



G20 CLIMATE INITIATIVES 2016

G20 Climate Change Initiatives Team (GCIT), G20 Research Group, University of Toronto
Prepared for the G20 Summit in Hangzhou, China, 2016

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Preface

This compendium of proposed, practical, appropriately ambitious initiatives for the G20 leaders to adopt at their Hangzhou Summit on September 4-5, 2016, has been prepared by the G20 Climate Initiatives Team (GCIT) of the G20 Research Group (G20RG) at the University of Toronto. The G20RG's mission is to serve as the world's leading independent source of information and analysis on the institutions, issues and members of the G20 summit and system. It conducts analysis, not advocacy, offering policy advice based on its research. Climate change is an issue where the G20 Research Group has conducted sufficient research to warrant offering such policy advice, backed by sound social and physical science, to G20 governors.

This policy advice builds most directly on John Kirton and Ella Kokotsis' book on *The Global Governance of Climate Change: G7, G20 and UN Leadership* published by Ashgate Publishing (now owned by Routledge) in 2015. It is supported by the G20RG's ongoing work to assess the course and causes of G20 members' compliance with their summit's climate change, energy and other commitments, and the low-cost accountability measures under the leaders' direct control that they can use to increase compliance. It draws on the work on climate change that John Kirton participated in from 1989 to 1995 as a member of the Canadian Prime Ministers' advisory Foreign Policy Committee of the National Roundtable on the Environment and the Economy, other policy-oriented analytical involvements with the North American Commission on Environmental Co-operation and with Canada's Department of Foreign Affairs and International Trade.

The following report is the result of the hard work of many individuals, notably GCIT members named as responsible for the individual initiatives proposed here, the many G20RG members and others who contributed to the G20 compliance assessments, and those in the policy world who gave freely of their time and advice. We are most grateful to them all.

Professor John Kirton
Founder and Co-Director
G20 Research Group
August 17, 2016

Summary of Commitment Recommendations

1. Stop Subsidies

In recognition of our commitment to the Paris Agreement and the Sustainable Development Goals we reiterate our commitment first made at the Pittsburgh Summit in 2009 to phase-out inefficient fossil fuel subsidies in the medium-term while providing targeted support for the poorest, starting by immediately phasing-out production, transfer and consumption subsidies to climate polluting coal, including in export finance and capital cost allowances, and concluding with all by 2025.

2. Ratify Paris

We commit to domestically ratify or otherwise legally accept and/or begin the domestic implementation measures equivalent to the provisions of the Paris Agreement before April 21, 2017, and to accelerate our domestic implementation before our next G20 summit in Hamburg, Germany.

3. Finance Climate Control

We support the operationalization of the Green Climate Fund and encourage developed countries to make immediate progress toward their commitment under the UNFCCC to mobilize jointly US\$100 billion per year by 2020 from public, private, bilateral and multilateral sources.

4. Green Finance

We welcome the G20 Green Finance Synthesis Report submitted by the Green Finance Study Group and recognize that green finance is key to resolving climate change. We are strongly committed to mobilizing green investment globally. We will strive to eliminate domestic and cross-border institutional and market barriers to green finance. We will support the development of local green bond markets and facilitate cross-border investment in green bonds.

5. Reinforce Renewable Energy

We commit to accelerate renewable energy innovation and investments worldwide through the exchange of best practices in technology and policies, the design of renewable energy-specific risk-mitigation instruments and increased research and development efforts, in particular clean energy solutions such as smart grid infrastructure, bioenergy prospects, fuel cell technologies and energy storage, among others, to support the implementation of the G20 Energy Efficiency Leading Programme (EELP), the Sustainable Energy for All (SE4ALL) global initiative and the United Nations Agenda 2030 sustainable development goals.

6. Cut Coal

We commit to continually decrease our relative collective consumption of coal used to generate electricity and to provide support to our partners in developing countries, including those within the G20 that are the most reliant on coal, to assist them in the transition from a heavy reliance on coal to the utilization of renewable and other climate friendly energy sources.

7. Grow Green

Consistent with the green growth consensus reached in Mexico in 2012 we commit to take an integrated approach towards achieving inclusive green growth through the development of standardized metrics for environmental accounting and green GDP calculation into our national plans for economic growth and sustainable development.

8. Free Green Trade

We commit to conclude an agreement to produce full free trade in environmental goods and services by the next G20 summit, building on the commitments APEC members have made in 2012.

9. Green Cities

We, following our G20 Seoul Summit commitment on green cities, commit to green our cities by setting greenhouse gas (GHG) emissions and sequestration targets in line with the actions and achievements of the Compact of Mayors and C40 Cities Climate Leadership Group, starting before the next G20 summit in Hamburg, Germany in 2017.

10. Mainstream Gender

Following the Paris Agreement's integration of a gender-responsive approach in tackling climate change and the recognition of gender equality as one of the Agenda 2030's 17 sustainable development goals, we affirm our support for mainstreaming gender within climate adaptation and mitigation, and commit to carrying out systematic gender analysis drawn from research by UN Women, progressively increasing the consultation and participation of women in climate change initiatives, especially at the negotiation and implementation levels, implementing stronger gender policies in climate financing mechanisms, such as the Green Climate Fund, starting in 2017, and increasing women's knowledge and expertise in technological developments to counteract climate change.

11. Involve Indigenous Peoples

We affirm our support for the inclusion and empowerment of indigenous peoples in climate change control action, integrating indigenous knowledge, in terms of strategies, tools, and techniques, for responding to climate change; ensuring robust representation and contributions of indigenous peoples to climate action at the global, national and sub-national levels; and developing a common platform between the G20 leaders and indigenous peoples in 2017.

12. Build Biodiversity

In support of the implementation of the Strategic Plan for Biodiversity 2011-2020 as well as the United Nations' Agenda 2030 Sustainable Development Goals, we commit to develop integrated public policies aimed to reduce habitat loss and degradation through proven and innovative agricultural and aquaculture management systems in developing countries, as well as identifying, at the national and component geographically regional level, ecosystems that are particularly important in providing ecosystem services, in particular to ecosystems upon which vulnerable groups, including indigenous peoples, are directly dependent.

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1. Stop Subsidies

Brittaney Warren

Proposed Commitment

In recognition of our commitment to the Paris Agreement and the Sustainable Development Goals we reiterate our commitment first made at the Pittsburgh Summit in 2009 to phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest, starting by immediately phasing out production, transfer and consumption subsidies to climate polluting coal, including in export finance and capital cost allowances, and concluding with all by 2025.

Past Commitments Made and Compliance with Them

Since its first year and second meeting at the leaders' level the G20 has acknowledged the role of fossil fuel subsidies in global energy markets and their contribution to climate change in the form of politically-binding commitments first stated as follows: "we commit to phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest." On this commitment, assessed by the University of Toronto's G20 Research Group, the G20's overall performance was poor at 53%. China itself, however, did well in 2009 having earned a +1 for full compliance, the highest score awarded on the 3-point scale under the methodology of the G20 Research Group. Yet while China had a strong start on this commitment, reiterated at every summit since 2009, it has not performed consistently nor particularly well. In 2010 at both Toronto and Seoul, China's score decreased to a 0 and -1, respectively. It rose again in 2012 with a +1, in 2014 with -1 and in 2015 with 0, as reported in the G20 Research Group's 2015 Interim Compliance Report.

Yale's 2016 Environmental Performance Index (EPI), whose framework China has adapted to its green growth priorities, provides a clearer picture of China's performance on fossil fuel subsidies. It shows that China is the biggest provider of government fossil fuel subsidies within the G20.¹ A report by the International Monetary Fund shows that of the three major fossil fuels produced and consumed for energy, China is the biggest subsidizer of coal, followed by the United States, Russia and India.² (See Table 1 and 2.)

Costs and Benefits of Fossil Fuel Subsidies

According to the IMF, global fossil fuel subsidies are much higher than previously thought. When the true costs of burning fossil fuels are taken into consideration, particularly the health costs, estimates for global energy subsidies in 2015 totalled \$5.3 trillion. The benefit from eliminating fossil fuel subsidies is therefore significant: half of all premature deaths caused by fossil fuel emissions can be avoided, 20% of GHG emissions can be avoided, and \$1.8 trillion can be gained through the elimination of fossil fuel subsidies, should the gains be invested in education, health and green infrastructure.

Fossil Fuel Subsidies and the Sustainable Development Goals

In a 2014 report titled Financing the Sustainable Development Goals through Fossil-Fuel Subsidy Reform: Opportunities in Southeast Asia, India and China the International Institute for Sustainable Development (IISD) provides a table detailing each of the 17 SDGs and how they can be achieved through fossil fuel

¹ Global Metrics for the Environment, Environmental Performance Index 2016, Yale University. Date of Access: 16 August 2016. <http://epi.yale.edu/downloads>

² IMF Survey: Counting the Cost of Energy Subsidies, International Monetary Fund, 17 July 2015. Date of Access: 16 August 2016. <http://www.imf.org/external/pubs/ft/survey/so/2015/new070215a.htm>

subsidy reforms. It shows that progress can be made either directly or indirectly on each of the SDGs by eliminating fossil-fuel subsidies.³ (See Table 3.)

³ Financing the Sustainable Development Goals Through Fossil-fuel Subsidy Reform: Opportunities in Southeast Asia, India and China, International Institute for Sustainable Development, October 2014. Date of Access: 16 August 2016.
<http://www.iisd.org/library/financing-sustainable-development-goals-through-fossil-fuel-subsidy-reform-opportunities>

Table 1: G20 Fossil Fuel Commitments Assessed and Not-Assessed

Assessed Commitments	Overall Score	China's Score
2009P-18: To phase out and rationalize over the medium term inefficient fossil fuel subsidies while providing targeted support for the poorest. (energy)	+0.05	+1.00
2010T-60: [We note with appreciation the report on energy subsidies from the International Energy Agency (IEA), Organization of the Petroleum Exporting Countries (OPEC), OECD and World Bank. We welcome the work of Finance and Energy Ministers in delivering implementation strategies and timeframes, based on national circumstances, for the rationalization and phase out over the medium term of inefficient fossil fuel subsidies that encourage wasteful consumption, taking into account vulnerable groups and their development needs.] We also encourage continued and full implementation of country-specific strategies and will continue to review progress towards this commitment at upcoming summits. (Energy)	+0.45	0
2010S-127: We reaffirm our commitment to rationalize and phase-out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption, with timing based on national circumstances, while providing targeted support for the poorest. (energy)	+0.26	-1.00
2011-236: We reaffirm our commitment to rationalize and phase-out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption, while providing targeted support for the poorest. (Energy)	+0.63	+1.00
2012-96: we reaffirm our commitment to rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption over the medium term while providing targeted support for the poorest.	+0.58	+1.00

*These scores were assessed by the G20 Research Group at the University of Toronto

Non-Assessed Commitments
2009P-80: Rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption. (energy)
2009P-80: Rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption. (energy)
2009P-81: We will have our Energy and Finance Ministers, based on their national circumstances, develop implementation strategies and timeframes, and report back to Leaders at the next Summit. (energy)
2010S-33: [To provide broader, forward-looking leadership in the post-crisis economy, we will also continue our work to] rationalize and phase-out over the medium term inefficient fossil fuel subsidies; (energy)
2010S-128: We direct our Finance and Energy Ministers to report back on the progress made in implementing country-specific strategies and in achieving the goals to which we agreed in Pittsburgh and Toronto at the 2011 Summit in France. (energy)
2011-43: We reaffirm our commitment to rationalize and phase-out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption, while providing targeted support for the poorest (Energy)
2011-136: include] phasing out wasteful and distortive subsidies in the medium term, while providing targeted support for the poor (India, Indonesia) (energy)
2011-237: We ask our Finance Ministers and other relevant officials to press ahead with reforms and report back next year. (Energy)
2012-130: We welcome the commitments by producing countries to ensure adequate supply. (subset commitment: producing countries) (energy)
2012-131: we welcome Saudi Arabia's readiness to mobilize, as necessary, more than 2.5 million barrels per day of existing spare capacity. (individual commitment: Saudi Arabia) (energy)
2013-177: We reaffirm our commitment to rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption over the medium term while being conscious of necessity to provide targeted support for the poorest. (energy)
2014-77: We reaffirm our commitment to rationalise and phase out inefficient fossil fuel subsidies that encourage wasteful consumption, recognising the need to support the poor (energy)
2014-207: [G20 countries, agree to work together to:] Rationalise and phase out inefficient fossil fuel subsidies that encourage wasteful consumption, over the medium term, while being conscious of the necessity to provide targeted support for the poor. (energy)

*These commitments were identified by the G20 Research Group at the University of Toronto

Table 2: G20 Fossil Fuel Subsidies

	Petroleum	Coal	Natural Gas	Electricity	Total
Argentina (18)	0.55	0.65	8.96	7.37	17.53
Australia (17)	15.65	10.45	3.97	-	30.06
Brazil (10)	39.40	3.59	3.00	9.45	55.44
Canada (12)	30.30	4.92	10.82	-	46.04
China (1)	111.72	2,133.75	26.41	0.00	2,271.88
France (16)	16.65	6.93	6.54	-	30.12
Germany (9)	2.97	40.80	11.87	-	55.64
India (4)	72.19	195.82	9.29	0.00	277.31
Indonesia (8)	48.80	11.12	4.48	4.82	69.22
Italy (19)	0.00	4.02	9.25	-	13.27
Japan (5)	102.08	34.06	20.96	-	157.09
Korea (7)	29.01	34.88	9.07	0.00	72.95
Mexico (15)	22.58	2.04	6.24	0.00	30.86
Russia (3)	138.99	92.74	70.34	33.38	335.44
Saudi Arabia (6)	85.99	0.00	9.50	11.06	106.56
South Africa (11)	17.52	24.14	0.43	4.28	46.38
Turkey (14)	9.39	24.16	5.33	-	38.88
United Kingdom (13)	0.28	28.62	12.34	-	41.23
United States (2)	406.73	203.37	89.09	-	699.18
European Union	n/a	n/a	n/a	n/a	n/a
Overall Score					

*This data was extracted from the International Monetary Fund's country-level subsidy estimates for the year 2015. It measures global energy subsidies by energy product, 2015 (Billions of nominal \$US)

*The IMF's cover page for this study includes the following note: "the energy subsidy estimates reported here are based on the broad notion of post-tax subsidies, which arise when consumer prices are below supply costs plus a tax to reflect environmental damage and an additional tax applied to all consumption goods to raise government revenues. Pre-tax subsidies, which arise when consumer prices are below supply costs, are also reported as a component of post-tax subsidies. These subsidies will not necessarily coincide with definitions used by governments or with their reported subsidy numbers."

*The complete IMF dataset can be accessed at <http://www.imf.org/external/pubs/ft/survey/so/2015/new070215a.htm>

*China 10x as many coal subsidies

Table 3: Fossil Fuel Subsidies and the SDGs

Goal 1: End poverty in all its forms everywhere	Fossil-fuel subsidies do not benefit the poor. Reform of fossil-fuel subsidies can occur alongside building social welfare systems
Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	Shifting expensive subsidies to fossil fuels for water pumping for agriculture, towards renewable electricity for pumping and processing
Goal 3: Ensure healthy lives and promote well-being for all at all ages	Phasing out fossil-fuel subsidies is the beginning of reflecting fully the price that society pays in ill health linked to fossil fuels
Goal 4: Ensure inclusive and equitable quality education promote life	Savings from fossil-fuel subsidies can be channeled into education. Some governments currently devote more public resources to subsidizing fossil fuels than to education.
Goal 5: Achieve gender equality and empower all women and girls	Cash transfers directed at women in place of fossil-fuel subsidies could help towards empowerment. In many countries fossil-fuel subsidies are not working or designed to empower women.
Goal 7: Ensure access to affordable, reliable, sustainable, and modern energy for all	Resources spent subsidizing fossil-fuels undermine investment in sustainable energy and could be better spent elsewhere
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	In the long term, fossil-fuel subsidy reform can lead to increased growth
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
Goal 10: Reduce inequality within and among countries	Fossil-fuel subsidies as a universal system of welfare distribution are extremely costly and inefficient way of reaching the poor, and rather increase inequality, in that the wealthier tend to benefit more from subsidies
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable	
Goal 13: Take urgent action to combat climate change and its impacts	
Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	Fossil-fuel subsidies are associated with weaker institutions, their reform is a step towards strengthening institutions to deliver broader welfare systems
Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development	Fossil-fuel subsidy reform brings about savings in government revenues that can be redirected elsewhere, reduces government fiscal deficits and can lead to the correct taxation of fossil fuels to cover the costs borne on society from air pollution, congestion, accidents and carbon emissions

*Extracted from Financing the Sustainable Development Goals through Fossil-fuel Subsidy Reform: Opportunities in Southeast Asia, India and China, International Institute of Sustainable Development, pg. 10-1

2. Ratify Paris

Alecsandra Dragus

Proposed Commitment

We commit to domestically ratify or otherwise legally accept and/or begin the domestic implementation measures equivalent to the provisions of the Paris Agreement before its April 21, 2017 deadline and to accelerate our domestic implementation before our next G20 summit in Hamburg, Germany.

Climate Impact

- Maintaining a global temperature rise this century below 2 degrees Celsius above pre-industrial levels
- Strive to limit the global temperature increase to 1.5 degrees Celsius
- Strengthen the ability of countries to deal with the impact of climate change
- Facilitate cooperation between developed and developing countries to reach the goals set out by the agreement
- Facilitate capacity building and technology development and transfer from developed to developing countries
- Outline nationally determined contributions and begin ambitious national plans to reduce climate change
- Promote equal access to sustainable development and eradication of poverty
- Strengthen the link between reducing greenhouse gas emissions and finance
- Strengthen international response and cooperation through the Warsaw International Mechanism on Loss and Damage in the case of adverse effects of climate change (i.e. extreme weather events)
- Shift from high greenhouse gas emission sources of energy to lower emission ones
- Increase in technological innovation in the pursuit of cleaner sources of energy
- Investment in making green technology affordable
- Combine green technology with free trade to stimulate economic growth
- Encourage public and private entities to participate in mitigation strategies

Past Commitments

The G20 has recently committed to supporting the Paris Agreement. The two commitments made at the 2014 and 2015 summits in Brisbane and Antalya, respectively, were complied with. As such it is likely that the proposed commitment to ratify the Paris Agreement would also be complied with. Additionally, the proposed commitment includes a compliance catalyst of a “one-year timetable.” The G20RG has found in its preliminary research on compliance enhancing mechanisms that including a one-year timetable increases compliance with the G20’s climate change commitments.

Commitments Made

2014-78: We will work together to adopt successfully a protocol, another legal instrument or an agreed outcome with legal force under the UNFCCC that is applicable to all parties at the 21st Conference of the Parties (COP21) in Paris in 2015.

2015-87: We underscore our commitment to reaching an ambitious agreement in Paris that reflects the principle of common but differentiated responsibilities and respective capabilities, in light of different national circumstances.

Advancing the Paris Agreement

As of August 3, 2016, 22 countries have submitted instruments of ratification. Only two are G20 members. France, which emits 1.34% of global greenhouse gas emissions ratified the Paris Agreement on June 9, 2016. The Democratic People's Republic of Korea also did so on August 2, 2016.

Intent to ratify with deadline

Several other G20 countries have expressed their intention to ratify by the end of 2016. These countries represent 55.41% of global greenhouse gas emissions collectively. Individual GHG contributions are listed in brackets beside each country.

Argentina (0.89%): In April, at the signing of the Paris Agreement, Argentina announced ratification will follow in the following months.⁴ In June 2016 Sergio Bergman, Argentina's Environment Minister announced the Paris Agreement was in the process of gaining approval from Parliament. It is likely it will not face opposition.⁵

Australia (1.46%): At the signing of the Paris Agreement, Australia indicated its intention to ratify by the end of 2016.⁶

Brazil (2.48%): In July 2016, Brazil's House of Representatives unanimously approved the ratification of the Paris agreement. It is currently being assessed by the Senate – where it is unlikely it will face opposition, after which it will require Presidential approval.⁷ If so, it is possible the Agreement will become domestic law before COP22 in November.⁸

Canada (1.95%)⁹: Upon signing the Agreement, Prime Minister Justin Trudeau said it will be formally ratified by the end of 2016 pending approval in Parliament and the creation of a national climate plan to execute the Paris Agreement in October.¹⁰ The Paris Agreement is in the House of Commons and it will be up for a vote in the fall.

China (20.09%): Vice Premier Zhang Gaoli announced at the signing of the Paris Agreement that China will ratify before the 2016 G20 Summit in Hangzhou, China.¹¹ Before signing the agreement President Xi Jinping made a joint statement with U.S. President Barack Obama that both China and the U.S. will ratify the

⁴ Briefing Note on the Paris Climate Agreement Signing Ceremony, International Institute for Sustainable Development (New York) 22 April 2016. Date of Access: 5 August 2016. <http://www.iisd.ca/vol12/enb12665e.html>.

⁵ Status of National Efforts to Ratify the Paris Agreement, Climate Scoreboard, August 2016. Date of Access: 5 August 2016. <http://climatescorecard.org/wp-content/uploads/2016/08/CSQ1-Summary-Report.pdf>. Pp. 5.

⁶ <http://www.climatechangenews.com/2016/04/20/australia-hopes-to-ratify-paris-agreement-in-2016-minister/>

⁷ <http://www.ecosystemmarketplace.com/articles/paris-agreement-signed-now/>

⁸ Status of National Efforts to Ratify the Paris Agreement, Climate Scoreboard, August 2016. Date of Access: 5 August 2016. <http://climatescorecard.org/wp-content/uploads/2016/08/CSQ1-Summary-Report.pdf>. Pp. 8.

⁹ <http://unfccc.int/resource/docs/2015/cop21/eng/10.pdf#page=30> = page 30

¹⁰ <http://www.cbc.ca/news/politics/environment-paris-agreement-climate-1.3571359>

¹¹ Briefing Note on the Paris Climate Agreement Signing Ceremony, International Institute for Sustainable Development (New York) 22 April 2016. Date of Access: 5 August 2016. <http://www.iisd.ca/vol12/enb12665e.html>.

agreement “as soon as possible this year.”¹² Many of the targets of the Paris Agreement are consistent with the targets outlined in China’s 13th Five-Year Plan (2016-2020) to combat climate change.¹³

Germany (2.56): On July 5th 2016 at the Seventh Petersburg Climate Dialogue Germany stated its intent to ratify the Paris Agreement before COP22 in November 2016.¹⁴

India (4.10%): India has begun the domestic process for ratification of the Paris Agreement.¹⁵

Indonesia (1.49%): Indonesia has indicated that it will ratify.¹⁶ The Minister for the Environment and Forestry Siti Nurbaya Bakar has expressed optimism that Indonesia will ratify the Paris Agreement early.¹⁷ The Indonesian Parliament supports ratification and Indonesia will do its best to be “among the first 55 countries to ratify the Paris Agreement.”¹⁸

Mexico (1.70%)¹⁹: On June 28, 2016, during a bilateral meeting with Canadian Prime Minister Justin Trudeau, President Enrique Peña Nieto reaffirmed his commitments to ratify the Paris Agreement and to work continue developing and implementing projects to reduce greenhouse gas emissions.²⁰

South Africa (0.80): At the signing of the Paris Agreement the Minister for Environmental Affairs, Bomo Edith Edna Molewa, announced that South Africa began the domestic ratification process and intends to complete the process by COP22.^{21 22}

United States (17.89 %): Before signing the Paris Agreement President Barack Obama made a joint statement with Chinese President Xi Jinping that both the U.S. and China would ratify the agreement “as soon as possible this year.”²³

¹² http://www.nytimes.com/2016/04/01/world/asia/obama-and-president-xi-of-china-vow-to-sign-paris-climate-accord-promptly.html?_r=2

¹³ Status of National Efforts to Ratify the Paris Agreement, Climate Scoreboard, August 2016. Date of Access: 5 August 2016. <http://climatescorecard.org/wp-content/uploads/2016/08/CSQ1-Summary-Report.pdf>. Pp. 10.

¹⁴ Petersburg Climate Dialogue VII Builds Momentum toward Paris Agreement Implementation, International Institute for Sustainable Development (New York) 5 July 2016. Date of Access: 5 August 2016. <http://climate-l.iisd.org/news/petersberg-climate-dialogue-vii-builds-momentum-toward-paris-agreement-implementation/>

¹⁵ India Rolls Out Process to Ratify Paris Agreement for Tackling Climate Change, The Economic Times (New Delhi) 4 July 2016. Date of Access: 5 August 2016. <http://economictimes.indiatimes.com/news/politics-and-nation/india-rolls-out-process-to-ratify-paris-agreement-for-tackling-climate-change/articleshow/53045515.cms>.

¹⁶ Indonesia to Enter New Climate Chapter as Paris Agreement is Signed, WRI Indonesia (Jakarta Selatan) 22 April 2016. Date of Access: 5 August 2016. <http://www.wri-indonesia.org/en/node/41061>.

¹⁷ Briefing Note on the Paris Climate Agreement Signing Ceremony, International Institute for Sustainable Development (New York) 22 April 2016. Date of Access: 5 August 2016. <http://www.iisd.ca/vol12/enb12665e.html>.

¹⁸ Statement by Minister of Environment and Forestry, United Nations (New York) 22 April 2016. Date of Access: 5 August 2016. <http://www.un.org/sustainabledevelopment/wp-content/uploads/2016/04/IndonesiaE.pdf>. Pp. 2.

¹⁹ Report of the Conference of the Parties on its Twenty-first session, held in Paris from 30 November to 13 December 2015, UNFCCC (Paris) 29 January 2016. Date of Access: 5 August 2016. <http://unfccc.int/resource/docs/2015/cop21/eng/10.pdf#page=30>. Pp. 30.

²⁰ Environmental Cooperation Between Canada and Mexico, Prime Minister of Canada Justin Trudeau (Ottawa) 28 June 2016. Date of Access: 5 August 2016. <http://pm.gc.ca/eng/news/2016/06/28/environmental-cooperation-between-canada-and-mexico>.

²¹ Briefing Note on the Paris Climate Agreement Signing Ceremony, International Institute for Sustainable Development (New York) 22 April 2016. Date of Access: 5 August 2016. <http://www.iisd.ca/vol12/enb12665e.html>.

²² Petersburg Climate Dialogue VII Builds Momentum toward Paris Agreement Implementation, International Institute for Sustainable Development (New York) 5 July 2016. Date of Access: 5 August 2016. <http://climate-l.iisd.org/news/petersberg-climate-dialogue-vii-builds-momentum-toward-paris-agreement-implementation/>

Intent to ratify without deadline

European Union (12.08%): The EU has released a proposal to begin a Council Decision which marks the beginning of the ratification process of the Paris Agreement.²⁴

Japan (3.79%): Japan stated that it will make the “necessary preparations” to ratify the agreement but has made no commitment to a specific timeframe.²⁵

Russia (7.53%): Deputy Prime Minister Alexander Khloponin said Russia is preparing a national plan to implement the Agreement.²⁶

Saudi Arabia (0.80%): At the Seventh Petersburg Climate Dialogue in Berlin, the Saudi Arabian oil minister Khalid al-Falih announced “his expectation for the Kingdom to ratify the Agreement” before COP22.²⁷

South Korea (1.85%): The Minister for the Environment, Yoon Seong-kyu announced that Korea will begin the domestic ratification process, however no timeframe was given.²⁸

UK (1.55%): The UK has indicated the Paris Agreement will be ratified “as soon as possible.”²⁹

No expressed intent to ratify

Italy (1.18%): No information as to when Italy will ratify the Paris Agreement.

Turkey (1.24%): No information as to when Turkey will ratify the Paris Agreement.

Public Support

There is significant public support to have world leaders to control climate change

- The Pew Research Center published a study on climate change using a sample of 44,000 people from over 40 countries from all 5 continents representing 76% of the world population. The results show that 78% of respondents “support their own country limiting greenhouse gas emissions as part of an international agreement.” Specifically, 89% in Italy and South Korea, 88% in Brazil, 87% in Germany, and 71% in China.³⁰
- According to the Yale Program on Climate Change Communications 71% of Americans support the creation of a global agreement to limit global warming and 64% said the “U.S. should do more or much

²³ Obama and President Xi of China Vow to Sign Paris Climate Accord Promptly, The New York Times (Washington) 31 March 2016. Date of Access: 5 August 2016. http://www.nytimes.com/2016/04/01/world/asia/obama-and-president-xi-of-china-vow-to-sign-paris-climate-accord-promptly.html?_r=2.

²⁴ Explainer: When will the European Union Ratify the Paris Agreement?, CarbonBrief, 23 June 2016. Date of Access: 5 August 2016. <https://www.carbonbrief.org/explainer-when-will-european-union-ratify-paris-agreement>.

²⁵ How to Bring the Paris Agreement in this Year, Climate Home, 28 March 2016. Date of Access: 5 August 2016. <http://www.climatechangenews.com/2016/04/28/how-to-bring-the-paris-agreement-in-this-year/>.

²⁶ Briefing Note on the Paris Climate Agreement Signing Ceremony, International Institute for Sustainable Development (New York) 22 April 2016. Date of Access: 5 August 2016. <http://www.iisd.ca/vol12/enb12665e.html>.

²⁷ Germany and Saudi Arabia to Ratify Paris Agreement, Climate Action and United Nations Environment Programme, 11 July 2016. Date of Access: 5 August 2016. http://www.climateactionprogramme.org/news/germany_and_saudi_arabia_to_ratify_paris_agreement.

²⁸ Briefing Note on the Paris Climate Agreement Signing Ceremony, International Institute for Sustainable Development (New York) 22 April 2016. Date of Access: 5 August 2016. <http://www.iisd.ca/vol12/enb12665e.html>.

²⁹ Brexit and the Paris Agreement, E3G – Third Generation Environmentalism, 30 June 2016. Date of Access: 5 August 2016. <https://www.e3g.org/library/brexit-and-the-paris-agreement>.

³⁰ Public Opinion on the Climate Challenge: A Trip Around the World Before COP21, France Diplomatie, 6 November 2015. Date of Access: 5 August 2015. <http://www.diplomatie.gouv.fr/en/french-foreign-policy/climate/2015-paris-climate-conference-cop21/article/public-opinion-on-the-climate-challenge-a-trip-around-the-world-before-cop21-06>.

more to address global warming.”³¹ Another poll conducted by the New York Times reports that two thirds of Americans want the United States to join the Paris Agreement.³²

- A study conducted by the Environics Institute shows that most Canadians are concerned about climate change.³³ Public support for an international agreement is at 61%.³⁴
- Microsoft, Shell, Siemens and many more U.S. companies provided a statement endorsing the implementation of the Paris Agreement.³⁵
- Bill Gates, Mark Zuckerberg and Jeff Bezos will promote green start-ups and private investment through the Breakthrough Energy Coalition.³⁶

Agenda 2030

Compliance with the proposed commitment will count as direct action towards the completion of Goal 13 of the 2030 Agenda for Sustainable Development, which calls for urgent climate action.

³¹ Americans Support the Paris Climate Agreement Signing this Earth Day, Yale Program on Climate Change Communication, 21 April 2016. Date of Access: 5 August 2016. <http://climatecommunication.yale.edu/news-events/americans-support-paris-climate-agreement-signing-earth-day/>.

³² Two-Thirds of Americans Want U.S. to Join Climate Change Pact, The New York Times, 30 November 2015. Date of Access: 5 August 2016. http://www.nytimes.com/2015/12/01/world/americas/us-climate-change-republicans-democrats.html?_r=0.

³³ Focus Canada 2015: Canadian Public Opinion About Climate Change, The Environics Institute, August 2015. Date of Access: 5 August 2016. <http://www.environicsinstitute.org/uploads/institute-projects/environicsinstitute-dsf%20focus%20canada%202015%20-%20climate%20change%20survey%20-%20final%20report%20-%20english.pdf>. Pp. 4.

³⁴ Focus Canada 2015: Canadian Public Opinion About Climate Change, The Environics Institute, August 2015. Date of Access: 5 August 2016. <http://www.environicsinstitute.org/uploads/institute-projects/environicsinstitute-dsf%20focus%20canada%202015%20-%20climate%20change%20survey%20-%20final%20report%20-%20english.pdf>. Pp. 5.

³⁵ Major Companies Support Paris Agreement, Center for Climate and Energy Solutions, 20 April 2016. Date of Access: 5 August 2016. <http://www.c2es.org/newsroom/releases/major-companies-support-Paris-Agreement>.

³⁶ As OPEC Seals Fragile Peace, World Ramps Up Clean Energy Goals, Climate Home, 3 June 2016. Date of Access: 5 August 2016. <http://www.climatechangenews.com/2016/06/03/as-opec-seals-fragile-peace-world-ramps-up-clean-energy-goals/>.

3. Finance Climate Control

Ana Zotovic

Previous Commitment

We welcome the G20 Climate Finance Study Group to provide ways for G20 countries to effectively mobilize climate finance taking into account the objectives, provisions and principles of the United Nations Framework Convention on Climate Change (UNFCCC). We support the operationalization of the Green Climate Fund and encourage developed countries to make immediate progress toward their commitment under the UNFCCC to jointly mobilize US\$100 billion per year by 2020 from public, private, bilateral and multilateral sources. We will continue to improve the collaboration and cooperation among climate funds to ease the understanding of the global climate funds landscape. We will focus on adaptation financing for developing countries, especially for those that are particularly vulnerable to the adverse effects of climate change. We will share experiences on public finance mobilization for both mitigation and adaptation actions and will promote effective financial instruments and approaches to enhance climate finance and stimulate climate-friendly private investment, such as green bonds, risk-sharing instruments and greenhouse gas emission pricing approaches.

Past Commitments

Meeting of Finance Ministers and Central Bank Governors- Paris, France, February 18-19, 2011

We discussed the way forward on implementing the Seoul Development Consensus on Shared Growth and its Multi-Year Action Plan. In particular we welcome the launch of the Global Partnership for Financial Inclusion last December. We also welcome the appointment of the members of the High Level Panel for Infrastructure Investment, and look forward to their recommendations by September. We discussed the report made by the UN High-Level Advisory Group on Climate Change Financing. We welcome the positive outcomes of the Cancun Climate Conference, and in particular the decision to establish a Green Climate Fund, and will pursue discussions on mobilizing sources of financing, including public and private, bilateral and multilateral, as well as innovative sources, consistent with the objective, provisions and principles of the UN Framework Convention on Climate Change (UNFCCC).

G20 Leaders' Declaration- Cannes, France, November 4, 2011

We are committed to the success of the upcoming Durban Conference on Climate Change and support South Africa as the incoming President of the Conference. We call for the implementation of the Cancun agreements and further progress in all areas of negotiation, including the operationalization of the Green Climate Fund, as part of a balanced outcome in Durban. We discussed the IFIs report on climate finance and asked our Finance Ministers to continue work in this field, taking into account the objectives, provisions and principles of the UNFCCC.

Meeting of Finance Ministers and Central Bank Governors, Washington DC, April 20, 2012

We will continue to work on climate finance with the establishment of a G20 study group to consider ways to effectively mobilize resources and support the operationalization process of the Green Climate Fund taking into account the objectives, provisions and principles of the UNFCCC.

G20 Leaders' Declaration- Los Cabos, Mexico, June 19, 2012

Climate change will continue to have a significant impact on the world economy, and costs will be higher to the extent we delay additional action. We reiterate our commitment to fight climate change and welcome the outcome of the 17th Conference of the Parties to the UN climate change conferences. We are committed to the full implementation of the outcomes of Cancun and Durban and will work with Qatar as the incoming

Presidency towards achieving a successful and balanced outcome at COP-18. We emphasize the need to structurally transform economies towards a climate-friendly path over the medium term. We welcome the creation of the G20 study group on climate finance, in order to consider ways to effectively mobilize resources taking into account the objectives, provisions and principles of the UNFCCC in line with the Cancun Agreement and ask to provide a progress report to Finance Ministers in November. We support the operationalization of the Green Climate Fund.

Meeting of Finance Ministers and Central Bank Governors – Moscow, Russia, July 20, 2013

We recognize the importance of our continued discussions on climate finance and on ways to effectively mobilize resources, taking into account the objectives, principles and provisions of UNFCCC. We take note of the experiences shared between members last June in Paris. We will report to the Leaders in St Petersburg on the main messages coming out of these discussions and propose a way forward for the next year.

G20 Leaders' Declaration - St Petersburg, Russia, September 6, 2013

Taking note of the developments over the past year, we support the operationalization of the Green Climate Fund (GCF). We welcome the report of the G20 Climate Finance Study Group on G20 countries' experiences on ways to effectively mobilize climate finance taking into account the objectives, provisions, and principles of the UNFCCC. For the purpose of elaborating on the issues and identifying approaches to climate finance, we ask our Finance Ministers to continue the work building on the working group report and report back to us in one year.

Meeting of Finance Ministers and Central Bank Governors Washington DC, April 11, 2014

We ask the G20 Climate Finance Study Group to report at our next meeting on their work to identify a range of policy options on key issues, including ways to effectively mobilise climate finance, taking into account the objectives, principles and provisions of the UNFCCC, as tasked by leaders in St Petersburg

G20 Leaders' Declaration-Brisbane, Australia- November 16, 2014

We support strong and effective action to address climate change. Consistent with the United Nations Framework Convention on Climate Change (UNFCCC) and its agreed outcomes, our actions will support sustainable development, economic growth, and certainty for business and investment. We will work together to adopt successfully a protocol, another legal instrument or an agreed outcome with legal force under the UNFCCC that is applicable to all parties at the 21st Conference of the Parties (COP21) in Paris in 2015. We encourage parties that are ready to communicate their intended nationally determined contributions well in advance of COP21 (by the first quarter of 2015 for those parties ready to do so). We reaffirm our support for mobilising finance for adaptation and mitigation, such as the Green Climate Fund.

Meeting of Finance Ministers and Central Bank Governors, Washington DC, April 17, 2015

Recognizing the importance of our continued discussions on climate finance, we will work to reach favorable outcomes in the determined areas of the Climate Finance Study Group's work this year with the contributions of IOs. We ask the Group to finalize this year's work and report back to us at our September meeting.

G20 Finance Ministers and Central Bank Governors Meeting Chengdu, China, July 24, 2016

We welcome the domestic steps already undertaken by some countries, and encourage others to do so, to help bring the Paris Agreement on Climate Change into force as soon as possible. We reiterate our call for timely implementation of the Paris Agreement on Climate Change and the commitments made by developed countries and IOs and announcements made by other countries on climate finance. We welcome the Climate Finance Study Group's (CFSG) Report on "Promoting Efficient and Transparent Provision and Mobilization of Climate Finance to Enhance Ambition of Mitigation and Adaptation Actions" and take note of the

Outlook on "Mainstreaming Climate Change Considerations into Development Assistance and Climate Finance Programs". We will continue working on climate finance in 2017 under the working arrangement of next year's G20 Presidency, in consultation with other members, with the objective to contribute to the discussions held under the United Nations Framework Convention on Climate Change (UNFCCC) and by building on G20 fora expertise and knowledge and experiences sharing.

Climate Impact

The Green Climate Fund (GCF) serves as a multilateral financial mechanism of the UNFCCC. Established during the 15th Conference of the Parties (COP 15) in Copenhagen in 2009, the GCF was formally adopted at the 2011 UNFCCC (COP 17) in Durban, South Africa. In order to advance action on low-carbon, climate-resilient development, GCF allows for adequate and predictable investments from the public and private sectors to be channeled to projects which tackle climate mitigation and adaptation in the developing world. Developed countries agreed to jointly mobilize \$100 billion per year by 2020 for climate finance. Transparency in the amount and type of financial resources available and the effectiveness of these resources being spent is critical to building trust among countries.

As of July 2016, the Green Climate Fund has raised \$10.3 billion in pledges from 43 countries, including nine developing countries.³⁷ So far the CGF board had approved \$168 million for the first eight projects. This includes two private sector and two mitigation projects and six public sector projects focusing on adaptation or crosscutting mitigation and adaptation.³⁸ For these projects, different financial instruments were used including grants, concessional loans, equity investments and risk guarantees. Over time the GCF may offer an even broader suite of financial instruments directly, for example a GCF green bond.³⁹

The Climate Finance Study Group was established by G20 Finance Ministers in April 2012 and was supported by leaders at the Los Cabos Summit in June 2012, with a view "to consider ways to effectively mobilize resources taking into account the objectives, provisions and principles of the UNFCCC."⁴⁰ The G20 Climate Finance Study Group created a 2015 Report with the collaboration of the OECD, the Inter-American Development Bank, the Climate Policy Initiative, the World Bank's Partnership for Market Readiness and the Global Environment Facility (GEF).⁴¹

Agenda 2030

Climate Finance is directly linked to Sustainable Development Goals adopted at the United Nations Sustainable Development Summit in 2015. These include:

SDG 7- Ensure access to affordable, reliable, sustainable and modern energy for all

SDG 11 - Make cities inclusive, safe, resilient and sustainable

SDG 13 - Take urgent action to combat climate change and its impacts

³⁷ Green Climate Fund. Date of Access: 8 August 2016

https://www.greenclimate.fund/documents/20182/24868/Status_of_Pledges.pdf/eef538d3-2987-4659-8c7c-5566ed6afd19

³⁸ Green Climate Fund approves first 8 investments, Green Climate Fund, 6 November 2016. Date of Access: 8 August 2016.

<http://www.greenclimate.fund/-/green-climate-fund-approves-first-8-investmen-1>

³⁹ "The Green Climate Fund" Heinrich Böll Stiftung North America and ODI. Date of Access 8 August 2016

<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/10066.pdf>

⁴⁰ Climate Finance Study Group Annual Report 2015. Date of Access: 8 August 2016. <http://g20.org.tr/wp-content/uploads/2015/11/G20-Climate-Finance-Study-Group-Annual-Report-2015.pdf>

⁴¹ Annex III-STAP Review, Global Environment Facility. Date of Access: 8 August 2016. <https://www.thegef.org/gef/node/1148>

4. Green Finance

Kateryna Dzhaha

Proposed Commitment

We welcome the G20 Green Finance Synthesis Report submitted by the Green Finance Study Group (GFSG) and recognize that green finance is key to resolving climate change. We are strongly committed to mobilizing green investment globally. We will strive to eliminate domestic and cross-border institutional and market barriers to green finance. We will support the development of local green bond markets and facilitate cross-border investment in green bonds.

China's Green Finance Goals

China has declared green finance as one of the key focus areas of its G20 presidency. In December 2015, China launched the Green Finance Study Group with a mandate to develop recommendation to scale up green finance globally. Specifically, it will identify institutional and market barriers to green finance and consider best practices and country experiences. China's initiative has been triggered by its severe environmental problems. Green finance offers China and other G20 members a unique opportunity to demonstrate their commitment to solving climate change and to deliver positive results for its citizens. Green finance will allow G20 member states to channel private investment into sustainable projects.

Past Commitments

Recognizing the pressing environmental challenges and the importance of mobilizing green finance, we have established the G20 Green Finance Study Group (GFSG). We ask the GFSG to identify institutional and market barriers to green finance, and based on country experiences, develop options on how to enhance the ability of the financial system to mobilize private capital for green investment. The GFSG will collaborate with other G20 groups and other external initiatives as well as with the private sector. We expect the GFSG to deliver a synthesis report by our July meeting.

We welcome the progress made by the G20 Green Finance Study Group (GFSG) in identifying challenges to mobilize private capital for green investment. Many of these challenges can be addressed by financial innovations, knowledge sharing and capacity building, risk analysis and international cooperation. We ask the GFSG to develop, for consideration by countries, more specific options for developing green banking, scaling-up the green bond market, supporting the integration of environmental factors by institutional investors, and developing ways for measuring progress of green financial activities, as part of its synthesis report to be delivered by July.

We recognize that, in order to support environmentally sustainable growth globally, it is necessary to scale up green financing. We welcome the G20 Green Finance Synthesis Report submitted by the Green Finance Study Group (GFSG), and welcome the voluntary options developed by the GFSG to enhance the ability of the financial system to mobilize private capital for green investment. In particular, we believe that efforts could be made to provide clear strategic policy signals and frameworks, promote voluntary principles for green finance, expand learning networks for capacity building, support the development of local green bond markets, promote international collaboration to facilitate cross-border investment in green bonds, encourage and facilitate knowledge sharing on environmental and financial risks, and improve the measurement of green finance activities and their impacts.

Agenda 2030

Boosting green finance contributes to achieving the following sustainable development goals:

13.a) Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible

15.b) Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation;

5. Reinforce Renewable Energy

Roberts Pererya

Proposed Commitment

We commit to accelerate renewable energy innovation and investments worldwide through the exchange of best practices of technology and policies, the design of renewable energy-specific risk-mitigation instruments and increased research and development efforts, in particular clean energy solutions such as smart grid infrastructure, bioenergy prospects, fuel cell technologies and energy storage, among others; to support the implementation of the G20 Energy Efficiency Leading Programme (EELP), the Sustainable Energy for All (SE4ALL) global initiative and the United Nations Sustainable Development Goals

Past Commitments

2009P-83: We commit to stimulate investment in clean energy, renewables, and energy efficiency and provide financial and technical support for such projects in developing countries (energy) +0.44

2009P-84: [We commit to] take steps to facilitate the diffusion or transfer of clean energy technology including by conducting joint research and building capacity (energy) +0.75

2010S-135: We will take steps to create, as appropriate, the enabling environments that are conducive to the development and deployment of energy efficiency and clean energy technologies, including policies and practices in our countries and beyond, including technical targeted transfer and capacity building (energy) +0.75

2011C-242: We commit to encouraging effective policies that overcome barriers to efficiency, or otherwise spur innovation and deployment of clean and efficient energy technologies (energy) +0.95

2013-12: [We commit] to take steps to support the development of cleaner and more efficient energy technologies to enhance the efficiency of markets and shift towards a more sustainable energy future (energy) +0.55

2014-23: G20 countries agree to work together to...encourage and facilitate the design, development, demonstration...of innovative energy technologies, including clean energy technologies (energy) +0.90

Climate Change Control

Regarding climate change control, lifecycle assessments (LCA) for electricity generation indicate that greenhouse gases (GHG) from renewable energy technologies are, in general, significantly lower than those associated with fossil fuel options (the median values for all renewable energies range from 4 to 46 g CO₂ eq/kWh while those for fossil fuels range from 469 to 1001 g CO₂ eq/kWh). Renewable energy technologies can significantly reduce regional and local air pollution and related health concerns (comparative quantifications of health risks showed that more than 1.6 million deaths and over 38.5 million of disability adjusted life-years were attributable to indoor smoke from solid fuels), as well as accounting for lower fatality rates.⁴²

⁴² "Special Report on Renewable Energy Sources and Climate Change Mitigation". Intergovernmental Panel on Climate Change. 2012. Date accessed: July 21, 2016. https://www.ipcc.ch/pdf/special-reports/srren/SRREN_FD_SPM_final.pdf

Public support

Strong public support for renewable energy is shown by several polls conducted by the EU⁴³ (over 91% say that it is important for national governments to set targets to increase renewable energy usage by 2030) and USA⁴⁴ (74% of Americans agree that state governments should require a portion of all electricity to come from renewables), as well as in Australia⁴⁵ and Canada⁴⁶, among others.

Economic support

Strong renewables targets and support for policies to stimulate R&D, innovation and investment in renewable generation have driven much of the recent growth in the renewables market. As of mid 2015, seventeen of the G20 members have national targets for renewable electricity generation⁴⁷, standing out Australia (28% by 2020), China (30% by 2020)⁴⁸, France (27% by 2020), Germany (“Energiewende”: at least 35% by 2020), Italy (26.39% by 2020), Mexico (35% by 2024), Spain (40% by 2020), Turkey (30% by 2023) and the UK (30% by 2020) as the countries with the largest commitments taken upon, as well as the US (world’s second biggest investor in renewable energy) with 29 states having binding renewable energy targets (such as Texas and California)⁴⁹ and Canada with renewable energy targets at the sub-national level (renewable source generation at 65% of its total electricity in 2012)⁵⁰. Almost all of G20 countries have adopted measures aimed to promote investment in renewable electricity generation via financing schemes (such as feed-in tariffs, tenders, tax policies, grants, green certificate schemes, tradable permits), pricing, fiscal, public bidding, and R&D policy support⁵¹.

In this sense, 18% of global total final energy consumption (TFEC) in 2014 was produced by renewable energies. The G20 countries account for the bulk of this, hosting 80% of the existing renewable power capacity around the world⁵². As such, the G20 is therefore presented with an important opportunity to make collective progress towards the objective of developing and deploying energy efficiency and clean energy technologies.

⁴³ “Report: Climate Change”. Special Eurobarometer 435. European Commission. November 2015. Date accessed: July 21, 2016. http://ec.europa.eu/clima/citizens/support/docs/report_2015_en.pdf

⁴⁴ “Widespread Public Support for Renewable Energy Mandates Despite Proposed Rollbacks”. National Surveys on Energy and Environment. Issues in Energy and Environmental Policy. Number 22, June 2015. Date accessed: July 21, 2016. <http://closup.umich.edu/files/ieep-nsee-2015-renewable-portfolio-standards.pdf>

⁴⁵ “Public support for renewable energy stronger than ever”. PacificHydro. September 2014. Date accessed: July 21, 2016. <http://www.pacifichydro.com.au/public-support-for-renewable-energy-stronger-than-ever/>

⁴⁶ “National survey reveals growing majority support for government action on climate change and renewable energy”. David Suzuki Foundation. September 2015. Date accessed: July 21, 2016. <http://www.davidsuzuki.org/media/news/2015/09/national-survey-reveals-growing-majority-support-for-government-action-on-climat/>

⁴⁷ “Renewable Energy Target Setting”. The International Renewable Energy Agency: IRENA. June 2015. Date accessed: 24 July, 2016 http://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Target_Setting_2015.pdf

⁴⁸ “China’s Continuing Renewable Energy Revolution: Global Implications”. Hao Tan, Jhon Mathews. The Asia-Pacific Journal. Volume 12, Issue 12, Number 3, March 2014. Date accessed: July 24, 2016. <http://apjif.org/-John-A--Mathews---Hao-Tan/4098/article.pdf>

⁴⁹ “Fact Check – How does Australia’s Renewable Energy Target compare with what other G20 countries are doing?” Climate Institute. September 2014. Date accessed: July 24, 2016.

http://www.climateinstitute.org.au/verve/_resources/TCL_HowDoesOurRETCompareToG20_Factcheck_September2014.pdf

⁵⁰ “Invest in Canada – Renewable Energy” Foreign Affairs, Trade and Development Canada. Winter 2014. Date accessed: July 24, 2016. http://international.gc.ca/investors-investisseurs/assets/pdfs/download/Renewable_Energy.pdf

⁵¹ “G-20 Clean Energy, and Energy Efficiency Deployment and Policy Progress”. International Energy Agency. 2011. Date accessed: July 21, 2016. https://www.iea.org/publications/freepublications/publication/G20_paper.pdf

⁵² “G20 Toolkit of Voluntary Options for Renewable Energy Deployment”. The International Renewable Energy Agency: IRENA. 2015, Turkey G20. Date accessed: July 21, 2016. http://www.irena.org/documentdownloads/Pressrelease/G20_Toolkit.pdf

Leaders and Resistors

In 2010, the renewable energy shares of Australia, Japan, Republic of Korea, Russian Federation, the United Kingdom and the United States were all below 10%. In comparison, Brazil and India (including traditional uses of bioenergy) were at more than 40%. The expected renewable energy share growth are between 1.2 (Brazil and Canada) and 1200 (Saudi Arabia) times between 2010 and 2030, depending on the starting level of renewables share and other factors such as resource availability, policy environment, access to finance, costs of technologies and rate of capacity stock turnover.

All the G20 countries have potential to raise their renewable energy shares, varying by their specific circumstances and priorities. Under Remap (IRENA's roadmap for renewable energy deployment), for the G20 as a whole, there is a potential to increase the modern renewable energy share to 25% of TFEC. (more than a doubling of the G20 modern renewable energy share by 2030 compared to the level in 2010 of 10%)⁵³.

Agenda 2030

Compliance with this commitment can help advance sustainable development goal 7 to “ensure access to affordable, reliable, sustainable and modern energy for all.” It will also help advance SDG7 sub-goals as follows:

- 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix”
- 7.a By 2030, enhance international cooperation to facilitate access to energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology”
- 7.b By 2030, By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support”

⁵³ “G20 Toolkit of Voluntary Options for Renewable Energy Deployment”. The International Renewable Energy Agency: IRENA. 2015, Turkey G20. Date accessed: July 21, 2016. http://www.irena.org/documentdownloads/Pressrelease/G20_Toolkit.pdf

6. Cut Coal

Courtney Hallink

Proposed Commitment

We commit to continually decrease our relative collective consumption of coal used to generate electricity and to provide support to our partners in developing countries, including those within the G20 that are the most reliant on coal, to assist them in the transition from a heavy reliance on coal to the utilization of renewable and other climate friendly energy sources.

Past Commitments

Specific references to coal, beginning at the Cannes 2011 Summit, have been limited to direction setting in statements such as “We call for annual symposiums and communiqués on short, medium and long term outlook and forecasts for gas and coal,” and “We call for further work on gas and coal market transparency and the IEA, IEF, and OPEC, to provide recommendations in this field by mid-2012.” G20 leaders have so far failed to deliver any coal-specific commitments.

G20 commitments regarding coal have been restricted to those pertaining to fossil fuels as a whole, and specifically fossil fuel subsidies. G20 leaders have reaffirmed the commitment to phase out fossil fuel subsidies every year since its Pittsburgh Summit in 2009. Compliance with this commitment and its reaffirmed ones has been less than adequate, with an average of 63% in 2009 to 2014, and has continued to decrease since 2011.

The Costs of Coal Production and What Can Be Done

The production of coal often results in the contamination of water and the destruction of natural habitats.⁵⁴ As Tim Boersma and Stacy D. VanDeveer assert “burning coal adds millions of tons of dangerous particulates and greenhouse gases, including carbon, to the atmosphere.” Coal production in the European Union results in over \$50 billion in medical costs each year.⁵⁵ Plans to increase Japan’s coal production are expected to cause approximately 10,000 deaths.⁵⁶

Led by Canada in 2009 and the UK in 2016, G20 countries including Germany and France have taken noteworthy measures to phase out coal for electricity generation and tackle climate change. Support for the reduction of coal in countries such as South Africa, China, India and Russia is relatively weak, as coal remains a predominant portion of the countries’ energy mix (see Table 4).

The Overseas Development Institute reports “annual subsidies from fossil fuel production in 2013 and 2014 totaled \$444 billion on average [within the G20],” approximately four times the global amount provided for subsidies to renewables.⁵⁷ In 2015, post-tax energy subsidies totalled \$5.3 trillion, of which 59.3%, or \$3.1 trillion, were subsidies for coal.⁵⁸ If the G20 complies with its commitment to reduce fossil fuel subsidies, the group can redirect the money to implement renewable energy sources and reduce the consumption of coal.

⁵⁴ Tim Boersma Stacy D. VanDeveer, “Coal After the Paris Agreement,” *Foreign Affairs*, June 08, 2016, accessed July 23, 2016, <https://www.foreignaffairs.com/articles/2016-06-06/coal-after-paris-agreement>.

⁵⁵ Tim Boersma Stacy D. VanDeveer, “Coal After the Paris Agreement,” *Foreign Affairs*, June 08, 2016, accessed July 23, 2016, <https://www.foreignaffairs.com/articles/2016-06-06/coal-after-paris-agreement>.

⁵⁶ “Japan’s Massive Coal Plans to Cause over 10,000 Premature Deaths New Research Shows,” 国際環境NGOグリーンピース, accessed July 25, 2016, <http://www.greenpeace.org/japan/ja/news/press/2016/pr201605171/>.

⁵⁷ Elizabeth Bast et al., Empty Promises G20 Subsidies to Oil, Gas and Coal Production, report, November 2015, 2, <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9958.pdf>.

⁵⁸ David Coady et al., IMF Working Paper: How Large Are Global Energy Subsidies, working paper no. 15/105, May 2015, 37, <https://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf>.

Agenda 2030

The Cut Coal Initiative can help advance the following sustainable development goals:

SDG 3: Ensure healthy lives and promote well-being for all at all ages

SDG 12: Ensure sustainable consumption and production patterns

SDG 13: Take urgent action to combat climate change and its impacts

SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

Table 4: Overview of Share of Coal in G20 Economies

G20 member	Coal production (Mtoe, 2015)	Coal exports (million tonnes, 2013)	Primary energy consumption: coal (Mtoe, 2015)	Coal share of electricity generation (2013)	Share of global greenhouse gas emissions (2015)
Argentina	-	-	1.4	2.4%	0.7%
Australia	275.0	336.1	46.6	64.7%	1.2%
Brazil	3.4	-	17.4	3.8%	3.2%
Canada	35.8	39.1	19.8	10.0%	1.5%
China	1,827.0	5.6	1,920.4	75.4%	21.7%
France	-	-	8.7	4.4%	1.0%
Germany	42.9	-	78.3	46.8%	1.9%
India	283.9	-	407.2	72.8%	5.7%
Indonesia	241.1	410.9	80.3	51.2%	3.8%
Italy	-	-	12.4	16.8%	1.0%
Japan	0.6	-	119.4	32.4%	2.7%
Mexico	7.0	-	12.8	10.8%	1.3%
Republic of Korea	0.8	-	84.5	41.4%	1.3%
Russia	176.6	140.8	88.7	15.2%	5.0%
Saudi Arabia	-	-	0.1	0.0%	1.0%
South Africa	142.9	74.6	85.0	93.7%	1.0%
Turkey	16.4	-	34.4	26.6%	0.8%
United Kingdom	5.3	-	23.4	37%	1.2%
United States	455.2	106.7	396.3	39.9%	13.5%
European Union	145.3	-	262.4	27.5%	10.0%

*Extracted from World Bank, BP Energy Outlook, Eurostat, and OECD. Note that for some countries more recent data are available, but we have worked with base years for which data for all G20 members were available in Tim Boersma and Stacy D. VanDeveer, "The G-20 after Paris: Upping the Ante with Coal," Newsdesk Media, accessed July 25th, 2016.

7. Grow Green

Alissa Wang

Proposed Commitment

Consistent with the green growth consensus reached in Mexico in 2012, we commit to take an integrated approach towards achieving inclusive green growth through the development of standardized metrics for environmental accounting and green GDP calculation into our national plans for economic growth and sustainable development. Pursuant to this analysis, we will introduce on a voluntary country-specific basis, environmentally enhancing taxation and pricing of natural resources. We will establish a Green GDP Working Group under China's leadership. We call on international organizations including the IMF, The World Bank, UNEP and the OECD to work with the G20 Green GDP Working Group to begin producing green national accounts calculations in parallel with their other annual data calculations, with the preliminary report to be provided to us by the time of the Hamburg Summit, at which time member countries could be invited to apply the results to their own GDP calculations on a voluntary basis.

Past Commitments

2010-134: We are committed to support country-led green growth policies that promote environmentally sustainable global growth along with employment creation while ensuring energy access for the poor.

2011-230 We are committed to promote sustainable development and green growth and to continue our efforts to face the challenge of climate change.

2011-241 We will promote low-carbon development strategies in order to optimize the potential for green growth and ensure sustainable development in our countries and beyond.

2012LC-94 We [welcome international efforts in launching the Green Growth Knowledge Platform and] will continue exploring options to provide appropriate support to interested developing countries.

2012LC-230 We are committed to promote sustainable development and green growth and to continue our efforts to face the challenge of climate change.

Climate Benefits of Compliance

1. Facilitate international cooperation through a standard approach and standardized metrics
2. Lower carbon emissions: pricing the use of natural resources would mean a carbon pricing system – and for that to be in line with green growth, it would imply higher price for carbon – which would ultimately lead to a shift from carbon to other cleaner energy sources
3. Lead to green technological innovation – pricing mechanism is an incentive to develop cheaper and cleaner technology
4. Integrated approach and standardized metric will facilitate green trade
5. Provides economic justification for the reduction of fossil fuel subsidies
6. Ensures natural resources are used sustainably through market mechanisms when prices are attached to those resources
7. Eliminates environmentally harmful practices in general through environmental taxation
8. Promotes economic growth through increasing efficiency – more efficient use of natural resources when pricing mechanism is in effect
9. How soon how much? Not immediate gains but long term gains – this initiative offers a framework to achieve long-term, future-oriented and large scale greenhouse gas reductions and will lead to a sequence of country-specific initiatives

China's leadership in Green GDP

China's first experiment with Green GDP began in 2004 when the green GDP index replaced ordinary GDP as a performance measure for government officials. Because of the decentralization of economic planning to the provincial level, provincial officials are often faced with economic growth targets, and the encouragement of green GDP as a growth metric was meant to encourage provincial officials to take environmental damage into economic calculations and when making policy decisions. In September 2006 the first green GDP accounting report was published, which assessed the year 2004. The financial loss caused by pollution was calculated to be 511.8 billion Yuan (66.3 billion USD), equal to 3.05% of China's economy. However, this effort collapsed in 2007 because the environment-adjusted GDP level reduced the growth rate to politically unacceptable levels – for some provinces, the growth rate was 0. Then, with the 2008 financial crisis, any consideration of balancing growth with sustainability was brushed aside, and the program was officially cancelled in 2009.

In 2014, the Chinese economy missed its growth target and grew at the slowest pace in 24 years. China began to adjust to its “new normal.” And during this time, the Ministry of Environmental Protection began to take on a more powerful role, for example by exercising its veto power to refuse the approval of a large hydroelectric project that was projected to bring 32 billion yuan in investment and a boom to the local economy. China's environmental protection agency rejecting a huge economic opportunity due to its high ecological cost is significant. Carrying on this momentum, the Ministry of Environmental Protection presented “Green GDP 2.0” and resumed research into this topic for the first time after its cancellation. This project is currently underway.

One important factor to consider when assessing Chinese willingness to lead this global effort is the role of Civil Society. Civil society has played quite a significant role in the rise in influence of China's Ministry of Environmental Protection. One of the most influential documentaries produced in 2015 was “Under the Dome” – it had over 300 million views in China, and brought to light the problem of air pollution and smog in China. There were also recently increasing instances of local peaceful protests against projects that have a high environmental cost. It is important for the Chinese government support activists and show that it is willing to take bold, leadership actions on green growth, to prevent social mobilization against the government along the lines of environmental issues. Thus, China's role in the green growth effort is important for not only its global leadership but also domestic stability.

*See Table 5 for a list of other G20 countries green national accounting

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Compliance with this commitment can help advance the following sustainable development goals:

Goal 1: Reduce the poor's vulnerability to climate related events and other environmental shocks – inclusive green growth (means distributional measures across different socioeconomic populations)

Goal 2: Ensure food production systems increase productivity but also help maintain ecosystems

Goal 3: Reduce deaths and illnesses from hazardous chemicals and air

Goal 6: Safe drinking water for all; increase water efficiency

Goal 7: Ensure access to modern renewable energy services

Goal 8: Promote development oriented policies; encourage innovation;

Goal 9: Develop quality, reliable sustainable infrastructure

Goal 10: Equality

Goal 17: Enhance policy coherence; By 2030 build on existing initiatives to develop measurements of progress on sustainable development that complement GDP

Table 5: G20 Countries' Green National Accounting Implementation Dates

Country	Summary
Indonesia	In 2002 the National Development Planning Agency calculated a "green GDP," including degradation factors and accounts used to advise on policy. There are plans to further produce Indonesia's Green GDP, but this is limited to policy advisory purposes
Canada	For the first time, the value of natural resource assets was included in Canada's National Balance Sheets (Asset accounts for oil, gas, minerals and timber cover period 1976-2001)
France	Environmental protection expenditure accounts are developed, but many areas are not covered
Germany	Environmental Accounts for Water and Waste Water" 1991-1998; Physical Input-Output Tables set up 1995
India	Environmental accounting work began in 1991. At this time natural resource accounting was developed for some regions; work on energy use has been done, although this is mostly at the regional and not the national level
Italy	Experimental work done
Japan	Began developing green national accounting in 1991 with governmental research institutes leading this research; environmentally adjusted gross domestic product calculated, but no evidence that this is continuing
Korea	Starting to develop an environmental accounting system
Mexico	Work on integrated environmental and economic accounting has been an ongoing project since early 1990s
United Kingdom	Environmental accounts used to inform sustainable development policy
United States	Unclear

8. Free Green Trade

Maria Marchyshyn

Proposed Commitment

We commit to conclude an agreement to produce full free trade in environmental goods and services by the next G20 summit, building on the commitments APEC members have made in 2012. During the time of slow economic growth and trade, green trade liberalization could boost global growth and sustainable development. We fully support trade liberalization in environmental goods and services. Wider use of green goods and services is fundamental to solving the serious challenge of climate change. Building on G20 trade ministers meeting in Shanghai, we, the G20 members that are a party to the Environmental Goods Agreement (EGA) also agree to conclude the negotiations of the EGA by the end of this year and encourage other G20 members who are not parties to the EGA to join this agreement. We entrust the newly created G20 Trade and Investment Working Group to work closely with the WTO to assist with the negotiation process. We urge the new WTO World Trade Outlook Indicator to contain data on trade in green goods and services and welcome input from B20 and L20 in the G20 EGA negotiation and implementation process. As with other trade, it is essential to increase finance and trade facilitation for developing countries and SMEs to ensure greater access to trade in green goods and services. The establishment of a “Green Fast Start Fund” will aid in this initiative as well as lessen the impact on those who suffer from green trade liberalization.

Past Commitments

There have been no commitments on green trade liberalization at the G20 leaders level. The Trade Ministers Meeting in Shanghai on July 10, 2016, was the first to address the green trade issue. The declaration stated: “...we note... negotiations of... the Environmental Goods Agreement (EGA). WTO members who share the objectives of participants in such plurilateral agreements and negotiations should be encouraged to join....G20 EGA participants recognize the substantial progress made to date in the negotiations on an Environmental Goods Agreement, and aim to conclude, using best efforts, an ambitious, future-oriented EGA that seeks to eliminate tariffs on a broad range of environmental goods by an EGA Ministerial meeting to be held by the end of 2016, having achieved a landing zone by the G20 Summit in September in Hangzhou, after finding effective ways to address the core concerns of participants.”

Climate Impact

Climate change is a global problem that needs solutions that require firm commitments from many states and stakeholders. According to the WTO, liberalizing green trade will provide substantial benefits in three core areas: trade, environment and development. Growth in green trade will generate employment, encourage innovation, spur economic growth and sustainable development. Even though the environmental goods and services sector generally accounts for 2-3% of GDP in developed economies, the sector is quickly growing.⁵⁹ The global market for environmental goods and services was estimated at US\$866 billion in 2011 and is expected to grow to US\$1.9 trillion by 2020.⁶⁰ The EGA is a key tool that if implemented can spur green trade and support a successful Paris Agreement outcome. On development, lowering tariffs on green goods and services would allow countries, especially developing countries such as China and India, access to climate friendly technologies that they have not had a chance to develop as well as to expand their markets abroad. In the current climate of slow global growth (below 3% between 2009 and 2015), greater protectionist tendencies in Europe and around the world, lower trade and the recent Brexit vote, concluding

⁵⁹ Environmental Goods and Services. Asia-Pacific Economic Cooperation. Date of Access: 8 August 2016. <http://egs.apec.org>

⁶⁰ Trade in Environmental Goods and Services: Opportunities and Challenges: Opportunities and Challenges, International Trade Centre. Date of Access: 8 August 2016.

<http://www.intracen.org/uploadedFiles/intracenorg/Content/Publications/AssetPDF/EGS%20Ecosystems%20Brief%20040914%20-%20low%20res.pdf>

the negotiations of the EGA in addition to other green trade initiatives could help achieve the 2% additional growth promised by the G20 leaders in Brisbane in 2014.

Leaders in Free Green Trade

As a major proponent of the EGA with President Barack Obama calling for the global free trade in environmental goods, the United States could lead the Free Green Growth Initiative. In 2012 in Russia APEC leaders, including the US, assumed the lead by making clear commitments to liberalize trade and reduce tariffs to 5% on a list of 54 environmental goods by 2015. The EGA, launched in 2014 in Geneva, Switzerland, further builds on that commitment. There are already 17 countries, including eight G20 members, that are negotiating the EGA at the WTO (the United States, China, Australia, Canada, the European Union, Japan, Korea, Turkey, Hong Kong, Iceland, Israel, New Zealand, Norway, Singapore, Switzerland, Costa Rica and Chinese Taipei). Together they account for 86% of global trade in environmental goods. EGA participants are among the largest G20 economies, notably the U.S., China, the EU, Japan, Canada, Korea, Australia and Turkey. There is great pressure to sign the EGA in the coming months before the beginning of the election seasons in the US and China. Germany and Canada could also be great proponents of the initiative as both countries have export dependent economies and are both leaders in the global sustainable technologies market. Germany in particular needs the EGA to fight the protectionist sentiments in Europe which surfaced strongly after Brexit. (See Table 6.)

Public Support

Although there is currently a strong sentiment of growing protectionism around the world, the polls show that the general public in many G20 countries still supports trade. Gallup, which has been tracking American perspectives on trade agreements for decades showed that in 2016 only 33% of Americans view trade as a threat, a historically low number. Pew Research Center data confirmed the same result. Only 39% of Americans said trade agreements with other countries were “a bad thing” in their 2016 survey. In Canada, the Asia Pacific Foundation of Canada has been conducting surveys on Canadian opinions toward trade and trade agreements for years. In 2014, 68% of Canadian said they generally support free trade agreements. It was 66% in 2015 and 75% in 2016.⁶¹ According to another Pew Research survey across a diverse range of advanced, emerging and developing economies, a global median of 81% surveyed in 2014, overwhelmingly said that international trade and global business ties were good for their country. Developing countries in particular demonstrated the strongest support across the board for foreign investment, trade and expected benefits from globalization.⁶² By implication, trade in green goods, which would have the added benefit of helping to address the issue of climate change, would receive wide support among G20 publics.

Financing

Trade finance for green goods and services can be aided by the World Bank, Multilateral Development Banks, the WTO's Trade Facilitation Agreement, the Global Environment Fund and the Green Climate Fund. G20 members could create a special “Green Fast Start Fund” to kick start this initiative at Hangzhou. The Green Fast Start Fund could also be used for any appropriate trade adjustment assistance.

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Liberalization of green trade, with the EGA as a first step, contributes to the achievement of many sustainable development goals, notably the following:

⁶¹ There is no popular anti-trade revolt – it's all politics and punditry, *Globe and Mail*, 3 August 2016. Date of Access: 8 August 2016. <http://www.theglobeandmail.com/report-on-business/rob-commentary/there-is-no-popular-anti-trade-revolt-its-all-politics-and-punditry/article31231421/>

⁶² Faith and Skepticism about Trade, Foreign Investment, Pew Research Center, 16 September 2014. Date of Access: 8 August 2016. <http://www.pewglobal.org/2014/09/16/faith-and-skepticism-about-trade-foreign-investment/>

SDG 6: clean water and sanitation

SDG 8: good jobs and economic growth

SDG 9: better waste management technologies; industry, innovation and infrastructure

SDG 10: reduced inequalities

SDG 11: green technology and knowledge transfers; and building sustainable cities and communities

SDG 13: combatting climate change

Table 6: Trade as Percentage of GDP, by G20 Member

Country	Trade to GDP ratio (2012-2014)
Argentina	30
Australia	41
Brazil	25
Canada	63
China	46
France*	61
Germany*	86
India	54
Indonesia	46
Italy*	57
Japan	36
Mexico	66
Russia	52
Saudi Arabia	79
South Africa	63
South Korea	104
Turkey	58
United Kingdom*	57
United States	30
European Union	34

*Source: https://www.wto.org/english/res_e/statis_e/statis_maps_e.htm

*Source: <http://data.worldbank.org/indicator/NE.TRD.GNFS.ZS?end=2015&start=2012>

*Data is for 2015 only.

Table 7: Market Size and Growth for Environmental Goods and Services by Region

By Region	Market in US\$ billion (2011)	Growth (2011)
United States of America	311.3	5%
Western Europe	256.0	2%
Japan	103.3	-1%
Rest of Asia	78.0	9%
Latin America	28.5	5%
Australia/New Zealand	13.6	25%
Central & Eastern Europe	13.7	4%
Middle East	17.5	9%
Africa	10.3	10%

*Source: Environmental Business International (2012)

9. Green Cities

Xingshu Zhao

Proposed Commitment

We, following our G20 Seoul Summit commitment on green cities, commit to green our cities by setting greenhouse gas (GHG) emissions and sequestration targets in line with the actions and achievements of the Compact of Mayors and C40 Cities Climate Leadership Group, starting before the next G20 summit in Hamburg, Germany in 2017.

Past Commitments

This would not constitute an expansion of the G20 agenda as the summit has made similar commitments in the past. Most notably, it promised the following at Seoul in November 2010: “We also commit to stimulate investment in clean energy technology, energy and resource efficiency, green transportation, and green cities by mobilizing finance, establishing clear and consistent standards, developing long-term energy policies, supporting education, enterprise and R&D, and continuing to promote cross-border collaboration and coordination of national legislative approaches.”⁶³

Climate Impact

Climate Mitigation

Cities are a major source of GHG emissions. Half of humanity – 3.5 billion people – now live in cities, and by 2030, almost 60% of the world’s population will live in urban areas. The total GHG emissions in cities have been estimated to constitute up to 80% of global GHG emissions and have been substantially higher than those of the surrounding suburban and rural areas.

Air Pollution Reduction and Health Co-benefits

Many cities have struggled with worsening air pollution for years, in particular those developing countries with rapid industrialization and urbanization.

Economic Prosperity and Employment

Rebuilding/reconstructing green cities by enhancing the efficiency of energy consumption bring large economic and employment opportunities.

Probable Compliance and Catalysts

There is some reason to believe that such a commitment would be complied with by G20 members, especially as it contains two catalysts as identified by the G20RG (past reference to summit, one-year target) that could raise compliance, and none that have been shown to lower it.

Leaders in Green Cities

Almost every G20 member has at least one city in which it has set a short-term (2015/2018), midterm (2020/2025/2030) or long-term (2040/2050) GHG emission target. Among G20 members, only Saudi Arabia has not set any city-specific GHG emissions target so far.

All G20 members are involved in some green/low-carbon/smart city projects. Several major powers have sent positive signals. China and the U.S. launched the climate smart, low-carbon city initiative in 2015 to share experiences and best practices in climate mitigation and resilience. The China-EU Low Carbon Cities

⁶³ The G20 Seoul Summit Document, 2010, <http://www.g20.utoronto.ca/2010/g20seoul-doc.html>

Partnership was agreed to during the China-EU Summit in June 2015 in order to promote mutual exchange on policies, planning and good practices for low-carbon and climate resilient cities.

The cities initiative has a wide foundation of support from key stakeholders in both developed and developing countries. Major global green, low-carbon, smart, resilient city networks, associations and institutions include UN Habitat's Cities and Climate Change Initiative (CCCI),⁶⁴ ICLEI Local Governments for Sustainability⁶⁵ which has several initiatives including UCLG, United Cities and Local Governments,⁶⁶ and the C40.⁶⁷ In 2014 at the UN Climate Summit the Global Mayors Compact was announced, which was an achievement of leading global city networks.⁶⁸

Public Support

There is substantial public support in China and among its key G20 partners for such an initiative. Survey Data in China's cities show that the public are more concerned about the relationship between low-carbon and daily life. 93.3% of the public believe that low-carbon has varying degrees of relevance to city life, nearly 70% of the public believe that low-carbon development and low-carbon life is the most important element for "improving the quality of the environment such as air," and 92.5% of the public support the construction of low-carbon communities.⁶⁹

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This commitment will directly support the implementation of several SDGs, which is a priority for the G20's Hangzhou Summit. The most direct is SDG11 to make cities inclusive, safe, resilient and sustainable. A higher proportion of the world's population lives in urban areas and this continues to increase.

⁶⁴ Urban Initiatives, UN Habitat. Date of Access: 8 August 2016. http://unhabitat.org/urban-initiatives/initiatives-programmes/cities-and-climate-change-initiative/?noredirect=en_US

⁶⁵ Members, Local Governments for Sustainability, ICLEI. Date of Access: 8 August 2016. <http://www.iclei.org/iclei-members/iclei-members.html>

⁶⁶ About us, The Global Network of Cities, Local and Regional Governments. Date of Access: 8 August 2016. <https://www.uclg.org/en/organisation/about>

⁶⁷ Make a Difference, C40 Cities. Date of Access: 8 August 2016. <http://www.c40.org/cities>

⁶⁸ 这些城市网络包括: ICLEI - 倡导地区可持续发展国际理事会 (ICLEI), C40城市气候变化领导小组 (C40) 以及世界城市和地方政府联盟 (UCLG)。同时得到了联合国城市问题领导机构联合国人居署 (UN-Habitat) 的支持。

⁶⁹ 李玉洁, 我国城市公众低碳意识和行动分析, 2015-03-13, http://www.stats.gov.cn/tjsj/tjsj/tjcb/dysj/201503/t20150313_693963.html

Table 8: C40 Cities Climate Leadership Group (C40)

	64 G20 cities have the emission target, and more than 80 cities of C40 in total have the emission target. (G20: 75%)		
	C40 has 8 initiatives: Adaptation and Water, Energy, Finance and Economic Development, Measurement and Planning, Solid Waste Management, Transportation, Urban Planning and Development. Under each initiative, there are 2–5 programs (21 in total).		
	Total	City	Emission Target
United States	13	Austin	90% reduction by 2050 compared with 2010 emissions
		Boston	25% reduction by 2020 compared with 2005 emissions
		Chicago	80% reduction by 2050 compared with 1990 emissions
		Houston	36% reduction by 2016 compared with 2007 emissions
		Los Angeles	45% reduction by 2025 compared with 1990 emissions
		New Orleans	NO
		New York	80% reduction by 2050 compared with 2005 emissions
		Philadelphia	20% reduction by 2015 compared with 1990 emissions
		Portland	80% reduction by 2050 compared with 1990 emissions
		San Francisco	80% reduction by 2050 compared with 1990 emissions
		Seattle	100% reduction by 2050 compared with 2005 emissions
		Washington D.C.	reduction by 2025 compared with 2008 emissions
United Kingdom	1	London	60% reduction by 2025 compared with 1990 emissions
France	1	Paris	25% reduction by 2020 compared with 2004 emissions
Germany	2	Berlin	40% by 2020, 85% by 2050 compared with 1990s emissions
		Heidelberg	NO
Italy	3	Milan	20% reduction by 2020 compared with 2005 emissions
		Rome	7% reduction by 2012 compared with 1990 emissions
		Venice	22 % reduction by 2020 compared with 2005 emissions
Japan	2	Tokyo	25% reduction by 2020 compared with 2000 emissions
		Yokohama	80% reduction by 2050 compared with 2005 emissions
Canada	2	Toronto	80% reduction by 2050 compared with 1990 emissions
		Vancouver	33% reduction by 2020 compared with 2007 emissions
European Union	10	Amsterdam	40% reduction by 2025 compared with 1990 emissions
		Athens	NO
		Barcelona	NO
		Basel	NO
		Copenhagen	100% reduction by 2025, relative to 2010 emissions
		Madrid	35% reduction by 2020 compared with 2005 emissions
		Oslo	100% reduction by 2050 compared with 1991 emissions
		Rotterdam	50%
		Stockholm	100% reduction by 2040 compared with 1990 emissions
China	9	Warsaw	20% reduction by 2020 compared with 2007 emissions
		Beijing	NO
		Chengdu	NO
		Dalian	NO
		Guangzhou	NO
		HK	NO
		Nanjing	NO
		Shanghai	NO
		Shenzhen	21% per unit GDP between 2010 and 2015
India	5	Wuhan	20% reduction by 2015, relative to 2010
		Bengaluru	NO
		Delhi NCT	NO
		Jaipur	NO
		Kolkata	NO
Brazil	4	Mumbai	NO
		Curitiba	NO
		Rio de Janeiro	20% reduction by 2020 compared with 2005 emissions

		Salvador	NO
		Sao Paulo	30% reduction by 2012 compared with 2005 emissions
Russia	1	Moscow	25% reduction by 2020 compared with 1990 emissions
South Africa	4	Cape Town	NO
		Durban	24% reduction by 2020 compared with 2006 emissions
		Johannesburg	30% reduction by 2025 compared with 2005 emissions
		Tshwane	NO
Australia	2	Sydney	70% reduction by 2030 compared with 2006 emissions
		Melbourne	100% reduction by 2020 compared with 2006 emissions
Mexico	1	Ciudad de México	NO
Korea	2	Changwon	NO
		Seoul	25% reduction by 2020 compared with 2005 emissions
Turkey	1	Istanbul	NO
Indonesia	1	Jakarta	30% reduction by 2025 compared with projected BAU on 2005 emissions
Saudi Arabia	NO	NO	NO
Argentina	1	Buenos Aires	30% reduction by 2030

*Source: <http://www.c40.org/cities>

Table 9: The Compact of Mayors

61 G20 cities have the emission target, and 69 cities in total have the emission target. (G20: 88%)				
The Compact of Mayors has five areas: commitment, target, inventory, plan and complaint.				
		C40	The Compact of Mayors	
	Total	City in C40	City	Emission Target
United States	13	Austin		
			Albany	9% reduction in GHG emissions by 2030
		Boston		25% reduction in GHG emissions by 2020
			Boulder	80% reduction in GHG emissions by 2050
		Chicago		
			Des Moines	80% reduction in GHG emissions by 2050
		Houston		
		Los Angeles		
		New Orleans		
		New York		80% reduction in GHG emissions by 2050
			Oakland	83% reduction in GHG emissions by 2050
		Philadelphia		80% reduction in GHG emissions by 2050
			Pittsburgh	20% reduction in GHG emissions by 2023
			Roanoke	10% reduction in GHG emissions by 2019
		Portland		80% reduction in GHG emissions by 2050
		San Francisco		80% reduction in GHG emissions by 2050
		Seattle		100% reduction in GHG emissions by 2050
		Washington D.C.		80% reduction in GHG emissions by 2050
United Kingdom	3	London		60% reduction in GHG emissions by 2040
		Bristol		80% reduction in GHG emissions by 2050
		Bournemouth		30% reduction in GHG emissions by 2020
France	1	Paris		25% reduction in GHG emissions by 2020
Germany	1	Berlin		
		Heidelberg		
			Freiburg	29% reduction in GHG emissions by 2020
Italy	0	Milan		
		Rome		
		Venice		
Japan	0	Tokyo		
		Yokohama		
Canada	3	Toronto		80% reduction in GHG emissions by 2050
		Vancouver		33% reduction in GHG emissions by 2020
			Montreal	30% reduction in GHG emissions by 2030
European Union	24 in total (Spain: 11)	Amsterdam		
		Athens		
		Barcelona		
		Basel		
		Copenhagen		100% reduction in GHG emissions by 2025
		Madrid		35% reduction in GHG emissions by 2020
		Oslo		100% reduction in GHG emissions by 2050
		Rotterdam		
		Stockholm		100% reduction in GHG emissions by 2040
		Warsaw		
		Almata		22% reduction in GHG emissions by 2020
			Amurrio	20% reduction in GHG emissions by 2040
			Areatza	20% reduction in GHG emissions by 2040
			Balmaseda	29% reduction in GHG emissions by 2040
			Bilbao	20% reduction in GHG emissions by 2040
			Donostia-San Sebastian	30% reduction in GHG emissions by 2030
			Durango	12% reduction in GHG emissions by 2020

		Errenteria	20% reduction in GHG emissions by 2040
		Hoeje-Taastrup	98% reduction in GHG emissions by 2050
		Legazpi	1% reduction in GHG emissions by 2040
		Sonderborg	100% reduction in GHG emissions by 2029
		Tolosa	20% reduction in GHG emissions by 2020
		Vitoria-Gasteiz	28% reduction in GHG emissions by 2020
		Växjö	100% reduction in GHG emissions by 2030
China	NO DATA	Beijing	
		Chengdu	
		Dalian	
		Guangzhou	
		HK	
		Nanjing	
		Shanghai	
		Shenzhen	
		Wuhan	
India	3	Bengaluru	
		Delhi NCT	
		Jaipur	
		Kolkata	
		Mumbai	
		Walior	10% reduction in GHG emissions by 2018
		Rajkot	14% reduction in GHG emissions by 2016
		Shimla	10% reduction in GHG emissions by 2018
Brazil	2	Curitiba	
		Rio de Janeiro	20% reduction in GHG emissions by 2020
		Salvador	
		Sao Paulo	
		Belo Horizonte	20% reduction in GHG emissions by 2030
Russia	0	Moscow	
South Africa	3	Cape Town	10% reduction in GHG emissions by 2012
		Durban	
		Johannesburg	65% reduction in GHG emissions by 2040
		Tshwane	
		eThekwin	26% reduction in GHG emissions by 2020
Australia	7	Sydney	70% reduction in GHG emissions by 2030
		Melbourne	100% reduction in GHG emissions by 2020
		Adelaide	35% reduction in GHG emissions by 2020
		Australian Capital Territory	100% reduction in GHG emissions by 2060
		Joondalup	5% reduction in GHG emissions by 2019
		Mornington Peninsula Shire	20% reduction in GHG emissions by 2040
		Port Phillip	50% reduction in GHG emissions by 2020
Mexico	3	Ciudad de México	
		León	30% reduction in GHG emissions by 2030
		Mexico City	30% reduction in GHG emissions by 2020
		Toluca de Lerdo	55% reduction in GHG emissions by 2020
Korea	1	Changwon	
		Seoul	25% reduction in GHG emissions by 2020
Turkey	1	Istanbul	
		Seferihisar	24% reduction in GHG emissions by 2020
Indonesia	1	Jakarta	
		Balikpapan	16% reduction in GHG emissions by 2020

Saudi Arabia	NO	NO		
Argentina	1	Buenos Aires		30% reduction in GHG emissions by 2030

*Source: <http://www.compactofmayors.org/cities/toronto-2/>

***ICLEI - Local Governments for Sustainability (ICLEI):** It has 10 urban agenda: Sustainable City, Low-carbon City, Resource-efficient and Productive City, Resilient City, BiodiverCity, Smart City, EcoMobile City, Healthy, Happy and Inclusive Communities, Sustainable Local Economy and Procurement, Sustainable City-Region Cooperation

10. Mainstream Gender

Hanh Nguyen

Proposed commitment

Following the Paris Agreement's integration of a gender-responsive approach in tackling climate change and the recognition of gender equality as one of the Agenda 2030's 17 sustainable development goals, we affirm our support for mainstreaming gender within climate adaptation and mitigation, and commit to carrying out systematic gender analysis drawn from research by UN Women, progressively increasing the consultation and participation of women in climate change initiatives, especially at the negotiation and implementation levels, implementing stronger gender policies in climate financing mechanisms, such as the Green Climate Fund, starting in 2017, and increasing women's knowledge and expertise in technological developments to counteract climate change.

Past Commitments

G20 leaders have not made any commitments regarding women and climate change. Gender issues, albeit with increasing presence in G20 commitments, have been mentioned only within the context of economic development and employment since 2009.⁷⁰

On October 6, 2014, the Green Climate Fund issued its Gender Policy and Gender Action Plan 2015-2017.⁷¹ The Fund is expected to make substantial efforts to support gender equality and women's engagement in tackling climate change.

On 8 December 2015, UN Women and UNFCCC designated Gender Day at COP21, from which two programs concerning gender and climate change were launched: Women's Sustainable Energy, Entrepreneurship and Access, and Women's Empowerment through Climate-Resilient Agriculture.⁷²

In December 2015, COP21 in Paris recognized gender equality and women's empowerment as key to achieving the UNFCCC's objectives. The parties promised that they would "respect, promote and consider their respective obligations on human rights ... as well as gender equality, empowerment of women and intergenerational equity" when taking action to address climate change.⁷³ A gender-responsive approach to climate change is also emphasized in Article 7 and Article 11 of the Paris Agreement that came out of COP21.

Following this successful integration, G20 should commit to the next step by mainstreaming gender within climate adaptation and mitigation.

⁷⁰ G20 Summit Commitments by Issue: 2008 to 2015, G20 Information Center. 14 December 2015. Date of access: 27 July 2016. <http://www.g20.utoronto.ca/compliance/commitments.html>

⁷¹ Gender Policy and Action Plan, Green Climate Fund. 6 October 2014. Date of access: 27 July 2016. https://www.greenclimate.fund/documents/20182/24946/GCF_B.08_19_-_Gender_Policy_and_Action_Plan.pdf/afd29fd9-3efa-41c3-8318-7d86587c7701?version=1.1

⁷² Statement by UN Women Executive Director on the adoption of the Paris Agreement under the United Nations Framework Convention on Climate Change, Un Women. 17 December 2015. Date of access: 3 August 2016. <http://www.unwomen.org/en/news/stories/2015/12/ed-statement-cop-conclusion>

⁷³ Adoption of the Paris Agreement, United Nations Framework Convention on Climate Change. 12 December 2015. Date of Access: 27 July 2016. <https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>

Pay-off for Climate Change Control

Gender mainstreaming for climate change will have significant effects on socio-economic development.⁷⁴ Women's meaningful engagement in the negotiation and implementation levels of climate change policies will improve their effectiveness and equity in responding to the needs of the public, especially vulnerable groups. According to the OECD empowering women through climate mitigation and adaptation fosters economic development, reduces poverty, keeps environmental problems in check, and increases the potential for adaptation, which is to the benefit of both women and men.⁷⁵ Gender equality also aligns with the inclusive, expanded and equal center of global governance on climate change that G20 is trying to develop.⁷⁶ An equal and gender-responsive approach in financial and technological support will play an important role in providing women with the resources needed to mitigate and adapt to climate change.

Public Support

There is strong public support for gender equality and women's empowerment in climate change policies. According to the Spring 2015 Global Attitudes survey by the PEW Research Center, gender equality is the second most concerned global issue with 65% of the respondents believing that it is very important that women have the same rights as men.⁷⁷ In another survey, public opinion shows that women are more likely to take climate change seriously than men in terms of climate change impacts, adaptation and mitigation.⁷⁸ Taken together, it is crucial to engage meaningful participation and women's contribution in climate change policies.

Financial feasibility

Finance for gender mainstreaming in climate mitigation and adaptation can be mobilized through existing financing mechanisms, starting with the Green Climate Fund. Parties should make explicit that gender equality is a guiding principle of green finance and ensure gender equality and women's leadership are central to the development and implementation of national strategies that green finance supports. The outcome of gender equality and women's empowerment can significantly benefit sustainable development in the long run, which in turn contributes to financing climate adaptation and mitigation.

Leaders in Mainstreaming Gender

There are important implications of mainstreaming gender within climate adaptation and mitigation in G20 countries. Germany and Italy feature in the top ten countries with the gender equality index,⁷⁹ while many G20 nations have a history of female leaders and high participation of women in the political, social and domestic fields (see Table 10). On May 19, 2016, Patricia Espinosa was appointed as the new UNFCCC

⁷⁴ Integrating a Gender-Responsive Approach in Climate Change Decision-Making, Nguyen. 2016. Date of access: 3 August 2016. <http://www.g8.utoronto.ca/blogs/160722-nguyen.html>

⁷⁵ Climate Change and Gender: Economic Empowerment of Women through Climate Mitigation and Adaptation, The Governance Cluster. October 2010. Date of access: 4 August 2016. <https://www.oecd.org/dac/gender-development/46975138.pdf>

⁷⁶ The Global Governance of Climate Change: G7, G20 and UN Leadership, Kirton and Kokotsis. 2015. <https://www.routledge.com/The-Global-Governance-of-Climate-Change-G7-G20-and-UN-Leadership/Kirton-Kokotsis/p/book/9780754675846>

⁷⁷ Strong Global Support for Gender Equality, especially among Women, PEW Research Center. 8 March 2016. Date of access: 4 August 2016. <http://www.pewresearch.org/fact-tank/2016/03/08/strong-global-support-for-gender-equality-especially-among-women>

⁷⁸ Women, more than men, say climate change will harm them personally, PEW Research Center. 2 December 2015. Date of access: 4 August 2016. <http://www.pewresearch.org/fact-tank/2015/12/02/women-more-than-men-say-climate-change-will-harm-them-personally/>

⁷⁹ Human Development Report 2015, United Nations Development Programme. Date of access: 27 July 2016. http://hdr.undp.org/sites/default/files/2015_human_development_report.pdf

Executive Secretary. Women's leadership at this high-level in climate governance promises a great opportunity for gender mainstreaming in counteracting climate change.⁸⁰

Additionally, G20 civil society engagement groups are helping drive this initiative with the Women 20 (W20), Civil Society 20 (C20) and Girls 20.⁸¹ However, activities of these engagement groups are limited to advocating for the recognition of full economic empowerment of women. Potentially the W20, C20 and Girls 20 should be an important driver to bring the issue of mainstreaming gender in climate change to the table at the upcoming G20 Summit in China.

Agenda 2030

On September 25-27, 2015, the United Nations held the Sustainable Development Summit in New York and adopted 17 sustainable development goals. On this account, gender equality is prioritized as SDG5. Women's rights has also been included in SDG1 regarding women's access to land, and SDG7 concerning equal access to renewable energy, climate change strategies and disaster resilience. Gender mainstreaming is key to achieving gender equality, and is a critical component for realizing national sustainable development goals, including combating climate change.

⁸⁰ Christiana Figueres Welcomes Espinosa Appointment Incoming UNFCCC Chief Set for Early Start, UNFCCC. 19 May 2016. Date of access: 4 August 2016. <http://newsroom.unfccc.int/unfccc-newsroom/patricia-espinosa-of-mexico-confirmed-as-new-head-of-un-climate-convention-1/>

⁸¹ Connecting G20 Summitry with Citizenry, Koch. 16 May 2016. Date of access: 3 August 2016. <http://www.g20.utoronto.ca/biblio/koch-engagement.html>

Table 10: Gender Inequality Index and Percentage of Women in National Parliament in G20 Countries

Country	Gender Inequality Index (2014)		Percentage of Women in National Parliament (2016)
	Value	Rank	
Germany	0.041	3	36.5
Italy	0.068	10	31
France	0.088	13	26.2
Australia	0.110	19	26.7
Canada	0.129	25	26
Korea	0.125	23	16.3
Japan	0.133	26	9.5
United Kingdom	0.177	39	29.4
China	0.191	40	23.6
Russia	0.276	54	13.6
United States	0.280	55	19.4
Saudi Arabia	0.284	56	19.9
Mexico	0.373	74	42.4
Argentina	0.376	75	35.8
Turkey	0.369	71	14.9
South Africa	0.407	83	42
Brazil	0.457	97	9.9
Indonesia	0.494	110	17.1
India	0.563	130	12

*Source: World Development Indicator

11. Involve Indigenous Peoples

Hanh Nguyen

Proposed commitment

We affirm our support for the inclusion and empowerment of indigenous peoples in climate change control action, integrating indigenous knowledge, in terms of strategies, tools, and techniques, for responding to climate change; ensuring robust representation and contributions of indigenous peoples to climate action at the global, national and sub-national levels, and developing a common platform between the G20 leaders and indigenous peoples from 2017.

Past Commitments

G20 leaders have failed to make any commitments regarding indigenous peoples and climate change. The first instance of connection between G20 and indigenous peoples occurred in 2012, when the host Mexican government invited representatives of the UN's Permanent Forum on Indigenous Issues to attend part of the Los Cabos summit to present their position on food security, a vulnerable sector under threat from climate change.⁸² There has been no commitment made by G20 leaders to address either the linkage between climate change and indigenous peoples, or any other issues of aboriginal groups. Nor have indigenous peoples been involved in the G20 Summit since then.⁸³

However, the potential of indigenous knowledge to contribute to climate change control is of growing interest in international forums. The 2008 G8 Summit in Japan successfully brought the Ainu community, an indigenous people, to an inclusive discussion over forest development and climate change⁸⁴ and the International Indigenous Peoples' Forum on Climate Change (IIPFCC) has been recognized since 2008 as a constituency in the UNFCCC process. The IIPFCC seeks to coordinate indigenous peoples' efforts and activities related to the UNFCCC process.

In December 2015, indigenous peoples collectively had a considerable presence at COP21 in Paris, with hundreds of representatives from all over the world. As a result, Article 7.5 of the Paris Agreement acknowledges that adaptation action should take into consideration vulnerable groups, communities and ecosystems, and "should be based on and guided by the best available science, and as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems."⁸⁵

Pay-off for Climate Change Control

Effective global action requires meaningful local participation, including increased engagement of indigenous communities.⁸⁶ Indigenous peoples have managed their resources and dealt with climate change and environmental upheaval for thousands of years with their long-lasting knowledge. Their participation in decision-making is vital to enhance the resilience of ecosystems.⁸⁷ Studies have shown that successful climate

⁸² The G20: Evolution, Interrelationships, Documentation, Hajnal. 2016. <https://www.routledge.com/The-G20-Evolution-Interrelationships-Documentation/Hajnal/p/book/9781409439301>

⁸³ G20 Summit Commitments by Issue: 2008 to 2015, G20 Information Center. 14 December 2015. Date of access: 27 July 2016. <http://www.g20.utoronto.ca/compliance/commitments.html>

⁸⁴ Indigenous at last! Ainu Grassroots Organizing and the Indigenous Peoples Summit in Ainu Mosir, Lewallen. 1 November 2008. Date of access: 4 August 2016. <http://apjff.org/-ann-elise-lewallen/2971/article.html>

⁸⁵ Adoption of the Paris Agreement, United Nations Framework Convention on Climate Change. 12 December 2015. Date of Access: 27 July 2016. <https://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf>

⁸⁶ Engaging Indigenous Peoples in Global Climate Governance, McLean. 5 December 2012. Date of access: 4 August 2016. <http://ourworld.unu.edu/en/engaging-indigenous-peoples-in-global-climate-governance>

⁸⁷ Indigenous peoples and climate change, Salick, Jan, and Anja Byg, eds. Oxford: Tyndall Centre for Climate Change Research, 2007. Date of access: 8 August 2016. http://www.tyndall.ac.uk/sites/default/files/Indigenous%20Peoples%20and%20Climate%20Change_0.pdf

policies and programs require the meaningful participation of local communities.⁸⁸ Engagement of indigenous peoples in climate change policies will increase the equity, legitimacy, transparency and accountability, and diversity of climate change policies. G20 leaders should take into consideration the significant role of indigenous peoples when dealing with climate change.

Over the past few decades, indigenous peoples have mobilized and transformed into different groups thus gaining significant influence in international forums and regimes. Parallel indigenous forums alongside UN conferences have been held routinely as a way to lobby states to take into consideration indigenous peoples' valuable contributions to climate change adaptation and mitigation strategies. They also engage in considerable unified activity in transnational networks and fundraising, as well as in non-governmental organizations.

Public Support

Public opinion surveys among indigenous peoples in many G20 countries have shown that the majority of indigenous peoples sense discrimination and underrepresentation. According to the World Bank, indigenous peoples are among the poorest people in the world while their access to healthcare is disproportionately limited.⁸⁹ Obviously, there is a pressing need to examine public attitudes of the non-indigenous toward aboriginal groups. However, this survey has not been developed in many countries. Canada is the only G20 country to carry out public attitude surveys with indigenous peoples. According to the Environics Institute, 25% of the non-indigenous respondents in 2016 said their views of aboriginal people have improved while most agreed it is time for reconciliation action.⁹⁰

Financial Feasibility

Indigenous peoples demand that equality in both climate governance and finance should be met. They should not only be the principal beneficiaries of climate change policies, but also an agent of both knowledge management and change. In order to ensure their empowerment in climate action, comprehensive and equitable procedural rules with indigenous peoples as a central component should be integrated into the activities of the G20 and financing mechanisms for climate change, such as the Green Climate Fund.

Leaders in Involving Indigenous Peoples

There are important implications of indigenous peoples' empowerment as a response to climate change in G20 countries. China, India and Canada are among the countries with relatively higher participation of indigenous peoples in national Parliament (see Table 11). On May 16, 2013, the government of Indonesia affirmed the forest rights of indigenous peoples.⁹¹ Moreover, the inclusion and empowerment of indigenous peoples in climate solutions now offers a great opportunity as Canada became the last non-signatory country in the G20 to officially adopt the UN Declaration on the Rights of Indigenous Peoples on May 10, 2016.⁹²

⁸⁸ Combining climate change adaptation and mitigation measures at the local level, Laukkonen, Julia, et al. *Habitat International* 33.3 (2009): 287-292. Date of access: 8 August 2016.

<http://www.sciencedirect.com/science/article/pii/S0197397508000623>

⁸⁹ Indigenous Peoples: Still among the poorest of the poor, World Bank. Date of access: 8 August 2016.

http://siteresources.worldbank.org/EXTINDPEOPLE/Resources/407801-1271860301656/HDNEN_indigenous_clean_0421.pdf

⁹⁰ Public Opinion of Indigenous Peoples in Canada improving: survey, Global and Mail. 8 June 2016. Date of access: 8 August 2016. <http://www.theglobeandmail.com/news/politics/public-opinion-of-indigenous-people-in-canada-improving-survey/article30346252/>

⁹¹ Global Legal Monitor, Library of Congress. 3 June 2013. Date of access: 8 August 2016. <http://www.loc.gov/law/foreign-news/article/indonesia-forest-rights-of-indigenous-peoples-affirmed/>

⁹² Canada officially adopts UN Declaration on the Rights of Indigenous Peoples, Fontaine. 10 May 2016. Date of access: 4 August 2016. <http://www.cbc.ca/news/aboriginal/canada-adopting-implementing-un-rights-declaration-1.3575272>

In regards to G20 engagement groups, the C20 has been operating in line with G20 since the beginning since its start.⁹³ Since 2010 the C20 has advocated for bringing different issues of concern to indigenous peoples to the table, including those on human rights, poverty and sustainable livelihoods for indigenous peoples at Toronto in 2010;⁹⁴ indigenous peoples' inclusive protection, malnutrition and economic inequalities at St. Petersburg in 2013;⁹⁵ and sustainable development for indigenous people at Brisbane in 2014.⁹⁶ Potentially, the C20 can be an important driver to emphasize the necessity of indigenous peoples' involvement in climate change in the upcoming G20 Summit in Hangzhou, China.

Agenda 2030

On September 25-27, 2015, the United Nations held the Sustainable Development Summit in New York and adopted 17 sustainable development goals. These SDGs recognize the right of indigenous peoples in SDG2 regarding the enhancement of productivity and incomes from farm and non-farm employment, and SDG4 concerning equal and inclusive education and vocational training for indigenous peoples as a vulnerable group. Empowering indigenous peoples is key to advancing the sustainable development goals.

Table 11: Number of Indigenous Peoples in National Parliament in G20 Countries

Country	Number of indigenous MPs	
	Male	Female
China	409	
India	47	
Canada	3	2
United States	2	
Australia	0	1
France	0	0
Japan	0	0
Germany	N/A	N/A
Italy	N/A	N/A
Korea	N/A	N/A
United Kingdom	N/A	N/A
Russia	N/A	N/A
Saudi Arabia	N/A	N/A
Mexico	N/A	N/A
Argentina	N/A	N/A
Turkey	N/A	N/A
South Africa	N/A	N/A
Brazil	N/A	N/A
Indonesia	N/A	N/A

* Source: Beyond numbers - the Participation of Indigenous Peoples in Parliament, Inter-Parliament Union. September 2014.
<http://www.ipu.org/pdf/publications/indigenous-sur-en.pdf>

⁹³ Connecting G20 Summitry with Citizenry, Koch. 16 May 2016. Date of access: 3 August 2016.

<http://www.g20.utoronto.ca/biblio/koch-engagement.html>

⁹⁴ Report on Civil Society and the 2010 G8 Muskoka Summit Department of Civil Society Studies, G8 Research Group at the Trinity College, Munk School of Global Affairs, University of Toronto. February 2011. Date of access: 8 August 2016

⁹⁵ Civil 20 proposals for Strong, Sustainable, Balanced and Inclusive Growth, C20 Russia 2013. June 2013

⁹⁶ Australian C20 Summit Communique, C20 Australia 2014. Date of access: 8 August 2016.

<http://g20watch.edu.au/sites/default/files/docs/C20-Final-Communique.pdf>

12. Build Biodiversity

Roberts Pererya

Proposed Commitment

In support of the implementation of the Strategic Plan for Biodiversity 2011-2020 as well as Agenda 2030 we commit to develop integrated public policies aimed at reducing habitat loss and degradation through proven and innovative agricultural and aquaculture management systems in developing countries, as well as identifying at the national and component geographically regional level ecosystems that are particularly important in providing ecosystem services, in particular to ecosystems upon which vulnerable groups, including indigenous people are directly dependent.

Past Commitments

The G20 has not made any commitments regarding biodiversity. However, the G8 has made at least two related commitments at their summits in 2008 and 2009. These commitments can be used as a precedent for the G20 to follow

G8-2008-89: We endorse the Kobe Call for Action for Biodiversity and reiterate our commitment to increase our efforts to reduce the rate of biodiversity loss significantly in order to achieve the globally agreed 2010 Biodiversity Target, including by reducing threats from the illicit trade in wildlife (environment) +0.44

G8-2009-81: Recognising the intrinsic value of biodiversity and its essential contribution to economic and social well-being and the fundamental role of ecosystem services in poverty reduction, in the achievement of the Millennium Development Goals (MDGs), we: will reinforce our efforts to meet the 2010 Biodiversity Target to significantly reduce the current rate of biodiversity loss at the global, regional and national level (environment) +0.89

Climate Change Control

Biological diversity underpins ecosystem functioning and the provision of ecosystem services essential for human well-being. It provides for food security, human health, the provision of clean air and water, and contributes to local livelihoods and economic development.⁹⁷ Economists have estimated multiple trillions of dollars' worth of benefits from a healthy balance of biodiversity.⁹⁸ Analysis of the major primary sectors affected by biodiversity loss indicates agriculture accounts for 70% of the projected loss of terrestrial biodiversity⁹⁹ and is the largest driver of genetic erosion and destruction of natural habitats.¹⁰⁰ Aquatic ecosystems are also being widely affected by food production in terrestrial areas through high nutrient inputs¹⁰¹ in run-off from agricultural and livestock production and alteration of freshwater flows.

⁹⁷ "Key Elements of the Strategic Plan 2011-2020, Aichi Biodiversity Targets". Convention on Biological Diversity. Date accessed: July 25, 2016. <https://www.cbd.int/sp/elements/default.shtml>

⁹⁸ "Joining the Convention on Biological Diversity: A Legal and Scientific Overview of Why the United States Must Wake Up". Snape, W. Sustainable Development Law & Policy, Date accessed: July 25, 2016. http://www.biologicaldiversity.org/publications/papers/SDLP_10Spring_Snape.pdf

⁹⁹ "Biodiversity – the foundation of life". United Nations Environment Programme. Date accessed: July 25, 2016. <http://www.unep.org/stories/BiodiversityDay/Biodiversity-the-foundation-of-life.asp>

¹⁰⁰ "Chapter 5: Biodiversity" Global Environment Outlook GEO-4. United Nations Environment Programme. Date accessed: July 25, 2016. http://www.unep.org/geo/geo4/report/05_Biodiversity.pdf

¹⁰¹ "Land-based sources of nutrients to large marine ecosystems". Seitzinger and Lee. 2008. The UNEP Large Marine Ecosystem Report: A perspective on changing conditions in LMEs of the world's Regional Seas. UNEP Regional Seas Report and Studies No. 182. United Nations Environment Programme. Nairobi, Kenya. Date accessed: 25 July, 2016. <https://www.cbd.int/ecosystems/doc/pollution-module-en.pdf>

Public support

Public opinion shows a decrease in public perception and awareness of efforts in addressing biodiversity in Japan,¹⁰² the UK¹⁰³ and Australia.¹⁰⁴

Leaders in Biodiversity

The Convention on Biological Diversity (CBD) is the only comprehensive agreement dedicated to the conservation and sustainable use of biodiversity,¹⁰⁵ having adopted the Strategic Plan for Biodiversity 2011-2020 which seeks “to halt the loss of biodiversity in order to ensure that 2020 ecosystems are resilient and continue to provide essential services.” As of 2016 the Convention has 196 parties (105 states and the European Union), and has been ratified by all UN members with the exception of the United States. However, the U.S. has produced one of the most thorough implementation programs through its species Recovery Programs and other mechanisms long in place for species conservation.¹⁰⁶ The National Biodiversity Strategies and Action Plans (NBSAPs) are the principal instruments for implementing the Convention at the national level. To date, a total of 185 of 196 (94%) Parties have developed NBSAPs.¹⁰⁷ Broad categories of economic instruments for biodiversity conservation are property rights, markets and charges, fiscal instruments (payments for environmental service schemes, conservation enterprises, among others), bonds and deposits,¹⁰⁸ ecotourism and international funds.

Yet despite numerous commitments biodiversity loss continues to accelerate in all regions, especially in developing countries (tropical and subtropical) that are home to over 80% of the world’s biodiversity. Globally, only 15% of countries are on track to achieve the Aichi Targets on biodiversity by the target date of 2020. In addition, the anticipated expansion of sectors that depend on and affect biodiversity (agriculture, forestry, fisheries and aquaculture) will pose a significant challenge to halting biodiversity loss in the coming decades.¹⁰⁹ For instance:

- Of the G20 member countries only four have protected more than 1% of their oceans in no-take (strongly protected) reserves (the United States with 9.88%, the UK with 9.73%, South Africa with 4.46% and Australia with 4.13%).¹¹⁰
- Protected areas in the tropics help slow down forest cover loss, but their performance varies widely. Countries like Australia, South Africa and Mexico scored the best regarding reserves. In contrast, Indonesia, China and India had the worst performing protected areas.¹¹¹

¹⁰² “Perception, Awareness, Efforts over Biodiversity Shrinking” Japan for Sustainability. November 2014. Date accessed: July 25, 2016. http://www.japanfs.org/en/news/archives/news_id035097.html

¹⁰³ “Public awareness of the biodiversity crisis is virtually non-existent”. The Guardian. September 2010. Date accessed: July 25, 2016. <https://www.theguardian.com/environment/blog/2010/sep/16/public-awareness-biodiversity-crisis>

¹⁰⁴ “Public opinion in conservation: does it matter?”. Science Network Western Australia. October 2013. Date accessed: July 25, 2016. <http://www.sciencewa.net.au/topics/environment-a-conservation/item/2479-public-opinion-in-conservation-does-it-matter>

¹⁰⁵ “The United States and the Convention on Biological Diversity”. Defenders of Wildlife and the Center for Biological Diversity. Date accessed: July 25, 2016. http://www.defenders.org/publications/the_u.s._and_the_convention_on_biological_diversity.pdf

¹⁰⁶ “Convention on Biological Diversity”. Wikipedia. Date accessed: 25 July, 2016.

https://en.wikipedia.org/wiki/Convention_on_Biological_Diversity

¹⁰⁷ “National Biodiversity Strategies and Actions Plans”. Convention on Biological Diversity. Date accessed: July 25, 2016. <https://www.cbd.int/nbsap/>

¹⁰⁸ “The Use of Economic Measures in National Biodiversity Strategies and Action Plans: A Review of Experiences, Lessons Learned and Ways Forward”. Emerton, October 2001. Date accessed: July 25, 2016. [https://www.cbd.int/doc/nbsap/economics/Synthesis\(Economic\).pdf](https://www.cbd.int/doc/nbsap/economics/Synthesis(Economic).pdf)

¹⁰⁹ “Responsible Use of Natural Resources Essential to Sustainable Development, Secretary-General Stresses in Message on Day for Biological Diversity”. Secretary-General. Press Release. 12 May, 2016. Date accessed: 25 July, 2016. <http://www.un.org/press/en/2016/sgsm17751.doc.htm>

¹¹⁰ “New Report Shows that Most G20 Member Countries Are Strongly Protecting Less than 1% of the Ocean Area in their Jurisdiction”. Marine Conservation Institute. November 2014. Date accessed: 25 July, 2016. <https://blog.marine-conservation.org/2014/11/seastates-g20.html>

¹¹¹ “India, China, Indonesia score lowest when it comes to tropical forest protection”. Dasgupta, S. Mongabay Series: Global Forest Reporting Network. January 2016. Date accessed: July 25, 2016. <https://news.mongabay.com/2016/01/india-china-and-indonesia-have-some-of-the-worst-performing-tropical-forest-protected-areas-study-finds/>

Agenda 2030

This commitment will directly support the implementation of several SDGs, including the following:

SDG14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

- 14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

SDG15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements