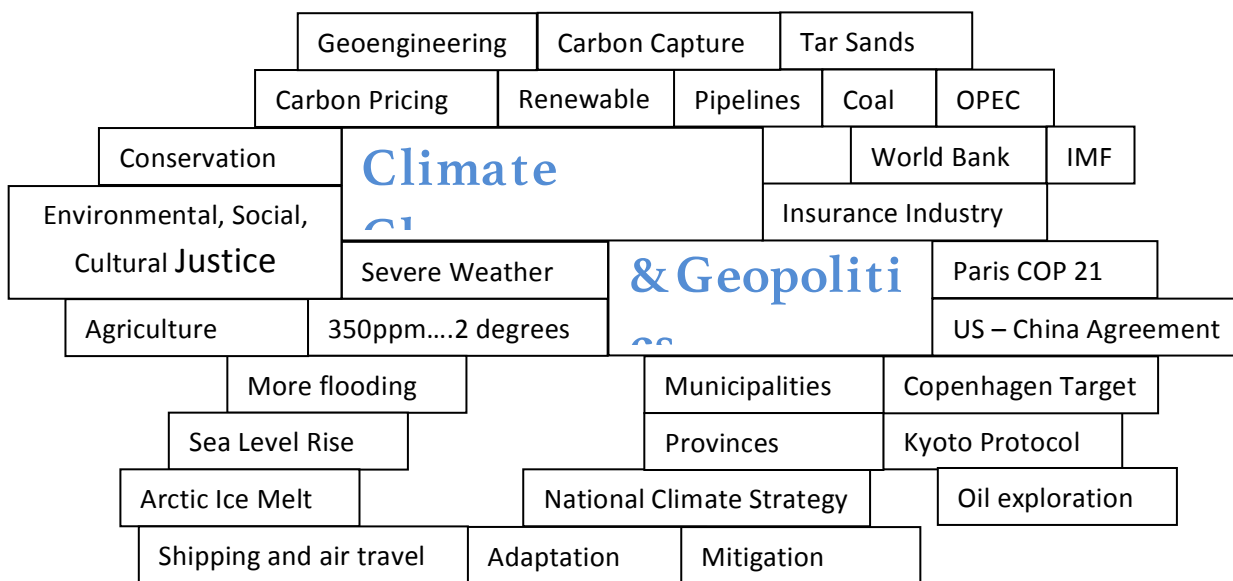




ENVIRONMENTAL ISSUES: Climate Change and Geopolitics

GEOG/ENST 3331

Lakehead University, Thunder Bay, Ontario
Draft: March 2016



Climate change is as much a geopolitical issue as an environmental issue. Geopolitical considerations have and will affect the way the world deals with climate change. The responsibility for, and impacts of, climate change have differed geographically and historically and these differences have influenced how countries presently deal with climate change internally and at the international level. Different interests and approaches have stalled progress in climate change discussions. Destructive weather events associated with climate change are likely to become even more frequent and expensive in the near future and likely to cause conflicts related to food, water supply, health and territory.

This exercise in Geography 3331 provides a brief history of world positioning and a framework of geopolitical considerations likely to affect progress in the critical area of climate change negotiations and some of the economic implications for developing and developed countries.

Students will research and present the interests of the “Parties” – from a selection of countries and world agencies. Roles include reviewing history, position papers and policy briefs, presenting your Party’s interests and then followed by negotiations and discussion of alliances with other Parties. In-class presentation/discussion will take place in the context of an international negotiation simulation.



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BACKGROUND

Global temperatures have been systematically collected since 1880. No year has been warmer than 2015 and the 15 warmest years (one exception, 1998) have occurred in first 16 years of the 21st century.

In December 2015, world leaders gathered in Paris to negotiate an agreement to reduce global carbon emissions. It was the twenty-first major UN climate summit since 1992. More than 20 years of conferences have coincided with mounting emissions, rising global temperatures and significant increases in damage caused by severe weather. The latest Intergovernmental Panel on Climate Change (IPCC) report warns that—short of a “substantial and sustained” reduction in greenhouse gas emissions—we will experience more frequent heat waves, droughts, storm surges, shocks to the world food supply.

The impact of climate change have been felt the world over, and by now even most companies and people connected to fossil fuel extraction and marketing accept the scientific near consensus that human activity is playing a role. September 2014 saw the largest climate march in history; more than 400,000 people turned out in New York City alone. The results of the Paris Agreement in December 2015 are mixed (details to follow in subsequent briefings). Last year has been flagged by some as a beginning of a shift from a fossil fuel-based global economy to one based on low-carbon energy.

An upper limit of safety, a global average temperature of 2° C above pre-industrial levels was agreed to in Copenhagen in 2009 and confirmed in Cancún in 2010. Average global temperatures should not be allowed to increase by more than 2° C relative to pre-industrial times if "dangerous anthropogenic interference with the climate system" is to be prevented (United Nations Framework Convention on Climate Change).

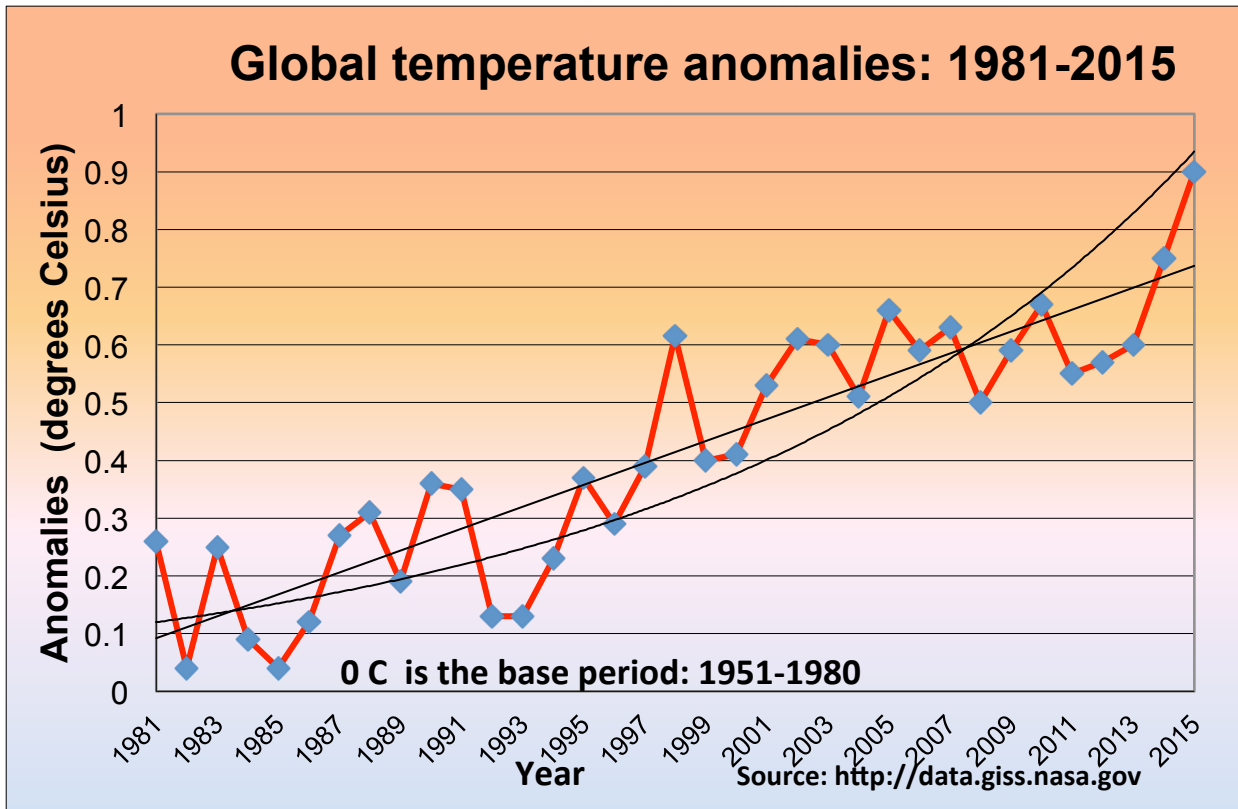
The choice of 2° C as the maximum limit was somewhat arbitrary. The 44 members of the Alliance of Small Island States (AOSIS) noted that 2 degrees warmer would mean some of their island states would literally disappear. They demanded in Paris that the threshold be reduced to 1.5° C and . . . this happened! However, this is a stated goal without a plan to attain it. Even the 2° C target is not realistic unless draconian reductions in greenhouse gases (GHG) begin almost immediately. Since 1880, average global temperatures have already increased by 1.1° C, with evident consequences, some of which will be discussed in a note to policy makers to follow.

If GHG emissions continue as they are presently, the world will likely reach the 2° C maximum within 20 years, according to Dr Michael Mann. "If the world continues to burn fossil fuels at the current rate, global warming will rise to 2° C by 2036" and to avoid this threshold "nations will have to keep carbon dioxide levels below 405 parts per million" (Scientific American, March 2014). Carbon dioxide (CO₂) levels reached 400 parts per million (ppm) in 2014 (402 ppm in December 2015). Any chance at all of meeting the 2° C maximum target would require emissions to decline by 10 per cent each year starting in 2017, states Fatih Birol, head of the International Energy Agency (IEA).

There is no indication of a downward trend. If CO₂ emissions are stabilized at the present rate of increase, 2 to 3 ppm the World Bank (WB) projects an average global temperature of increase by 4° C by the end of the 21st Century. The consequences of this warming include "extreme heat-waves, declining global food stocks, loss of ecosystems and biodiversity, and life-threatening sea level rise."

<http://www.worldbank.org/en/news/feature/2012/11/18/Climate-change-report-warns-dramatically-warmer-world-this-century>

One can speculate that technical information similar to the following figure prompted some policy makers in Paris to bargain in a constructive manner.



The above warnings, scientific research, message of Pope Francis, the Paris Agreement and other flags have changed the context of how key actors—whether it's companies or governments or international agencies or non-governmental organizations and some of us in our daily lives—talk about this issue.

Political leaders, technical experts and policymakers from around the world met in Paris to address the problems of fossil fuel usage, resulting emissions and climate change. This Conference of the Parties (COP 21) had more than 20,000 people attending, featured two weeks of negotiations and (as usual in these meetings) went into overtime. Since the Kyoto Accord (COP 3) signed in 1997 there has been a deep rift between wealthy countries stating that protecting the climate is essential and poorer countries which agree but demand that the rich countries pay for measures to reduce the consequences of climate change.

Plans for our version of COP 22 include the following:

1. Research the interests of your Party in the form of a policy brief of 800 to 1000 words. Use a succinct introductory paragraph to outline the problems/issues of your Party. Follow this with examples and information that supports your position. This could include which Parties are most responsible for "historic carbon", current greenhouse gas emissions and broken promises from the past. Mention other Parties that could have shared interests with your country.
2. The first session takes place on March 18. We are mimicking what happens at these COP conferences and one class equals one week. The usual pattern at these events is to begin with friendliness and courtesy, followed by confrontation and threats to withdraw from the proceedings. There are reminders from the Session Chair and perhaps other Parties and technical advisors about how essential a world agreement is and bargaining goes on. In the Sessions you are responsible for your Party but it will be useful have familiarity with positions of Canada, the Intergovernmental Panel on Climate Change (IPCC) and some global systems: the United Nations, World Bank, International Monetary Fund and roles of major



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corporations. Some of this information will be provided in the form of “1-page” briefing notes ahead of time or on the screen in the room as the session is conducted.

3. In preparation for second session on March 30, we will have lectures on past world agreements and processes such as clean air legislation, ozone depletion, etc.

We may have an expert to discuss Ontario's policies about climate change and carbon pricing. If this comes to pass we probably will move down the hall to RC 2005 and have a guest via Skype.

4. In the second formal session the focus will be on reaching an agreement that various Parties can agree to.

People with expertise will be available in the two formal sessions to provide information that may help with advice in these negotiations. More details about our resource people to follow.

2016 United Nations Climate Change Conference (COP22/CMP12)

Thunder Bay, Canada

The twenty-second session of the Conference of the Parties (COP) and the twelfth session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) takes place during March 2016, in Thunder Bay, Canada.

Dear Leaders and Advisors,

Welcome to the 2016 UNCCC COP22/CMP12. Your hosts are the Department of Geography and the Environment of Lakehead University and the Chairs of each Session. We thank UNFCCC and Lakehead University and acknowledge their support.

The purpose of these sessions is to facilitate discussion and achieve a mutually agreeable solution to the environmental challenges facing this planet.

Schedule of events

- 1) **Registration** This takes place prior to Session 1. Party Delegates are requested to display person name and Party identification on the conference table for the duration of the conference.
- 2) **Welcoming Address** (Friday, March 18, 8:30 am) – Graham Saunders
- 3) **Address from the Session Chair(s)**
- 4) **Position Statements** (Friday, March 18, 8:40 am) – The delegates are invited to address the conference with a statement of their position with respect to climate change and efforts for mitigation. This statement may have emerged from meetings with Non-Governmental-Organizations (NGOs), corporations, and private citizens from the home country in order to



have forged a common national plan for carbon emission reduction. Given the number of Parties and the limited amount of time available for statements, it will be necessary to limit the duration of each statement and in fairness to all speakers, time limits will be strictly enforced, Parties are reminded that statements made by Leaders should not exceed the three-minute limit.

- 5) **Multilateral Negotiations** (March 18, 9:10 am) – Once each nation has presented its plan for carbon emissions, the initial round of bargaining will begin. As you are aware, any agreement on emissions reductions will be made multilaterally between nations. Policy makers are allowed and encouraged to call on technical advice from experts on hand.
- 6) **Multilateral Negotiations** (March 18 and 30) – Provisions have been made for a further round of bargaining in the event that an agreement cannot be reached during the initial negotiations. (Please also consult the documents on climate ethics on the conference website.)
- 7) **Conference Conclusion** (Wednesday, March 30, 9:45 am)

Delegations Attending Conference:

Alliance of Small Island States (AOSIS)	Nicole Distranski
Australia	Brittany Moses
European Union	Sweden - Eric Bongelli; Germany - Kevin Bonden
Canada	Brandon Hanson
China	Aysha-Liisa McNally
India	Curtis Towle
Japan	Brian Hicks
New Zealand	Danielle Duplisea,
Russia	Dalton Sparks
LDC?	
United States	Alyssa Grace

The above Parties (and delegates) are responsible for about 67% of global carbon dioxide emissions. Most (exceptions are AOSIS and New Zealand) are members of the G20.

In addition to the official schedule of events, delegates and technical experts are invited to enjoy the cultural, scenic and culinary delights of Thunder Bay, located on the shore of the Great Lake Superior. A fleet of electric vehicles is available for your convenience.

As you know, the previous COP took place in Paris, France. The following site can be used to refresh your memory of the Agreement reached:

<http://unfccc.int/2860.php>



















This site may add some guidance to our present COP:

http://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_next_steps_post_adoption.pdf

Table 1 Statistical information about some of the Parties attending

Member	Trade mil. US\$ 2014	Nom GDP mil. USD 2014	PPP GDP mil USD 2014	PPP GDP per capita USD 2014	HDI 2015	Population 2015	G7	BRICS
 AOSIS							X	X
 Australia	496,700	1,442,722	1,099,771	46,550	0.935	23,599,000	X	X
 Brazil	484,600	2,346,583	3,275,799	16,155	0.755	202,768,000	X	✓
 Canada	947,200	1,785,387	1,595,975	44,967	0.913	35,467,000	Y	X
 China	4,201,000	10,356,508	18,088,054	13,224	0.727	1,367,520,000	X	✓
 European Union	4,485,000	18,527,116	18,640,411	36,869	0.876	505,570,700	N/A	N/A
 Germany	2,866,600	3,874,437	3,748,094	46,216	0.916	80,940,000	Y	X
 Sweden				49,000	0.907	9,845,155		
 India	850,600	2,051,228	7,411,093	5,808	0.609	1,259,695,000	X	✓
 Japan	1,522,400	4,602,367	4,767,157	37,519	0.891	127,061,000	Y	X
 New Zealand				37,000	0.913	4,600,000	X	X
 Russia	844,200	1,860,598	3,576,841	24,449	0.798	146,300,000	X	✓
 Saudi Arabia	521,600	746,248	1,609,628	52,311	0.837	30,624,000	X	X
 South Africa	200,100	350,082	707,097	13,094	0.666	53,699,000	X	✓
 United States	3,944,000	17,348,075	17,348,075	54,370	0.915	318,523,000	Y	X

The above Table includes most countries in the G20, an international forum for the governments of 20 major economies in the world. The **countries in bold** will be represented in our course exercise. The collective position of the Alliance of Small Island States (AOSIS) and New Zealand were requested by students and will be at the table. South Africa and Less Developed Countries (LDCs) will not be directly represented.

- There are several ways to compare national responsibility for climate change. These include
1. Current emissions – all fossil fuels burned and cement produced within national boundaries and converted into tonnes of CO₂,
 2. Per capita basis –



3. Historical emissions –

And there are other complications or subtleties. The carbon footprint of modern consumption includes use of imported goods and often international travel by aircraft and tourist cruises. Deforestation and the extraction of fossil fuels contribute to carbon in the atmosphere but are not always included in calculations.

Table 2 Annual Emissions in 2013: Million tonnes (MT) and Percent of World Emissions

1. China:	9697 MT	28.6%
2. US:	5420 MT	16.0%
3. India:	1967 MT	5.8%
4. Russia:	1829 MT	5.4%
5. Japan:	1243 MT	3.7%
6. Germany:	810 MT	2.4%
7. South Korea:	609 MT	1.7%
8. Canada:	555 MT	1.6%
9. Indonesia:	490 MT	1.4%
10. Saudi Arabia:	464 MT	1.4%

Source: Netherlands Environmental Assessment Agency

More related information to Table 2: Global carbon dioxide (CO₂) emissions from fossil fuel use and cement production increased in 2013 to the new record of 35.3 billion tonnes (Gt) CO₂, which is 0.7 Gt higher than last year's record. This moderate increase of 2% in 2013 compared to 2012 is a continuation of last year's trend and of the slowdown in the annual emissions growth.

<http://www.pbl.nl/en/publications/2012/trends-in-global-co2-emissions-2012-report>

The increase in 2014 was more modest, about 1%.

Table 3 Annual Emissions: Per capita (Some of the world's smallest countries and islands emit the most carbon dioxide per capita - the highest being Gibraltar with 152 tonnes per person, for example. The following table does not include these small jurisdictions. The data only considers carbon dioxide emissions from the burning of fossil fuels and cement manufacture, but not emissions from land use, land-use change and forestry.

United States: 17.3 tonnes
Australia: 17.0 tonnes
Canada: 14.8 tonnes*
Russia: 11.6 tonnes
Germany: 9.3 tonnes
UK: 7.8 tonnes
China: 5.4 tonnes
World average: 4.5 tonnes
India: 1.4 tonnes
Africa average: 0.9 tonnes
Ethiopia: 0.1 tonnes

Source: <http://data.worldbank.org/indicator/EN.ATM.CO2E.PC>

* However, many reports list Canada's per capita higher than this. According to Environment Canada and Climate Change <https://ec.gc.ca/default.asp?lang=en&n=FD9B0E51-1>

Total GHG emissions divided by the population of Canada (per capita emissions) have decreased significantly since 2005, when they were 22.8 tonnes per person. In 2012, emissions per capita were only 20.1 tonnes per person, which is the lowest level recorded since records began in 1990. Projections show



this trend continuing through 2020, with per capita emissions expected to be 19.7 tonnes per person in 2020.

The phrase “historical carbon emissions” or equivalent has been used in previous sessions. It is especially applicable in this session because it introduces one of the major conflicts between developed and developing nations.

Carbon dioxide added to the atmosphere can stay there for more than 200 years, historical emissions are just as important – or even more important – than current emissions. The tricky question of historical responsibility is one of the tensions in the process of negotiating a global climate deal. The following figures from the World Resources Institute show the top 10 nations as measured by their cumulative emissions between 1850 and 2007. The US tops the list by a wide margin – though Chinese emissions have risen significantly since these data were assembled.

Table 4 Historical emissions

1. United States:	339,174 MT	28.8%
2. China:	105,915 MT	9.0%
3. Russia:	94,679 MT	8.0%
4. Germany:	81,194.5 MT	6.9%
5. UK:	68,763 MT	5.8%
6. Japan:	45,629 MT	3.87%
7. France:	32,667 MT	2.77%
8. India:	28,824 MT	2.44%
9. Canada:	25,716 MT	2.2%
10. Ukraine:	25,431 MT	2.2%

Source: <http://www.theguardian.com/environment/2011/apr/21/countries-responsible-climate-change>

Of course, another perspective is gained by looking at historical emissions per person. In this view, Europe, the US, and Canada dominate the rankings, while China and India are near the bottom.

Table 5

1. Luxembourg:	1,429 tonnes
2. UK:	1,127 tonnes
3. US:	1,126 tonnes
4. Belgium:	1,026 tonnes
5. Czech Republic:	1,006 tonnes
6. Germany:	987 tonnes
7. Estonia:	877 tonnes
8. Canada:	780 tonnes
9. Kazakhstan:	682 tonnes
10. Russia:	666 tonnes

Source: <http://www.theguardian.com/environment/2011/apr/21/countries-responsible-climate-change>

Geopolitical Alliances (Blocks of nations with similar interests)

In recent decades, climate change has emerged from one of several environmental concerns to an interweave of grave concerns and geopolitics in the twenty-first century. At approximately the same time the world has also seen a profound shift in the powers and influences that have historically shaped national and international policymaking. The historical powers of the United States, Western Europe and Russia are



challenged by China, India and Brazil. These countries have gained political, economic, financial influence and confidence because of fast-developing economies.

The impacts of climate change have become more urgent and it has become obvious that climate change will require a massive socio-economic transformation with global solutions. The complexities of constantly-evolving political environment requires new approaches.

A complicating factor is the very large number of governments involved in these discussions. Many governments have similar interests to some other countries and many formal or informal coalitions have formed over the decades. Some of these are:

Europe

US Canada Australia Japan

BRICS (Brazil, Russia, India, China, South Africa)

Nordic Indigenous Peoples

Alliance of Small Island States*

OPEC

CACAM: Central Asia, Caucasus, Albania and Moldova ALBA: Alliance of the Peoples of our Americas

AOSIS: Alliance of Small Island States

LDCs: Least Developed Countries

OPEC: Organization of Petroleum Exporting Countries G77/China

BASIC: China, India, Brazil, South Africa

Umbrella Group: Australia, Canada, Iceland, New Zealand, Norway, Russia, Ukraine, United States, Japan

African Group

Environmental Integrity Group (EIG): Mexico, South Korea, Liechtenstein, Switzerland

EU: European Union*

AILAC: Association of Independent Latin American and Caribbean states

* These groups are represented at our COP22

The relative share of carbon emissions of these and other countries in the developing world is continuously increasing. The absolute emissions will soon overtake those of the developed world even though some countries, notably China, have begun to decouple economic development from carbon emissions. Achieving the frequently-discussed climate target of 2° C will be impossible without significant reductions by China and India.

During the past last ten years, China and India have become the world's second and third largest economies, Brazil has risen to seventh, Mexico to tenth place (World Bank 2013). The increase in economic sway has been accompanied by growing political assertiveness. China and India had a low profile in climate negotiations in the 1990s but recently and especially now have well defined positions of their national interests and are well placed in negotiation positions in the context of the BASIC (Brazil, South Africa, India and China).

At the same time, climate change has increased the vulnerability of countries and threatens to seriously affect their development perspectives. A changing climate imperils food, water, and energy security. It will affect human health, trade flows, and political stability (Sentence and Betts, 2012) and strain international relations (Huhne 2011). Climate change allocates its risks and effects in a fundamentally inequitable manner (Ashton & Burke 2004). This asymmetry will create different challenges for different countries, whereby those that suffer most are unlikely to be those that are imposing the problem.

The increasing political relevance of climate change has repositioned the topic higher on the agenda of international politics and led to more nuanced positions within international climate negotiations. It is harder for the G-77 and China to find common ground and the previous barriers separating the interests of the North and the South is becoming increasingly more porous.

For example, the collective position of the Alliance of Small Island States (AOSIS) group, comprised of 44 of the world's small island states, has often more in common with that of the collective position of the European Union's (EU) 27 member countries than it does with the collective position of the 11 members



of the Organisation of Petroleum Exporting Countries (OPEC). Similarly, within the North there are large differences between the EU and the USA.

In the emerging new world of climate politics, coalitions among countries often bring together mixes of developing and developed countries in the pursuit of particular negotiation positions or issues.

Examples include the 'Environmental Integrity Group', which since 2000 has represented the views of Switzerland, South Korea, and Mexico in the UNFCCC and informal groups that operate outside the COP formal process but have strong links to the negotiation process and include the 'Cartagena Group,' an informal alliance of 27 developed and developing countries, and the REDD+ Partnership, which seeks to scale up finance and actions for initiatives that reduce emissions from deforestation and forest degradation.

Complex?

Indeed it is and can invite disputes, impediments to essential discussions and postponing addressing essential questions:

What does all this mean for the medium- and long-term climate system?

COP 22 National Discussions

As established in the UN Convention on Climate Change, carbon emission reductions are to be set on a national basis. Globally, there are currently 1000 units of total carbon emitted on a yearly basis. As agreed at COP15/CMP5 Copenhagen, an 80% reduction of carbon emissions globally is required in order to avoid a global temperature increase of 1.5 degrees Celsius, the threshold above which damage to the planet is expected to be "catastrophic" for people and other species. In other words, global emissions need to be reduced from the present 1000 units to 200 units to avoid this catastrophic outcome.

As at previous Conferences of the Parties we anticipate that there will be some disagreement regarding the international distribution of emissions reductions. For example, arguments have been made that developed nations should cut more as they have historically produced more.

Furthermore, developed nations are in a better position to bear the economic costs associated with emissions reductions, which can be substantial (for example, restricting oil sands production could cause a substantial reduction in Canada's gross domestic product). Others have called for the biggest producers to cut more as this will have a larger impact in reducing carbon emissions.

Yet, many of the largest producers are or are projected to be developing nations and leaders of these nations have objected that cutting emissions would necessarily hinder the economic and social development of their countries, preventing their citizens from enjoying a standard of living comparable to that taken for granted by the citizens of developed nations.

We recognize that carbon emission reductions come at an economic and social cost, but a failure to reduce global emissions also imposes substantial costs on us all. Each nation must therefore decide upon a level of reductions that suits it best, while still contributing to the global solution.



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