical analysis based on the carbon embodied in trade,.* Journal of International Trade & Economic Development, 23:3. doi:DOI: 10.1080/09638199.2012.713389

He, L. (2010). China's Climate-Change Policy From Kyoto to Copenhagen: Domestic Needs and International Aspirations. *Asian Perspective*, pp. 5-33. Retrieved from http://www.jstor.org/stable/42704720

Hernández, J. C. (2017, Janaury 15). *The New York Times*. Retrieved from Asia Pacific: It Can Power a Small Nation. But This Wind Farm in China Is Mostly Idle.: https://www.nytimes.com/2017/01/15/world/asia/china-gansu-wind-farm.html

Hung, M.-T., & Tony, T.-T. (2011). China's Response to Climae Change: A Policy Analysis. *Journal of Alternative Perspectives in the Social Sciences, Vol 3, No 2,362-375*, pp. 362-375. Retrieved from http://www.japss.org/upload/4.__Hungone_FINAL.pdf

Hung, M.-T., & Tsai, T.-C. (2012). Dilemma of Choice: China's Response to Climate Change. *Revista Brasileira De Política Internacional 55 (special edition): 104-124*, pp. 104-124.

Ivanova, D., Stadler, K., Steen-Olsen, K., Wood, R., Vita, G., Tukker, A., & Hertwich, E. G. (2015, December). Environmental Impact Assessment of Household Consumption. doi:DOI: 10.1111/jiec.12371

Jaeger, J., Joffe, P., & Song, R. (2017, January 6). *World Resource Institute* . Retrieved from China is Leaving the U.S. Behind on Clean Energy Investment: http://www.wri.org/blog/2017/01/china-leaving-us-behind-clean-energy-investment

Jing, L. (2008). *China Daily*. Retrieved from Greenpeace: Climate change threatens China's food safety: http://www.chinadaily.com.cn/bizchina/greenchina/2008-10/16/content_11398524.htm

Ke, W. (2014, November). Building a New Type of Major Power Relationship Through Climate Cooperation Will Require New Thinking from the United States. (M. Hart, Ed.) *Exploring the Frontiers of U.S.-China Strategic Cooperation: Energy and Climate Change*, pp. 13-19.

Kniivilä, M. (2007). *Industrial development and economic growth: Implications for poverty reduction and income inequality.* United Nations. Retrieved from http://www.un.org/esa/sustdev/publications/industrial_development/3_1.pdf

Kohr, M. (2009, December 28). *The Guardian*. Retrieved from Blame Denmark, not China, for Copenhagen failure: https://www.theguardian.com/commentisfree/cif-green/2009/dec/28/copenhagen-denmark-china

Kristoffersen, H., & Haugland, B. K. (2016). Solenergi transformerer Kina (Solar Power is transforming China). *Kinas Grønne Revolusjon (China's Green Revoltion)*, pp. 48-52. Retrieved from http://klimastiftelsen.no/wp-content/uploads/2015/09/NK4_2016_Kinas_gr%C3%B8nne_revolusjon.pdf

Lauri Myllyvirta / Greenpeace. (2016, September 8). *Energy Desk Greenpeace*. Retrieved from China: Six little known facts about the country's solar and wind boom: http://energydesk.greenpeace.org/2016/09/08/china-six-little-known-facts-countrys-solar-wind-boom/

Lauri Myllyvirta / Greenpeace. (2017, January 18). *Energy Desk Greenpeace - China's Energy Challenge* . Retrieved from Mapped: The coal power plants China just suspended : http://energydesk.greenpeace.org/2017/01/18/china-climate-leader-coal-davos-xi-jinping/

Lelieveld, J., Proestos, Y., Hadjinicolaou, P., Tanarthe, M., Tyrlis, E., & Zittis, G. (2016). *Climate-exodus expected in the Middle East and North Africa.* Mainz. Retrieved from http://www.mpic.de/en/news/press-information/news/dem-orient-droht-ein-klima-exodus.html

Li, B., Gasser , T., Ciais, P., Piao, S., Tao, S., Balkanski, Y., . . . Zhou, F. (2016, March 17). The contribution of China's emissions to global. *Nature*, pp. 357-362. doi:DOI 10.1038/nature17165

Liu, L. (2011). *Understanding China's Climate Change Mitigation Policy Development: Structures, Processes and Outcomes.* Miami: FIU Electronic Theses ad Dissertations, Paper 429. Retrieved from http://digitalcommons.fiu.edu/etd/429

Luterbacher, U., & Sprinz, D. F. (2001). *International Relations and Global Climate Change.* Cambridge, Massachusetts: The MIT Press.

Lynas, M. (2009, December 22). *The Guardian* . Retrieved from How do I know China wrecked the Copenhagen deal? I was in the room: https://www.theguardian.com/environment/2009/dec/22/copenhagen-climate-change-mark-lynas

Mandle , J. (2006). *Global Justice.* Cambridge: Polity Press.

Markandya , A., & Halsnaes, K. (2002). *Climate Change and Sustainable Development.* London: Earthscan Publications Ltd.

McCarthy, M. (2015, December 13). *Independent* . Retrieved from COP21: The Paris climate treaty is a long way from solving the problem but is still a genuine landmark: http://www.independent.co.uk/voices/cop21-the-paris-climate-treaty-is-a-long-way-from-solving-the-problem-but-is-still-a-genuine-a6771811.html

Middlehurst, C. (2016, March 17). *China Dialogue*. Retrieved from China maps out development for the next five years: https://www.chinadialogue.net/blog/8728-China-maps-out-development-for-the-next-five-years/en

Monibot, G. (2009, December 21). *The Guardian*. Retrieved from If you want to know who's to blame for Copenhagen, look to the US Senate : https://www.theguardian.com/commentisfree/2009/dec/21/copenhagen-failure-us-senate-vested-interests

Moore , S. (2009). Climate Change, Water and China's National Interest. *China Security, Vol. 5 No. 3, World Security Institute* , pp. 25-39. Retrieved from https://www.researchgate.net/publication/265045847_Climate_Change_Water_and_China's_National_Interest

Ong, L. H. (2012, Noember/December). The Apparent “Paradox” in China's Climate Policies. *Asian Survey , Vol. 52, No. 6*, pp. 1138-1160.

Penna, A. N. (2010). *The Human Footprint - A Global Environmental History.* Oxford: Wiley-Blackwell.

Peters, G. P., & Hertwich, E. G. (2008). *Post-Kyoto greenhouse gas inventories: production versus consumption.* Springer Science + Business Media B.V. doi:DOI 10.1007/s10584-007-9280-1

Publicover, B. (2017, January 12). *Recharge* . Retrieved from China set to rein in provinces over energy policy in 2017 : http://www.rechargenews.com/wind/1206551/china-set-to-rein-in-provinces-over-energy-policy-in-2017

Rhode, R. A., & Muller , R. A. (2015). *Air Pollution in China: Mapping of Concentrations and Sources.* Berkeley, California: Berkeley Earth . Retrieved from http://berkeleyearth.org/wp-content/uploads/2015/08/China-Air-Quality-Paper-July-2015.pdf

Riebeek, H. (2010). *NASA*. Retrieved from Earth Observatory: http://earthobservatory.nasa.gov/Features/GlobalWarming/printall.php

Rohde, R. A., & Muller, R. A. (2015). *Air Pollution in China: Mapping of Concentrations and Sources.* Berkely Earth. Retrieved from http://berkeleyearth.org/wp-content/uploads/2015/08/China-Air-Quality-Paper-July-2015.pdf

Shen, R. (2000). *China's Economic Reform - An Experiment in Pragmatic Socialism.* Praeger Publishers, Greenwood Publishing Group.

Skedsmo, A., Seiersad, D. T., Hoff, E., Bang, J., Pamlin, D., Henningsson, S., . . . Hertwich, E. (2008). *Norwegian Consumption, Chinese Pollution. How OECD imports generate CO2 emissions in developing countries – and the need for new low-carbon partnerships. Second edition.* WWF Norway and WWF China

Programme Office. Retrieved from http://awsassets.wwf.no/downloads/norwegian_consumption_chinese_pollution_shortbilingual__2_.pdf

Song, R., & Ye, Q. (2015, September 29). *World Resource Institute* . Retrieved from China's Climate Policies: How Have They Performed, and Where Do They Need to Go?: http://www.wri.org/blog/2015/09/china%E2%80%99s-climate-policies-how-have-they-performed-and-where-do-they-need-go

Stalley, P. (2013). Explaining the Chinese Position: The Role of Equity Norms.

Stensdal, I. (2012). *China's Climate-Change Policy 1988-2011: From Zero to Hero? Report 9/2012.* Lysaker: Fridtjof Nansen Institute . Retrieved from https://www.fni.no/getfile.php/131942/Filer/Publikasjoner/FNI-R0912.pdf

Stensdal, I. (n.d.). *Den Norske Atlanterhavskomité - The Norwegian Atlantic Committee*. Retrieved from Miljøproblemer i Kina - velstandens pris : http://www.atlanterhavskomiteen.no/nettsider/ost-asiapakken/oversikt/aktuelle-problemstillinger/miljoproblemer-i-kina-velstandens-pris

Svaar, P. (2016, December 11). *Julenissens virkelige hjelpere*. Retrieved from NRK News: https://www.nrk.no/urix/xl/her-produseres-70_-av-verdens-julepynt-1.13267818

Sweeney, L. B., & Sterman, J. D. (2000). *Bathtub dynamics: Initial results of a system thinking inventory .* System Dynamics Review Vol. 16, No. 4 (Winter 2000). Retrieved from http://jsterman.scripts.mit.edu/docs/BoothSweeney-2000-BathtubDynamics.pdf

The International Energy Agency . (2016, March 16). *Decoupling of global emissions and economic growth confirmed*. Retrieved from https://www.iea.org/newsroom/news/2016/march/decoupling-of-global-emissions-and-economic-growth-confirmed.html

The National People's Congress of the People's Republic of China. (2009, August 25). *The Renewable Energy Law of the People's Republic of China*. Retrieved from http://www.npc.gov.cn/englishnpc/Special/CombatingClimateChange/2009-08/25/content_1515301.htm

The New Climate Economy. (2016). *The Sustainable Infrastructure Imperative - Financing for Better Growth and Development.* The New Climate Economy - The Global Commission on the Economy and Climate. Retrieved from http://newclimateeconomy.report/2016/wp-content/uploads/sites/4/2014/08/NCE_2016Report.pdf

The White House. (2014, November 11). *Office of the Press Secretary*. Retrieved from FACT SHEET: U.S.-China Joint Announcement on Climate Change and Clean Energy Cooperation: https://obamawhitehouse.archives.gov/the-press-

office/2014/11/11/fact-sheet-us-china-joint-announcement-climate-change-and-clean-energy-c

The World Bank. (2016, September 14). *China Overview*. Retrieved from http://www.worldbank.org/en/country/china/overview

The World Bank. (2017). *Word DataBank*. Retrieved from World Development Indicators: http://databank.worldbank.org/data/reports.aspx?source=2&series=EN.ATM.CO2E.PC&country=USA#

The World Bank and the PRC. (2007). *Cost of Pollution in China - Economic Estimates of Physical Damages.* Rural Development, Natural Resources, and Environmnent Management Unit, East Asia and Pacfic Region of The World Bank and the Chinese State Environmental Protection Administration. Retrieved from http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/China_Cost_of_Pollution.pdf

The World Bank Group. (2015). *Carbon Leakage - Theory, Evidence and Policy Design.* Technical Note 11, Partnership for Market Readiness (PMR). Retrieved from https://openknowledge.worldbank.org/bitstream/handle/10986/22785/K8516.pdf?sequence=1&isAllowed=y

The World Bank; Development Research Center of the State Council, the People's Republic of China. (2014). *Urban China : Toward Efficient, Inclusive, and Sustainable Urbanization.* Washington DC: The World Bank. Retrieved from https://openknowledge.worldbank.org/handle/10986/18865

Tseng, Y.-t. (2015). *A Discursive Perspective on China's Global Politics of Climate Change. 1992-2013.* University of Denver - Digital Commons @ DU.

UNEP. (2015). *Climate Change and Human Rights.* United Nations Environment Program and the Sabin Center for Climate Change Law at Columbia Law School.

UNFCCC. (1992). The United Nations Framework Convention on Climate Change. UNFCCC.

UNFCCC. (2011). *Fact sheet: Climate change science - the status of climate change today.* Retrieved from https://unfccc.int/files/press/backgrounders/application/pdf/press_factsh_science.pdf

UNFCCC. (2014). *United Nations Framework Convention on Climate Change*. Retrieved from Feeling the Heat: Climate Science and the Basis of the Convention: http://unfccc.int/essential_background/the_science/items/6064.php

UNFCCC. (2016). *United Nations Framework Convention on Climate Change*. Retrieved from The Paris Agreement: http://unfccc.int/paris_agreement/items/9485.php

Vidal, J., & Goldenberg, S. (2011, December 11). *The Guardian* . Retrieved from Deal is reached at Cancún summit: https://www.theguardian.com/environment/2010/dec/11/mexico-cancun-environment-climate-summit

Vidal, J., & Harvey, F. (2011, December 11). *The Guardian*. Retrieved from Climate deal salvaged after marathon talks in Durban : https://www.theguardian.com/environment/2011/dec/10/un-climate-change-summit-durban

Volcovici, V., & Wong, S.-L. (2016, November 11). *Reuters*. Retrieved from Trump win opens way for China to take climate leadership role: http://www.reuters.com/article/usa-election-climatechange-idUSL1N1DB1AW

Wang, B. (2009). *Exploring China's Climate Change Policy From Both International and Domestic Perspectives.* the Energy Technology Innovation Policy Research Group at the Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University. Retrieved from http://people.uwec.edu/jamelsem/papers/CC_Literature_Web_Share/Policy/CC_Policy_China_International_Domestic_Wang_2009.pdf

Wang, K. (2014, November). Building a New Type of Major Power relationship Through Climate Cooperation Will Require New Thinking from the Unite States. (M. Hart, Ed.) *Exploring the Frontiers of U.S-China Strategid Copperation: Energy and Climate Change*, pp. 13-19.

Watts, J. (2011, February 4). *The Guardian*. Retrieved from China plots course for green growth amid a boom built on dirty industry: https://www.theguardian.com/world/2011/feb/04/china-green-growth-boom-industry

WHO . (2016). *Preventing disease through healthy environments: A global assessment of the burden of disease from environmental risks.* World Health Oganization. Retrieved from http://www.who.int/quantifying_ehimpacts/publications/preventing-disease/en/

WHO Fact Sheet. (2016, June). *World Health Organization*. Retrieved from Media Centre: Climate Change and Health - Fact Sheet: http://www.who.int/mediacentre/factsheets/fs266/en/

World Resources Institute. (2014, May 21). *www.wri.org*. Retrieved from The History of Carbon Dioxide Emissions: http://www.wri.org/blog/2014/05/history-carbon-dioxide-emissions

Wu, Y. (2009). The Good, the Bad, and the Ugly - Framing of China in News Media Coverage of Global Climate Change. In T. Boyce, & J. Lewis, *Climate Change and the Media, Vol. 5.* New York: Peter Lang Publishing.

WWF. (2016). *The Living Planet Report.* World Wildlife Fund. Retrieved from http://assets.worldwildlife.org/publications/964/files/original/lpr_living_planet_report_2016.pdf?1477582118&_ga=1.232039964.2068895914.1481807812

Xinhua. (2009, December 20). *Embassy of the People's Republic of China in the Kingdom of Denmark*. Retrieved from China's position and comment on COP15: http://dk.china-embassy.org/eng/News/t646842.htm

Xinhua. (2015, October 26). *The State Council of the People's Republic of China*. Retrieved from 12th Five-Year Plan achievements a milestone for centenary goal : http://english.gov.cn/news/top_news/2015/10/26/content_281475220413367.htm

Xinhua. (2015, September 27). *The State Council of the People's Republic of China*. Retrieved from Figures about China's efforts to 'green' the economy : http://english.gov.cn/archive/statistics/2015/09/27/content_281475199369454.htm

Xinhua. (2016, March 3). *Xinhua Insight: Rewards and risks in China's Five-Year Plan* . Retrieved from http://news.xinhuanet.com/english/2016-03/12/c_135181096.htm

Yao, K., & Meng, M. (2016, February 29). *Reuters*. Retrieved from Busines News - China expects to lay off 1.8 million workers in coal, steel sectors: http://www.reuters.com/article/us-china-economy-employment-idUSKCN0W205X

Yi , Y. (2011, October). Domestic Constraints and International Forces: Explore China's Position on International Climate Change Policy. *Canaian Social Science*, pp. 138-147. doi:10.3968/j.css.1923669720110706.017

Young Friends of the Earth Europe. (2015, November 28). *7 Climate Change Myths Debunked: myth #6: Climate Chnange is (only) an environmental issue* . Retrieved from http://foeeurope.org/yfoee/climate-mythbuster-climate-change-only-environmental-issue

Young Friends of the Earth Europe. (2015, October 21). *Seven Climate Myths Debunked - Climate myth #2: It's all China and India's fault*. Retrieved from http://foeeurope.org/yfoee/climate-mythbuster-india-chinas-fault

# Summary

Climate change is possibly the greatest challenge the world community is facing today. It is a delicate and complex issue that requires policy coordination, multi-level governance and extensive international cooperation. It is also a multidimensional issue due to its interconnection with a range of other issues, such as human rights, food security, health, and migration. We already know that it will cause great harm and that the costs will be huge. Unfortunately, those who are least capable of addressing the costs are likely to be hit the hardest, and typically their contribution to the problem is minimal. This is what makes climate change extremely unfair.

The international community has tried to address the issue, but despite three decades of international negotiations we have achieved little. Countries have long agreed that immediate action is needed, but few have been willing to make sacrifices. It has thus proved difficult to find common ground, and we have seen that negotiations have failed time after time because of the divide between the developed and developing countries. Both sides have been active players in the blame-game that has been going om since the beginning of the negotiations, and in the meantime, we have witnessed melting ice sheets, rising sea levels, and an upsurge in extreme weather events around the world.

In regards to the mainstream media in the west, it has been common to blame the countries in the global south. We are often told that developing countries refuse to accept their share of the responsibility, and that they try to place all the blame on the industrialized countries, while continuing to increase their own emissions. Many of these countries are the most vulnerable to climate change, and they also tend to be poor and hence the least capable of tackling climate-related crises. One would therefore think that efforts to minimize climate change risks are in their interest as well. [11]

[11] Young Friends of the Earth Europe (2015). Seven Climate Myths Debunked - Climate myth #2: It's all China and India's fault. Available at: http://foeeurope.org/yfoee/climate-mythbuster-india-chinas-fault

However, it is true that the global south insists that developed nations take on a much larger share of the responsibility. They would also like to see the rich countries pay for the technologies needed to reduce emissions, and this is an argument often advocated by China. This does not seem to be unreasonable though, if we consider that developed countries are responsible for approximately 80 percent of the historical $CO_2$ emissions from the burning of fossil fuels.[12] Thus, not only have they emitted disproportionate amounts of greenhouse gases, but they have benefited economically too. It therefore seems fair that they pay a larger share of the costs. Nonetheless, from the developed countries' point of view, the main problem is not necessarily their past emissions, but the new emerging economies that alters the problem. Nevertheless, there is no escaping the fact that a large share of the climate-related problems we face today can be attributed to industrialized countries.

China has often been criticized in the western mainstream media when it comes to climate change, particularly since 2007 when it surpassed the US and became the world's largest $CO_2$ emitter. It is accused of altering the problem of climate change, and it has often been criticized for refusing to make binding commitments when it comes to reducing its emissions.[13] However, its historical contribution to climate change is small, and the Chinese per capita emissions are still low compared to most developed countries. Based on this, the aim of this thesis is to find out whether China has been unfairly perceived as an environmental villain in the west. In order to answer this question, we will examine China's point of view to gain a comprehensive understanding of the arguments that constitutes her position in the global climate debate. We will also search for answers in the domestic climate policies, and we will look at China's role in the international climate regime.

[12] Young Friends of the Earth Europe (2015). *Seven Climate Myths Debunked - Climate myth #2: It's all China and India's fault.* Available at*:* http://foeeurope.org/yfoee/climate-mythbuster-india-chinas-fault

[13] Wu (2009). *The Good, the Bad, and the Ugly - Framing of China in News Media Coverage of Global Climate Change* in *Climate Change and the Media,* Vol. 5 (Boyce and Lewis).

**Chapter 1** starts with the definition of climate change in order to get a better understanding of what it is and how it works, and we will briefly address the distinction between natural and anthropogenic climate change. The climate system changes naturally over time[14] and changes in the natural world provided the conditions for the evolution that made our planet habitable for humans and other life forms. The Earth has gone through warmer periods and ice ages, and these natural changes have also had a massive impact on human's way of life. Still, natural climatic changes cannot explain the rapid temperature increase in the past century because the processes are too slow. Human impact on the climate kicked off with the Industrial Revolution and the upsurge of factories, mass production, consumer goods, increased urbanization, and population growth[15]. There is hence no doubt that humans have had a great impact on the climate, and we have known about it for a long time too. In the 1960s, scientists started to sound the alarm as it had become clear that the rising temperatures were connected to the growing concentrations of GHGs in the atmosphere, caused mainly by the burning of fossil fuels[16]. Nowadays there is a very large scientific consensus on anthropogenic CC, with 97 percent[17] of climate experts agreeing that global warming has largely been caused by human activity.

Moreover, we will see that climate change poses great risks both to humans and other living creatures. The temperature rise caused by climate change leads to more frequent and more intense extreme weather events, and we are already witnessing an increase of flash floods, heatwaves, severe droughts, and wildfires in several regions[18]. Rising sea levels threatens low-lying island states and coastal areas, and large areas in the Middle East and North Africa will become so hot in the future that it will become impossible for people to live there. A possible outcome is thus that millions of people

[14] Riebeek (2010) See: http://earthobservatory.nasa.gov/Features/GlobalWarming/printall.php
[15] Penna (2010), *The Human Footprint - A Global Environmental History*
[16] UNFCCC (2014), *Feeling the Heat: Climate Science and the Basis of the Convention* Available at: http://unfccc.int/essential_background/the_science/items/6064.php
[17] Cook et al (2013) *Quantifying the consensus on anthropogenic global warming in the scientific literature.* Available at: http://iopscience.iop.org/article/10.1088/1748-9326/8/2/024024/pdf

[18] UNFCCC (2011), *Fact sheet: Climate change science - the status of climate change today.* See: https://unfccc.int/files/press/backgrounders/application/pdf/press_factsh_science.pdf

will be forced to migrate[19]. In addition, climate change may lead to human rights violations, such as the basic rights to life, clean water, food, and shelter[20]. Further, it may also pose great risks to people's health, and a range of diseases are attributed to the environment, such as respiratory infections, cancers, malaria, malnutrition, and asthma. The majority of the deaths and diseases occur in low-and middle income countries, which often lack the means for preventive measures, so again it will be the most vulnerable than will suffer the consequences [21].

In the final part of the chapter we will see that climate should not solely be treated as a matter of science or technology, but that it can, and should, be treated as a philosophical issue as well. There has been a tendency to treat climate change as a scientific or technological issue, and it is understandable that people turn to science and technology to find answers. The former has provided us with the evidence of human-induced climate change and its potential consequences, and the latter plays a crucial role in the development of safer, cheaper and cleaner energy sources. Nevertheless, environmental challenges also raise important ethical and philosophical questions, and ethics and philosophy can provide guidance and help us to establish judicious environmental policies[22].

In this thesis, we treat climate change as an issue of global environmental justice, i.e. the global distribution of environmental benefits and burdens[23]. Two of the main ethical issues raised by anthropogenic climate change are the attribution of responsibility and the distribution of greenhouse gas emissions, and these are also important elements in China's position on climate change. The former asks who should bear the burden, i.e. how to distribute the costs of adaption, mitigation, and compensation. A typical argument is that the responsibility should lie with those who

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[19] Lelieveld et al (2016), *Climate-exodus expected in the Middle East and North Africa*, The Max-Planck Institute for Chemistry in Mainz and the Cyprus Institute in Nicosi. Available at: http://www.mpic.de/en/news/press-information/news/dem-orient-droht-ein-klima-exodus.html
[20] UNEP (2015), *Climate Change and Human Rights*, United Nations Environment Program and the Sabin Center for Climate Change Law at Columbia Law School
[21] WHO (2016), *Preventing disease through healthy environments: A global assessment of the burden of disease from environmental risks*. Available at: http://www.who.int/quantifying_ehimpacts/publications/preventing-disease/en/
[22] Des Jardins (2006), *Environmental Ethics - An Introduction to Environmental Philosophy*, Fourth Edition.
[23] Caney (2005), Co*smopolitan Justice, Responsibility, and Global Climate Change.*

caused the problem, i.e. "the polluter pays principle". Consequently, developed countries should pay a larger share of the costs since their ecological footprint is much larger, and this is basically what the principle of "common but differentiated responsibility" is based on. While everyone has a duty to address climate, countries do not have equal responsibility due to different capabilities. The latter question looks at how we can distribute emission rights in a fair way, which could be thought of as benefits. There are huge differences in per capita emissions across the world, and we may think of the atmosphere as a limited common good that needs to be distributed. Since we must reduce overall emissions if we want to avoid a dangerous temperature rise, it is often argued that people in developed countries must reduce their excessive emissions, while people in developing countries should be allowed to increase theirs to a sustainable level [24].

**Chapter 2** focuses on China. First, we will take a brief look at the PRC's history. Under Mao Zedong, the economic development was slow, there was a shortage of consumer goods, and China was isolated from the west. But when he was succeeded by Deng Xiaoping, things started to change. In 1978, a new economic reform was introduced, and the planned economy was gradually replaced by a market-oriented model. Deng also launched the four modernizations (of agriculture, industry, defence, and science and technology)[25]. Another important reform was the so-called open-door policy, which welcomed foreign trade and investment. China's foreign trade increased rapidly[26]. All this paved the way for economic development, and the post-1978 reforms have certainly been successful. In the decades after the opening-up, China's economy has had an impressive annual GDP growth rate of about 10 percent. About 800 million people have been lifted out of poverty since the reforms were introduced, and today China is the second largest economy in the world[27].

[24] Caney (2015), *Environmental and climate ethics* in The Routledge Handbook of Global Ethics.
[25] Chow (2004), *Economic Reform and Growth in China*
[26] Chen, Chung, Chang (1995), *The Role of Foreign Direct Investment in China's Post-1978 Economic Development*
[27] World Bank (2016), *China Overview*. Available at: http://www.worldbank.org/en/country/china/overview

However, we will see that the accelerated economic growth and rapid industrialization have also caused severe environmental problems. China is likely to be one of the countries most affected by climate change, and we discuss two of the main issues, namely water scarcity and air pollution. The former has a huge impact on agriculture and it is estimated that the PRC will have an inadequate food supply by 2030. If the temperature continues to rise, it is possible that overall food production could be reduced by 23 percent[28]. Moreover, water scarcity may give rise to disputes, and the struggle over resources may result in ethnic conflicts. Outdoor air pollution is also a major problem in China, causing between 350,000 and 400,000 premature deaths annually[29]. It also causes about 1.6 million deaths a year, killing approximately 4000 people per day[30]. The public is becoming more conscious about the health impacts, and air pollution could be a source to social unrest. Therefore, the CCP is trying to control emissions. With these severe environmental problems at home, it is evident that it is in China's interest to tackle climate change, and it has in fact become a key priority for the authorities.

However, at the international level China has been largely criticized for not doing enough, especially after 2007 when she became the world's largest emitter. Thus, in order to understand the refusal to accept binding commitments, we have to be familiar with China's arguments for justifying her position. We will see that a cornerstone in China's position on climate change is the equity principle, which we divide into three parts: per capita emissions, historical responsibility, and the ability to pay for mitigation and adaption policies[31]. China also adheres to the principle of common but differentiated responsibility, and by using official statistics, we will see that her arguments are both fair and persuasive. First, since the per capita emissions are much lower compared to developed countries, it has always been argued that China and other developing countries are entitled to increase their emissions to a sustainable level,

[28] China Daily, *Greenpeace: Climate change threatens China's food safety.* See: http://www.chinadaily.com.cn/bizchina/greenchina/2008-10/16/content_11398524.htm
[29] The World Bank and the People's Republic of China (2007), *Cost of Pollution in China - Economic Estimates of Physical Damages*. See: http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/China_Cost_of_Pollution.pdf
[30] Rohde & Muller (2015), *Air Pollution in China: Mapping of Concentrations and Sources.* See: http://berkeleyearth.org/wp-content/uploads/2015/08/China-Air-Quality-Paper-July-2015.pdf
[31] Ong (2012), *The Apparent "Paradox" in China's Climate Policies*

while people in rich countries should reduce their excessive emissions. Second, China's historical contribution to climate change is minimal, and thus it is only fair that developed countries pay a larger cost. The PRC is still developing, and continued economic growth is necessary to alleviate poverty. Third, developed countries have benefited economically from their industrialization based on fossil fuels. Because they are rich, they should provide developing countries with financial aid new technologies to help them mitigate and adapt to climate change[32].

Moving on, the final part of the chapter will focus on some of the veiled reasons behind the emissions. When China is criticized for the high national emissions, important aspects tend to be left out. The fact is that over the years we have outsourced much of our own production, and hence emissions, to China and other developing countries. The problem is that this has lead to a net increase in global emissions because production in developing countries still depend largely on high carbon-intensive fuels, and thus emissions are higher than they would have been if produced in a developed country. Hence, developed countries have lowered their own emissions by transferring a large share of them elsewhere, and at the same time, they criticize China for its high emissions[33]. Moreover, China produces much of what we consume, and since this is not taken into consideration when calculating a country's emissions, the numbers are distorted. It has therefore been suggested that the emissions from the production of export goods should be assigned to the country importing them, which makes each country and each consumer responsible for the emissions released during the production process of the purchased goods[34]. Because consumers have a large impact on the environment, it is only fair that they pay some of the costs too. Thus, we should stop putting all the blame on China for the high emissions.

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[32] Ong (2012), *The Apparent "Paradox" in China's Climate Policies*. Asian Survey, Vol 52, No 6.

[33] Blanco et al (2014), *Drivers, Trends and Mitigation* in Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change

[34] Peters & Hertwich (2008), *Post-Kyoto greenhouse gas inventories: production versus consumption.* Available at: http://download.springer.com/static/pdf/248/art%253A10.1007%252Fs10584-007-9280-1.pdf?originUrl=http%3A%2F%2Flink.springer.com%2Farticle%2F10.1007%2Fs1058

**Chapter 3** looks at what is being done domestically to fight climate change and how China's attitude in international negotiations has become increasingly proactive. First, we will see that China has done quite a lot at home even though she has refused to accept binding international commitments to reduce emissions. The domestic environmental governance has experienced a remarkable transformation, especially from the mid-1990s due to the increased scientific consensus and the evidence of severe environmental degradation at home. An important change came in 2007 when the National Climate Change Program was released, which focused on mitigation, adaption and international cooperation[35]. Since then, climate change has been included in China's Five Year Plans (FYP) and it has become a top-priority for Chinese policy-makers[36]. The present FYP contains specific targets, and aims to reduce $CO_2$ emissions per unit of GDP by 18 percent by the 2020, while carbon intensity is set to decrease by 40-45 percent compared to the 2005 level. Moreover, the plan includes China's first specific $PM_{2.5}$ target, and the goal is to reduce factory emissions of the particulate by 25 percent of total output[37]. China also has a well-developed law and regulatory framework, and a recent amendment of the Environmental Protection Law aims to punish the worst polluters with daily fines. As part of the "war on pollution", the authorities have also shut down many of the dirtiest coal plants and they have ordered the suspension of several initiated projects[38].

In addition, China has already started to de-link economic development and the increase of emissions, and invests a lot in renewable energy to boost the transition towards a low-carbon economy. The PRC has become the world's largest investor in green energy, and it leads the production of both solar and wind power. This mirrors the efforts to reduce the reliance on coal and to curb the harmful air pollution. By 2020 it aims at spending at least $360 billion in the field, which will curb GHG emissions and

[35] Liu (2011), *Understanding China's Climate Change Mitigation Policy Development: Structures, Processes and Outcomes*. See: http://digitalcommons.fiu.edu/etd/429
[36] Stensdal (2012), *China's Climate-Change Policy 1988-2011: From Zero to Hero?* Report 9/2012. See: https://www.fni.no/getfile.php/131942/Filer/Publikasjoner/FNI-R0912.pdf
[37] China Dialogue (2016), *China maps out development for the next five years.* See: https://www.chinadialogue.net/blog/8728-China-maps-out-development-for-the-next-five-years/en
[38] Gåsemyr (2016*), Den nye femårsplanen: tiltak, aktører og utfordringer* in *Kinas Grønne Revolusjons (China's Green Revolution)*. Norsk Klimastiftelse (Norwegian Climate Foundation). Available in Norwegian at: http://klimastiftelsen.no/wp-content/uploads/2015

help reduce outdoor air pollution. The authorities have also announced that more than 13 million new jobs will be created in the renewable energy sector, especially in the solar and wind industries[39].

Lastly, we will also see that China's attitude in the global climate regime has become more proactive over the years. In the beginning, China's attitude was rather reluctant and sceptical. As a leader for the G77, the PRC has always refused to accept binding commitments. It has thus been conceived as an obstacle to progress by developed countries, although voluntary action has been taken at home to fight climate change. However, a turning point came in 2007 when the State Council launched its climate change plan, which emphasized an active role in accordance with international expectations to prove that China was a responsible country. China gradually became more flexible and advocated technological cooperation among countries. It also became in favour of the clean development mechanism of the Kyoto Protocol, which it had long criticized for being a loophole for the developed nations to escape from their responsibilities. China official position has remained pretty much the same, but the idea about developing countries responsibilities changed radically at the Bali Road Map negotiations in 2007. The PRC still neglected binding commitments, but accepted that developing countries would carry out mitigation actions in accordance with their capability. As a rising power, China has realized that she can take advantage of the increased authority in international affairs by using it to shape the global environmental regime and to improve her image abroad[40]. In the past years, the she has also been willing to take on more responsibility. It remains to be seen how much leadership China is willing to take un, but it is possible that she will step up her game in the coming years.

[39] Forsythe, the New York Times (2017), *China Aims to Spend at Least $360 Billion on Renewable Energy by 2020.* See: https://www.nytimes.com/2017/01/05/world/asia/china-renewable-energy-investment.html?smid=fb-nytimes&smtyp=cur&_r=0

[40] Wang (2009, *Exploring China's Climate Change Policy From Both International and Domestic Perspectives.* See: http://people.uwec.edu/jamelsem/papers/CC_Literature_Web_Share/Policy/CC_Policy_China_International_Domestic_Wang_2009.pdf