Global Development and Environment Institute
Tufts University

After Paris

The New Landscape for Climate Policy

by Anne-Marie Codur, William Moomaw, and Jonathan Harris*

The landscape of global climate policy changed dramatically on December 12, 2015. On that date the Paris Agreement on Climate was unanimously adopted by 195 countries and the European Union, defining the course of action by governments between 2020 and 2030. The agreement indicated a determination by the world's nations to act in response to global climate change, and represented the culmination of 23 years of negotiations. If fully implemented, this agreement could signal the beginning of the end of the fossil fuel era. But huge challenges remain. This Policy Brief reviews major scientific, economic, and political issues related to the Paris Agreement, provides an initial evaluation of the results, and discusses next steps and policy challenges.

Urgency of the Problem

The year 2015 was the hottest year in the historical record by a wide margin, "breaking a mark set only the year before – a burst of heat that has continued into the new year and is roiling weather patterns around the world."[1] A study in the journal *Nature Climate Change* projected that if carbon emissions continue at their current pace, parts of the Persian Gulf will be uninhabitable by humans by the end of the century, a level of heat and humidity not seen since the evolution of humans on earth.[2] Sea-level rise threatens the existence of island nations, and Arctic warming continues at record rates.[3] In this atmosphere of urgency, the world's nations were motivated to reach an unprecedented agreement that, at least on paper, commits them to significant action on climate change.

Climate Policy Brief No. 2

Feb 2016

* *Anne-Marie Codur is a Research Fellow, Jonathan Harris is Senior Research Associate, and William Moomaw is the Co-Director of the Global Development And Environment Institute. Your comments may be sent to codur@hotmail.com or jonathan.harris@tufts.edu.*

Background

Scientific concern over the consequences of growing greenhouse gas emissions and a changing climate led to the creation of the **Intergovernmental Panel on Climate Change (IPCC) in 1988** to provide input to governments on the science, impacts, vulnerabilities, adaptation, and mitigation of climate change. The IPCC analyzes and assesses climate related peer-reviewed scientific publications and reports from governments, international institutions and industry. It then produces an integrated set of periodic assessment reports every 5-6 years, and special reports in between. The goal is to provide reliable information on the scientific basis of climate change, the role of specific gases and alteration in the reflectivity of land, ice and snow, and air pollution as they contribute to global warming.

The reports also assess the global changes and vulnerabilities that are associated with a changed climate including the consequences for ecosystems, water, biodiversity, sea level rise, storms, agriculture, industry and health. Mitigation and adaptation options are examined along with alternative future climate scenarios. The reports are descriptive and analytical, but not prescriptive.

On the policy front, the **UN Framework Convention on Climate Change** was agreed to by 154 nations in 1992. It entered into force in March 1994, and has been ratified by 195 nations and the EU. The first binding agreement on reducing greenhouse gas emissions, the Kyoto Protocol, was adopted in 1997 and entered into force in 2005. The Kyoto first commitment period ended in 2012, but a number of countries made a second commitment from 2012 until 2020. The Paris conference is formally known as the 21st Conference of the Parties to the UN Framework Convention on Climate Change, or COP 21.

The Outcome of the Paris Conference

The Paris Agreement marks a major step forward beyond the Kyoto Protocol. While Kyoto was only binding on those developed nations that chose to ratify it[4] the Paris Agreement involved voluntary actions by all 195 countries in attendance, including major developing countries such as China and India. This approach allows the United States to be a party without requiring formal ratification by the Senate. The goals of the Paris agreement are to hold global temperatures to no more than 2°C above preindustrial values, with a more ambitious target of 1.5°C. While these temperatures still imply long-term adverse climate change effects, in the opinion of many scientists they might avert catastrophic effects.

After the failure of the Copenhagen conference in 2009 to achieve comprehensive measures to reduce greenhouse gases, the negotiating path chosen at Paris was not to seek a binding agreement with targets imposed on countries, but rather to encourage countries to propose goals on a voluntary basis. At the time of the conference 186 countries out of 195 in attendance had submitted their INDCs – **intended nationally determined contributions** – indicating their willingness to contribute to the reduction of global CO_2 emissions, even if quantitatively the current total of the pledges made by these INDCs is not sufficient to secure the global goal of keeping warming under 2°C.

To reach the more ambitious goals, the agreement includes 5-year cycles for countries to review their goals and ratchet up their targets. The negotiating process was designed to put pressure on every country to comply with its own pledges and to increase them over time. A strong transparency and accountability regime is built into the agreement, based on regular progress reports and review by expert teams.

In addition to the country commitments, there were very strong pledges from a large segment of the business community, including the major high-tech firms and retailors. For example, several major corporations committed to 100% renewable energy consumption. Further, many cities and regions made much greater proportional commitments than any of the national governments; these are not officially counted in the country commitments.[5]

Financial and Technical Support to Developing Countries

The Paris agreement provides for robust and continuing financial and technical support to developing countries to help them adapt to the disruptive consequences of climate changes, as well as adopt mitigation methods to transition away from fossil fuels toward cleaner renewable energy sources. The agreement included a loss-and-damage clause recognizing the importance of addressing the adverse effects of climate change in developing countries, and while it does not accept liability or provide for compensation, it does offer several conditions where support may be given.[6]

Starting in 2020, industrialized nations have pledged $100 billion a year in financial and technical aid to developing countries to fight climate change. But many voices in the developing world have warned that $100 billion will fall far short of what is really needed, and that a conservative figure would be closer to $600 billion, which is 1.5% of the GDP of industrialized nations.[7] Estimates by organizations including the World Bank and the International Institute for Applied Systems Analysis suggest that the sums needed would be as high as 1.7 or even 2.2 trillion dollars per year.[8]

Forests and Soils

Many of the INDCs involve some combination of forest protection or agricultural soil enhancement as agents to remove and store carbon from the atmosphere. This can be done on a massive scale and provides many additional benefits and ecosystem services. Effective carbon storage by forests and soils is likely to be essential, in combination with reducing greenhouse gas emissions from the energy and industrial sectors, to achieving any sustained and effective stabilization of heat trapping gas concentrations in the atmosphere. But there is concern that many carbon "offset" provisions currently lack proper verification and realistic accounting systems are not yet in place.

Country Commitments for Action

Prior to the COP21, 186 delegations had submitted their INDCs to the UNFCCC. Because commitments were made on a voluntary basis, there are several discrepancies in the approaches adopted by different countries. Some countries have

chosen their baseline year as 2005, and others as 1990 (which was the baseline of the Kyoto Protocol), and calculate their future emissions with reference to that baseline. Other countries have calculated their future emissions compared to what they would have been emitting in a Business-As-Usual (BAU) scenario. Some countries have pledged reductions of CO_2 emissions in absolute terms, i.e. reductions in actual volumes of emissions, and others in relative terms, or reductions in **carbon intensity** (carbon emissions per unit of GDP).

Reductions in carbon intensity partly "decouple" emissions from growth, but overall emissions can still increase with economic growth. This option has generally been chosen by developing countries, including the biggest ones, such as China and India, as they are unwilling to commit to measures that would slow down their economic growth. They seek an increasing decoupling between economic growth and the growth of CO_2 emissions but in the meantime, CO_2 emissions will continue to grow in most of these countries. This introduces the important idea of "peaking" emissions in developing countries – allowing total emissions to grow only for a specific period, after which they must decline. China has committed to peaking emissions by 2030.

Analysis of all NDCs by Climate Interactive concludes that without them, temperatures would increase by 4.5°C, but if fully implemented, temperatures would still rise by 3.5°C, well above the 2°C goal. So there is much work to be done, but there is now a framework in place that involves all nations, and a process for assessing and increasing commitments over time. That in itself is a major diplomatic accomplishment.

Table 1: INDC commitment by major emitters

	Base Level	Reduction Target	Target Year	Land-use inclusion/accounting method:
China	2005	Emissions peaking 60-65% (carbon intensity)	2030 (or before)	Target to increase forest stock volume by around 4.5 billion cubic meters
United States	2005	26-28%	2025	"Net-net" approach
EU	1990	40%	2030	Policy on land-use accounting to be decided prior to 2020
India	2005	33-35% (carbon intensity)	2030	Not specified
Russia	1990	25-30%	2030	Target depends on the "maximum absorption capacity of forests"
Japan	2005 2013	25.4% 26%	2030	Forest and agricultural sectors are accounted for using approaches similar to those under the Kyoto Protocol

Source: ww.c2es.org/indc-comparison

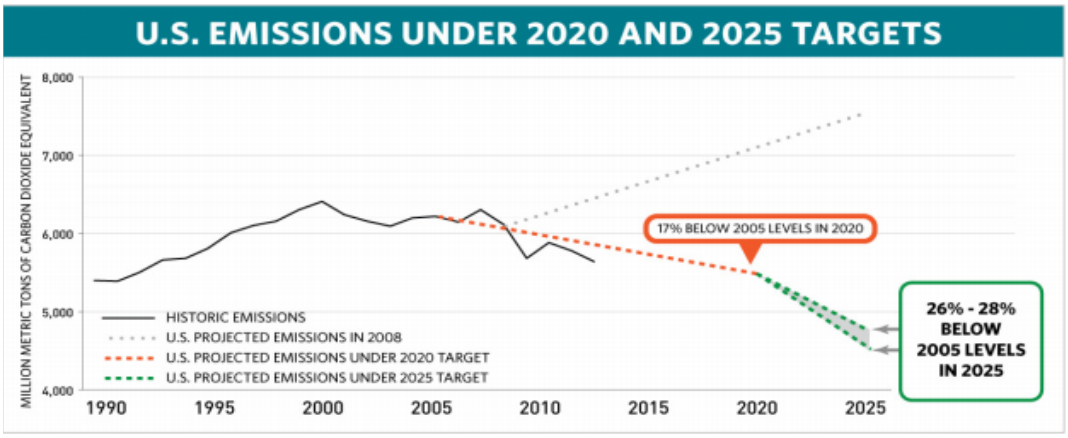
What are the Commitments of Major Emitters?

US commitment

The INDC submitted in March 2015 by the Obama Administration to the UNFCCC states that:

> The United States intends to achieve an economy-wide target of reducing its greenhouse gas emissions by 26-28 per cent below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28%.[9]

Figure 1: US Emissions Targets



Source: U.N Framework Convention on Climate Change[9]

With an unsympathetic Congress blocking any attempt to pass a climate policy bill, the Obama Administration has advanced its climate agenda by administrative action. In August 2015, the United States announced the Clean Power Plan, requiring a reduction of power sector CO_2 emissions to 32% below 2005 levels by 2030.[10]

On February 9, 2016, the U.S. Supreme Court temporarily suspended implementation of the Clean Power Plan pending legal challenges from states and corporations, raising fears that this decision could undermine the Paris agreement, with other countries questioning the U.S. commitment. Some analysts, however, saw this as only a "temporary time out as the CPP heads to full implementation". Most states are already planning to comply with the Clean Power Plan, underscoring the importance of state and local action.[11]

China commitment

China's commitments include:

- Achieve peak CO_2 emissions by 2030; make best efforts to peak earlier.
- Lower CO_2 emissions per unit of GDP by 60% to 65% from the 2005 level.
- Increase the share of renewables in primary energy consumption to ~20%.
- Increase forest stock by ~4.5 billion cubic meters above 2005 level."[12]

European Union commitment

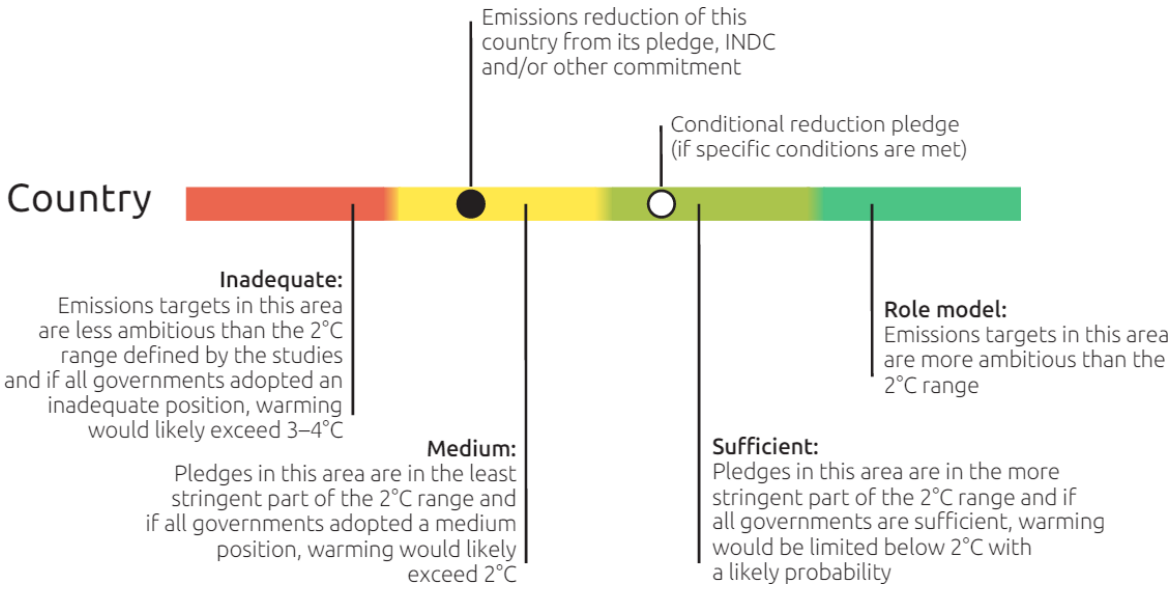
The EU and its Member States are committed to a binding target of reducing greenhouse gas emissions by at least 40% by 2030 compared to 1990. This

commitment is in line with the long-term EU objective of reducing its emissions by 80-95% by 2050 compared to 1990, following the recommendation by the IPCC for developed nations as a group. It is consistent with the goal of at least halving global emissions by 2050 compared to 1990. EU emissions have already been reduced by about 19% below 1990 levels.[13]

How adequate or inadequate are the commitments?

An independent organization, Climate Action Tracker (climateactiontracker.org) [14] provides assessments and ratings of submitted INDCs. According to its grading system, the USA is rated "medium" for its commitment, China is rated as "medium with inadequate carbon intensity target", and the European Union is also rated as "medium".

Figure 2: The Climate Action Tracker



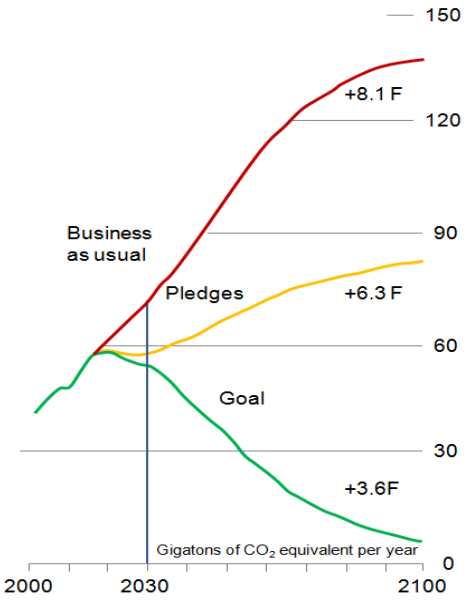
Source: http://climateactiontracker.org/methodology/85/Comparability-of-effort.html

The Climate Action tracker has rated as "inadequate" the commitments of a long list of countries including Russia, Japan, Australia, New Zealand, Canada, Argentina, South Africa, Chile, and Turkey.

The Climate Action tracker has also determined that the aggregate of all current commitments would amount to a median warming of around 2.7°C by 2100. Therefore, the ambitious goal of the Paris agreement, to keep warming well below 2° C or even as low as 1.5° C will require drastic improvements in the commitments of most countries over the next 5-year period, compared with their INDCs.

The figure below shows the differences between the trajectories of Business As Usual, the trajectories that would result from the current aggregation of INDCs commitments, and the path that would be necessary to reach 2° C or less. Most current pledges do not extend beyond 2030, so adjustments would clearly be needed before that date to keep overall emissions on a 2° C track – let alone 1.5° C.

Figure 3: Business as Usual, Paris Pledges, and 2° C Path



Source: http://www.nytimes.com/interactive/2015/11/23/world/carbon-pledges.html?_r=1

Limitations of the Paris Agreement

As many observers have commented, the Paris Agreement seems to create a hopeful framework for climate action, after decades of disappointing results. But can this promise be fulfilled?

Despite the sweeping nature of the national commitments, it is clear that the contributions offered fall short of what is needed to actually meet the goals of keeping the temperature from rising less than 1.5 or 2 degrees. Governments agreed that after 2050, additions to the atmosphere would not exceed rates of removal. However, this level may still be much too high. It would be better to invoke Article 2 of the UNFCCC that sets the goal of "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."

The agreement includes plans to protect tropical forests, but in addition to forests it is likely that in order to meet the 2-degree goal, the continuing release of carbon dioxide from agriculture, grassland, and wetland soils will need to be addressed, with the goal of maximizing carbon storage in biological systems. The growth of biomass energy use and its large carbon dioxide emissions under subsidized government programs threatens forests and their potential as sinks for carbon dioxide. Proposals for mechanically or chemically removing CO_2 from power plant or factory emissions and storing it for very long periods underground ("carbon capture and storage" or CCS) have so far not proven to be economically or technologically feasible.

Still, the agreement provides a starting point towards more ambitious goals, since most countries entered the negotiations by offering essentially what they were planning to do anyway, as was the case for China and the US. So it is important that

the "ratcheting" mechanism results in substantially greater emissions reduction goals in the near future.

As we move from discussion to policy implementation, it will become clear whether governments are serious about achieving and improving their emissions reduction goals, or whether the commitments were merely "hot air". Public involvement and pressure is likely to play a crucial role in this process.

What is the role of civil society?

Cities and Regions

One of the major achievements of the COP21 was that it provided a powerful incentive for non-State actors to come together and make pledges to contribute by their actions to the overarching goal of reducing climate warming under 2°C.

Governments at subnational level such as cities and regions offered a particularly ambitious platform. By 2050, between 65% and 75% of the world population is projected to be living in cities, with more than 40 million people moving to cities each year. Urban population will grow from approximately 3.5 billion people now to 6.5 billion by 2050.[15] Estimates suggest that cities are responsible for 75 percent of global CO_2 emissions, with transport and buildings being among the largest contributors.[16]

The Compact of Mayors, a global coalition of nearly 400 mayors launched in 2014 by UN Secretary-General Ban Ki-moon and his special envoy Michael Bloomberg, played a vital role in the Climate Summit for Local Leaders that accompanied the Paris talks. The organization developed a system for mentoring and accrediting over 382 cities in their climate actions.

The Business Community

The COP21 was also a meeting place for the business world, which presented state of the art innovations in new technologies based on the highest standards of energy efficiency.[17] In addition, a Global Alliance for Building and Construction will pilot efforts to lower emissions from buildings. The Paris Pledge for Action (L'Appel de Paris) brought together both cities and businesses stating their determination to meet or exceed the goals set forth in the formal agreement. L'Appel de Paris has been signed by over 400 businesses, 120 investors, 150 cities and regions and represents 150 million people and US$11 trillion.[18]

Religious Leaders

Pope Francis' encyclical "Laudato Si" published in May 2015, offered a powerful spiritual manifesto for all Catholics, and beyond, for all people of conscience, emphasizing the connection between climate change and poverty, and how the poorest and most vulnerable human beings are the most severely impacted by ecological crises. The Encyclical calls for a bold and immediate global response to the threat of climate change, at all levels, from individuals to communities, to nation-states and to the international community.[19] Leaders from other religions also offered similar declarations during 2015, notably the Islamic Declaration on Global Climate

Change, a call from Muslim scholars and imams from throughout the Muslim world, for action to protect the Earth, based on verses from the Qur'an and Hadith.[20]

Activist Networks

A wide network of non-governmental organizations (NGOs) has worked for decades to raise awareness and pressure governments to take action. This network, extensively represented in Paris, included environmental NGOs and also various associations promoting the rights of women, minorities, and vulnerable population, in particular the rights of indigenous people, whose lives are directly threatened by ecological disruptions. Activists from all over the world signed the "Oath of Paris",[21] which calls for the creation of a Global Civic Society where citizens of the Earth, regardless of their nationalities, cultures, religions, take part in a global governance system to protect the global commons.

Conclusion

The Paris agreement lays the foundation on which a continuous ratcheting up of aspirations can be developed. In the words of Europe's climate chief negotiator Miguel Arias Canete: "this was the last chance. And we took it."

Importantly, many actions to address climate change have additional benefits for providing sustainable energy to all and lift people out of poverty. An end to the fossil fuel age, with aggressive development of renewable energy sources, would promote sustainable development, climate stabilization, and a major improvement in global health.

This ambitious goal, which could fundamentally shape the global economy of the twenty-first century, has come into focus in the wake of the Paris agreement, but its feasibility, and the determination of global actors to achieve it, remain to be determined. According to Prof. Niklas Höhne, of the New Climate Institute: "This historic agreement sets the direction. From tomorrow, work has to start to raise ambition. The current contributions are the 'floor of ambition' and more can and will be done." [22]

Future GDAE climate policy briefs will discuss specific aspects of this energy transition, including the potential of solar and renewables, carbon storage in soils and forests, the uses and misuses of biomass, low-carbon paths for developing nations, and policy implementation at local, national, and global levels.

Endnotes

[1] Justin Gillis, "2015 Far Eclipsed 2014 as World's Hottest Year, Climate Scientists Say," *New York Times*, January 21, 2016.

[2] Jeremy S. Pal and Elfatih A. B. Eltahir**,** "Future temperature in southwest Asia projected to exceed a threshold for human adaptability," *Nature Climate Change* **6**,197–200 (2016, online publication October 26, 2015); Seth Borenstein, "An intolerable unimaginable heat forecast for the Persian Gulf," Associated Press, October 26, 2015

[3] Coral Davenport and Josh Haner, "The Marshall Islands are Disappearing," *New York Times* December 2, 2015; Coral Davenport, Josh Haner, Larry Buchanan, and Derek Watkins, "Greenland is Melting Away," *New York Times,* October 27, 2015; Andrew Freedman, "Accelerated Warming Driving Arctic into New Volatile State," *Climate Central* December 5, 2012 http://www.climatecentral.org/.

[4] The United States never ratified the Kyoto Protocol, Canada withdrew from it from 2011, and no sanctions were imposed on any countries for failure to meet targets.

[5] "Will The Climate Change Agreement Be As Effective As It Is Historical?" *Here & Now*, December 14, 2015 https://hereandnow.wbur.org/2015/12/14/paris-agreement. Detailed accounts of specific pledges are available on The Climate Group website: http://www.theclimategroup.org/

[6] "Adoption of the Paris Agreement" http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

[7] www.scientificamerican.com/article/poorer-nations-demand-more-aid-to-deal-with-climate-change/

[8] http://roadtoparis.info/2014/11/06/climate-finance-too-little-too-late/

[9] U.N Framework Convention on Climate Change, http://www4.unfccc.int/submissions/INDC/Published%20Documents/United%20States%20of%20America/1/U.S.%20Cover%20Note%20INDC%20and%20Accompanying%20Information.pdf

[10] https://www.whitehouse.gov/the-press-office/2015/09/25/us-china-joint-presidential-statement-climate-change

[11] Coral Davenport, "Supreme Court's Blow to Emissions Efforts May Imperil Paris Climate Accord," *New York Times,* February 10, 2016; Sam Adams and David Waskow, "Despite Stay, America's Economy and Climate Need the Clean Power Plan," World Resources Institute, February 10, 2016 http://www.wri.org/blog-tags/8563

[12] U.N Framework Convention on Climate Change, http://www4.unfccc.int/submissions/INDC/Published%20Documents/China/1/China's%20INDC%20-%20on%2030%20June%202015.pdf

[13] U.N Framework Convention on Climate Change, http://www4.unfccc.int/submissions/INDC/Published%20Documents/Latvia/1/LV-03-06-EU%20INDC.pdf

[14] More information on its grading system is found here: http://climateactiontracker.org/methodology/85/Comparability-of-effort.html

[15] http://www.theguardian.com/cities/2015/nov/17/cities-climate-change-problems-solution

[16] http://www.unep.org/urban_environment/issues/climate_change.asp

[17] http://www.entrepreneursdavenir.com/pea/page/-/code/parlement.2015.presentation

[18] http://pledgeforaction.org/read/; http://www.parispledgeforaction.org/whos-joined/ http://www.cop21.gouv.fr/en/paris-pledge-for-action/

[19] http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

[20] http://islamicclimatedeclaration.org/islamic-declaration-on-global-climate-change/

[21] http://lesermentdeparis.wesign.it/en

[22] http://climateactiontracker.org/news/257/Paris-Agreement-stage-set-to-ramp-up-climate-action.html

The Global Development And Environment Institute (GDAE) is a research institute at Tufts University dedicated to promoting a better understanding of how societies can pursue their economic and community goals in an environmentally and socially sustainable manner. GDAE pursues its mission through original research, policy work, curriculum development, conferences and other activities.

Website: http://ase.tufts.edu/gdae • E-mail: gdae@tufts.edu • Phone: 617-627-3530

Additional climate commentaries: http://www.ase.tufts.edu/gdae/policy_research/ClimateChange.html