



BACKGROUND GUIDE

# *WAMUNC XXIV*

Kyoto Protocol

# *LETTER FROM THE CHAIR*

Dear Delegates,

It is my pleasure to welcome you to the Kyoto Protocol committee of the 2022 Washington Area Model United Nations Conference! I am Duc Than, a freshman studying International Affairs here at The George Washington University. This is my first time chairing a committee at a MUN conference, but I have participated in countless MUN conferences as a delegate back in middle and high school. When I am not stressing out about MUN, I love to travel, take photos, ride the Metrorail, or simply hang out with friends. I also care a lot about the environment, and I am hoping to use my interest in both international affairs and the environment to find solutions to what may be the most pressing issue of our generation.

A reason why I picked the Kyoto Protocol as my committee is that this past year played host to a very important event: the COP26 summit in Glasgow, Scotland. As negotiations for emissions commitments continue amidst the backdrop of an increasingly dire situation, I wanted to explore whether we could figure out what got us here in the first place. Many consider the then-landmark Kyoto Protocol, the subsequent Paris Climate Agreement (2015), and even COP26, as a failure, but why? This committee serves partly as a portal to the past and partly as a blueprint for the future: using lessons we have learned from the climate agreements to see if we can create a better Kyoto Protocol.

As you begin your research, write your papers, and present your ideas in committee, I hope that your work will start a deeper reflection as to how complex and multifaceted climate change is, and kickstart a process of creativity that will most definitely be helpful as we venture into uncertain times. Delegate your hearts out, and don't forget to have fun!

Duc Than

# *COMMITTEE OVERVIEW*

There will be no significant modifications to normal procedure, but the end result of the committee will be ONE resolution mirroring the actual Kyoto Protocol. You will have to unanimously adopt this.

## *BACKGROUND GUIDE*

In March 2018, United Nations Secretary General António Guterres declared climate change to be “the most systemic threat to humankind,” and a more urgent issue than any current geopolitical conflict. The Intergovernmental Panel on Climate Change (IPCC) has further concluded that the last three decades have been warmer than any other decade since 1850, and Arctic sea-ice has decreased at a rate between 3.5% and 4.1% per decade. By the end of this century, the global mean temperature is expected to have risen approximately two degrees Celsius, a rise that can largely be attributed to anthropogenic greenhouse gas emissions (GHGs). Approximately half of the anthropogenic CO<sub>2</sub> emissions between 1750 and 2011 have been produced in the past four decades, and greenhouse gas emissions have risen year after year despite climate change mitigation efforts. In its 2013 Summary for Policymakers, the IPCC estimated that, to ensure a greater than 66% probability of limiting the warming attributable to anthropogenic causes, carbon dioxide emissions must not exceed 1000 gigatons of carbon (GtC) in the period from 1880 to 2050, which left the world’s population with an estimated “budget” of CO<sub>2</sub> equivalent to 565 GtC as of 2014. Even though some of the consequences of climate change, such as rising sea levels, increased temperatures, and an increased frequency and intensity of natural disasters, are inevitable, the United Nations is still striving to improve education on climate change, supporting policies that mitigate its effects, and promoting efforts to build resiliency in less-developed countries.

The first world conference that made the environment a global issue was The United Nations Conference on the Environment in 1972 at Stockholm, Sweden. This conference established the United Nations Environment Program (UNEP). This organization assists nations in drafting and implementing policies regarding climate change, and helps governments work to reduce carbon emissions and deforestation rates. Working on adaptation and mitigation policies, UNEP is an essential organization in the fight to curb the effects of global warming. At its 40th Session in 1988, the World Meteorological Organization's (WMO) Executive Council established the Intergovernmental Panel on Climate Change (IPCC). The IPCC's main objectives are to further knowledge of climate change, as well as prepare a plan of action to implement solutions. The IPCC also releases assessment reports to share knowledge of solutions that have worked thus far to address climate change.

Adopted in 1992 at the UN Conference on Environment and Development in Rio de Janeiro, Brazil (commonly referred to as the "Earth Summit"), the United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty, whose objective, according to Article 2 of its charter, is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." 197 countries have ratified the treaty as of date, and parties to the convention have met annually since 1995 to assess climate change progress. One of the most significant commitments initially agreed to by UNFCCC signatories was the development and publicization of national inventories of anthropogenic greenhouse gas emissions, inventories which are still required annually by industrialized members of the Organization for Economic Cooperation and Development (OECD), also known as Annex I Parties.

The first main protocol to be approved under the UNFCCC was the Kyoto Protocol, adopted on December 11, 1997. This agreement legally binds countries to emissions reduction targets regarding four greenhouse gases – carbon dioxide, methane, nitrous oxide, and sulphur hexafluoride – as well as two groups of gases, hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

To ensure that Kyoto parties meet their obligations, the UN Climate Change Secretariat keeps an international log of carbon market transactions, and parties to the Kyoto Protocol are required to provide the UN with annual emissions inventories and national reports. Article 18 of the Kyoto Protocol authorizes the Conference to approve appropriate methods to address cases of non-compliance, and the Enforcement Branch of the Kyoto Compliance Committee may impose an additional emissions deduction of 30% on a country that has exceeded its emissions targets. While there are no explicit financial penalties included in the Kyoto Protocol, countries who cannot meet their emissions targets may prefer to purchase emissions reductions from other Kyoto Protocol members rather than accept the additional 30% deduction.

While the Kyoto Protocol was a landmark agreement in that it was the first main international agreement on climate change, it no longer has any influence over climate policy and emissions reductions. While the Protocol was signed by President Bill Clinton in 1998, it was never ratified by the United States Senate, due to concerns about its effects on the US economy, and therefore never covered the world's largest greenhouse gas emitter (The United States accounted for 6,397 million metric tons of CO<sub>2</sub> equivalent in 1990). In 2011, Russia, Canada, and Japan announced they would not accept additional Kyoto obligations, and the Canadian government announced in December of the same year that the country would be withdrawing from the agreement entirely, since, according to the withdrawal statement, "Canada would have had to purchase a significant and costly amount of international credits using funds that could be invested...in Canada, on domestic priorities, including the environment." Former Canadian environment minister Peter Kent later said, "It is now clear that Kyoto is not the path forward for a global solution to climate change; instead, it is an impediment." As of 2018, the Kyoto Protocol covers less than 13 percent of global emissions and serves more as a simple reporting mechanism for the countries still within the agreement than as an actual tool to reduce emissions.

# COMMITTEE TOPICS

- **The Annex System:** Under the principle of “common but differentiated responsibilities,” Annex I parties are legally bound to emissions targets while Annex II parties are not. While Annex I parties have contributed to the majority of greenhouse gas emissions at the time, Annex II parties like China, India, and Brazil are also contributing to emissions as a result of their recent rapid economic development. Countries with large populations undergoing development and industrialisation have a potential to become significant contributors to greenhouse gas emissions without some form of commitment. Should the annex system be abolished in favour of commitments for all parties, modified, or kept?
- **Implementation Methods/Enforcement Mechanism:** The Kyoto Protocol does not have an enforcement mechanism, and the question remained open for parties to resolve during subsequent UN Climate Change Conferences. While Annex I parties do have commitments they are bound to, there is no way to legally enforce these obligations and punish parties that do not make progress or renege on their agreements. Countries like the United States, Canada, and Russia may not be in favour of implementing a tougher stance on enforcement, however, preferring for obligations to be more flexible and less demanding.

## Possible Solutions

- **Emissions Trading:** To help countries reach their emissions targets, the Kyoto Protocol included some market-based mechanisms, among which is emissions trading. Emissions trading, or “cap-and-trade,” consists of two components: a “cap” (or limit) on pollution, and tradable allowances equal to the limit that authorize allowance holders to emit a specific quantity (e.g., one ton) of the pollutant. Article 17 of the Kyoto Protocol allows countries with excess emissions units, emissions permitted to the country but not used, to sell their excess capacity to countries that have exceeded their targets. These emissions units are referred to as assigned amount units (AAUs) and facilitate the “carbon market.” To ensure that no country is exceeding its allotted carbon emission threshold, the Kyoto Protocol authorizes the creation of registry systems to track emissions used on a per-country basis.

- **Clean Development Mechanism:** Another market-based mechanism included in the Kyoto Protocol is the Clean Development Mechanism (CDM). Under Article 12, this mechanism awards developed countries with certified emission reduction (CER) credits for emission reduction projects occurring in their countries. Each credit is worth one ton of carbon dioxide, and can be traded, sold, or used by the industrialized country to prevent it from exceeding its emissions threshold. The CDM not only encourages sustainable development and innovative emissions reduction solutions, but also provides a source of income for the UNFCCC Adaptation Fund, a fund established in 2001 to finance climate adaptation projects in countries adversely affected by climate change.
- **Joint Implementation:** Article 6 of the Kyoto Protocol describes the process of Joint Implementation, whereby countries with emissions limits can earn emissions reduction units (ERUs) by investing in approved emissions reduction projects in other Annex I countries. For example, the Czech Republic identified a variety of high-priority areas for Joint Implementation projects in the early 2000s, such as landfill gasoline, renewable energy, and green transport, and had received support from other UN member states on 34 of those projects in the country as of 2006. Joint Implementation projects are a win-win for both developed and developing countries, since they provide the host country with technology transfer and foreign investments that will spur sustainable economic growth, and higher-emission Annex I countries with a more flexible way of meeting their Kyoto requirements.

## **Bloc Positions**

- Annex I countries (Australia, Canada, the European Community (now EU), France, Germany, Japan, The Netherlands, New Zealand, Norway, Russia, United Kingdom, United States)
  - Annex I Parties include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic States, and several Central and Eastern European States. Out of all the Annex I parties, the United States has yet to ratify the Kyoto Protocol and Canada withdrew in 2011. Australia also refused to ratify the agreement until Prime Minister Kevin Rudd took office in 2007.

## *Australia*

Prime Minister John Howard initially refused to ratify the Agreement, arguing that the protocol would cost Australians jobs, due to countries with booming economies and massive populations such as China and India not having any reduction obligations. Furthermore, Howard argued that Australia was already doing enough to cut emissions; the Australian government had pledged \$300 million over three years to reduce greenhouse gas emissions. Australia's emissions rose by 22% over the period of 1990-2002, and by 2002 Australia represented 1.5% of global greenhouse gas emissions. By 2005, Australia's emissions represented 1.2% of total emissions.

Prime Minister Kevin Rudd signed the ratification after assuming office on 3 December 2007, just before the meeting of the UN Framework Convention on Climate Change, and the treaty took effect in March 2008. Australia's target is to limit its emissions to 8% above their 1990 level over the 2008–2012 period. According to the Australian government, Australia should meet its Kyoto target.

Australian states and territories (except Western Australia) have established a national emissions trading scheme modelled after New South Wales's greenhouse gas abatement scheme in 2005.

## *Canada*

Canada ratified the Kyoto Protocol on December 17, 2002, requiring it to reduce emissions to 6% below 1990 levels during the 2008–2012 commitment period. While polls have shown support for the Kyoto protocol at around 70%, there was still significant opposition by some business groups, non-governmental climate scientists and energy concerns, using arguments similar to those being used in the US. There is also a fear that since US companies will not be affected by the Kyoto Protocol that Canadian companies will be at a disadvantage in terms of trade. There were even fears that Kyoto could threaten national unity, specifically with regard to Alberta.



In 2003, the Liberal federal government had spent 3.7 billion dollars on Kyoto programmes, resulting in CO<sub>2</sub> emissions 35 per cent above 1990 levels. On April 25, 2006, then-Environment Minister Rona Ambrose announced that Canada would have no chance of meeting its targets under Kyoto and would look to participate in U.S. sponsored Asia Pacific Partnership on Clean Development and Climate. "We've been looking at the Asia-Pacific Partnership for a number of months now because the key principles around [it] are very much in line with where our government wants to go," Ambrose told reporters. On May 2, 2006, it was reported that environmental funding designed to meet the Kyoto standards has been cut, while the Harper government develops a new plan to take its place.

The Canadian government invoked Canada's legal right to formally withdraw from the Kyoto Protocol on 12 December 2011. Canada was committed to cutting its greenhouse emissions to 6% below 1990 levels by 2012, but in 2009 emissions were 17% higher than in 1990. Environment minister Peter Kent cited Canada's liability to "enormous financial penalties" under the treaty unless it withdrew.

#### *The European Community (now EU)*

On May 31, 2002, all fifteen then-members of the European Union deposited the relevant ratification paperwork at the UN. The EU produces around 22% of global greenhouse gas emissions, and has agreed to a cut, on average, by 8% from 1990 emission levels. The EU has consistently been one of the major supporters of the Kyoto Protocol, negotiating hard to get wavering countries on board.

In December 2002, the EU created an emissions trading system in an effort to meet these tough targets. Quotas were introduced in six key industries: energy, steel, cement, glass, brick making, and paper/cardboard. There are also fines for member nations that fail to meet their obligations, starting at €40/ton of carbon dioxide in 2005, and rising to €100/ton in 2008. Current EU projections suggest that by 2008 the EU will be at 4.7% below 1990 levels.

The position of the EU is not without controversy in Protocol negotiations, however. One criticism is that, rather than reducing 8%, all the EU member countries should cut 15% as the EU insisted on a uniform target of 15% for other developed countries during the negotiation while allowing itself to share a big reduction in the former East Germany to meet the 15% goal for the entire EU. Also, emission levels of former Warsaw Pact countries who now are members of the EU have already been reduced as a result of their economic restructuring. This may mean that the region's 1990 baseline level is inflated compared to that of other developed countries, thus giving European economies a potential competitive advantage over the U.S.

Both the EU (as the European Community) and its member states are signatories to the Kyoto treaty. All but one EU Member State (Austria) anticipate that they will meet their commitments under the Kyoto Protocol.

### *France*

France committed to cap its emissions at their 1990 levels. The country has a national objective to reduce emissions by 25% from their 1990 levels by 2020, and a long-term target to reduce emissions 75–80% by 2050.

In 2002, France's total GHG emissions were roughly equivalent to 1990 levels, and 6.4% below 1990 levels when accounting for sink enhancements, as allowed under the Protocol. In 2001, France's per capita emissions were 6.32 tCO<sub>2</sub> per capita. Only five other IEA countries had lower levels. France's CO<sub>2</sub> intensity of GDP (energy-related CO<sub>2</sub> emissions per gross domestic production (GDP)) was the fifth-lowest among all IEA countries.

In 2004, France shut down its last coal mine, and now gets 80% of its electricity from nuclear power and therefore has relatively low CO<sub>2</sub> emissions, except for its transport sector.

### *Germany*

Germany agreed under the Kyoto Protocol to reduce its GHG emissions by 21% compared with the base year 1990 (1995 for some cases). By 2004, Germany reduced its total GHG emissions by 17.4%. Including the effects of land-use change increases this to 18.5%. The two main approaches Germany has used to meet its Kyoto target are reductions from the EU ETS, and reductions from the transport, household, and small business sectors.

Germany's progress towards its Kyoto target benefits from its reunification in 1990. This is because of the reduction in emissions of East Germany after the fall of the Berlin Wall. CO<sub>2</sub> emissions in Germany fell 12% between 1990 and 1995. Germany reduced gas emissions by 22.4% between 1990 and 2008.

On June 28, 2006, the German government announced it would exempt its coal industry from requirements under the Kyoto agreement. However, Germany's voluntary commitment to reduce CO<sub>2</sub> emissions by 21% from the level in 1990 has essentially been met, because emission has already been reduced by 19%. Germany is thus contributing 75% of the 8% reduction promised by the E.U.

### *Japan*

Japan ratified the Kyoto Protocol in June 2002, and has committed to reducing its GHG emissions by 6% below their 1990 levels. Estimates for 2005 showed that Japan's emissions were 7.8% higher than in the base year.

To meet its Kyoto target, the government had been aiming for a 0.6% reduction in domestic GHG emissions compared with the base year. It also had been aiming to meet part of its target through a forest sink of 13 million tonnes of carbon, which is equivalent to a 3.8% cut. Another reduction of 1.6% is aimed at using the Kyoto flexible mechanisms.

In 2005, Japan's energy-related CO<sub>2</sub> per capita emissions were 9.5 metric tons per head of population. Japan's total energy-related CO<sub>2</sub> emissions made up 4.57% of global emissions in this year. Over the period 1850–2005, Japan's cumulative energy-related CO<sub>2</sub> emissions were 46.1 billion metric tonnes.

### *The Netherlands*

The Netherlands ratified the Kyoto Protocol on May 31, 2002. At the time of signing of the Protocol, the EU agreed upon a greenhouse gas reduction percentage of 8% for the Union as a whole. This common target was subsequently divided amongst the EU Member States in the so-called 'Burden Sharing Agreement'. For the Netherlands, this resulted in an emission reduction target of 6% below the emissions level in the base year, for the 2008-2012 period.

Reducing greenhouse gas emissions is a big priority for the Dutch government, as the low-lying country is especially vulnerable to rising sea levels and other effects of climate change. Projections have shown that the Netherlands should be able to comply with its Kyoto target and is also on track to achieve its 2020 target for greenhouse gases that do not fall under the EU Emissions Trading Scheme.

### *New Zealand*

New Zealand signed the Kyoto Protocol to the UNFCCC on 22 May 1998 and ratified it on 19 December 2002. New Zealand's target is to limit net greenhouse gas emissions for the 2008–2012 commitment period to five times the 1990 gross volume of GHG emissions. On 9 November 2012, the New Zealand Government announced it would make climate pledges for the period from 2013 to 2020 under the UNFCCC process instead of adopting a binding limit under a second commitment period of the Kyoto Protocol.

## *Norway*

Norway's commitment under the Kyoto Protocol is to restrict its increase of GHGs to 1% above the 1990 level by the commitment period 2008–2012. In 2003, total emissions were 9% above the 1990 level. 99% of Norway's electricity comes from CO<sub>2</sub>-free hydropower. Oil and gas extraction activities contributed 74% to the total increase of CO<sub>2</sub> in the period 1990–2003.

The Norwegian government projected a rise in GHG emissions of 15% from 1990 to 2010. Measures and policies adopted after autumn 2008 are not included in the baseline scenario (i.e., the predicted emissions that would occur without additional policy measures) for this projection.

Between 1990 and 2007, Norway's greenhouse gas emissions increased by 12%. As well as directly reducing their own greenhouse gas emissions, Norway's idea for carbon neutrality is to finance reforestation in China, a legal provision of the Kyoto protocol.

## *Russia*

While Russia signed the Protocol in 1999, President Vladimir Putin did not approve the treaty until November 4, 2004. Russia officially notified the United Nations of its ratification on November 18, 2004. President Putin had earlier decided in favour of the protocol in September 2004 against the opinion of the Russian Academy of Sciences, the Ministry for Industry and Energy, and then-economic advisor Andrey Illarionov. This support was in exchange for the EU's support for Russia's admission in the WTO.

Under the Kyoto Protocol, the Russian Federation committed itself to keeping its GHG emissions at the base year level during the first Kyoto commitment period from 2008–2012. UNFCCC reported that Russian GHG emissions were projected to decline by 28% relative to base year level by 2010. Russia accounts for about two-thirds of the expected emission savings from Joint Implementation projects by 2012.

### *United Kingdom*

The United Kingdom is a signatory to the Kyoto Protocol and has endorsed efforts to reduce greenhouse gas emissions. Under the Kyoto Protocol the UK agreed to ensure that emissions of greenhouse gases were at least 12.5 per cent lower than base year levels, on average, over the period 2008 to 2012.

The UK had been on course to meet its Kyoto Protocol commitments during 2008-2012. However, annual net carbon dioxide emission levels in the UK have actually risen by around 2 per cent since 1997.

### *United States*

The United States (U.S.), although a signatory to the protocol, has neither ratified nor withdrawn from the protocol. As of 2005, the US is the largest single emitter of carbon dioxide from the burning of fossil fuels.

On July 25, 1997, before the Kyoto Protocol was finalized, the U.S. Senate unanimously passed by a 95–0 vote the Byrd-Hagel Resolution (S. Res. 98), which stated the sense of the Senate was that the United States should not be a signatory to any protocol that did not include binding targets and timetables for developing as well as industrialized nations or "would result in serious harm to the economy of the United States". On November 12, 1998, Vice President Al Gore symbolically signed the protocol. Both Gore and Senator Joseph Lieberman indicated that the protocol would not be acted upon in the Senate until there was participation by the developing nations. The Clinton Administration never submitted the protocol to the Senate for ratification.

The Clinton Administration released an economic analysis in July 1998, prepared by the Council of Economic Advisors, which concluded that with emissions trading and participation of key developing countries in the "Clean Development Mechanism," the costs of implementing the Kyoto Protocol could be reduced by as much as 60% from many estimates. Other economic analyses, however, prepared by the Congressional Budget Office and the Department of Energy Energy Information Administration (EIA), demonstrated a potentially large decline in GDP from implementing the Protocol.

President George W. Bush indicated that he does not intend to submit the treaty for ratification, not because he does not support the Kyoto principles, but because of the exemption granted to China and India. Bush also opposed the treaty because he believed it would strain the economy.

Despite its refusal to submit the protocol to Congress for ratification, the Bush Administration has taken some actions towards mitigation of climate change. In June 2002, the Environmental Protection Agency (EPA) released the "Climate Action Report 2002". At the G-8 meeting in June 2005 administration officials expressed a desire for "practical commitments industrialized countries can meet without damaging their economies". According to those same officials, the United States is on track to fulfill its pledge to reduce its carbon intensity 18% by 2012. The United States has also signed the Asia Pacific Partnership on Clean Development and Climate, a pact that allows those countries to set their goals for reducing greenhouse gas emissions individually, but with no enforcement mechanism. Supporters of the pact see it as complementing the Kyoto Protocol while being more flexible, but critics have said the pact will be ineffective without any enforcement measures.

***Non-Annex I countries: (Argentina, Brazil, China, Comoros, India, Maldives, Marshall Islands, Pakistan)***

Non-Annex I Parties are mostly developing countries. Certain groups of developing countries are seen as particularly vulnerable to the adverse impacts of climate change, including countries with low-lying coastal areas and those prone to desertification and drought. Other countries may be more vulnerable to the potential economic impacts of climate change response measures, such as countries with economies that are heavily reliant on fossil fuels. Some non-Annex I parties (Brazil, China, India, Pakistan) are rapidly developing and may even surpass some Annex I parties like the US. While they are not required to set targets, some have committed to taking action.

### *Argentina*

During the Kyoto negotiations (COP 3), Argentina's representatives agreed to promote voluntary commitments for developing countries in the Protocol. However, there was no consensus on the so-called Article 10, which called for such voluntary commitments. Specifically, the Group of 77 (G-77) and China—the main developing-country negotiating bloc—found this provision categorically unacceptable. The proposal to include voluntary commitments was revisited the next year during COP 4, although in the end it was not included in the conference agenda or discussed during the meetings leading up to the conference (UNFCCC 1998). Again, this opposition was led by the G-77 and China.

President Carlos Menem nevertheless announced his government's commitment to establish a voluntary greenhouse gas (GHG) emissions target for 2008 to 2012 and to formally commit to this target the following year during COP 5. This was the first time a developing (non-Annex I) country had agreed to meet a quantified GHG limitation target.

### *Brazil*

While Brazil is not an Annex I party, it has pledged to reduce greenhouse gas emissions. During the Kyoto Protocol negotiations, Brazil proposed that countries should have different targets for reductions in greenhouse gases, corresponding to each country's historical contribution to global warming. Brazil is the third largest contributor of CDM projects and the leading contributor in the Latin American region. The country also seeks to increase the share of alternative renewable energy sources (biomass, wind and small hydropower) to 10% by 2030, and there are programs to protect public forests from deforestation

### *China*

China signed the Kyoto Protocol on May 29, 1998 and ratified it on August 30, 2002. While China does not have binding commitments, it has a number of domestic policy



measures to reduce greenhouse gas emissions. For example, China plans to expand renewable energy generation to 15% of total capacity by 2020.

Renewables account for 8% of China's energy and 17% of its electricity. In response to the financial crisis, China implemented one of the world's largest stimulus packages in efficient and clean energy.

In 2005, China made up 17% of global GHG emissions, with per capita emissions of 5.8 tons of GHG per head. Measured over the time period 1900–2005, China's cumulative energy-related CO<sub>2</sub> emissions made up 8% of the global total.

China has a fund that receives money from levies collected by the government on Clean Development Mechanism projects in China. While the mechanism has increased the resources and expertise that Chinese firms have at their disposal, China's fund channels these CDM resources into effective projects, such as renewable power plants.

### *Comoros*

Comoros signed and ratified the agreement on April 10, 2008. Despite not being obligated to set targets and emitting negligible amounts of greenhouse gas emissions, Comoros is seeking to reduce its greenhouse gas by 84% by 2030. Comoros, an archipelago in the Indian Ocean off the eastern coast of Africa, is a developing country vulnerable to climate change. It is a member of the Alliance of Small Island States (AOSIS), an intergovernmental organisation consolidating the voices of Small Island Developing States (SIDS) that are most vulnerable to climate change. This alliance was very active in the creation of UNFCCC and the negotiation of the Kyoto Protocol.

### *India*

India signed and ratified the Protocol on August 26, 2002. Since India is exempted from the framework of the treaty, it is expected to gain from the protocol in terms of transfer of technology and related foreign investments. At the G8 meeting in June 2005, Indian Prime Minister Manmohan Singh pointed out that the per-capita emission rates of the developing countries are a tiny fraction of those in the developed world. Following the principle of common but differentiated responsibility, India maintains that the major responsibility of curbing emission rests with the developed countries,

which have accumulated emissions over a long period of time. However, the U.S. and other Western nations assert that India, along with China, will account for most of the emissions in the coming decades, owing to their rapid industrialization and economic growth.

In 2005, India accounted for 5% of global GHG emissions, with per capita emissions of 2.1 tons of GHG per head of population. Over the time period 1900–2005, India's contribution to the global total of cumulative energy-related CO<sub>2</sub> emissions was 2%.

### *Maldives*

The Maldives signed the Kyoto Protocol on March 16, 1998, and ratified it on December 30 of the same year. The country is one of the most vulnerable countries to climate change. The small and low-lying nature of the Indian Ocean archipelago means that it is particularly threatened by sea level rises and other threats like monsoons. The Maldives is part of AOSIS, and while it is not obligated to set targets it has committed to reducing 26% of its emissions by 2030.

### *Marshall Islands*

The Marshall Islands, a Small Island Developing State and member of AOSIS, signed the Kyoto Protocol on March 17, 1998, and ratified it on August 11, 2003. The Central Pacific archipelago is particularly vulnerable to climate change. It advocates for developed countries leading the effort to combat climate change, and for projects that would focus on long-term gains.

### **Pakistan**

Pakistan ratified the Kyoto Protocol on January 10, 2005. Pakistan's vulnerability to adverse impacts of climate change is well established and widely recognized. While Pakistan's economy is developing and the country has a GDP per capita of \$1,193.73 (2020), the country is among the top ten most climate-affected countries of the world. Studies and assessments undertaken by the Pakistani National Disaster Management Authority (NDMA) show that extreme climate events between 1994 and 2013 have resulted in an average annual economic loss of almost US\$4 billion. Flooding events

between 2010-14 have resulted in monetary losses of over US\$18 billion with 38 million people affected, 3.45 million houses damaged and 10.63 million acres of crops destroyed.

The country is seeking to construct solar parks and other renewable power plants, improve public transportation, and conserve national parks while implementing large-scale tree plantation programs.

### ***Questions to Consider***

1. Is it in your country's best interests to adopt the Protocol? Are there any significant industries/interests in your country that would be harmed by significant greenhouse gas reductions? How would you address potential objections in your country?
2. Consider how countries actually implemented the Protocol after 1997. Was the method your country used effective? Is there another way your country can implement the Protocol that would lead to better effects?
3. Do developed countries have a moral obligation to fund developing countries' efforts to reduce greenhouse gas emissions and transition to cleaner technology? Do developing countries also have an obligation to reduce greenhouse gas emissions.