

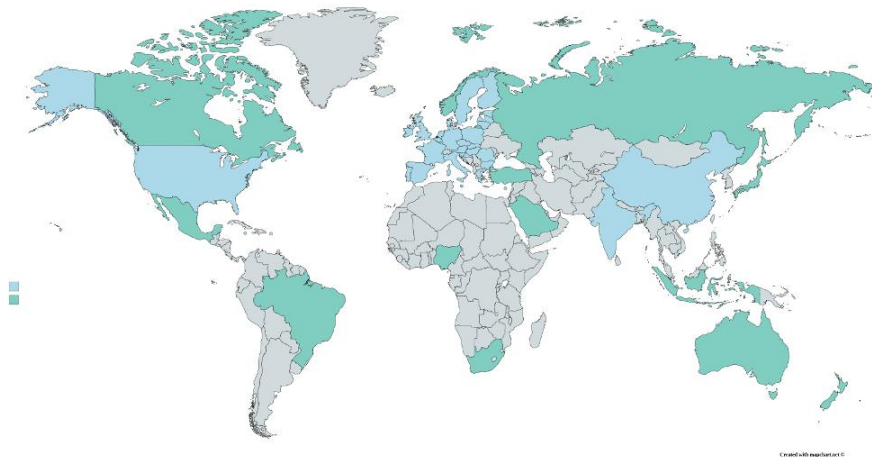


Høgskulen på Vestlandet

Nærregion Sogn og Fjordane

Greenhouse Gas Emissions and Climate Change Policies around the World

Country briefings provided by:
Master Course GE_4_300
“Climate Change and Climate Policy”



N-NR 8/17
Høgskulen på Vestlandet, Nærregion Sogn
og Fjordane



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SAMANDRAG This briefing provides an overview on major countries summarizing their greenhouse gas emission profiles, economic and political situation, major societal challenges and national policies relevant to tackle global climate change. The countries are marked green in above map. In alphabetical order these are: Australia, Brazil, Canada, Indonesia, Japan, Mexico, New Zealand, Nigeria, Norway, Russia, Saudi Arabia, South Africa, and Turkey. We developed a common template to structure country briefings bringing together many different national but also international sources, such as assessments by Climate Action Tracker (CAT). For providing a comprehensive picture, briefings for China, the European Union, India, and USA are additionally included. These briefings are taken from 'Climate Interactive', a not-for-profit organization based in Washington DC (see the countries & regions marked in blue in above figure). All material is designed as preparatory material for the climate change negotiation game (https://www.climateinteractive.org/). The new material compiled by HVL students of the master course "Climate Change and Climate Policy" enables to play the 15-region version of the game.		
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Author:	Eirin Birgitte Aagenes	<h1>Australia</h1> <h2>World Climate Briefing Material</h2>	
Date:	21.09.2017		
Revision:	2		

INTRODUCTION

Australia is the world's sixth-largest country by area with a population just over 24,500,000 (2017). It is the world's 13th-largest economy and has the second-highest human development index in the world (2015) [1]. Total GDP is 1.257 trillion USD and per capita income is 51,593 USD (2016), being the 13th and 9th highest in the world, respectively [2]. Major sectors include mining, telecommunications, banking and manufacturing (fig. 1). Main exports items are coal, iron ore and other minerals, while machinery and crude oil is imported.

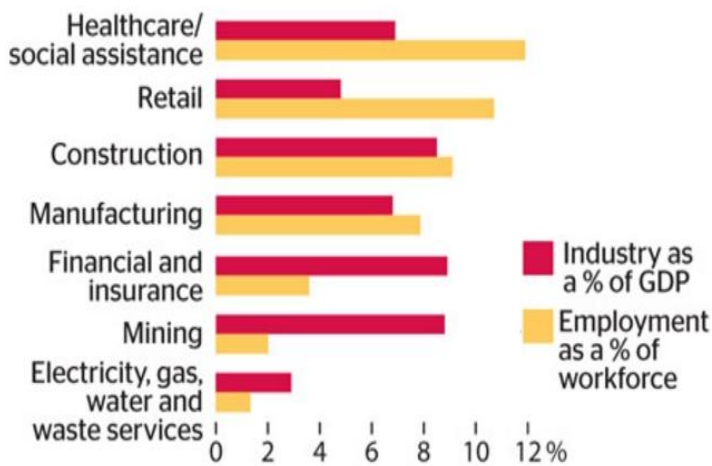


Figure 1: Development of greenhouse gases 1990-2015 [14]

Australia is well positioned to adapt to a changing climate, ranking as the 13th least vulnerable country and the 16th most ready country [5]. However, adaptation challenges exist due to increasing temperatures (particularly night-time temperatures have increased dramatically), more frequent heat waves, longer fire seasons, droughts and floods [6, 7]. For example, rainfall in southwestern Australia has decreased by 10–20% since 1970. Global warming has also been linked to more frequent and widespread coral bleaching, being especially visible in the Great Barrier Reef where two-thirds are under stress for the second consecutive year [8]. Recent events have focused government and public attention on the impacts of climate change,

but Australia continues to have the highest per capita greenhouse gas emissions (fig. 2).

Australia ratified the Paris agreement in 2016. The country pledged unconditionally to reduce greenhouse gas emissions by 26-28% below 2005 levels (incl. LULUCF) by 2030 [12]. Since 1990, emissions have increased by 27% (figure 3). Main emitting sectors are electricity (35%), agriculture and land use (18%), stationary energy (excl. electricity) (16%), transport (16%) and industry (6%) [13]. Australia's primary energy consumption is dominated by fossil fuels; in 2014-15 38% originated from oil, 32% from coal, 24% from gas and 6% from renewable energy [14].

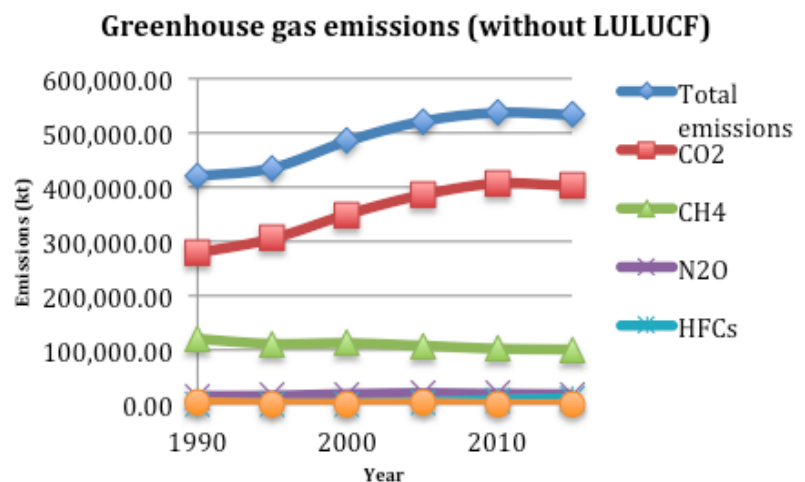


Figure 2: Development of greenhouse gases 1990-2015 [14]

FACT BOX	
Country, capital	Australia (AUS), Canberra
Form of government, head	Federal parliamentary constitutional monarchy. Following the federal election in 2016 the current Prime Minister is Malcolm Turnbull. He is the leader of the Liberal Party.
Area	7,692,024 km ² , sixth-largest in the world, 3.2 people per km ²
Climate	Mostly subtropical, with some tropical in the far north, and temperate in the far south [15]
Demography	Population ~ 24.7 million (2017) projected to 28 million (2030), 0.33% of the world population. 90% live in urban area; life expectancy: 79 years [16]
Economy	GDP: ~ 1.35 trillion USD (13 th in world), 41000 USD per capita (9 th in world) [2]
Resources	Rich in: coal, minerals (gold, iron, zircon, manganese). Available fossil fuels: crude oil, natural gas and black coal. Renewable energy consumption: 6% (mostly: biomass 53%, hydroelectricity 19%, and wind 11%, solar 5%). Good potential for solar energy [17].
Energy	Primary energy use per capita: ~ 5500 kg of oil equivalents/year; Electricity consumption per capita: 10 000 kWh/year (2014); all have access to electricity; Share of fossil fuels in total energy consumption: 86% [18]
GHG emissions	533 Mt CO ₂ -eq, thereof: 75% CO ₂ , 19% Methane, 3% N ₂ O, 3% other [19]
CO₂ Emissions per 1000USD GDP	CO ₂ -only: 314 kg/1000USD CO ₂ (2013)
Emissions per capita	Total CO ₂ : 16000 kg CO ₂ (2014)
CO₂ emissions per primary energy	2.98 t CO ₂ per t of oil equivalent (2014) [20]

Overview on Australia's approach on climate change policies & international cooperation

Australia is combining adaptation and mitigation efforts. The former include seeking to understand and manage risks associated with sea-level rise and storm surges in coastal areas, implementing climate change guidance for public, road and rail transport and identifying how crops can be grown under different climate futures. Water saving programs to reduce water use by 15%, smart metering of water use and promoting water efficiency are seen as important measures. Australia is also investing to improve climate-independent water sources, including groundwater replenishment, and water recycling for non-drinking uses. Current mitigation measures include investing in more renewable energy technology (wind, hydro and solar) and reducing emissions at a national level as well as helping developing countries by donating to a green fund [21]. Australia announced to spend about 200 million USD in 2017-2018 to tackle climate change locally and globally. Australia has committed 1 billion USD over five years to address climate change challenges, this includes a 200 million USD commitment to the Green Climate Fund (2015-2018) to support developing nations in a sustainable way and help them adapt to climate change [22].

Before the federal election in 2016, a poll showed that a strong climate change policy was vital to Australian electorates. 64% responded that they would be more likely to vote for a party seeking 100% renewable energy in 20 years. A majority of 56 % want the government to commit more [10]. However, the government continues to be criticized for promoting coal as a solution to energy security issues, downplaying renewable energy and obfuscate on its climate policies [11].

While the Federal Government continues to state that 'Australia's effective climate change policies are working', the Climate Action Tracker does not support this. To meet its 2030 emissions targets, Australian emissions should decrease by an average annual rate of between 1.9–2.7% until 2030. Instead, currently emissions increase at an annual rate 0.3–0.7%. The gap to achieving the 2030 target is large. If the rest of the world were to follow Australia's ambitions, it would lead to global warming of 3-4°C by 2100 [24].

Author:	Tonje Karin Rio	<h1>Brazil</h1> World Climate Briefing Material	
Date:	21.09.2017		
Revision:	2		

INTRODUCTION

Brazil is a developing country, growing in population and GDP. Indeed, Brazil is one of the most rapid growing economies in the world. It ranks as the 9th largest economy in the world and the 68th in per capita terms. Still, around 7% of the population live below the poverty line. Agriculture, mining and manufacturing industries make up a large part of the economy. Top exports are soybeans and iron ore. Top imports are refined petroleum, crude petroleum, and petroleum gas [9].



The country is considered to be vulnerable to climate change, especially the tropical rain forest in the Amazon, which has many diverse ecosystems. With rising temperatures, these areas could become dryer making wildfires more frequent. The reduced water supply will also affect the hydropower production, which currently generates a large part of Brazil's electricity. Problems also arise for agricultural productivity, aggravating the risk of famines [8]. The main source of greenhouse gas emissions is the land-use sector, due to deforestation and expansion of agriculture. Brazil's forests are vital for the world's climatic patterns and the GHG budget, because it works as a carbon sink and curbs major weather patterns [7]. Consequently, the net loss of forest coverage needs to be avoided. Global estimates tell that 11% of global GHG emissions originate from deforestation and forest degradation [7].

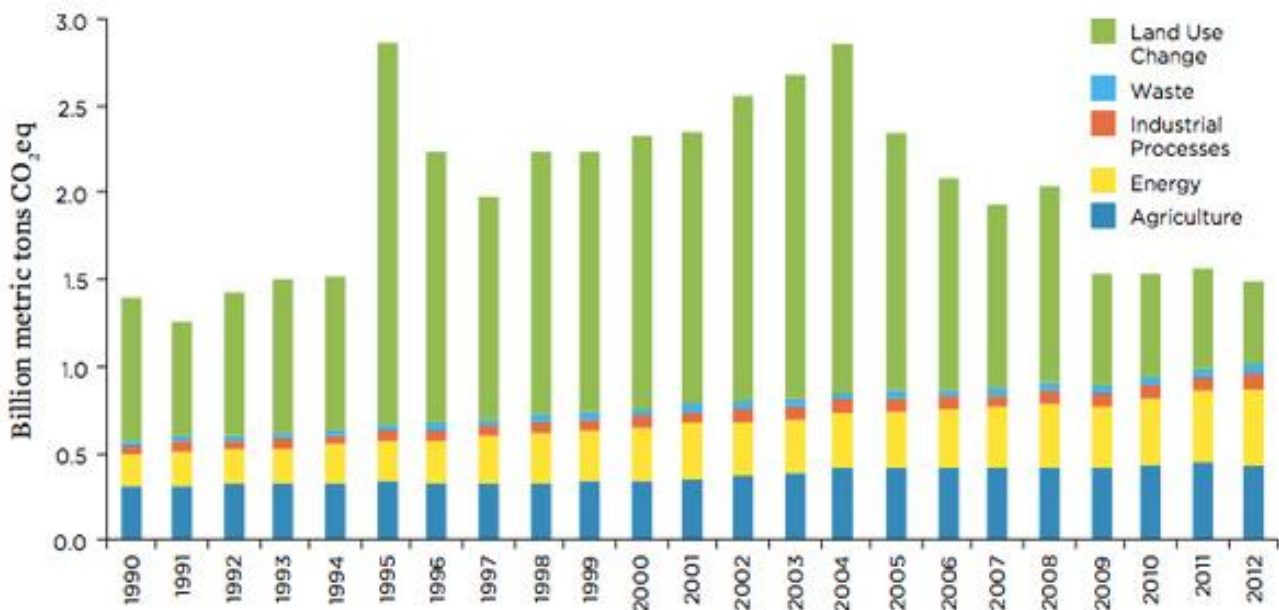


Figure 1: Development of greenhouse gas emissions 1990-2012 (10)

Awareness about climate change among is generally high, but a major issue is the difficulty of reducing GHG emissions simultaneously with a rising economy and population. Another issue is to preserve the rainforest at the same time as agriculture, mining and biofuel production is expanding. The land-use conflict becomes very visible. The country is determined to contribute to the UN Framework Convention on Climate Change and has submitted official pledges to tackle climate change.

FACT BOX ^{[2] [5] [6] [12] [13] [14]}	
Country, capital	Federative Republic of Brazil, Brasília
Form of government, head	Federal presidential constitutional republic. Since the 31 st of August 2016 Michel Temer is the President of the Republic. He is from the Democratic Movement Party.
Area	8 515 767 km ² , 5 th largest in the world, 24.35 people per km ²
Climate	Mostly tropical
Demography	207 981 000 million (projected for 2030: 225 472 214 million), 2.75% of world population, share of urban population: 86 %, share of population below the poverty line: 7%
Economy	1 798 Billion USD (9 th in world), 8727 USD per capita 68 th in world), projected GDP in 2030: 3 222 358 Million USD
Resources	Rich in natural resources (iron ore, manganese, steel, timber) and agricultural products; available fossil fuels: oil, gas, coal; good capacities for hydropower and biofuels
Energy	Primary energy use per capita: 1485 kg of oil equivalents/year; Electricity consumption per capita: 2601 kWh/year; 1% of people is without access to electricity; Share of fossil fuels in total energy consumption: 59 %; Import of energy as % of energy use: 12 %
GHG emissions	2 989 418 kt CO ₂ -eq, thereof: 486 229 kt CO ₂ , 477 077 kt Methane, 0.22 kt N ₂ O
CO2 Emissions per 1000USD GDP	CO2-only: 162 kg/1000USD CO2
Emissions per capita	Total GHG: 5030 kg CO ₂ .eq; CO2-only: 2590 kg CO2
CO2 emissions per primary energy supply	1.57 ton CO2 per ton of oil equivalent

Overview on Brazil's approach on climate change policies & international cooperation
<p>As one of the few developing countries that committed to absolute emission targets, Brazil made a commitment to reduce GHG emissions by 2025 by 37% below 2005 levels including land-use, land-use change and forestry (43% by 2030). A further goal is to achieve a 45% share of renewables in the energy mix by 2030 (23% if excluding hydropower) [3]. Today Brazil's energy mix consists of 40% renewables, which is three times the world's average. Hydropower and a long-term biofuel program helped to achieve these numbers. However, due to increased energy demands and challenges in the hydroelectric sector in times of low water supply, the use of fossil fuels is increasing [1].</p> <p>Brazil's key policy is the National Climate Change Plan, which focuses on specific targets in different sectors. In the agricultural sector, the continued preservation of the forests is a key target (lowering deforestation, increasing reforestation, eliminating illegal deforestation). From 2004-20014 the country was able to achieve an 84% lower deforestation rate. Emission reduction targets are also foreseen for heavy industry, transportation and mining sector [4].</p> <p>However, the ambition of the country to fight climate change is rated insufficient by the Climate Action Tracker [1]. For one, emissions from the industry are continuing to increase and deforestation has taken up again. Secondly, the past success in holding deforestation as well as the recent downturn in the economy, leave enough room to achieve the targets without much further effort.</p>

Author: Ragnar Grinde	<h1>Canada</h1> World Climate Briefing Material	
Date: 19.09.2017		
Revision: 2		

INTRODUCTION

Canada is a high income developed country and is the 10th largest economy in the world. During the last decade, Canada has experienced some of the highest GDP (2.5%) - and job growth (290,000) in the developed world. The average yearly income per capita is 44,000 USD. Majority of export revenue comes from crude petroleum, cars, natural gas, raw minerals and agriculture and forestry products. Majority of government income is based on taxation of these industries as well as income- and payroll taxes.



Canada is considered to be vulnerable to climate change. Coastal communities in the Atlantic region are vulnerable to storms, flooding and sea level rise. The central prairies are vulnerable to both drought and extreme weather events, affecting agriculture. The west is very vulnerable to extreme weather events, with increasing frequency of forest fires, storm surges, landslides, snowstorms and droughts. The permafrost covered North is highly vulnerable to erosion, flooding and change in sea ice, affecting the entire ecosystem. Canada is the 17th most ready country and the 8th least vulnerable country in the world.

Awareness about climate change among its population is generally high, with a strong consensus that climate change is real, that human activity contributes to it, and that it is necessary with government policies to combat climate change. The country is determined to contribute to the success of the UN Framework Convention on Climate Change and has submitted official pledges to the yearly conferences of the parties (Intended Nationally Determined Contributions).

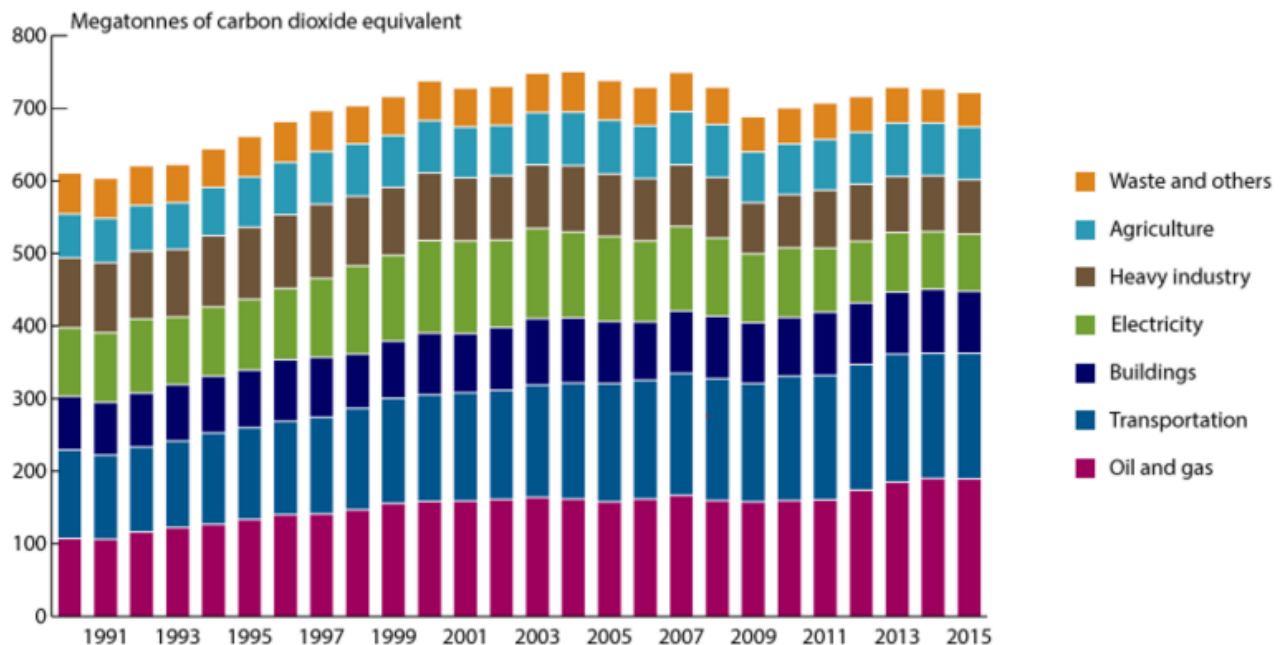


Figure 1: Greenhouse gas emission by sectors [3]

FACT BOX	
Country, capital	CAN, Ottawa
Form of government, head	Federal parliamentary constitutional monarchy. Following the elections in 2015, Justin Pierre James Trudeau is the current Prime Minister of Canada. He is also the leader of the Liberal Party.
Area	9,984,670 km ² , 2nd largest in the world, 3,92 people per km ²
Climate	four distinct seasons, wide temperature range, arid
Demography	~ 35 million, 0,5% of world population, share of urban population: 82%, projected population in 2030: 40 million, demographic situation: growing due to immigration and aging with an increased 4+ years life expectancy of up to 84 (female) and 87 (male) by 2030.
Economy	~ 1,529 trillion USD (10 th in world), 44,000 USD per capita (16 th in world), projected GDP in 2030: 1,880 trillion USD.
Resources	Rich in petroleum, natural gas, uranium, timber. Available fossils: oil, gas, coal. Capacities for RE: hydro (60% of power generation), wind & solar: 11%.
Energy	Primary energy use per capita: ~ 7,600 kg of oil equivalents/year; Electricity consumption per capita: 15,541 kWh/year; Share of people without access to electricity: 0%; Share of fossil fuels in total energy consumption: 73.6%; Import of energy as % of energy use: -73 % (net exporter, some imports to meet peak demand).
GHG emissions	722 Mt CO ₂ -eq, thereof: 568 Mt CO ₂ , 101 Mt Methane, 36 Mt N ₂ O.
CO ₂ per 1000USD GDP	CO ₂ -only: 361,19 kg/1000USD CO ₂ (2015)
Emissions per capita	Total GHG: 20,1 t CO ₂ -eq; CO ₂ -only: 15,45 t CO ₂ (2015)
CO ₂ per primary energy supply	1.98 t CO ₂ per t of oil equivalent.

Overview on Canada's approach on climate change policies & international cooperation

Canada targets an economy-wide reduction in GHG emissions of 30% below 2005 levels (738 Mt CO₂ eq.) by 2030, beginning with -17% by 2020. These targets include possible use of international emission credits as well as the land-use and forestry. Major climate policies are: **(1) Carbon pricing** to be implemented by 2018, meant to drive innovation and encourage businesses to pollute less. Minimum pricing is set to 10 USD/t CO₂ by 2018 and 50 USD/t CO₂ by 2050. Provinces and territories will implement either a carbon-tax or cap-and-trade systems and will retain all revenue generated by carbon pricing. **(2) New energy efficient building codes** and standards with buildings designed to use clean electricity. **(3) Efficiency and clean fuel standards for the transport sector** with new regulations for tires, a zero-emission vehicle strategy, infrastructure investments (charging, natural gas and hydrogen fueling infrastructure), and public transport investments. **(4) Increasing the share of clean electricity** production from 80% to 90% by 2030, by phasing out coal-fired electricity by 2030, better transmission lines, energy storage and "smart grids", and by partnering with indigenous people and remote communities to reduce their reliance on diesel. **(5) Protecting forests, wetlands and agriculture lands.** Encouraging innovative emission reductions in forestry, agriculture and construction. **(6) Investing in climate adaption** in resilient infrastructure, clean technology, and job innovation.

Canada is responsible for about 1.6% of the global GHG emissions (2013) with most emissions coming from oil and gas production, transportation and electricity production. Canada has pledged to give 2.2 Billion USD to the Green Climate fund by 2020 and in the media Canada is often touted as one of the global leaders on climate change. However, the **ambition** of Canada is seen as "**insufficient**" according to the Climate Action Tracker, because planned policies might only reduce GHG emissions by 3-10% rel. to 1990. As Canada has 10% of the world forests, they are also likely to generate substantial emission credits in 2030 from the forestry sector avoiding actual reductions. An emissions increase from tar sand operations from 9% of Canada's total emissions (2015) to a projected number of 14% by 2020 adds additional questions on the realism of the goal.

Author:	Willemijn Ogg	Republic of Indonesia World Climate Briefing Material	
Date:	20.09.2017		
Revision:	2		

INTRODUCTION

The Republic of Indonesia is the world's fourth most populous country with a lower middle income (developing nation). 11% of the population lives below the poverty line but during the last decade the average GDP has grown with 6% per year. Indonesia is the largest economy in Southeast Asia and is rich in natural resources (oil, gas, coal, tin, copper and gold) and the world's largest palm oil producer. Due to growing population and increasing life standards, Indonesia has however become a net importer of energy.



Due to its large coastline and its location on the equator, the country is vulnerable to climate change, when it comes to droughts, floods related to monsoons and related to sea level rise. Due to strong improvements in recent years, Indonesia has a relatively low vulnerability score and is assessed as ready to adopt to a changing climate (110th least ready country, 91st most vulnerable country). Awareness about climate change among its population is generally high and the country takes pride in its plans for greenhouse gas emission reduction, mitigation and adaptation.

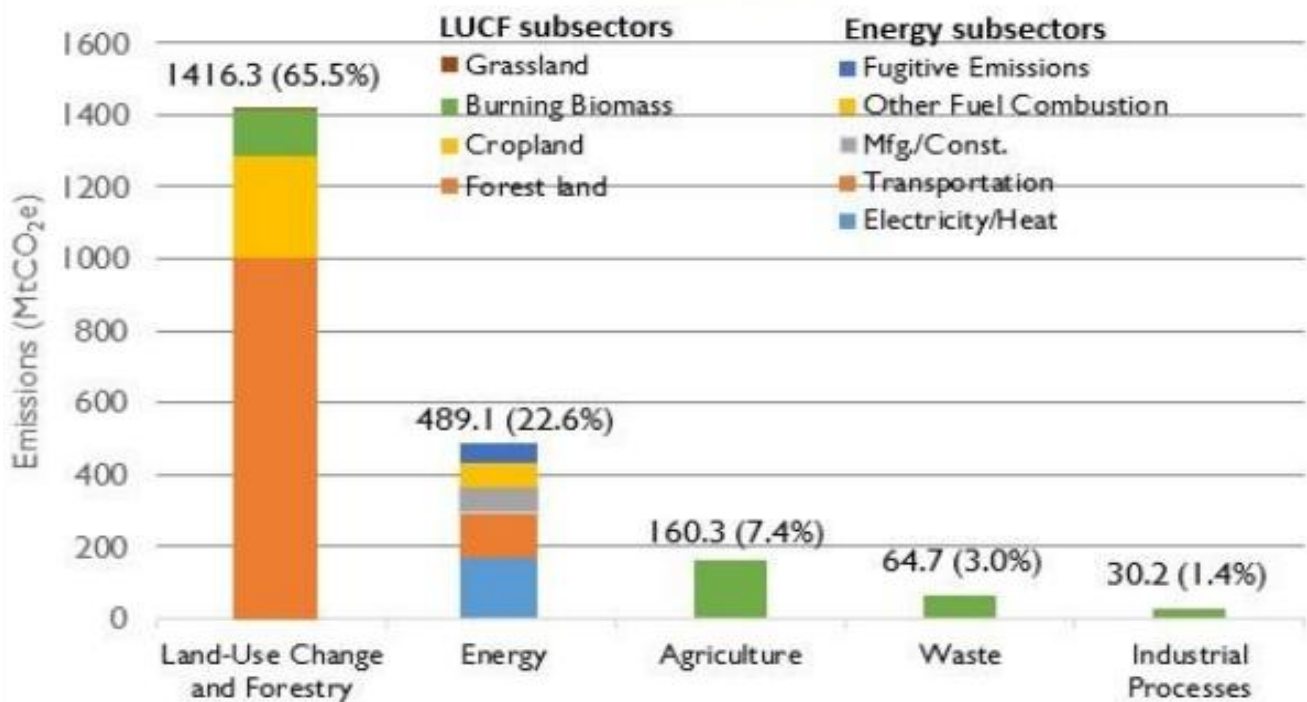


Figure 1: Emissions by source and sector (2013) [5].

The country is determined to contribute to the success of the UN Framework Convention on Climate Change and has submitted official pledges with substantial reductions in greenhouse gas emissions.

FACT BOX	
Country, capital	IDN, Jakarta
Form of government, head	Unitary presidential constitutional republic. Since 2014, Joko Widodo is the current President of Indonesia. Previously he was Mayor/Governor of Surakarta. He is the first president without a high-ranking political or military background.
Area	1,9 million km ² , 14 th largest in the world, 125 people per km ²
Climate	Equatorial tropical monsoon and rain forest climate
Demography	~ 261 million people, 3.5 % of world population, share of urban population: 55 %, projected population in 2030: 295 million, growth rate decreasing
Economy (GDP)	1.4 trillion USD (16 th in world), 5400 USD/cap., projected GDP in 2030: 2.8 trillion USD
Resources	Rich in: oil, gas, coal, metals, palm oil. Available fossil fuels: oil, gas, coal; capacities for renewables: geothermal, hydropower, modern bio-energy
Energy	Primary energy use per capita: ~ 883 kg of oil equivalents/year; Electricity consumption per capita: 811 kWh/year (2014); Share of people without access to electricity: 3%; Share of fossil fuels in total energy consumption: 65%; Import of energy as % of energy use: -103%
GHG emissions	780 Mt CO ₂ -eq, thereof: 59% CO ₂ , 29% Methane, 12% N ₂ O
CO ₂ Emissions per 1000USD GDP	CO ₂ -only:188 kg/1000US\$ CO ₂ (2015)
Emissions per capita	Total GHG: 3.16 metric ton CO ₂ -eq (2012); CO ₂ -only: 1.95 tons CO ₂ (2015)
CO ₂ /primary energy	1.94 t CO ₂ /t of oil equivalent (2014)


Overview on Indonesia's approach on climate change policies & international cooperation

Indonesia's main priority is to reduce poverty, enabling an economic development of 5% per year. The goal is that no more than 4% of population lives in poverty by 2025. Furthermore, every person shall have the right to enjoy a good and healthy environment. The country has set up its pledges to reduce greenhouse gas emission. The unconditional reduction is 26% against the business-as-usual scenario by 2020 (29% by 2030) and the conditional reduction is up to 41% against the business-as-usual scenario by 2030.

As part of mitigation, Indonesia's focus is mainly on land-use, land-use change and forestry. Over the past decades, large amounts of tropical rainforest have been subjected to **deforestation and forest degradation** to supply cheap bio-energy in the form of wood and to make space for farmland for mainly rice fields and palm-oil. Indonesia now plans to reduce deforestation and forest degradation and prohibit conversion of peat lands. It aims at restoring ecosystems and improving local knowledge about land-use and energy. The target group for education are females in rural areas. Indonesia furthermore plans to increase its share of **renewables** in the total energy use from currently 6% to 23% in 2025, mainly by using geothermal energy, hydropower and bioenergy. Another focus is on the management of wastewater and landfill waste. The capacity of urban waste water will be increased, whereas the landfill waste will be reduced by through a "reduce, reuse, and recycle policy". Waste will also be used as a source for energy.

Indonesia realizes its highly vulnerable position when it comes to the **adaptation** to climate change. This is due to the country's immense coastline which is under threat by rising sea levels. A substantial part of the country's growing population will live in areas that are more prone to environmental disasters. Concerns exist about the production and distribution of food, water and energy in events of droughts and floods. The National Action Plan on Climate Change Adaptation therefore focuses on strengthening local capacity, improving knowledge management, disaster risk reduction and the application of technology.

The plans of the country to deal with the changing climate are evaluated as insufficient according to Climate Action Tracker. Although Indonesia will likely meet its unconditional target, concerns are high when it comes to stabilization deforestation rates and continued peat fires. Furthermore, the use of coal is projected to increase over the next decades.

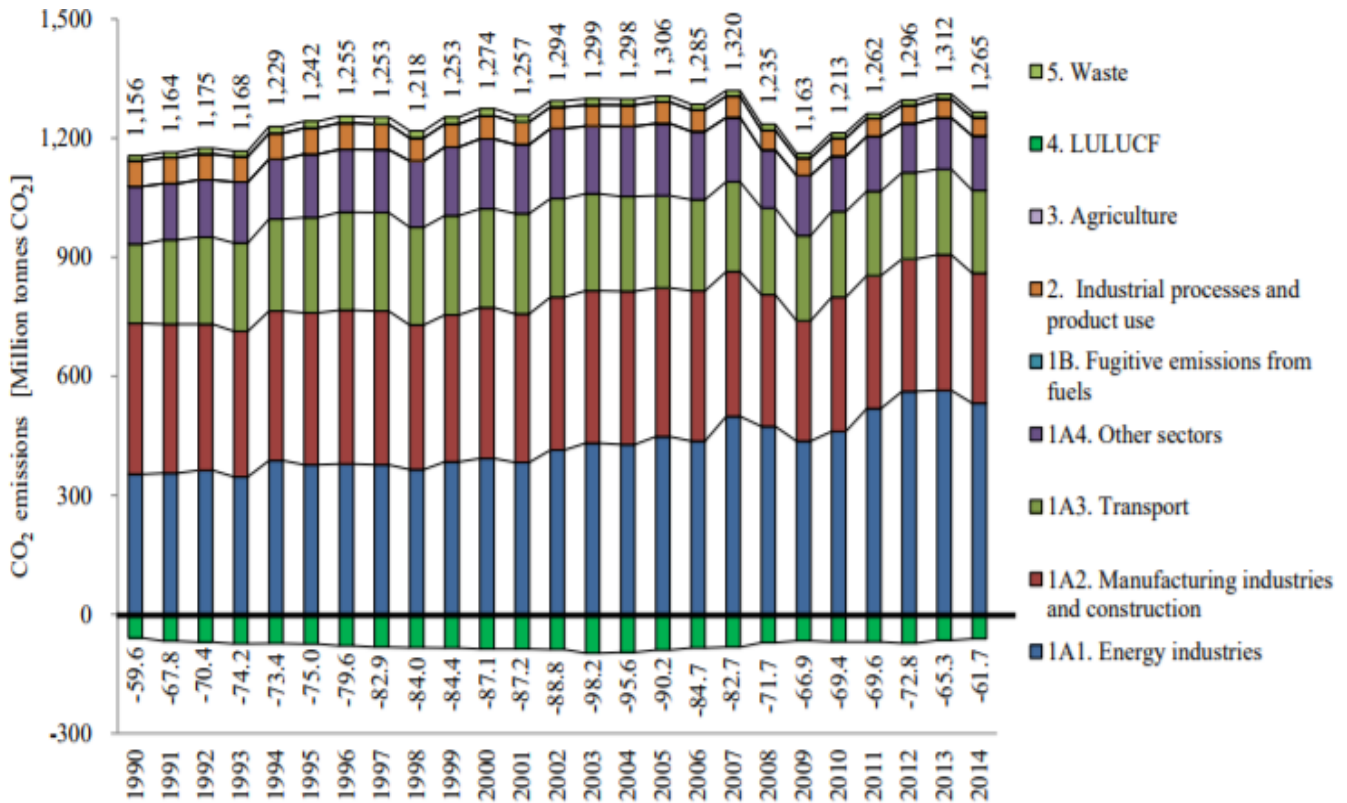
Author:	Dag Petter T. Hollekim	<h1>Japan</h1> World Climate Briefing Material	
Date:	21.09.2017		
Revision:	2		

INTRODUCTION

Japan is a big economy in the world and have a dominant voice in the discussions toward an agreement about climate change. The economy has however been on decline since its peak in 1989. Still, Japan is one of the world’s biggest exporters, being number four behind China, US and Germany respectively. Vehicles, machinery including computers, and electrical machinery including equipment accounts for 56.4% of their export income of 364 billion US (2016). Japan is also the fourth biggest importer behind US, China and Germany. The country is particularly dependent on the import of fossil fuel resources. Mineral fuels including oil is the biggest import at 110.7 billion US amounting to 18.2% of imports.



Japan is vulnerable to climate change mainly through increased intensity in geo hazards, but as a developed country, it is well equipped for hazards. Japan is the 15th most ready country and the 22th least vulnerable country in the world [9]. Hazards that are expected are intensified floods, landslides, typhoons, heavy rain events, storm surges and sea level rise. Warmer sea surface temperatures make typhoons more likely to occur, and with stronger impacts and increased danger related to storm surges due to increase in sea level and typhoon strength [8]. The public awareness on climate change is high, but the general opinion is that other problems are more important to handle, such as a decline in economy, energy sufficiency, an aging population and tension in East Asia [10].



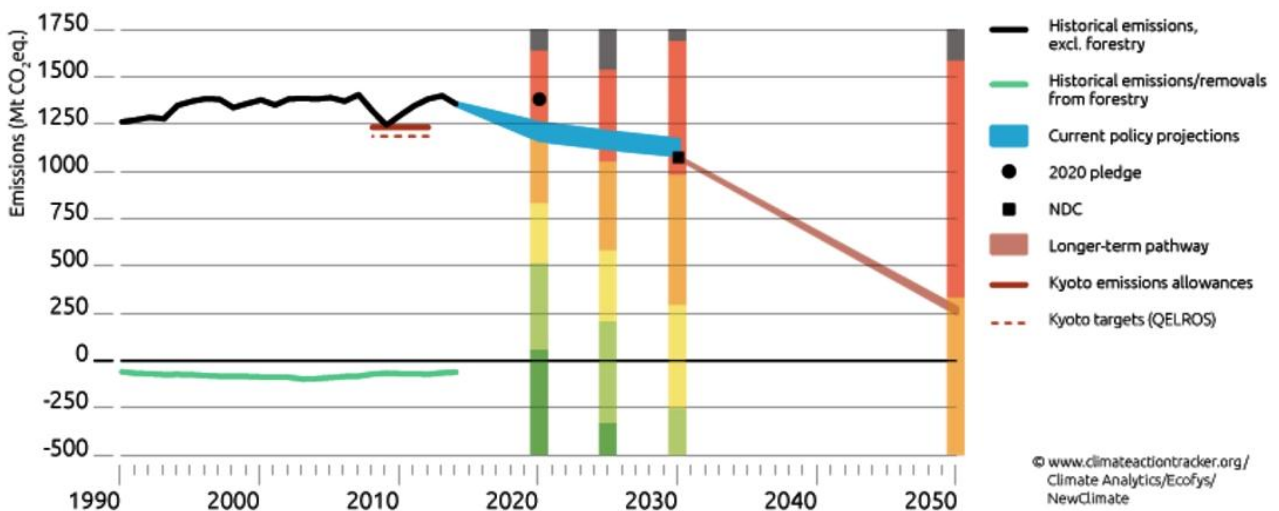
Japan is positive towards the UN and is determined to contribute to the success of the UN Framework Convention on Climate Change. The country has submitted official pledges to the yearly conferences of the parties.

FACT BOX	
Country, capital	Japan (JPN), Tokyo
Form of government, head	Unitary parliamentary constitutional monarchy. Shinzō Abe is the Prime Minister of Japan since 2012. He leads the Liberal Democratic Party.
Area	378 000 km ² [4], 61 st largest in the world, 348 people per km ² [2]
Climate	From tropical in the south to cool temperate in the north, mountainous terrain.
Demography	126 million (projected in 2030: 121.5 million), 1.7% of world population, share of urban population: 94%, demographic situation: aging and increased life expectancy [1,2]
Economy	4200 billion USD (3 rd in world), 41500 USD per capita (19 th in world)
Resources	Leading in renewable energy R&D. High potential for geothermal and hydroelectricity in particular [7]. Dependent on fossil fuel imports.
Energy	Primary energy/cap.: ~ 3.48 kg of oil equiv./year; Electricity consumption: 7800 kWh/year/cap.; Fossil fuels make 83% in total energy consumption, imports: 192 Mt of coal (3 rd biggest), 195 Mt of oil (3 rd biggest).
GHG emissions	1325 Mt CO ₂ -eq (2015), thereof: 1225 MtCO ₂ , 31 Mt Methane, 21 Mt N ₂ O [5]
Emissions per capita	Total GHG: 10,3 tCO ₂ -eq; CO ₂ -only: 9,5 tCO ₂ (2011) [6]
CO ₂ /primary energy s.	2.7 t CO ₂ per t of oil equivalent (2014) [11]

Overview on Japan's approach on climate change policies & international cooperation

The Paris agreement which entered into force in November 2016 requires all parties to the UNFCCC to provide their national action plans through Nationally Determined Contributions. Japan has committed to reduce GHG emissions by 26% by the year 2030 compared to 2013 levels and contribute 1.5 billion dollars to the Green Fund each year. In international collaboration the country emphasizes human resource development and the promotion of development and diffusion of emission reduction technologies in developing countries. Within Japan the focus lies on further developing the renewable energy sector and using forest management to deepen its carbon sinks. Currently, about 15% of the electricity originate from renewable sources. Energy efficiency improvements have already been a cornerstone in national energy plans since the oil crisis in the 70's. The importance of the industrial sector, the energy sector and strong international trade for Japan is underlined by the fact that the Japan Business Federation and the Japanese Trade Union Confederation are members of the Japanese Delegation of Japan to the Conferences of the Parties.

In the aftermath of the Fukushima Daiichi nuclear disaster, Japan is currently at a crossroad. Japan needs to decide which pathway to pursue in the energy sector (also considering its demographic and economic problems). Decisions in this sector will to a large degree decide whether they will be in reach of the goals set in the INDC pledge. The Climate Action Tracker evaluates Japan's actions as very little ambitious [6] (see figure below).



Author:	Adam Gairns	<h1>Mexico</h1> <h2>World Climate Briefing Material</h2>	
Date:	19.09.2017		
Revision:	2		

INTRODUCTION

Mexico is an upper, middle income, developing country and is the 16th largest economy global, 2nd in Latin America. The average yearly income per capita is 4803 USD where economic inequality is high. 41% of population live below poverty line and the unemployment rate is 3.9% (1). Majority of export revenue and government income is based on manufactured goods, agriculture and oil products. The popularity of government is currently low due to corruption and large illegal markets of narcotics.



Mexico is vulnerable to climate change due to being situated between two oceans, rapid urbanization alongside meteorological pattern changes in the north and south (Ranking: 86th least ready country and the 44th most vulnerable country).

Agriculture is at highest risk where 13% of population is employed. Awareness about climate change among its population is generally high, influenced by poor air quality, changes in weather patterns and improved education.

Mexico was one of the first countries to contribute to the success of the UN Framework Convention on Climate Change and has submitted official pledges to the yearly conferences of the parties.

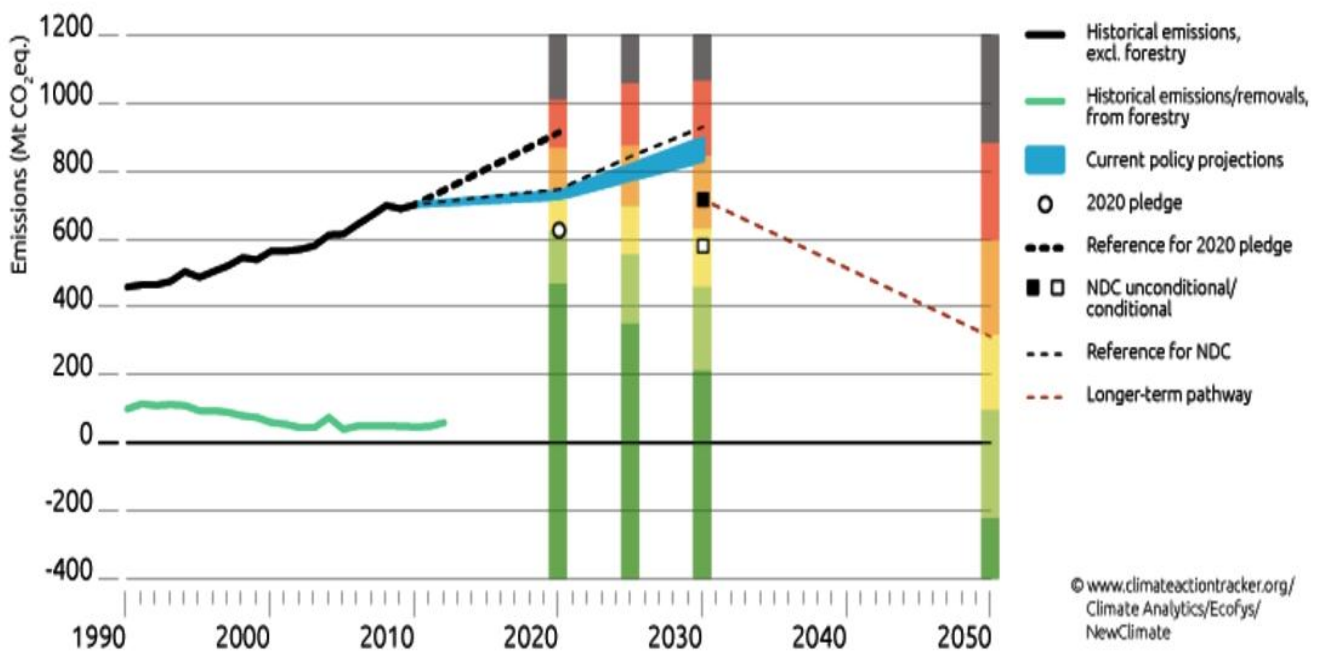


Figure 1: Mexico's historical emissions and projected [7]

FACT BOX	
Country, capital	MEX, Mexico City
Form of government, head	Federal presidential constitutional republic. Enrique Peña Nieto is the current president. He is from the centrist Institutional Revolutionary Party.
Area	1 964 380 km ² , 15 th largest in the world, 66 people per km ²
Climate	Subtropical in south, Mediterranean in center, arid in north
Demography	127.5 million (2030: ~ 147.5 million, +1.3% p.a.), 1.7 % of world population, share of urban population: 72 %, mean age 28 years, life expectancy: female 80 years, male 75 years.
Economy	1,046 billion USD (16 th in world), 15,168 USD per capita (11 th). Government debt: 55% of GDP. Largest sectors: manufacturing, services
Resources	Rich in: silver, agricultural goods; available fossil fuels: oil, gas, coal. Good capacities for renewables: solar (arid regions), wind (Baja peninsula), hydro.
Energy	Primary energy use: 1,500 kg of oil equivalents/year/capita, electricity consumption: 2,090 kWh/year/capita; 6% are without access to electricity; fossils amount to 70% in total energy consumption; net importer of oil & gas
GHG emissions	717 Mt CO ₂ -eq, thereof: 66% CO ₂ , 29% Methane, 5% N ₂ O, (3) (4)
CO ₂ Emissions / 1000 USD GDP	CO ₂ -only: 407 kg/1000USD CO ₂ (1)
Emissions per capita	Total GHG: 5900 CO ₂ -eq; CO ₂ -only: 3900 kg CO ₂
CO ₂ emissions / primary energy	1.87 t CO ₂ per t of oil equivalent, (5)

Overview on Mexico's approach on climate change policies & international cooperation

Mexico's unconditional (conditional) INDC policy is to reduce current GHG emissions from business as usual projections by 22% (40%) in 2030. The more stringent reduction target depends on international cooperation and support. Mexico was one of the first countries to introduce a national climate change law and the country has strongly invested in policy planning and institutional capacities during recent years. The country has set economy-wide emission reduction goals.

Climate policy plans link adaptation and mitigation measures through using natural resources, improving energy efficiency in industry sectors, promotion of renewable energies and diverting away from fossil fuels (with a focus on coal and oil). Mexico also targets to adapt the coastlines and to conserve land to improve water and food security. Mexico is pushing hard to generate an international agreement to mitigate and adapt to climate change. For example, it was one of the leading countries in Paris 2015 negotiations. Mexico will pledge 10M USD into the international green fund (6).

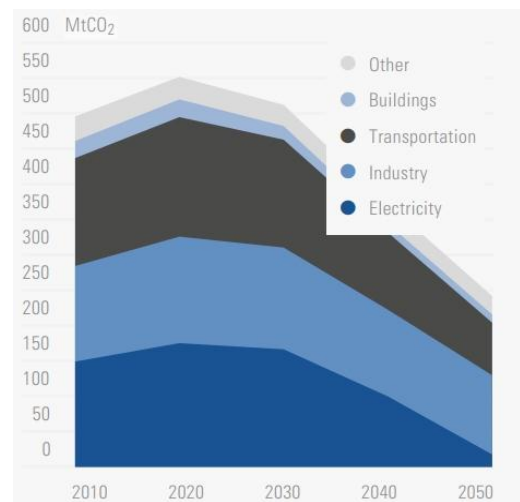


Figure 2: Projected Deep Decarbonization Pathway [13]

However, the ambition of the country to deal with the climate change problem is insufficient according to the Climate Action Tracker (7). This is highlighted through a projected growth in emissions that exceeds the national targets. Anticipating that economic growth continues and the reduction of poverty is successful, the use of energy will further increase. Therefore, the main goal for Mexico is to decouple carbon emissions from economic growth. It is also criticized that Mexico includes cogeneration in its definition of clean energy, which could lead to a substantial expansion in the use of natural gas at the expense of renewable energies.

Author:	Kira K. Heffernan	<h1 style="margin: 0;">New Zealand</h1> <h2 style="margin: 0;">World Climate Briefing Material</h2> 
Date:	17.09.2017	
Revision:	2	

INTRODUCTION



New Zealand (NZL) has 4.8 million people and is the 54th largest economy in the world based on GDP [1]. The economy is growing since 2012 [2] and the average yearly income per capita is 55 000 USD [3]. Important industries are agriculture, production of goods and the service industry. Export revenues accounted for 62 billion USD in 2015. The main export and import partners are Australia, China, USA and Japan. Roughly 70% of export earnings stem from agricultural products and New Zealand is the world's biggest exporter of dairy and sheep meat. Import goods account for a total of 59 billion USD, including machinery, vehicles, and aircraft [4].

NZL is one of the few countries in the developed world with stark net emission growth since 2010, making it responsible for about 0.2% of global emissions. Fig. 1 shows that national gross emissions have increased by 24% from 1990 to 2015, as have forest harvesting rates [5]. Among high income OECD countries, NZL ranks 5th worst on a per-capita basis and 3rd worst on a GDP basis. Fig. 2 decomposes emissions

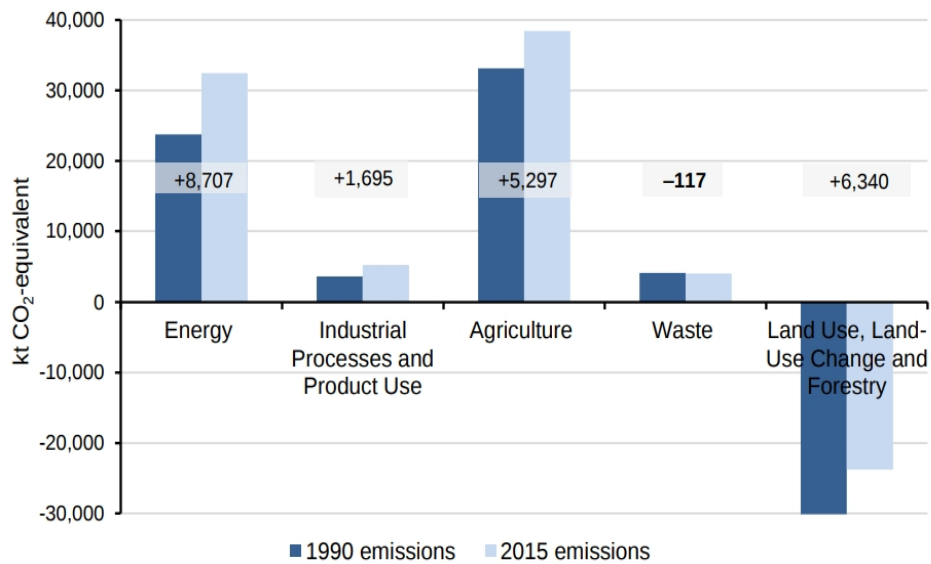


Figure 1: Change in New Zealand's emissions by sector in 1990 and 2015 [22]

into sectors. Agriculture is responsible for about 50% (CH₄ from livestock, N₂O from fertilization) while the industry, energy, transport and waste sectors caused the other half (mainly CO₂ from road transport, chemical industry and food processing).

NZL is well prepared to adapt to a changing climate, ranking 15th among the least vulnerable countries and first of the most ready countries [7]. Nevertheless, anticipated challenges include rising temperatures, changes in rainfall patterns, rising sea levels and more frequent extreme weather events. The Northern Island is most vulnerable, in particular to hotter summers and stronger seasonal rainfall [8]. Opinion polls observe that more than 50% consider climate change to be an 'urgent problem', and 80% are concerned that it may affect them personally [9]. A majority of 60% demands more climate action from their government, fellow citizens, and businesses. NZL ratified the Paris Agreement in 2016. They pledged to reduce greenhouse gas emissions unconditionally by 30% by 2030 relative to 2005 emission levels. Their long-term emission target is a 50% reduction of GHG-emissions by 2050 compared to 1990 [10].

FACT BOX	
Country, capital	NZL, Wellington
Form of government, head	Unitary parliamentary constitutional monarchy. The current Prime Minister is Bill English of the National Party (since 2016).
Area	268,021 km ² , 74 th largest in the world, 17.5 people per km ²
Climate	Warm subtropical in the north, cool temperate climate in the south and severe alpine conditions in mountainous areas [8]
Demography	4,7 million (2016) and projected to 5,1 million (2030); 0,06% of world population, 86% live in urban areas, aging society, life expectancy: 82 years [12]
Economy	~ 181 billion USD (54 th in world), 39 000 USD per capita (34 th in world), projected GDP in 2030: 185 billion USD [13]
Resources	Rich in: oil and gas, minerals, geothermal energy, hydropower capacities; currently 83% of the electricity comes from renewables (57% hydropower, 17% geothermal, 5% wind, 4% other); primary energy consists of 60% fossil fuels (oil, gas, coal), 22% geothermal, 11% hydropower, and 7% bioenergy. Untapped wind potential, geothermal could double [14].
Energy	Primary energy/capita: 4400 kg of oil equiv./year; Electricity consumption/cap.: 9000 kWh/year; 59% fossil fuels in total energy; import of energy used : 19 % [15]
GHG emissions	78 000 kt CO ₂ -eq, thereof: 34 000 kt CO ₂ , 28500 kt Methane, 12 000 N ₂ O [16]
CO ₂ per 1000USD GDP	CO ₂ -only: 210kg/1000USD CO ₂ (2015) [17]
Emissions per capita	Total GHG: 17 000 kg CO ₂ -eq; CO ₂ -only: 7600 kg CO ₂ (Year) [18]
CO ₂ per primary energy	1,52 t CO ₂ per ton of oil equivalent [19]

Overview on New Zealand's approach on climate change policies & international cooperation

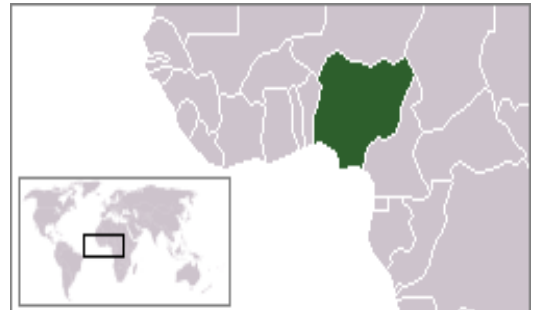
NZL's main instrument is an **emission trading scheme** (NZ-ETS). It follows the polluter-pays-principle by putting a price on emissions (25 NZD = 1 'NCU' = 1 t CO₂ eq.). Sectors such as forestry, fossil fuels and industry are participating, but agriculture not. This exemption, varying carbon prices, a weak government and the missing fixation of an emission cap renders the scheme ineffective [10]. **Other climate policies are small-scale** with a limited mitigation potential. They include programs to fund planting of forests, develop science and technology, improve footprints of dairy farms, increase fuel and energy efficiency, increase renewable electricity, and invest in public transport. The government is also strengthening strategies for adaptation (e. g. raising high-ways, upgrading rail tracks, increasing urban storm-water capacity, changing time of calving on dairy farms, and restoring sand dunes to prevent erosion from sea level change), see [20]. New Zealand provides 200 million NZD in **foreign aid** to less-developed countries, focusing on Pacific Island Nations. Funding goes to improving access to clean and efficient energy, to delivering effective aid during natural disasters and to research on reducing emissions from agriculture. Still, the country is asked to lift their aid budget to 0.7% of gross national income [21].

The actions of NZL are seen as '**not ambitious enough**' according to the Climate Action Tracker. The target has been branded 'inadequate' with the 2-degree target. Furthermore, emission from land use, land use change and forestry are raising by 11-30 MtCO₂e due to growing deforestation and forest aging. Net emissions are projected to reach 114% above 1990 levels in 2030, following the current policies. It is recommended that NZ will have to significantly strengthen their current policies in addition to introducing new and more effective mitigation measures. Looking at the long-term emission target, the NZ emissions would have to peak and start declining at much higher rates than what is currently projected [10].

Author:	Erik Frivik Presthaug	<h1 style="margin: 0;">Nigeria</h1> <h2 style="margin: 0;">World Climate Briefing Material</h2> 
Date:	23.09.2017	
Revision:	2	

OVERVIEW

Nigeria is a lower middle income developing country, the largest economy in sub-Saharan Africa and the largest oil producer in Africa. During the last decades, Nigeria has experienced strong economic growth but still, approx. 50 % (2009) of the population lives in extreme poverty and 40 % (2014) do not have access to electricity. The majority of export revenues and government income is based on oil production although it contributes only 9 % to the country's gross domestic product (GDP). The major sectors contributing to GDP are agriculture (23 %), industries (23 %) and services (54 %) [1, 2].



Nigeria - Overview of greenhouse gas emissions - Total and by Gas - 1970 to 2012

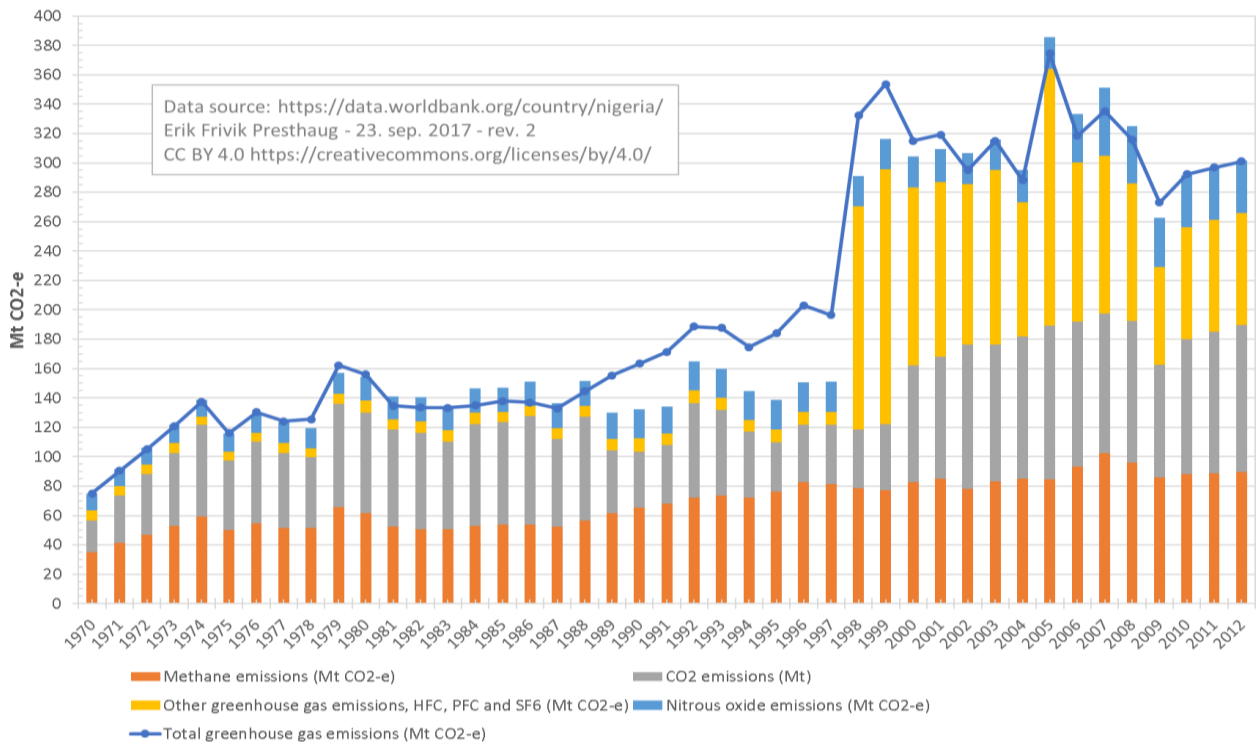


Figure 3: Development of greenhouse gas emissions 1990-2012

The country is considered impacted by climate change, but with large spatial variation. Northern regions, especially the northeast, are vulnerable to drought whilst coastal regions are vulnerable to flooding and erosion. Awareness to climate change among the population is perceived as strong, albeit there is a great deal of incomprehension in many communities following the large variance in literacy rate in different regions.

The country is determined to contribute to the success of the United Nations Framework Convention on Climate Change and has submitted a strong and well-founded document for Intended Nationally Determined Contribution.

FACT BOX	
Country, capital	Federal Republic of Nigeria (NGA), Abuja.
Form of government, head	Federal presidential republic. The current president is Muhammadu Buhari, a retired major general in the Nigerian Army. He emerged as the presidential candidate of the All Progressives Congress for the March 2015 general elections.
Area	Approx. 924 000 km ² , 31 st largest in world.
Climate	Equatorial in south, tropical in center, arid in north.
Demography	Approx. 186 mill. (2,5 % of global; 2030: 264 mill.), 50% share of urban population in 2016, life expectancy (2015): 53 years and birth rate: 5.6 [1,5]
GDP	GDP approx. 485 billion US\$ (25 th in world), 2640 US\$ per capita (128 th in world) [6,7]
Resources	Abundant natural resources including petroleum (proved reserves of natural gas approx. 180 trillion ft ³ , ranking 9th in world, 2016) and minerals, good potential for solar energy [4]
Energy	Primary energy (2014): 760 kg oil equiv./cap, electric power consumption (2014): 145 kWh/capita, share of fossil fuels in energy consumption: 20 %, net energy exporter [1]
GHG emissions	Approx. 300 Mt CO ₂ -e (1800 kg/capita), CO ₂ : 100 Mt CO ₂ (600 kg/capita), CH ₄ : 90 Mt, NO ₂ : 36 Mt, F-Gases: 76 Mt (2012). An overview (1970-2012) is given on page 2 [1,3,5]
CO ₂ / 1000 USD GDP	213 kg CO ₂ /1000 US\$ GDP (2012) [1,6]
CO ₂ /primary energy	0,75 t CO ₂ /t oil equivalents (toe) (2012) [1,5,6]

Overview on New Zealand's approach on climate change policies & international cooperation

Key measures to reduce emissions in Nigeria are [3]: (1) Ending natural gas cold venting and flaring (Approx. 380 billion ft³ natural gas vented or flared in 2014, ranking 3rd in world) [4], (2) Building solar power plants, increasing energy generation efficiency and improving electricity distribution, (3) Support climate smart shifts in agriculture and reforestation, and (4) Implementing collective transportation.

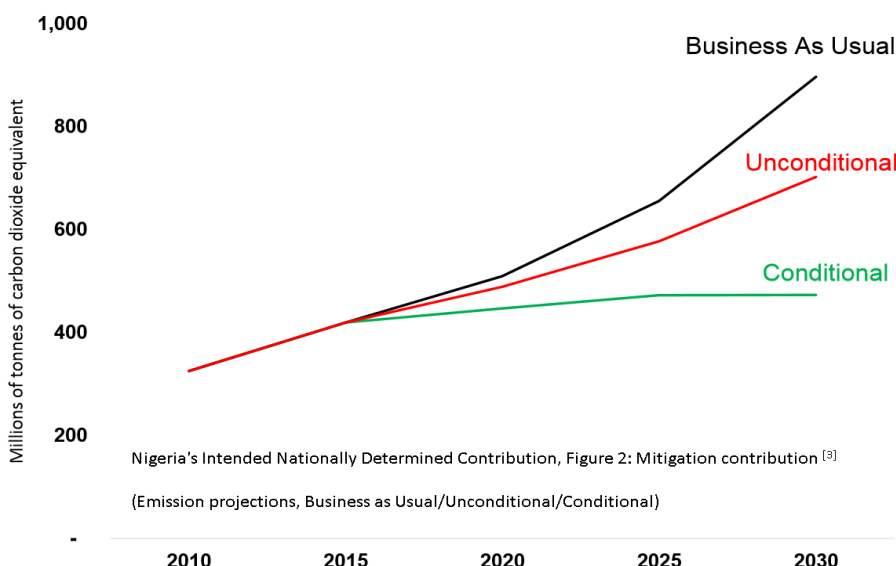



Figure 2: Projection according to Nigeria's Nationally Determined Contributions

Nigeria provides two potential paths for their contribution: unconditional and conditional (on international support), visualized in the second figure on page 2. The unconditional contribution assumes an ambitious, binding global agreement and gives a target of 20 % emissions reduction vs the Business as Usual (BAU) projection; the conditional, as much as 45 %. The conditions are primarily financial, including investments but also mentions technology and capacity support.

A critical point for assessing Nigeria's commitment to reduce emissions is related to plans to build coal-fired power plants. The country is in need to develop and expand their energy system and "coal forms a large part of our target fuel source. I am pleased to say that the Nigerian Bulk Electricity Trading Plc (NBET) is working on a suitable tariff for coal-to-power that will form the basis of a power purchase agreement (PPA).", as stated in 2016 by the Nigerian minister for power [7].

Author:	Sushmitha Kotipalli	<h1>NORWAY</h1> <h2>World Climate Briefing Material</h2> 
Date:	22.09.2017	
Revision:	2	

INTRODUCTION

Norway has one of the highest standards of living with an average yearly income of 34.000 USD. Its economy rests on a mixed economy with state-ownership in strategic areas. An example is the development of its large oil resources. The economy of Norway has shown robust growth since the start of the Industrial Era. Majority of export revenue and government income is based on petroleum gas, crude petroleum, refined petroleum and fishery products. In difference to other high developed countries, many people live and work in rural areas and the influence of “district policies” is rather strong.

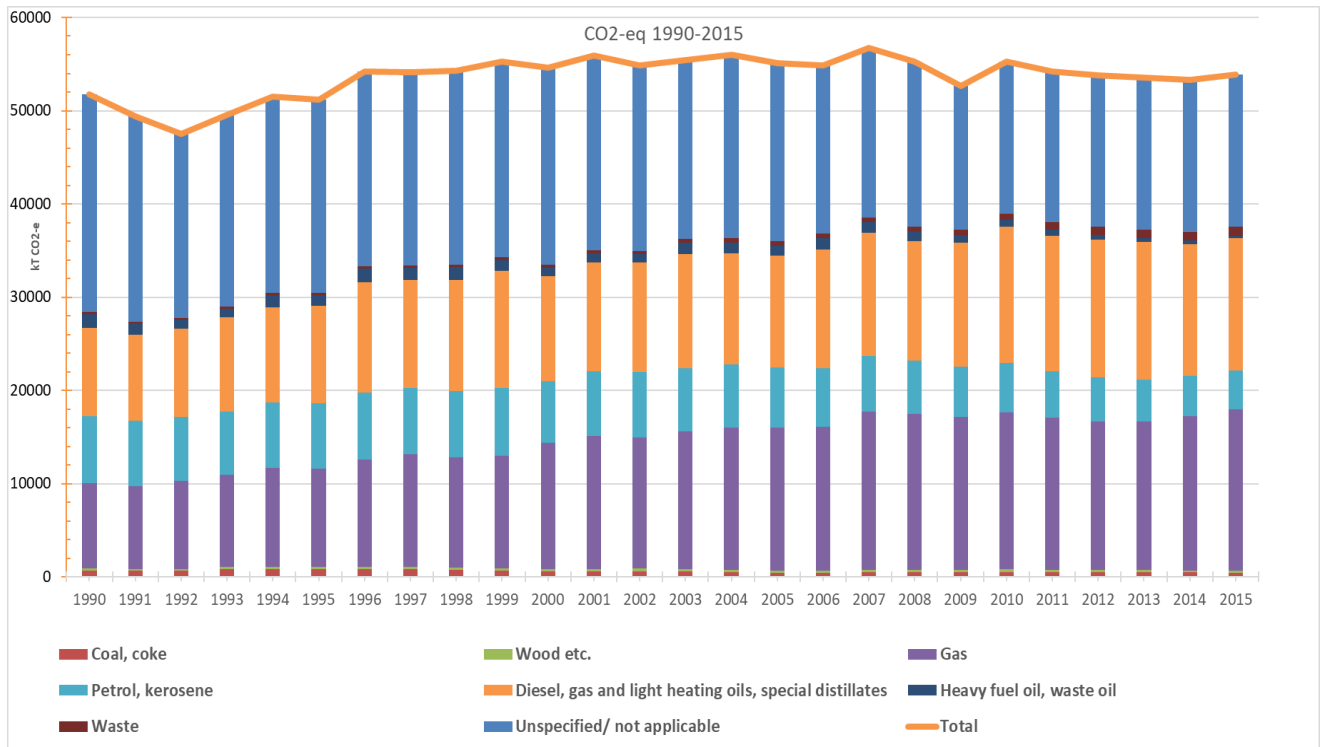


Figure 1: CO2 emissions per sector 1990-2015

Norway ranks high with regard to being prepared to adopt to a changing climate (4th rank) and is at comparatively low risk as it is the 4th least vulnerable country in the world. Still, Norway has to adapt to climate change, especially in areas which are prone to flood, storm water runoff and also in the steep mountainous terrain where the danger of slides (snow, rock, mud) is large. Awareness about climate change among its population is generally moderate. Public opinion about climate change vary according to gender, age, ideological views and placement in social networks.

Norway signed and ratified the Paris Agreement in 2016. The country’s Nationally Determined Contributions state the goal of reducing emissions by at least 40% by 2030 compared to 1990.

FACT BOX	
Country, capital	Norway (NOR), Oslo
Form of government, head	Unitary parliamentary constitutional monarchy. Erna Solberg has been Prime Minister of Norway since 2013. She also leads the Conservative Party.
Area	323,800 km ² , 4 th tallest country in the world, 14 people per km ²
Climate	Sub polar oceanic in South, Tundra in Centre, Subarctic in north.
Demography	~5.26 million (projected: 6 million in 2030), 0.0007% of world population, 81% live in urban area, life-expectancy: 82 years
Economy	390 billion USD (22 nd place), 73.450 USD per capita (3 rd), projected GDP (2030): 450 billion USD
Resources	World's 5 th largest oil exporter; available fossil fuels: oil, gas; good capacities for renewables: bioenergy, hydropower, wind power, currently: large hydropower capacities
Energy	Primary energy/capita: 5.8 t of oil equivalents/year (2015); Electricity consumption per capita: 28 MWh/year (2014); all have access to electricity, Share of fossil fuels in total energy consumption: 58%; Import (less export) of energy as % of energy use: -580% (2015)
GHG emissions	53 Million ton. CO ₂ -eq, thereof: 44 Mt CO ₂ , 5 Mt Methane, 2.6 Mt N ₂ O
CO₂ /1000USD GDP	CO ₂ -only: 130 kg/1000US\$ CO ₂ (2015)
Emissions per capita	Total GHG: 12 metric ton CO ₂ -eq(2012); CO ₂ -only: 8 ton CO ₂ (2015)
CO₂ / primary energy	1.24 ton CO ₂ per ton of oil equivalent(2015)

Overview on Norway's approach on climate change policies & international cooperation

In 2016 the government approved the goal of achieving climate neutrality by 2030. The pledges aim at a reduction of greenhouse gases by 40% by 2030 relative to 1990. The target will be implemented economy-wide covering all greenhouse gases with the help of an emission budget for the period 2021-2030. Although, not being a member of the European Union, Norway is closely associated with the Union through its membership in the European Economic Area. It also seeks cooperation and a joint approach w.r.t. climate policies. Dependent on the EU approach is also the accounting of carbon sinks from land-use, land-use change and forestry. Norway's land surface is covered by 30% with forests. Given the country's large potential, roughly equaling half of the yearly emissions, the choice of accounting is important. Domestic as well as international measures are foreseen in the national plan. A carbon tax is in place since 1991.

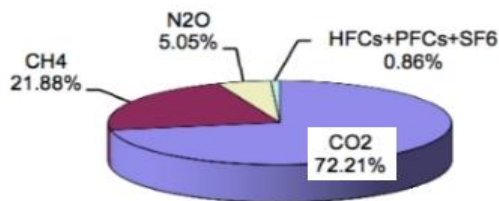
Today, over 95% of the electricity is supplied by hydropower capacities. Another flagship policy is Norway's effort to electrify its transport sector (also influenced by settlement patterns). Substantial tax exemptions provide incentives for replacing fossil fueled cars, making Norway a leader in transitioning towards a carbon-low transport system. On the other hand, Norway owns the biggest fossil fuel reserves in Europa and the country strongly profits from its oil and gas exports. The petroleum industry will continue to play a major role for the country's GDP but it became clear that the sector has to undergo strong restructuring. Carbon capture and storage technologies are regarded as an important option in this respect.

According to climate action tracker, ambitions of the country to mitigate climate change are currently insufficient. The trend in the growth of GHG emissions has only been slowed down but not been reverted since 1990. For achieving its Kyoto target, Norway has spent 21.5 million to purchase carbon credits for offsetting the surplus [7]. Current policy projections are evaluated to not lead to the achievement of current goals. Projections rather see a stabilization at around 52 Mt CO₂e per year. Thus, the country is not on the path towards a carbon neutral economy which is also recognized by politicians. For example, the Climate and Energy Minister stated that Norway "must be prepared to take the majority of cuts at home" (Ministry of Climate and Environment, 2016).

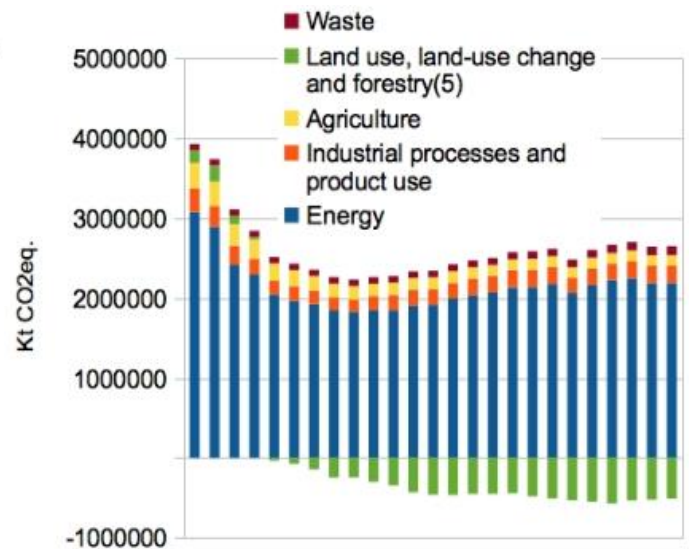
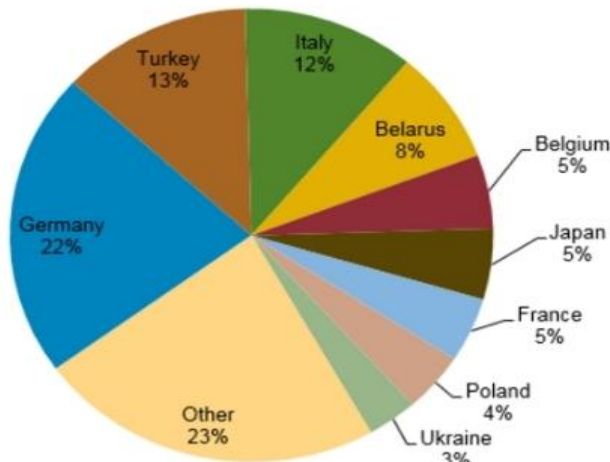
Author: Torbjørn Selseng	<h1>Russian Federation</h1> <h2>World Climate Briefing Material</h2>	
Date: 20.09.2017		
Revision: Draft 2		

INTRODUCTION

Russia is an upper middle income developing country and is the 6th largest economy in the world [6]. The average yearly income per capita is 23 000 USD [7]. The economy is largely based on the production and export of energy. They are the 2nd largest producer of natural gas and the biggest crude oil producer in the world [20].



The country is considered to be one of the least vulnerable to climate change [26]. The long term effects (year 2085–2100) of global warming in Russia is a temperature rise of 2–4 times the global average and a high increase in precipitation which makes them vulnerable to both peat fires and floods [27]. It will also make food production more unstable. Russia is the 49th most ready country and the 6th least vulnerable country in the world [26]. Awareness about climate change among its population is generally low.



Figures 1 and 2: Greenhouse gas emissions excl. LULUCF in 2012 [19]; Receivers of Russia's gas in 2015 [22]

Figure 3: Emissions by sector

Russia is the only big polluter that has not yet ratified the Paris Agreement [21]. They have a national strategy in place that may postpone ratification until 2019. They have however submitted official pledges to the yearly conferences of the parties (Intended Nationally Determined Contributions).

FACT BOX	
Country, capital	Russian Federation (RUS), Moscow
Form of government, head	Federal semi-presidential constitutional republic. The long-term President of Russia is Vladimir Putin. He leads Russia's largest party "United Russia".
Area	17 000 000 km ² (1st), 8.4 people per km ²
Climate	Humid continental in south, subarctic climate in north [1]
Demography	~ 144 million (projected in 2030: 140 mill) [4], 1.9 % of world population (9th) [2], share of urban population: 74 %, [3], life expectancy: 71 years [5]
Economy	~ 3 900 billion USD (6 th in world) [6], 23 000 USD per capita (52 nd in world) [7]
Resources	Very rich in: natural gas, oil, minerals [8]; capacities for renewables: very good potential for hydropower, very good potential for wind, good potential for biomass [9]
Energy	Primary energy per capita: ~ 1.900 kg of oil equiv./year [10]; Electricity consumption per capita: 6.600 kWh/year [11]; all have access to electricity [12]; Share of fossil fuels in total energy consumption: 90 % [13]; Export of energy as % of energy use: 77 % [14]
GHG emissions	2 800 Mt CO ₂ -eq, thereof: 2 016 Mt CO ₂ , 616 Mt Methane, 140 Mt N ₂ O [15]
CO ₂ /1000USD GDP	CO ₂ -only: 503 kg/1000USD CO ₂ (2015) [16]
Emissions per capita	Total GHG: 20 t CO ₂ -eq; CO ₂ -only: 12 t CO ₂ (2015) [17]
CO ₂ /primary energy	2 t CO ₂ per t of oil equivalent [18]

Overview on Russia's approach on climate change policies & international cooperation

Projections for emission levels accounting for current policies are much higher than Russia's target. Foreseen is a **reduction of emissions by 25–30% by 2030 compared to 1990**. But the emissions have already dropped by 40 % since 1990, due to the decade following the collapse of the Soviet Union. During that period the country experienced negative growth. Combined with the removal of greenhouse gases from forestry gives Russia a huge "wobble room" when comparing their emissions to 1990 [21]. Therefore, 1990 is not a useful base year. It even lets room for increasing its emissions by 30–40 % by 2030 [21].

Russia's few climate policies in place have to do with inefficiency in the energy sector and related high polluting levels. One of the most important policy plans is the Decree on Measures to Stimulate the **Reduction of Air Pollution from Associated Gas Flaring Products** [21]. The Russian gas industry has the highest amount of flaring (burning of excess gas during production) in the world. The flaring amount in Russia in 2013 was 25% [22], which basically means that one-fourth of the gas during production is burned away. The Decree limits the gas flaring to 5 %. The country also has an **Action Plan for renewable energy**. The goal in the 2014 Decree on the Action Plan for 2020 is a 2.5 % share of new renewables in the power sector by 2020 [21]. Big Hydroelectric plants, which provide 20% of the energy in Russia, are excluded from the goal. It should be emphasized that Europe is dependent on Russia as a source of supply for both oil and natural gas, with almost 30% of European Union crude imports and more than 30% of natural gas imports coming from Russia in 2015 [22].

The ambition of the country to deal with the climate change problem is seen as "**critically insufficient**" according to the Climate Action Tracker, because emissions can increase significantly without the need to implement any new policy to reach the emission goal [21]. Overall, the policies in place are rather unambitious. So is the government. For example, Putin was applauded for taking global responsibility during and sometime after the Paris Conference. But recently he has gone back to his pre-Paris public position. He is now stating that the human contribution to climate change is less significant and that the only thing is to somehow adapt to the changes [24].

One major reason for the low level of ambition in Russian climate policy is that a significant number of the country's senior leaders continue saying that a warming climate is of net benefit for Russia [23]. Short term impacts of global warming in Russia would include higher precipitation, higher temperature and a thawing of the permafrost. That means better flow of water for increased hydropower production, a reduction in energy demand in the cold north, and new areas to farm or mine where there used to be permafrost [23]. Russia's large natural gas reserves are crucial to their economy [22]. Russia does not contribute to the green climate fund [25].

Author:	Erling Fergestad	<h1>Saudi Arabia</h1> <h2>World Climate Briefing Material</h2>	
Date:	23.09.2017		
Revision:	2		

INTRODUCTION

Saudi Arabia is a high income, developed country and is the largest exporter of oil in the world. The average yearly income per capita is 24,925USD (2013). 97 % of export revenue and 90 % government income is based on oil.

The country is considered to be vulnerable to climate change, especially to drought. Saudi Arabia is the 52nd most ready country and the 89th least vulnerable country in the world. Awareness about climate change among its population is generally unknown since it is a closed country and little information is known about public opinion.



The country is determined to contribute to the success of the UN Framework Convention on Climate Change and has submitted official pledges to the yearly conferences of the parties (Intended Nationally Determined Contributions).

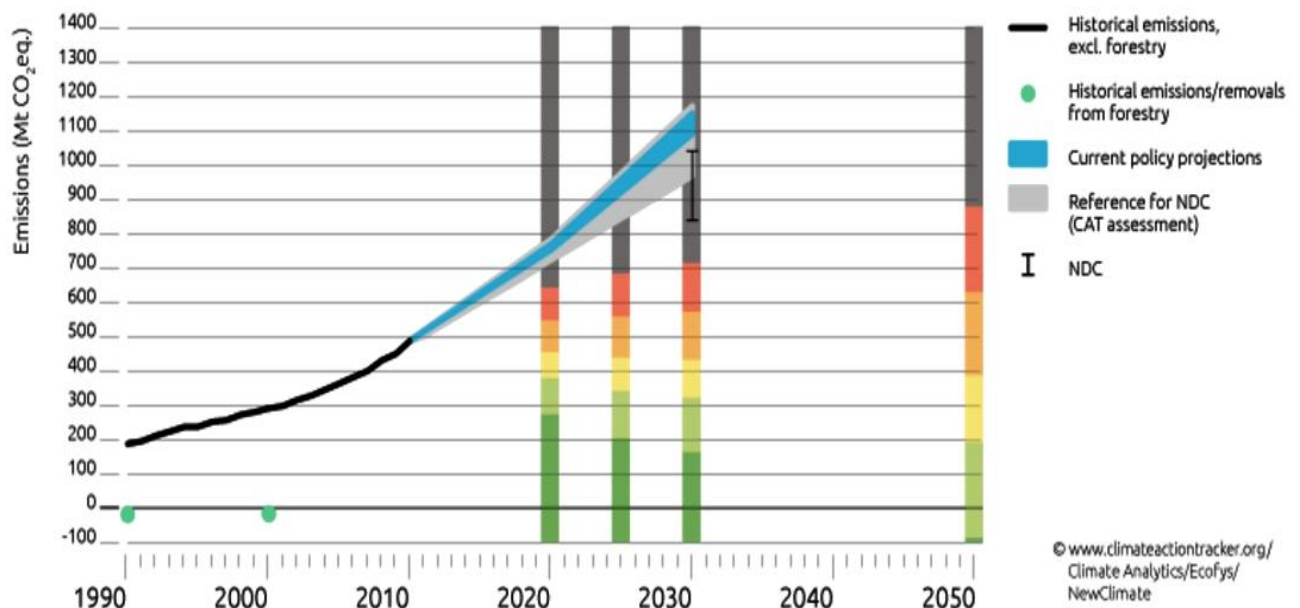


Figure 1: Historical and projected emissions, Source: Climate Action Tracker [13]

FACT BOX	
Country, capital	Saudi Arabia (SAU), Riyadh
Form of government, head	Unitary Islamic absolute monarchy. Salman bin Abdulaziz Al is King of Saudi Arabia, Custodian of the Two Holy Mosques, and head of the House of Saud.
Area	2 149 690 km ² , 13 largest in the world, 13 people per km ²
Climate	Desert climate
Demography	32.8 million which make about 0.44 % of world population, share of urban population: 83.3 %, projected population in 2030: 39.4 million, demographic situation: aging, 74.5 years [1]
Economy	646 billion US\$ (20 th in world), 21395 USD per capita (39 th in world), projected GDP in 2030: 2.8 trillion USD
Resources	Rich in: oil, 2 nd largest proven oil reserves in the world; good potential for solar energy and
Energy	Primary energy use per capita: 6937 kg of oil equivalents/year; Electricity consumption per capita: 9.44 kWh/year; all people have access to electricity; Share of fossil fuels in total energy consumption: ~95 %; No import of energy
GHG emissions	549112 Mt CO ₂ -eq (2012), thereof: 459502 CO ₂ (2013)
CO₂ Emissions per 1000US\$ GDP	CO ₂ -only: 151 kg/1000USD CO ₂ (2013)
Emissions per capita	Total GHG: 1941 kg CO ₂ -eq (2012); CO ₂ -only: 1521 kg CO ₂ (2013)
CO₂ emissions per total primary energy supply	2,37 t CO ₂ per t of oil equivalent (2014)

Overview on Saudi Arabia's approach on climate change policies & international cooperation

The economy of Saudi Arabia heavily depends on oil exports. Since 1970 revenues from oil export cover 90% of total government budget and contribute to more than 35% of GDP. The country has the second highest subsidies on fossil fuels in the world after Iran, which amounted to 29.4 billion USD for oil, 12.5 billion USD for electricity and 6.7 billion USD for natural gas [1]. However, a continuation of the past economic growth concept is deemed to be unsustainable according to the national roadmap "Saudi Vision 2030" [2]. On one hand side, the high volatility of the oil price, oversupply in the oil markets and expected lower demand from China and East Asia may substantially lower income from future oil exports, which is calling for a diversification of the economy. On the other hand, the country expects a large growth in domestic energy demand, because of its growing population, growing economy and also the needs to adopt to a changing climate. For example, the country needs to strongly invest into infrastructure and technologies to desalinate and recycle water.

The growing energy demand is planned to be met by using fossil fuels locally, by removing fossil fuel subsidies to spur energy efficiency, by developing atomic energy and by developing a competitive renewable energy sector. The idea of the latter is not only to deploy the large capacities of the country for solar as well as wind energy due to its location, but also to become internationally competitive when it comes to renewable energy technologies and to mineral resources like silica that are needed for their production. The target for 2032 has been set to 54 GW installed renewable energy capacity. It should be noted that apart from "renewable energy", there is no other reference to "climate change" or related topics in the Saudi Vision 2030.

However according to their officially submitted Intended National Contributions, Saudi Arabia seeks to reduce its annual emissions by up to 130 MtCO₂e in 2030 relative to a yet to be specified baseline. This goal is conditional on the possibility to have a continued economic growth. According to climate action tracker, the pledges made by Saudi Arabia are considered as "critically insufficient", also due to the low credibility of the commitments at this point [13].

Author:	Birgitte Landmark	<h2 style="margin: 0;">South Africa</h2> <h3 style="margin: 0;">World Climate Briefing Material</h3> 
Date:	23.09.2017	
Revision:	2	

INTRODUCTION



South Africa is an upper middle income economy [1] with a GDP per capita of 5300 USD (2016) [2]. Over 50% of the people live below the poverty line and the country has one of the highest inequality rates in the world [3]. The economy has experienced great progress over the past two decades but has slowed down lately. This has pushed up the unemployment rate and income inequalities continue to remain wide [4]. South Africa is one of large coal producing countries and the top 6 exporter of coal in the world [5]. The country heavily relies on coal, because it provides 77% of the domestic energy demand [6].

South Africa is vulnerable to climate change and a wide range of impacts are anticipated, such as longer dry periods, more intense rainfalls, droughts, floods, decreased river flows and more intense and frequent wildfires. Overall, the country's food and water supplies are considered to be very vulnerable. In addition, the changing climate is also likely to cause an accelerated loss of biodiversity and many important ecosystem services. In particular, the loss of biodiversity are of global concern since the country is extremely diverse with many endemic species and which are in the danger of extinction [7].

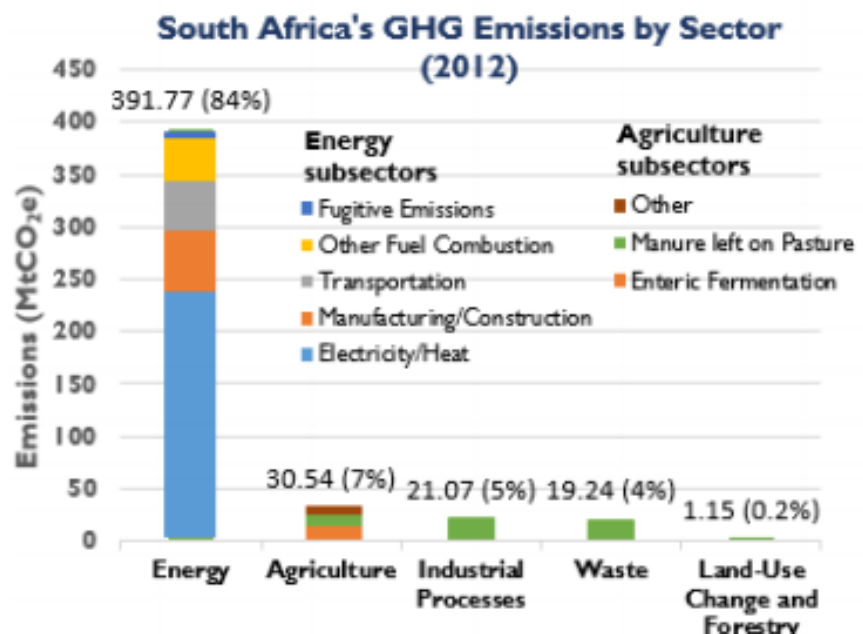


Figure 1: Source: [25]

Awareness about climate change among its population is generally high, yet it suffers from disinformation. Many South Africans express that they are uncertain about the processes that drive climate change and the topic is regarded as overly technical, preventing the engagement of the inhabitants. The view that tackling climate change is at odds with the country's economic development has also been raised [9].

South Africa has agreed to contribute to the UN Framework Convention on Climate Change. They suggest a peaking year and an afterwards decline of the country's greenhouse gas emissions [10].

FACT BOX	
Country, capital	South Africa, Cape Town [11]
Form of government, head	Unitary parliamentary constitutional republic. Jacob Gedleyihlekisa Zuma is the President of South Africa since 2009. He leads the "African National Congress (ANC)".
Area	1219912 km ² , 25 th largest in the world, 46 people per km ² [11]
Climate	Semi-arid and arid in the West; colder temperatures and more rainfall in the East [12]
Demography	57 million people, 0.86 % of world population, share of urban population: 60 % [13], Projected population in 2030: 64 million [13]; Life expectancy: 61 years [14]
Economy	280 billion USD(nominal) (2017) (41 th in world), 5100 USD per capita (88 th in world), Population below poverty line: 26% [15]
Resources	Rich in minerals (coal, gold, platinum, diamonds, iron), 12 % emissions from oil consumption, and the remaining from cement manufacture and natural gas [17], good potential for biomass [18], lack of water [19]
Energy	Primary energy/capita: 2.8 kg of oil equivalents/year; Electricity consumption/capita: 4230 kWh/year [20]; Share of people with access to electricity: 86 %; Share of fossil fuels in total energy consumption: 87 %; Import of energy use: -14 % [21]
GHG emissions	450000 Gg CO ₂ -eq, thereof: 420000 CO ₂ , 63000 Methane, 21000 N ₂ O [22,23]
CO₂ /1000 USD GDP	CO ₂ -only: 613 kg/1000US\$ CO ₂ (Year) [22]
Emissions per capita	Total GHG: 9 metric ton CO ₂ -eq; CO ₂ -only: 8 tons CO ₂ [22]
CO₂/primary energy	2.97 ton CO ₂ per ton of oil equivalent [24]

Overview on Saudi Arabia's approach on climate change policies & international cooperation

Due to the economic situation in the country, a transition to a low carbon and climate-resilient society must account for reduction of poverty and inequality. Envisaged measures are to raise employment, improve education, reform health and social welfare, and ensure basic needs such as shelter, food and access to modern energy services for all [10]. South Africa has set a vision towards 2030 seeking to develop sustainable reflecting above measures. The country has also introduced climate-compatible plans, energy and electricity plans, industrial policy action plans and new growth plans. These plans and policies should lead South Africa's greenhouse gas emissions towards a peak in emissions followed by a plateau and afterwards a decline [10]. The country is currently strongly investing into the transformation of the energy sector with the aim to replace inefficient coal power plant with cleaner and more efficient technology. Reduce the emission intensity. Investments into renewable energy are also foreseen [10]. The country is developing a national strategy to adapt to a changing climate which includes early warning systems for vulnerable sectors and regions.

South Africa considers its Nationally Determined Contributions important for a global response to climate change [10]. Nationally, South Africa planned to introduce a carbon tax already in 2015, but until today it struggles with strong opposition from industry. Therefore, the starting date remains unclear [25].

The ambition of the country to tackle climate change is seen as "highly insufficient" by Climate Action Tracker. Even if the plans to expand capacities in renewable energy proceed as envisaged, emissions are likely to continue its rise due to the expected growth in coal production [25].

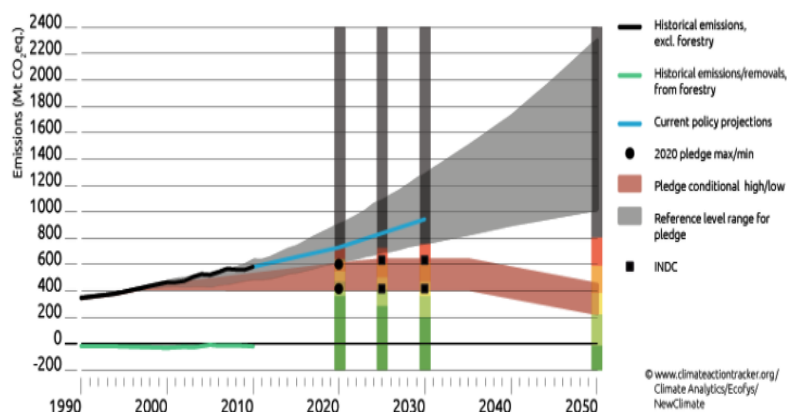



Figure 2: Current and Projection Emissions according to Climate Action Tracker

Author:	John Sverre Rønnevik	<h1>Turkey</h1> <h2>World Climate Briefing Material</h2> 
Date:	20.09.2017	
Revision:	2	

INTRODUCTION



Turkey is an upper middle income developed country [1]. Classified as an emergency economy by the International Monetary Fund (IMF), with the 17th largest nominal GDP in the world [1] [5]. Since 2000, Turkey had impressive macroeconomic and fiscal performance, but this has deteriorated. The influx of Syrian refugees in 2015-2016 added to the challenge. Per capita income is around USD 9,000 [6]. Major exports include clothes, foodstuffs and textiles [5], while the majority of government tax revenue comes from taxes on goods, services, production and sale (2015) [7].

Turkey has had steadily increasing emissions. During the last 20 years, GHG emissions in Turkey have more than doubled; the main increases coming from CO₂ (see Figure 1). While the absolute increase comes from energy production, emissions from the industrial sector have more than doubled during this period, driven by a strong economic growth since the year 2000. The government expects that energy demand will continue to grow, doubling in the coming decade [20].

Turkey has a low vulnerability to climate change. It is ranked the 41st least vulnerable and 64th most ready country in the ND-GAIN Country Index [8].

Turkey has ratified the Kyoto Protocol (2009, and is a signatory to the Paris Agreement (2016), but it is not ratified. Turkey has pledged to reduce GHG emissions up to 21% from business as usual level by 2030 [11].

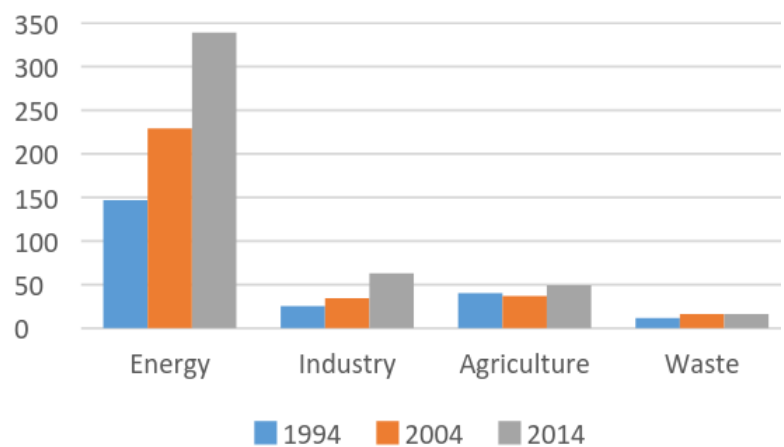


Figure 1: Emissions per sector [15]

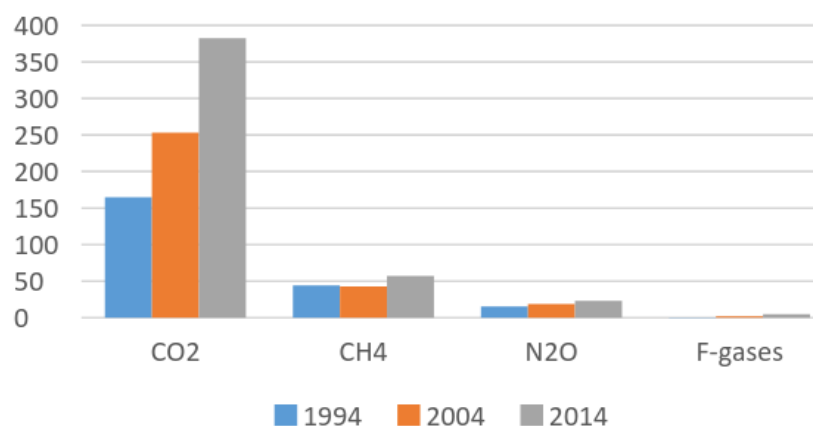


Figure 2: Emission per gas [15]

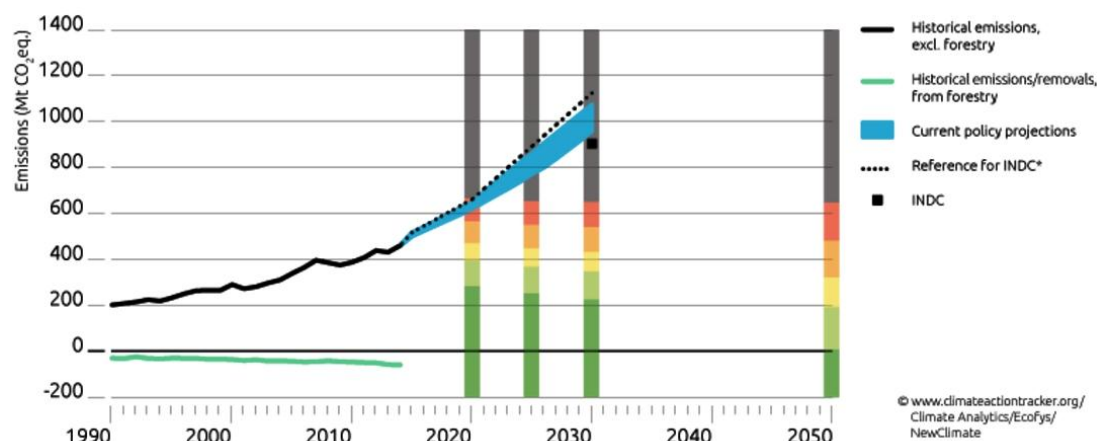
FACT BOX	
Country, capital	Turkey (TUR), Ankara
Form of government, head	Unitary parliamentary constitutional republic. Since 2014, Recep Tayyip Erdoğan is president. He leads the conservative "Justice and Development Party" (AK Parti).
Area	785,350 km ² (total), 36th largest in the world, 103 people per km ² [1]
Climate	Aegean and Mediterranean coast: hot dry summers and mild to cool, wet winters. Black Sea Coast: Oceanic climate. Interior: Continental with contrasting seasons [3].
Demography	79.5 million, 1.1 % of world population (2016), projected population in 2030: 88.4 million [4]. Share of urban population: 74 % (2016) [1]. Demographic situation: plus from migration, aging society with increasing life expectancy [4].
Economy	GDP (2016, PPP) 1.9 trillion US\$ (13 th in world), 24,600 US\$ per capita (45 th in world), projected GDP (PPP) in 2030: 2.2 trillion US\$ [12] [13]
Resources	Rich in: minerals; available fossil fuels: oil, gas, coal [5]; good capacities for renewables: hydropower, wind, geothermal and solar [14].
Energy	Primary energy/capita: 1,660 kg of oil equiv./year (2015); Electricity consumpt./cap.: 2,860 kWh/year (2014); all have access to electricity; Fossils in total energy consumption: 87.6 % (2015); Import of energy as % of energy use: 75.2 % (2015) [1].
GHG emissions	446 Mt CO ₂ -eq, thereof: 382 Mt CO ₂ , 57 Mt CH ₄ , 23 Mt N ₂ O, 5 Mt F-gases [15].
CO₂ per 1000 USD GDP	CO ₂ -only: 240 kg/1000US\$ CO ₂ (2015) [18].
Emissions per capita	Total GHG: 6.02 t CO ₂ -eq (2012) [16]; CO ₂ -only: 4.54 t CO ₂ (2015) [17].
CO₂ per primary energy	2.52 t CO ₂ per t of oil equivalent (2014) [19]

Overview of Turkey's approach towards international cooperation and national policies relevant to global climate change

Turkey has pledged to reduce GHG emissions by up to 21 % compared to business as usual level by 2030. The focus is on mitigation with actions across several sectors while meeting the growing energy demand [14]. The main potential for reduction lie in the energy sector. Turkey aims to increase capacity for electricity production from solar, wind and hydropower and plans to build a nuclear power plant [11]. At the same time, there are plans for six new coal power plants, which contradict the envisaged reductions in emissions [14].

There is little public debate in Turkey on policy towards combating climate change. Most people in Turkey agree that climate changes are anthropogenic [9]. A countrywide survey indicates that the Turkish public gives conditional support for Turkey to take on responsibility in combating climate change, but 28% of the participants did not present their opinion on the subject. 21% were in favor of "doing nothing" [10]

Turkey's ambition to combat climate change is regarded as critically insufficient due to its ongoing investment in coal power production. If all countries followed the path of Turkey, the global average temperature would be about 4 degrees higher by 2100 compared to pre-industrial levels, see [20] and figure below.



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China



To: Negotiators for China at United Nations World Climate Summit
Subject: Briefing on Negotiating Goals

Goals

China seeks to negotiate a global agreement to reduce greenhouse gas emissions that can limit climate risks but also seeks the best outcome for our economy and vital national interests. At the 2015 UN climate negotiations in Paris, nations agreed to a goal of limiting global warming to “well below 2°C” compared to preindustrial levels. You must now decide on the following:

1. Actions to reduce China’s emissions, if any. Without action, China’s emissions are expected to grow significantly by 2100. You can decide when your emissions will stop growing, when they will begin declining, and at what annual rate emissions decline, if at all.
2. Whether to make a commitment to reduce deforestation or to increase reforestation or afforestation.
3. How much you will contribute to, or request from, the Green Climate Fund, which is intended to provide at least \$100 billion/year by 2020 for developing countries to reduce their emissions and adapt to climate change.

Context

The scientific consensus on climate is clear: over 97% of climate scientists agree that climate change is happening, that it is caused primarily by use of fossil fuels, and that the impacts could be devastating. China is vulnerable to climate change, as the country’s water, food, and energy systems are already stressed and expected to face increasing pressure due to rising sea levels, droughts, water scarcity, and heat waves.

Public Opinion

Our people, like everywhere else, want to live in a healthy environment, but they also want to increase their standard of living; this includes having decent jobs, housing, food, healthcare, mobility and national security. There is widespread acknowledgement in your country that climate change is real, though few support agreements to address the associated risks.

Opportunities

Besides slowing climate change, reaching an agreement to limit emissions would also reduce local air pollution, which is affecting the health of our people and, in some cases, creating political unrest. In addition, our economy is growing rapidly, and we are emerging as a superpower that can leverage business opportunities associated with an energy transition away from fossil fuels.

National Action

Above all, we must defend our right to develop. Nevertheless, we recognize that our reliance on fossil fuels, particularly coal, is causing negative health impacts. Ahead of the Paris climate talks in 2015, we pledged to peak our carbon dioxide emissions by no later than 2030. Meeting this goal requires increasing renewable and zero-emissions electricity generation capacity to a level equivalent to the entire coal-fired capacity in China today, or roughly all current US electricity generation capacity. The success of current efforts will determine whether we can meet our pledge and even improve on it.

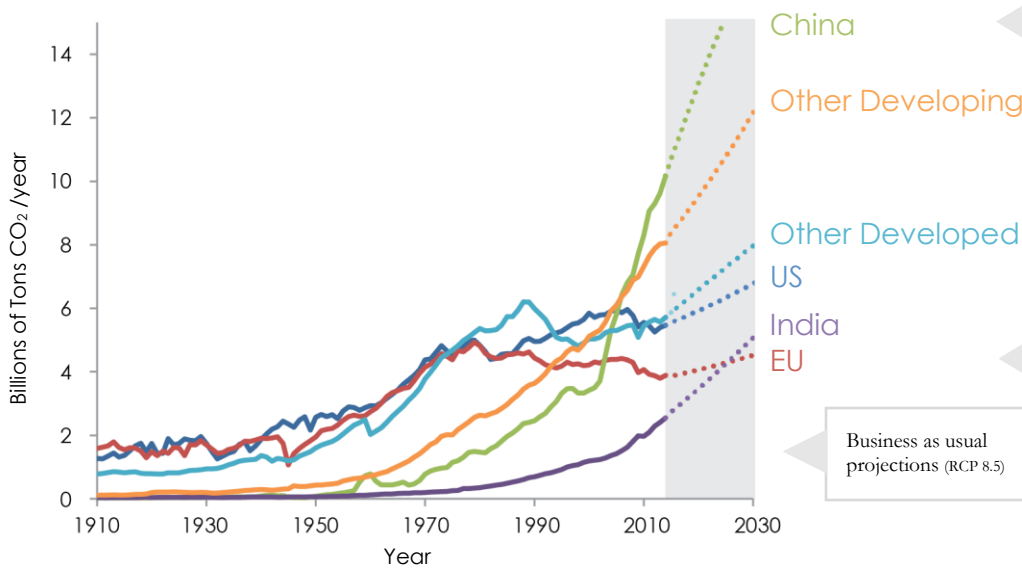
Forests and land use

We have some opportunity to make reductions in emissions from deforestation and land degradation (REDD). Most of the world’s remaining tropical forests are in developing countries, and, unfortunately, there is substantial deforestation occurring. Programs to protect forests can reduce emissions.

Global Landscape

- The developed nations created the climate crisis and so should take responsibility for addressing it. These nations built their economies on fossil fuels, and now, while we are finally raising our own people out of poverty and manufacturing the bulk of their consumer goods, we cannot shoulder an unfair burden of reductions. Our emissions per person are still only about 40% of those of the US. Our average standard of living, though rising, is still far lower than that in the US, Europe, Japan, and other developed nations.
- China is a developing nation but may still face pressure to contribute to the Green Climate Fund since we are now the world's second largest economy. Any commitments we make should require significant commitments to action by the US, EU, and other developed nations.
- The developed nations fear the rapid economic development we are now, finally, enjoying, and may seek to use a global climate agreement to slow our growth, limit our markets, and constrain our diplomatic and military influence around the world. Meanwhile, the US has pledged to reduce their emissions by only 26- 28% by 2025 from 2005 levels. This pledge faces strong political opposition from members of the US Congress and business interests with a stake in continued fossil fuel consumption.

CO₂ Emissions from Fossil Fuels and Cement

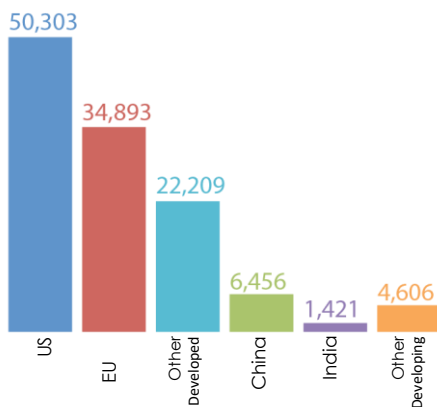


China is the world's largest emitter of CO₂. Without action, developing countries' emissions from fossil fuels are projected to more than triple by 2100.

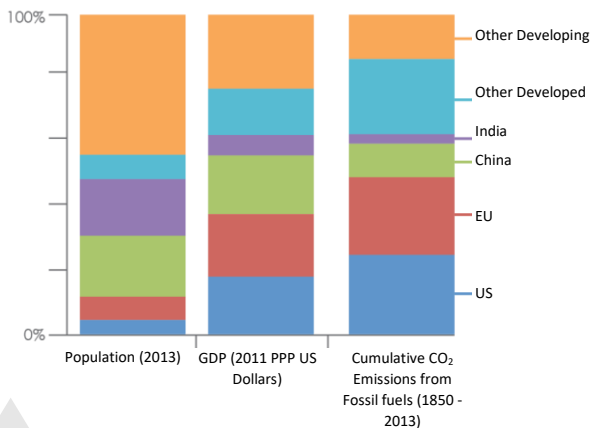
Sweden sustained annual emissions reductions of 4.5% to reduce their dependence on oil (1976-1986). France and Belgium saw similar reductions around this time. Otherwise, most significant historical emission reductions have come from financial or political crises. According to UNEP, a 3.5% annual reduction rate is extremely ambitious.

Business as usual projections (RCP 8.5)

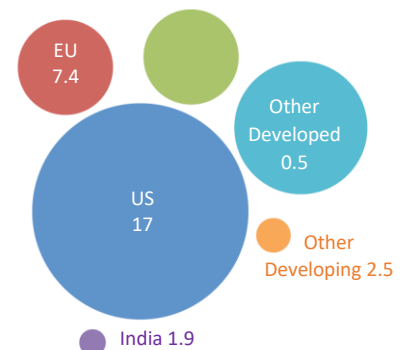
GDP per person (2011 PPP US Dollars)



Population Wealth and Cumulative Emissions



Emissions per person 2013 (tons CO₂ per year)



While cumulative emissions so far have been higher in the developed countries (i.e., the **US**, **EU**, and **other developed countries**), the growth of population, GDP per person, and emissions in the developing nations far outpaces growth in the developed countries. Under business-as-usual assumptions, cumulative emissions of all developed countries (**US**, **EU**, and **other developed**) are expected to fall to 37% of total by 2100.

Since 1980, emissions per person have risen dramatically in **China** and **India** (by 391% and 285%, respectively) but have fallen in the **US** and **Europe** (by 20% and 26%, respectively).



To: European Union negotiators at United Nations World Climate Summit
Subject: Briefing on Negotiating Goals

Goals

The nations of the EU seek to negotiate a global agreement to reduce greenhouse gas emissions that achieves the best outcome for our economies and national interests, as well as for the world. At the 2015 UN climate negotiations in Paris, nations agreed to a goal of limiting global warming to “well below 2°C” compared to preindustrial levels. You must now decide on the following:

1. Actions to reduce carbon emissions, if any. Despite modest declines in emissions since 1990, without continued action, EU emissions are expected to grow. You can decide when EU emissions will stop growing, when they will begin declining, and at what annual rate emissions decline, if at all.
2. Whether to make a commitment to reduce deforestation or to increase reforestation or afforestation.
3. How much the EU will contribute, if at all, to the Green Climate Fund, which is intended to provide at least \$100 billion per year by 2020 for developing countries to reduce their emissions and adapt to climate change.

Context

The scientific consensus on climate is clear: over 97% of climate scientists agree that climate change is happening, that it is caused primarily by use of fossil fuels, and that the impacts could be devastating. EU research has shown that climate change is already affecting our nations and that without dramatic reductions in global emissions, the damage will become far more severe.

Public Opinion

The vast majority of the public in our countries believes climate change is real and that human activity contributes significantly to it. Most support international agreements to address climate change. However, most also oppose higher taxes on energy or other actions that will raise the cost of living. For most EU citizens, climate change is not a top priority, ranking below concerns about financial instability, unemployment, migration, and terrorism. Most importantly, the public is strongly opposed to any agreement that does not include meaningful commitments to reduce emissions by the US and rapidly developing economies, particularly China.

Opportunities

Reducing emissions has multiple benefits, beyond climate stability. For example, renewable energy development is creating jobs, reducing dependence on foreign oil and gas, and reducing air pollution.

National Action

The EU has been a leader in the fight against climate change. At the climate negotiations in Paris, the EU pledged to reduce emissions by at least 40% by 2030, compared to 1990 levels. Our pledge is among the most ambitious of the major emitters, but it requires major new regulations that have yet to be implemented and must be realized during a time when we are facing significant economic and security challenges. Despite these potential limitations, the EU has pioneered economic policy that puts a price on greenhouse gas emissions, and we are leaders in deploying renewable energy sources such as wind and solar. We will continue to lead but we cannot and will not move alone.

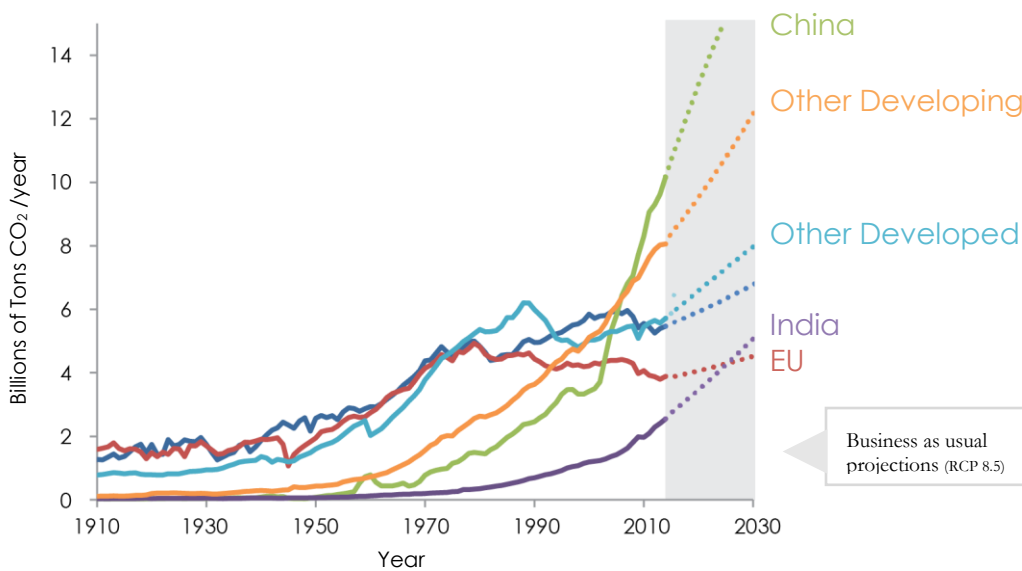
Forests and land use

Though we can pledge reductions in emissions from deforestation and land degradation (REDD) within our country, doing so would address only a small portion of EU emissions.

Global Landscape

- Emissions in China, India and other developing nations are growing rapidly. China alone is now responsible for 30% of global CO₂ emissions. Total emissions from the developing countries will soon overwhelm emissions from all developed nations.
- The US has more than double the per capita emissions of the EU and has pledged to reduce their emissions by only 26-28% by 2025 from 2005 levels. Additionally, this pledge faces strong political opposition from members of the US Congress and business interests with a stake in continued fossil fuel consumption. In spite of these challenges, US research, including the bipartisan “Risky Business” report (<http://riskybusiness.org>), endorsed by former US Treasury Secretaries of both parties, shows that the costs of delay are high while most states and regions in the US will benefit from policies that reduce emissions.
- The less developed nations continue to emphasize that reductions in their emissions would require extensive financial assistance from developed countries, but corruption pervades many of these countries and financial assistance often fails to reach its intended use. They may also emphasize forestry policy over cutting fossil fuel emissions, which, while important, is insufficient for meeting the climate challenge.

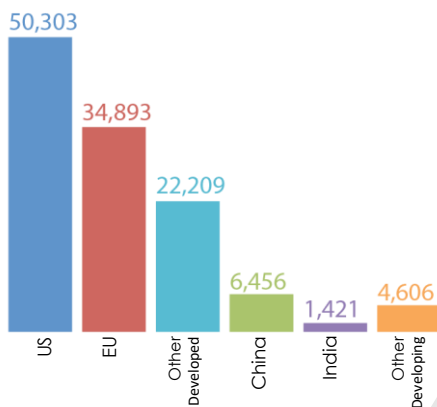
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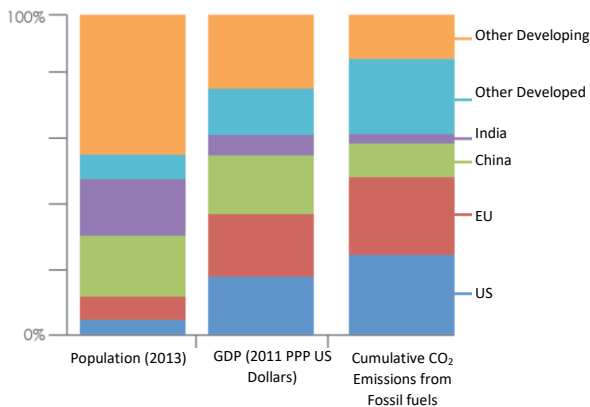
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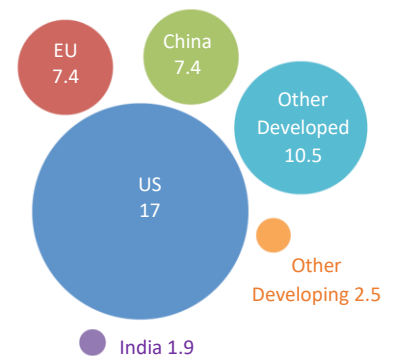
GDP per person (2011 PPP US Dollars)



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Emissions per person 2013 (tons CO₂ per year)



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Since 1980, emissions per person have risen dramatically in **China** and **India** (by 391% and 285%, respectively) but have fallen in the **US** and **Europe** (by 20% and 26%, respectively).



To: Negotiators for India at United Nations World Climate Summit
Subject: Briefing on Negotiating Goals

Goals

India seeks to negotiate a global agreement to reduce greenhouse gas emissions that can limit climate risks but also seeks the best outcome for our economy and development. At the 2015 UN climate negotiations in Paris, nations agreed to a goal of limiting global warming to “well below 2°C” compared to preindustrial levels. You must now decide on the following:

1. Actions to reduce carbon emissions, if any. Without action, India’s emissions are expected to grow significantly by 2100. You can decide when your emissions will stop growing, when they will begin declining, and at what annual rate emissions decline, if at all.
2. Whether to make a commitment to reduce deforestation or to increase reforestation or afforestation.
3. How much funding to demand from the developed nations, who have pledged to create the Green Climate Fund that will provide \$100 billion/year by 2020 for developing countries to cut emissions and adapt to climate change.

Context

The scientific consensus on climate is clear: over 97% of climate scientists agree that climate change is happening, that it is caused primarily by use of fossil fuels, and that the impacts could be devastating. Our top priority is to raise India’s standard of living, which is far less than that in the developed nations and even China.

Public Opinion

Our people, like people everywhere, want to live in a healthy environment, but they also want to increase their standard of living; this includes decent jobs, housing, food, healthcare, mobility and national security. Many people in our country believe climate change is real, though fewer support agreements to address the climate change issue. Overcoming poverty is our top priority.

Forests and land use

We have an opportunity to make reductions in emissions from deforestation and land degradation (REDD). Most of the world’s remaining tropical forests are in developing countries, where, unfortunately, there is substantial deforestation occurring. Programs to protect forests can reduce global emissions and could be paid for by wealthy nations.

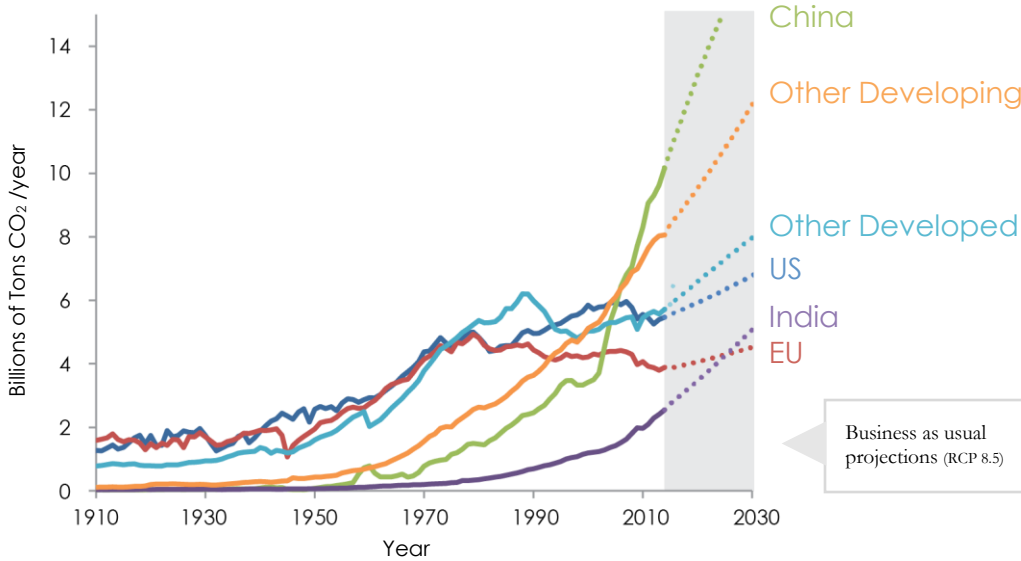
National Action

In 2015 we pledged to the UN to increase our carbon-free power capacity from 30% to 40% by 2030, assuming international help. We are yet to commit to meaningful reductions in emissions and are concerned about pressure to do so given our need to raise a significant portion of our population out of poverty. Clean energy development to reduce emissions would offer co-benefits like improving air quality and providing electricity in areas inaccessible to electric grids. Taking more leadership in addressing climate change could have some political benefits for India. However, we must defend our right to develop and lift our people out of poverty. We are prepared to do what we can, but the rich nations of the world must agree to significant action, commensurate with their past contributions the problem. We will not pay the price for their past emissions.

Global Landscape

- The developed nations will pressure us to reduce emissions because our population exceeds one billion, and because our economy and carbon emissions are growing faster than theirs. However, emissions per capita in developed nations are far higher than ours (US emissions per capita are an astounding 9 times higher than India's). Any agreement that puts an unfair burden of limiting climate change on us is not acceptable.
- The developed nations are threatened by the rapid economic development we are now, finally, beginning to enjoy, and may use a global climate agreement to slow our growth, limit markets for our products, and constrain our growing diplomatic and military influence around the world.
- The developed nations of the world created the climate crisis and must take responsibility for their past actions. These nations used fossil fuels to build their economies and enrich their populations, often by exploiting our natural resources. The developed nations will demand that we cut our emissions before our people have the chance to reach even the level of economic development now enjoyed in the West while many Indians continue to live in poverty.

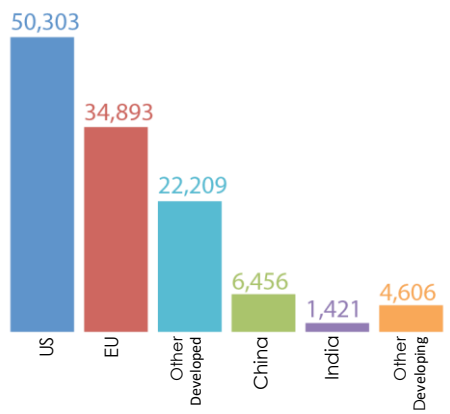
CO₂ Emissions from Fossil Fuels and Cement



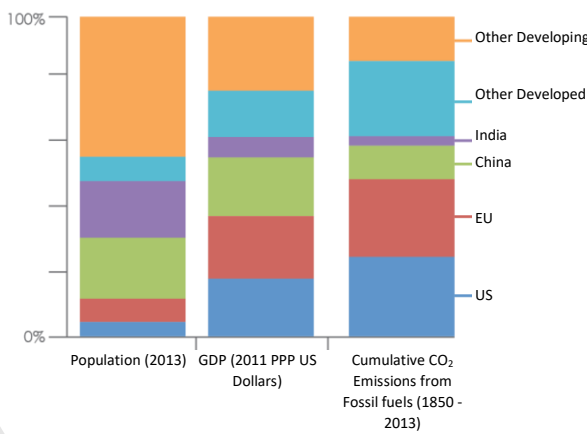
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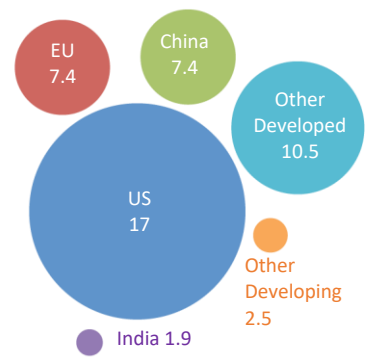
GDP per person (2011 PPP US Dollars)



Population Wealth and Cumulative Emissions



Emissions per person 2013 (tons CO₂ per year)



While cumulative emissions so far have been higher in the developed countries (i.e., the **US**, **EU**, and **other developed countries**), the growth of population, GDP per person, and emissions in the developing nations far outpaces growth in the developed countries. Under business-as-usual assumptions, cumulative emissions of all developed countries (**US**, **EU**, and **other developed**) are expected to fall to 37% of total by 2100.

Since 1980, emissions per person have risen dramatically in **China** and **India** (by 391% and 285%, respectively) but have fallen in the **US** and **Europe** (by 20% and 26%, respectively).

United States of America



To: United States Negotiators at United Nations World Climate
Subject: Briefing on Negotiating Goals

Goals

In 2015, the US played a key role in negotiating the Paris Agreement, in which nations agreed to limit global warming to “well below 2°C” compared to preindustrial levels. However, in June 2017 the US announced it is withdrawing from the Paris Agreement and will cease implementation of its pledges to reduce carbon emissions. Under the terms of the Agreement, US withdrawal will take effect in November 2020. In the interim, the US may still participate in the negotiations. You must now decide on the following:

1. **US actions to reduce carbon emissions, if any.** In recent years US emissions have fallen, and are now ~14% below 2005 levels. However, US emissions are expected to grow modestly over time without further action and given current administration policies to promote production of oil, coal and natural gas. You can decide when US emissions will stop growing, when they will begin declining, and at what annual rate emissions decline, if at all.
2. **Whether to reduce deforestation or to increase reforestation or afforestation.**
3. **How much to contribute, if at all, to the Green Climate Fund.** The fund is intended to provide at least \$100 billion/year by 2020 for developing countries to reduce their emissions and adapt to climate change. In June 2017, the US announced that it will no longer contribute to the Fund.

Context

The scientific consensus on climate is clear: over 97% of climate scientists agree that climate change is happening, that it is caused primarily by use of fossil fuels, and that the impacts could be devastating. US government research has shown that climate change is harming all 50 states today and that without dramatic reductions in global emissions, the damage will become far more severe.

Public Opinion

A majority of the public in the US believes climate change is real and that human activity contributes significantly to it. Most support policies that could be implemented to address climate change but oppose those actions that raise the cost of living. Climate change ranks near the bottom of most people’s priorities, far below national security, the economy and jobs. Most people are opposed to any agreement that places undue burden on our own economy, while developing nations’ emissions continue to grow. Meanwhile, entrenched fossil fuel interests continue to sow doubt about climate change causes and action.

Opportunities

Despite these challenges, the bipartisan “Risky Business” report (<http://riskybusiness.org>), endorsed by former US Treasury Secretaries of both parties, shows that the costs of delay are high while most states and regions in the US will benefit from emissions reductions policies.

National Action

In Paris, the US pledged a 26-28% reduction in US emissions from 2005 levels by 2025. Fulfilling this pledge depends on the successful implementation of federal policies to limit power plant emissions and improve fuel efficiency in cars, as well as action at the city, state and regional levels. However, the Administration is taking steps to roll back those federal policies while stating that fossil fuels will be needed for the foreseeable future. Its position is supported by some elected officials in the US Congress and business interests with a stake in the fossil fuel industry.

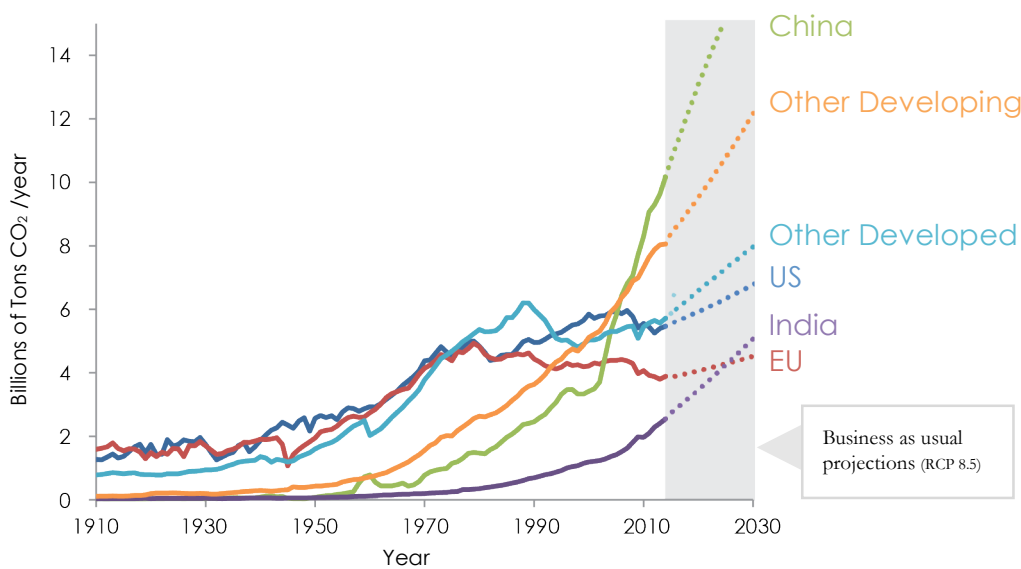
Forests and land use

Though we can pledge reductions in emissions from deforestation and land degradation (REDD) within our country, doing so would address only a small portion of US emissions.

Global Landscape

- China's economy is approximately equal in size to that of the US, is growing far faster than that of the US, and generates about 30% of global CO₂ emissions. In Paris, China pledged to peak its CO₂ emissions by 2030, when its emissions are projected to be >2.5 times those of the US, but made no commitment to reduce emissions. China must cut their emissions for the US to consider action.
- Meanwhile, emissions from rapidly developing countries, such as India, continue to grow. While the US remains committed to efforts to protect the environment, it cannot agree to targets that harm its economy. Without emissions cuts from other developing and less developed nations, by 2050, their combined emissions will rise to almost three times those of developed countries. Emissions from these nations must fall. It is not acceptable for these nations to demand that the US and other developed nations cut their emissions while they continue increase theirs.
- The less developed nations continue to emphasize that reductions in their emissions would require extensive financial assistance from developed countries, but corruption pervades many of these countries and financial assistance often fails to reach its intended use. They may also emphasize forestry policy over cutting fossil fuel emissions, which, while important, is insufficient for meeting the climate challenge.

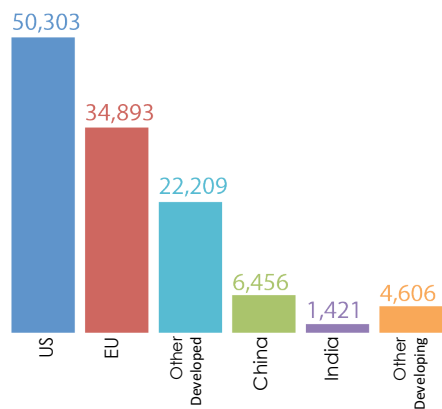
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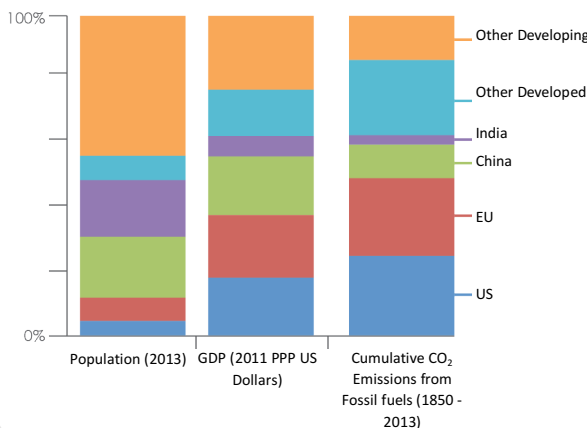
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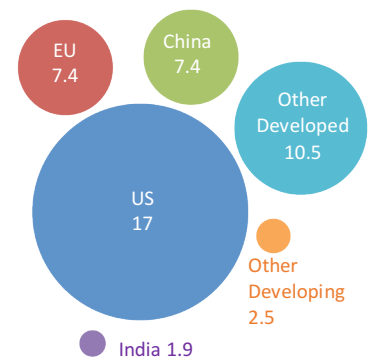
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Population Wealth and Cumulative Emissions



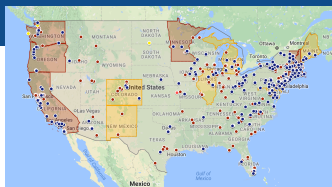
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U.S. Cities and States



To: US Cities and States at United Nations World Climate Summit
Subject: Strategy Briefing

Goals

You are attending the UN conference as a representative of the more than 200 cities and states in the U.S. that have pledged to reduce greenhouse gas emissions in line with the Paris Agreement. You have no official standing in the negotiations—you can only create results via your influence on the official parties. Unlike other groups, however, you are not beholden to vested interests and are free to advocate for policies to swiftly and effectively address climate change. Throughout the conference, strive to use your influence to:

1. Persuade the U.S. government to set strong targets to reduce greenhouse gas emissions.
2. Show other parties (e.g., China, the EU, etc.) that despite current U.S. federal policy, many Americans are committed to ambitious climate action—both emission reductions and financial contributions. Highlight the work you are doing at the state and city level helping to solve the problem, with the goal of persuading them to increase their emission cuts and contributions to the Green Climate Fund, and to put pressure on the US to do the same.

Context

At the 2015 UN climate negotiations in Paris, nations agreed to a goal of limiting global warming to “well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels.” The scientific consensus on climate is clear: over 97% of climate scientists agree that climate change is happening, that it is caused primarily by use of fossil fuels, and that the impacts could be devastating. US government research has shown that climate change is harming all 50 states today and that without dramatic reductions in global emissions, the damage will become far more severe.

Subnational Actions

The states and cities we represent are already committed to action on climate change. Some examples:

- Led by the Governor of California, the Under2MOU coalition of 176 cities and states have committed to reduce their emissions 80% below 1990 levels by 2050.
- Nine northeast U.S. states are successfully reducing their greenhouse gas emissions while growing their economies under a regional carbon pricing system.
- From Atlanta, Georgia, to San Diego, California, over 25 U.S. cities have committed to using 100% renewable energy before mid-century.
- The city of Seattle voted to contribute to the UN Green Climate Fund.

Scale

- You represent governments presiding over more than half the US population and responsible for 39% of US emissions.
- Your states' combined GDP is over \$6.7 trillion/year—larger than that of Japan, the world's 4th largest national economy.

Motivation

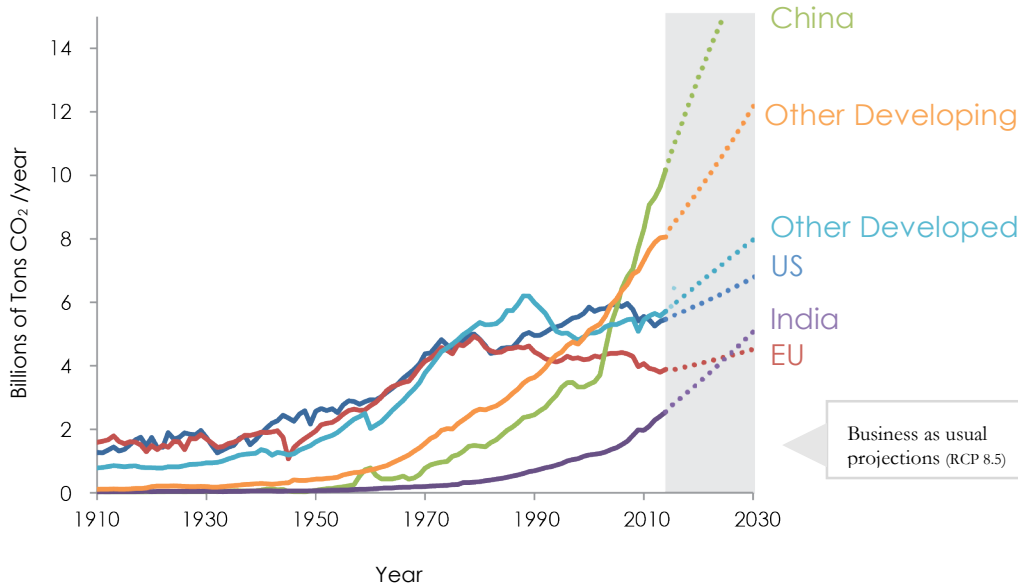
Evidence shows there are many benefits to taking action on climate change that extend to people's health, jobs, and the economy. For example:

- Particulates from fossil-fuel-driven power plants are estimated to trigger over 600,000 asthma attacks in the US. Less fossil fuel use means less asthma.
- Replacing all coal-powered electricity in the US with solar power would save 52,000 lives per year, which is more than the number of people employed by the coal industry.
- A study in New York City showed that asthma prevalence was 29% lower in neighborhoods with the most trees.
- Renewable energy and low carbon initiatives generate more jobs than fossil fuels. One study estimated that a policy to produce 30% of electricity through renewable energy and increase energy efficiency throughout the US would generate over 4 million jobs by 2030.

Public Opinion

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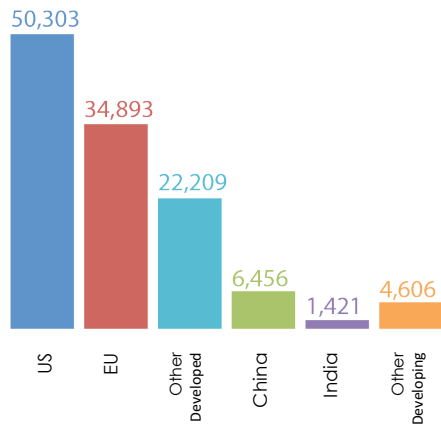
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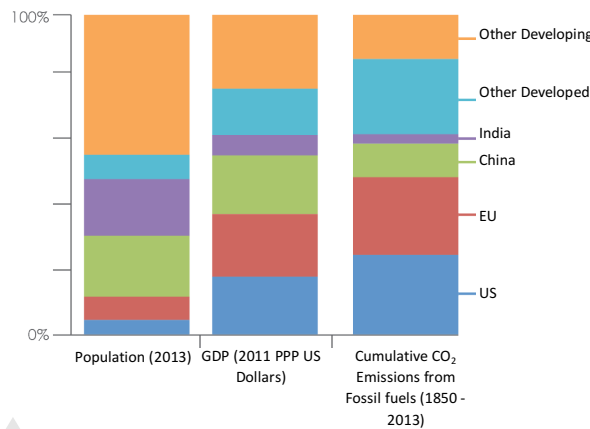
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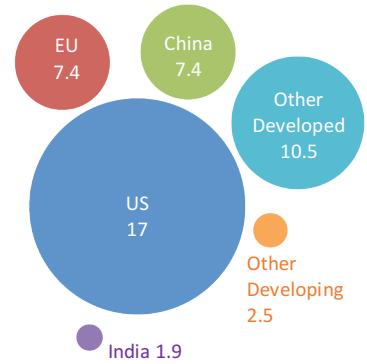
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