Elaborating the INDC Context

Working Paper

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1. Introduction

Several countries have embarked on nationwide processes to devise their 'contributions' towards a new global climate agreement set to be adopted at Paris in 2015. Sixty-two countries have already communicated their contributions to the UNFCCC, in pledges covering around 62.9% of global emissions in 2012.[1] These contributions, formally known as 'intended nationally determined contributions' (INDCs) are expected to be the bedrock of post 2020 climate action and the building blocks of the 2015 climate deal,[2] that is currently being negotiated by Parties. This paper discusses the emergence of this concept and outlines some of the legal and technical aspects of a contribution and their implications on ambition, adequacy and political feasibility. Section 3 analyses pledges in the submitted INDCs, with a special focus on G20 countries.

The term 'INDC' first emerged in 2013 at the Warsaw negotiations of the Conference of Parties (COP) in a decision inviting Parties "*to initiate or intensify domestic preparations for their intended nationally determined contributions..... and to communicate them well in advance of the twenty-first session of the Conference of the Parties (by the first quarter of 2015 by those Parties ready to do so)*"[3] For developed countries, INDCs will replace their Kyoto Protocol commitments; for developing countries, Nationally Appropriate Mitigation Actions (NAMAs) will continue to be in force as implementation tools supporting the mitigation component of their INDCs.[4]

Over the past year, countries have been negotiating to iron out differences on issues like differentiation, legal nature, scope, form and review of contributions with varying levels of success on each front. These issues are discussed in greater detail below.

1.1 Interplay with Differentiation

At the 2014 COP, parties accepted a reference to the principle of common but differentiated responsibilities in an operational provision of the Lima Call for Climate Action but qualified it with the clause *"in light of different national circumstances."*[5] This reference to national circumstances potentially adds a dynamic/evolutionary component to the CBDRRC principle: common but differentiated responsibilities and respective capabilities of parties may evolve over time with changing national circumstances.[6] Self-selection and self-differentiation is thus likely to be a central

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element of the new regime. Countries will likely have considerable freedom to map out their strategies for climate action, in accordance with national circumstances and differentiated responsibilities and capabilities. The result will be a bundle of contributions, all varying in scope, type, form, stringency and ambition.[7] In an attempt to ensure that such self-differentiation does not result in a dilution of current levels of ambition, the Lima decision contains a 'no backsliding' provision requiring each party's contribution to "*represent a progression beyond the current undertaking of that Party.*"[8]

2. INDCs - Legal and Technical Aspects

2.1 Legal Nature of Contributions

There is little clarity on what the legal nature of country contributions will be. While there is an implicit understanding that the 2015 agreement will be a legally binding instrument, it is uncertain whether nationally determined contributions will be part of this binding agreement and if not, what legal character the contributions will assume.[9] This lack of resolve is aptly captured in the Lima decision: "*the arrangements specified in this decision in relation to intended nationally determined contributions are without prejudice to the legal nature and content of the intended nationally determined contributions of Parties.*"[10]

The legal force of contributions will depend on the manner in which they are incorporated into and/or anchored in the 2015 agreement.[11] Views on this issue have been varied. Some parties are in favour of contributions being an integral part of a legally binding agreement with an 'anchoring provision' that clearly indicates or implies that such contributions are also legally binding.[12] These contributions could be inscribed in the 2015 agreement in annexes, appendices, attachments or schedules. Another view advocated by some developed countries is that contributions should be housed outside the 2015 agreement, in documents like COP decisions,[13] information, miscellaneous or other documents or be held by the UNFCCC Secretariat. The proponents of this view argue that locating the contributions outside the agreement would allow for changes and updates over time; it would also grant flexibility on the date by which the contributions would have to be inscribed: inscription could occur even after 2015. Here, the anchoring provision could make any of the following stipulations: it could merely take note of the contributions, it could require parties to translate their contributions to commitments, commit parties to achieving these commitments or even require parties to make the contributions binding under domestic law.[14]

In addition, there is little resolution on how the interplay between the issues of legality and differentiation in contributions will be addressed.[15] Some developing countries have suggested that the legal nature of contributions also be subject to differentiation: be binding for some and voluntary for others.[16]

2.2 Scope of Contributions

Negotiations at Lima failed to resolve the deadlock between parties on the scope of contributions. Consequently, the Lima decision merely reiterates the Warsaw decision's invitation to countries to communicate their INDCs to the Secretariat.[17]

Country positions on the scope of contributions are reflective of the divisions between developed and developing/least developed countries. Many developing countries insist on a broader scope, beyond mitigation, to include adaptation and support: finance, technology transfer and capacity building.[18] Annex I parties should have to

take the lead on mitigation (as well as other components); mitigation contributions by non-Annex I parties would be conditional on transfer of financial resources and technology by the industrialised world. Many developed countries and some developing countries argue that scope of contributions should be limited to mitigation alone; adaptation contributions should not be submitted in lieu of mitigation contributions.[19]

The marked lack of clarity, in the Lima decision, on scope means that countries would be free to determine the scope, nature and form that their contribution will assume.[20] Countries could choose to submit contributions that focus on mitigation alone, forgoing finance and technology transfer components; countries could submit adaptation contributions in lieu of mitigation contributions; they could also submit contributions that are conditional to the provision of financial and technological support. Such interpretations of scope are likely to have serious implications on any assessment of contributions.[21] For instance, attaching conditionality to contributions would make difficult any calculations to assess adequacy of aggregated national efforts, in light of the 2°C temperature goal.

Providing some succour to developing countries on the issue of scope, is an invitation to parties to "*consider including an adaptation component in their intended nationally determined contributions.*"[22] There is also an invitation to parties to "*consider communicating their undertakings in adaptation planning*"[23] giving countries who don't intend to include an adaptation component in their contributions, the option to submit an undertaking. While there is no such invitation on the finance front, there is a decision that the outcome of the Durban Platform process "*shall address in a balanced manner, inter alia, mitigation, adaptation, finance, technology development and transfer, and capacity-building*"[24] as well as an urging to "*developed country Parties to provide and mobilize enhanced financial support to developing country Parties for ambitious mitigation and adaptation actions.*"[25] If, and how such calls will be reflected in country contributions, remains to be seen.

2.3 Form of Contributions

Mitigation Contributions: There is wide agreement among countries that the form of mitigation contributions will differ with national circumstances, responsibilities and capabilities: developed country contributions would take the form of absolute economy-wide emission reduction commitments and developing country contributions would take the form of emission intensity targets, deviations from BAU, low-carbon strategies, policies and projects.[26] Developed countries have, however, gone further to suggest that developing countries should, in line with evolving national circumstances, move away from less rigorous types of contribution and over time, be willing to adopt economy-wide absolute emission targets.[27] The form of mitigation contributions has important implications on adequacy assessments and domestic buy-in.[28] For instance, conducting an adequacy assessment on an intensity target becomes complex as the absolute level of emissions depends on GDP or population projections. Absolute targets are easier to assess; however securing agreement and buy-in from the domestic constituency on an absolute target becomes a harder task.

Adaptation Contributions: Some developing countries have called for a global adaptation goal to be part of the 2015 agreement.[29] Countries would contribute towards this goal through the adaptation component of their INDCs. Adaptation contributions of developing countries would take the form of policies, actions and plans aimed at reducing vulnerability to climate change and promoting resilience of eco-systems, including National Adaptation Plans.[30] These contributions would be contingent on the availability of financial support. Adaptation contributions of developed countries should contain the level and types of support that would be provided to developing countries to undertake adaptation actions.

Support (Finance, Technology Transfer and Capacity Building) Contributions: Developing countries have insisted on the need for support, especially financial support, to be an integral component of a developed country INDC.[31] Developed country finance contributions should specify the type, targets, timelines and sources of climate finance and also contain a roadmap elaborating the means by which finance support would be scaled up over time. Developing country support components should present the kinds and level of support needed to achieve their INDC targets. Developed countries have maintained that such commitments on government expenditure cannot be provided years in advance of the relevant budget cycle.[32]

2.4 Duration of Contribution Cycles

The decision on the duration of contribution cycles will likely be made in the negotiating sessions this year, when parties negotiate the Elements text for the 2015 agreement. The two proposals on the negotiating table are: 5 year cycle and 10 year cycle with mid-term review. Advocates of the former argue that a 5 year commitment cycle will enable periodic review of progress, more frequent ratcheting up of targets that is in accordance with evolving national circumstance, and above all, ensure that countries are not locked in to long periods of low ambition.[33] Proponents of the 10 year cycle argue that an extended cycle will signal market certainty to investors and will encourage more ambitious target setting.[34] The idea of having two five-year periods, one firm and another indicative is also gaining ground. Having two five-year periods will allow for the retention of both 5 and 10 year cycles. Whether it may be possible to add a long-term aspirational goal (e.g. for 2050) for individual Parties remains an open question.

2.5 Review of Contributions

INDCs will not be subject to a collective ex-ante assessment process, rendering all considerations of equity and adequacy in the hands of individual countries. The decision to forgo an ex-ante assessment does not, however, prevent Parties from considering an assessment process going forward: either an ex-post assessment for the 2015 contributions and future contribution cycles or an ex-ante assessment for future contribution cycles, or even a dynamic contribution cycle in future that combines ex ante and ex post consideration.[35]

The issue of review and assessment saw divisions emerge even within the developing country camp. Many developing countries (including the Africa Group), SIDS as well as some developed nations (including the EU) were in favour of contributions being subjected to an ex-ante assessment process, arguing that this was the only way to ensure fairness or equity and adequacy of contributions in light of the temperature goal.[36] China, India and Jordan however, rallied against any such assessment process, insisting that an assessment process would only serve to dissuade parties from submitting ambitious contributions.[37]

A compromise on the assessment issue, albeit a weak one, was reached through the enlistment of the UNFCCC Secretariat to *"prepare by 1 November 2015 a synthesis report on the aggregate effect of the intended nationally determined contributions communicated by Parties."*[38] This effort, however, will only serve to identify the impact that the aggregated contributions will have on the temperature goal and will not check for equity and fairness in contributions.

3. Analysis of Submitted INDCs[39]

Thus far, sixty-two countries (including the twenty-eight countries of the European Union with 1 joint submission) have communicated their INDCs to the UNFCCC.[40] Their pledges cover around 62.9% of global emissions in 2012.[41] The remaining countries are expected to submit their INDCs by October 1st, the informal deadline set by the Lima Call for Climate Action for countries who intend for their submissions to be incorporated into the synthesis report prepared by the UNFCCC. This section analyses the submitted INDCs, with a special focus on submissions by the G20 countries.

Table 1: INDC Pledges of G20 countries submitted until 20 September 2015

COUNTRY	MITIGATION			ADAPTATION	CONTRIBUTION OF INTERNATIONAL MECHANISMS	INCLUSION OF LULUCF EMISSIONS AND REMOVALS
	UNCONDITIONAL TARGET	CONDITIONAL TARGET	SPECIFIC SECTORAL MEASURES[a]			
European Union[b]	Binding target of an at least 40% domestic reduction in GHG emissions by 2030 compared to 1990	NA	Not specified	NA	No	To be confirmed "as soon as technical conditions allow and in any case before 2020"
Mexico[c]	Committed to reduce unconditionally 25% of its GHGs and Short Lived Climate Pollutants emissions (below BAU) for the year 2030. This commitment implies a reduction of 22% of GHG and a reduction of 51% of Black Carbon (below BAU) This commitment implies a net emissions peak starting from 2026	Increase of reduction commitment to 40% in a conditional manner, subject to a global agreement addressing important topics including international carbon price, carbon border adjustments, technical cooperation, access to low-cost financial resources and technology transfer, all at a scale commensurate to the challenge of global climate change. GHG reductions could increase up to 36%, and Black Carbon reductions to 70% in 2030	Not specified	Adaptation activities geared towards the protection of communities from adverse impacts of climate change, such as extreme hydro meteorological events related to global changes in temperature; as well as the increment in the resilience of strategic infrastructure and of the ecosystems that host national biodiversity	No	Not specified
United States of America[d]	Economy-wide target of reducing GHG emissions by 26-28% below 2005 levels in 2025 and to make best efforts to reduce emissions by 28%	NA	Cutting emissions from new and existing power plants, fuel economy standards for vehicles, energy conservation standards for appliances and equipment, a building code determination for commercial buildings, standards to address methane emissions from landfills and oil and gas sector, reducing use of high-GWP HFCs	NA	No (qualified with the statement "at this time")	Yes
Russia[e]	Limiting anthropogenic greenhouse gases in Russia to 70-75% of 1990 levels by the year 2030 might be a long-term indicator, subject to the	NA	Not specified	NA	No	INDC states that the target is "subject to the maximum possible

	maximum possible account of absorbing capacity of forests (Translating to a reduction of GHG emissions by 25-30% from 1990 levels by 2030)					account of absorbing capacity of forests"
Canada[f]	Economy-wide target to reduce GHG emissions by 30% below 2005 levels by 2030	NA	GHG emission standards for vehicles, phasing down HFCs, cutting emissions from natural gas-fired power plants, chemicals and nitrogen fertilizers plants, reducing methane emissions from the oil and gas sector, regulations for coal-fired electricity generating units, renewable fuel content regulations for gasoline and diesel	NA	Maybe	Yes
China[g]	Achieve the peaking of carbon dioxide emissions around 2030 and making best efforts to peak early; Lowed carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level; Increase the share of non-fossil fuels in primary energy consumption to around 20%; and Increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level	NA	Policies and measures include : Implementing Proactive National Strategies on Climate Change, Improving Regional Strategies on Climate Change, Building Low-Carbon Energy System, Building Energy Efficient and Low-Carbon Industrial System, Controlling Emissions from Building and Transportation Sectors, Increasing Carbon Sinks, Promoting the Low-Carbon Way of Life, Enhancing Overall Climate Resilience, Innovating Low-Carbon Development Growth Pattern, Enhancing Support in terms of Science and Technology, Increasing Financial and Policy Support, Promoting Carbon Emission Trading Market, Improving Statistical and Accounting System for GHG Emissions, Broad Participation of Stakeholders, Promoting International Cooperation on Climate Change	China will continue to adapt to climate change by enhancing mechanisms and capacities to effectively defend against climate change risks in key areas such as agriculture, forestry and water resources, as well as in cities, coastal and ecologically vulnerable areas and to progressively strengthen early warning and emergency response systems and disaster prevention and reduction mechanisms	Not specified	Not specified
South Korea[h]	Emission reduction by 37% from the BAU level by 2030	NA	GHG and Energy Target Management System (TMS) for the industrial Sector, obligate power generators to supply a portion of electricity from renewable sources, establish a Green Building Standards Code and a system for the Performance Evaluation of Eco-friendly Homes, low-carbon standards for fuel efficiency and automobile emissions, tax reductions for electric and hybrid vehicles, expand infrastructure for environment-friendly public transportation	Adaptation measures will include Strengthening infrastructure for climate change monitoring, forecasting and analysis, developing a management system for disaster prevention and stable water supply, developing a climate-resilient ecosystem, making a systemic transition to a climate-resilient social and economic structure, enhancing	Yes	Yet to be decided

				the system for the management of negative impacts of climate change on health		
Japan[i]	A reduction target of 26.0% by fiscal year (FY) 2030 compared to FY 2013 (25.4% reduction compared to FY 2005) (approximately 1.042 billion t-CO2 eq. as 2030 emissions)	NA	Sectoral measures include: More chemical recycling of waste plastic at steel plants, Introduction of technology which uses CO2 as a feedstock, Promotion of compliance of energy saving standards, Improvement of fuel efficiency, Promotion of next-generation automobiles, Utilizing nuclear power generation, Measures to reduce N2O emissions from agricultural soils, and control overall emissions of fluorinated gases, Reduction of municipal solid waste disposed of by direct landfill	NA	Yes	Yes
Australia[j]	Economy-wide target to reduce greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030.	NA	Not specified	Not specified	Not specified	Yes

[a] Only sectoral actions specifically mentioned in the INDC submissions are listed here. Measures adopted under laws referred to in the INDC, but not expressly listed in the submission are not covered. This table makes no distinction between sectoral measures adopted in the past and current measures.
[b] UNFCCC, 'Submission by Latvia and the European Commission on behalf of the European Union and its Member States: Intended Nationally Determined Contribution of the EU and its Member States' (6 March 2015).
[c] UNFCCC, 'Submission by Mexico: Intended Nationally Determined Contribution' (30 March 2015).
[d] UNFCCC, 'Submission by the United States' (31 March 2015).
[e] UNFCCC, 'Submission by the Russian Federation' (1 April 2015).
[f] UNFCCC, 'Submission by Canada: Canada's INDC submission to the UNFCCC' (15 May 2015).
[g] UNFCCC, 'Submission by China: Enhanced Actions on Climate Change: China's Intended Nationally Determined Contribution' (30 June 2015).
[h] UNFCCC, 'Submission by South Korea: Submission by the Republic of Korea' (30 June 2015).
[i] UNFCCC, 'Submission by Japan: Submission of Japan's Intended Nationally Determined Contribution(INDC)' (17 July 2015).
[j] UNFCCC, 'Submission by Australia: Australia's Intended Nationally Determined Contribution to a new Climate Change Agreement' (August 2015).

3.1 Scope, Coverage and Form of Contributions

A majority of the submitted contributions are mitigation-centric, with only Mexico, China and South Korea (among the G20 countries) including an adaptation component in their contributions. All three countries have submitted an adaptation component in addition to a mitigation one. Support (financial, technology transfer and capacity building) components have not figured in any of the developed country contributions, so far; China, however, has pledged support for other developing countries undertaking climate action.

3.1.1 MITIGATION

Form: All mitigation contributions with the exception of contributions by Mexico, China and South Korea (among the G20 countries) have taken the form of absolute economy-wide emission reduction targets. The base year for

these absolute targets have been 1990 except in the cases of Canada, Australia and the United States, who have chosen 2005 as the base year, and Japan, which has chosen 2013 as its base year. Mexico and South Korea have offered mitigation contributions that are reductions/deviations from Business-as-usual (BAU) scenarios. China has put on the table an emissions intensity target. Mexico and China, in addition to reduction targets, have also identified a peaking year for net emissions and CO2 emissions respectively. The Chinese contribution also contains non-GHG targets – to 'Increase the share of non-fossil fuels in primary energy consumption to around 20%' and 'increase the forest stock volume by around 4.5 billion cubic meters on the 2005 level.'

Sectors: There is significant uniformity in the sectors covered by the submitted INDCs, with energy, industrial processes and product use, agriculture, waste and Land Use, Land-Use Change and Forestry (LULUCF) emerging as the dominant sectors. Andorra has limited coverage to its energy and waste sectors which accounted for 98.5% of its emissions in 2011. Switzerland, in addition to the above sectors, has supported the inclusion of international aviation and shipping; these sectors however, do not figure in its current INDC.

Gases: There are also similarities in the coverage of green-house gases with countries opting to cover all the gases not covered by the Montreal Protocol namely Carbon Dioxide (CO2), Methane (CH4), Nitrous Oxide (N2O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF6) and Nitrogen trifluoride (NF3). Mexico has added to this basket of gases, black carbon, and included in its INDC a formal reduction target for Black Carbon: unconditional/conditional reductions of 51%/70% below baseline in 2030.

3.1.2 ADAPTATION

Adaptation has figured, thus far, only in the INDCs of Mexico, China and South Korea (among the G20 countries). The adaptation component of Mexico's INDC, for instance, takes the form of a list of adaptation activities aimed broadly at protection of communities from adverse impacts of climate change and increasing resilience of strategic infrastructure and ecosystems. Activities include establishing early warning systems and risk management at every level of government, reaching a rate of 0% deforestation by the year 2030, strengthening the adaptive capacity of at least by 50%, the number of municipalities in the category of 'most vulnerable'.

3.1.3 SUPPORT (FINANCE, TECHNOLOGY TRANSFER AND CAPACITY BUILDING)

None of the developed country INDCs submitted so far contain a support component. Among the developing countries, Mexico, in its support component, has detailed the kinds of support (under technology transfer) it would require from developed countries to aid domestic adaptation activities. Some of the areas include access to information systems to monitor hydrometeorological events in real time, technologies for the protection of coastal and river infrastructure, water technologies for savings, recycling, capture, irrigation. China has stated that it will establish a Fund for South-South Cooperation on Climate Change, to provide assistance and support to other developing countries, including the small island developing countries, the least developed countries and African countries to address climate change.

Whether and how the absence of a support component in developed country INDCs will impact ambition in developing country emission reduction efforts, is yet to be seen. At past negotiations and discussions on INDCs, developing countries have called for developed countries to take the lead on mitigation saying that "*implementation by Annex II developed country Parties of their respective commitments relating to finance and technology transfer under Art. 4 of the Convention will be an essential condition and foundation for enhancing the actions and contributions of developing country Parties.*"[42]

3.2 Nature of Contributions

Only Mexico (among the G20 countries) has attached conditionality to its mitigation efforts. It has offered to increase its 25% reduction commitment by 15% to 40% but subject to a "*global agreement addressing important topics including international carbon price, carbon border adjustments, technical cooperation, access to low-cost financial resources and technology transfer, all at a scale commensurate to the challenge of global climate change*."

Although no other country has expressly attached conditionality to its contributions, several countries have hinted that they might consider revising their proposed targets in the event that developed nations and the largest emitters offer ambitious contributions. Russia states that the final decision on its INDC "*will be taken pursuant to the outcome of the negotiating process … and the INDCs announced by major emitters*." Norway has stated that it would adopt a binding goal of carbon neutrality by 2030, in addition to its domestic target, "*conditional to ambitious commitments by other developed nations*." The European Union's use of "*at least 40%*" also leaves open the possibility of an upward revision, although it is not explicitly made clear what this revision would be contingent on – whether it will be triggered by the robustness of other country contributions or by the outcomes/requirements of the negotiations.

Whether such revisions will lead to greater domestic emission reduction efforts will depend on the means through which the additional reduction targets will be met. Norway has stated that in the event of an upward revision, "*additional reductions would be achieved abroad rather than domestically*." Similarly, Mexico has announced that achieving their conditional goal would require "*fully functional bilateral, regional and international market mechanisms*" while the unconditional target would be met regardless of such mechanisms.

3.3 National Planning

Few countries have elaborated on the specific approach and actions they plan to take to meet their INDC pledges. Switzerland and Liechtenstein, for instance, merely state that they will develop the required policy response and revise their current laws to reflect INDC targets. Mexico lists the instruments that will support its INDC, namely the General Climate Change Law (2012), National Strategy on Climate Change (2013), Carbon tax (2014), etc and announces that it is currently developing a new set of standards and regulations, without going into further detail on either.

Notable exceptions are the INDCs submitted by the United States, Canada, China, Japan and South Korea. Below, I elaborate on some of the dominant approaches and instruments these countries and others have/intend to adopt.

3.3.1 DOMESTIC LEGISLATION

A majority of countries including the European Union, Switzerland, Mexico, the Russian Federation, China, South Korea and Liechtenstein appear to champion the domestic legislation route to implementing their INDCs. The European Union is currently holding consultations around legislating Member States' efforts towards meeting the 2030 target, specifically on the continuation of the current Effort Sharing Decision in 2021-30.[43] The EU's 2030 target is expected to be legally binding domestically, in the same manner that the 2020 target was. China's national climate change law is reportedly in the drafting stages.[44] Russia already has in place legally-binding instruments, namely, the Decree of the President of the Russian Federation of 30 September 2013 and Act of the Government of the Russian Federation of 2 April 2014 No. 504-p aimed at achieving by 2020, a GHG reduction target that is identical to the target mentioned in its INDC: of limiting its GHG emissions to 70-75% of 1990 levels.

The United States, due to internal political constraints is expected to meet its target through executive orders issued by the US President, relying on the authority accorded to the Environmental Protection Agency (EPA) by the Clean Air Act and Energy Policy Act. The US INDC duly lists the measures announced by the EPA under Obama's 2014 Climate Action Plan[45] and the 2015 Executive Order on 'Planning for Federal Sustainability in the Next Decade.'[46]

3.3.2 SECTORAL APPROACH

Among G20 countries, the United States, Canada, China, Japan and South Korea have adopted a sector-by-sector regulatory approach towards mitigation activities.

There is significant commonality in the sectors covered under their respective climate plans, although national circumstances have significantly shaped the emphasis placed on each sector. For example, cutting carbon pollution from power plants is high-priority for the United States. The US Climate Action Plan intends to reduce carbon pollution from new and existing coal and gas fired power plants - by establishing carbon pollution standards[47] for new power plants and through state target emission rates[48] (lbs of CO_2 per megawatt-hour) for limiting emissions from existing plants. Electric power generation in the United States contributes one-third[49] of all domestic GHG emissions, with coal and gas accounting for 67%[50] of electricity generated, making it a critical area for mitigation action.

Canada, with 77% of its electricity generation coming from non-GHG emitting sources,[51] has focused on cutting emissions from its transportation sector. The transportation sector is the largest source of GHG emissions in Canada, with emissions rising (33% growth since 1990) from a general shift in personal vehicle ownership from cars to light trucks, heightened cross-border trade and on-road freight transportation.[52] Canada has in place regulations that impose strict GHG emission standards on cars and light trucks for the 2017 and beyond model years and intends to develop stricter standards for heavy-duty vehicles and engines for the post 2018 model years.[53] There are also Renewable Fuels Regulations that require petroleum fuels producers and importers to have an average 5% renewable fuel content in gasoline and 2% renewable fuel content in diesel fuel.[54] A major criticism[55] of the Canadian INDC is around the absence of measures to cut emissions from oil sands. Canadian oil sands contributed 9%[56] of the country's emissions in 2012. Emissions from this sector are expected to increase to represent 14% of Canada's total emissions by 2020.[57]

China's sectoral actions reflects the growing urgency domestically to switch from coal to cleaner sources of energy. Air pollution fuelled by coal-based growth has become a pressing concern in recent years with the Chinese government declaring "war"[58] on pollution and calling it a "blight on people's quality of life and a trouble that weighs on their hearts."[59] The country's current status as the world's largest crude oil importer has also sparked concerns about energy security.[60] China has adopted a slew of measures aimed at controlling coal consumption, chief among which is a target to increase the share of non-fossil fuels in primary energy consumption to 20% by 2030. To achieve this target, China will be required to add 800-1000GW, the equivalent of total current US electricity capacity, in non-fossil fuel capacity.[61] There is also a plan to cap coal consumption at a level of 4.2 bn tonnes by 2020[62] and other measures listed in the INDC such as "*to lower coal consumption of electricity generation of newly built coal-fired power plants to around 300 grams coal equivalent per kilowatt-hour.*"[63]

3.3.3 DOMESTIC CARBON MARKETS AND CLIMATE FUNDS

Domestic carbon markets has figured prominently in the INDCs and climate plans of the European Union, China and South Korea.

The European Union is set to use it extensively to achieve a major portion of its 40% reduction target (The EU target will partly be met by a 43% emissions reduction below the 2005 level in sectors covered by the EU ETS).[64] A major concern with the utilisation of the EU ETS has been around the quantum of surplus credits that currently lie with the ETS.[65] EU diplomats have recently approved a proposal to begin transferring the surplus credits to a Market Stability Reserve which would become operational in 2019.[66] This proposal is currently awaiting a nod by the European Parliament. However, there is still little clarity on the manner in which the credits will be used even after 2019 – whether they will be returned and if yes, how many? If these unused credits were used for achieving emission reductions for 2030, it could diminish the actual emission reductions required to meet the 40% target. An analysis by Carbon Market Watch has revealed that if the EU used the entire surplus of emission allowances (an issue on which it has not clarified the stand it will adopt), it would effectively mean that the EU's 40% reduction target could be met with a mere 17% reduction in emissions since the surplus could accumulate to 4-6.5 billion excess emission permits.[67] Greater clarity on this issue will be required to assess the exact level of emission reductions the EU will eventually contribute.

In the United States, under the EPA rule for cutting emissions from existing power plants, states would have the flexibility to achieve their individual target emission rates through emissions credit trading - either among power plants, companies or even between states.[68] China is set to launch its national emissions trading scheme in 2016, replacing the seven existing regional carbon markets.[69]

Australia has set up an Emissions Reduction Fund, through which the government purchases credits from projects reducing emissions in the industrial and land sector. A purchase of over 47 million tonnes of abatement at an average price of AU$13.95 has been made, to date.[70] Gabon, in its INDC, has announced that it would also establish a National Climate Fund to channel revenues from its domestic carbon market as well as state budget, private investments and international public finance to adaptation and mitigation activities.

3.4 Ambition in the INDCs

3.4.1 'NO BACKSLIDING' AND AMBITION

At the Lima COP, Parties agreed that their INDCs would "*represent a progression beyond the current undertaking*"[71] to cut emissions, in Kyoto Protocol commitments, NAMA and Copenhagen pledges.

For many countries, the INDC targets signal a change in emission reduction trajectories and transitions towards less carbon-intensive development. The European Union, for instance, will have to double the rate at which its carbon intensity has been falling (2% per year since 2000).[72]The United States will also have to double its annual GHG emission reductions: from 1.2% during 2005-20 to 2.3-2.8% in the 2020-25 period.[73] For China, annual improvements in carbon intensity reduction will likely be to the tune of 3.1 – 5.2% in the 2021-30 decade.[74] According to one analysis,[75] China's per capita energy-related CO_2 emissions are expected to peak earlier and at a lower level (at around 8 tons when its per capita GDP is likely to be 14,000 USD) than the major developed countries whose per capita energy-related CO_2 emissions peaked at 10-22 tons when per capita GDP was 20,000-25,000 USD (in 2010 price levels).

However, ascertaining if these pledges are in accordance with the 'no backsliding' principle and thereby, an increase in ambition is difficult. For example, the United States which has not ratified the Kyoto Protocol had, at Copenhagen offered to reduce emissions "*in the range of 17%*"[76] by 2020 below 2005 levels. This Copenhagen target was set in and conditional[77] to the passing of domestic legislation aimed at an 83% reduction by 2050, which also included a 2025 reduction target - of 30% below 2005 levels. The current US INDC pledges less, a 2025 target of reducing emissions by 26-28% below 2005 levels, but is not conditional on new legislation. Similarly, Japan's 2030 target which translates to a 16% reduction below 1990 levels is lower than its initial Copenhagen pledge (25% reduction below 1990 levels).[78]

Russia which had in Copenhagen offered to reduce emissions within the range of 15–25 % (from 1990 levels) by 2020, has now offered to reduce emissions by 25-30% (from 1990 levels) by 2030. Various analyses[79] have suggested that with the selection of 1990 as the base year, when emissions were higher than they have ever been in the 25 years that followed, Russia is creating the flexibility it needs to increase future emissions. The Russian emissions trajectory has not taken the path that most other countries' trajectories have; emissions have declined significantly since 1990, after the collapse of the erstwhile Soviet Union. With its current pledge, Russia could increase its emissions by 40-50% in 2030 over 2012 levels (when emissions were at 50% of 1990 levels) and still meet its INDC target.[80] In a similar vein, Japan's use of 2013 as a baseline has come under criticism (Japan recorded unusually high emission levels in 2013, in the immediate aftermath of Fukushima and the subsequent shutting down of nuclear reactors[81]).

3.4.2 AMBITION, ADEQUACY AND THE 2°C GOAL

It is too early to assess the adequacy of these increased efforts in light of the 2°C goal. However, the Climate Action Tracker,[82] an independent science-based assessment allows for a comparison of country efforts to simultaneously evaluate if each country is contributing its fair share and is in line with achieving the 2 degree goal. Countries are rated as 'role model,' 'sufficient,' 'medium,' or 'inadequate' on the basis of how fair their contribution is compared to what their fair emission reduction ought to be in order to limit emissions below 2°C.[83] All countries would have to be at the intersection between 'sufficient' and 'medium' to meet the global temperature goal.

Under this rating system, among countries in the G20 cohort, the European Union,[84] the United States[85] and Mexico[86] have been rated as 'medium': these contributions are not in line with the 2°C goal; other countries would have to make a comparably greater effort and much deeper reductions to reach the goal.[87] China has been given a hybrid rating of 'Medium with inadequate carbon intensity target': emission reductions expected under its carbon intensity target are lower than the emission reductions expected from the other targets outlined in the INDC. [88] Climate Action Tracker has suggested that the lower intensity target might be China's attempt at creating a 'safety' provision in the event that current national policies don't work out.[89] The Russian Federation,[90] Canada,[91] Japan,[92] South Korea[93] and Australia[94] have been ranked as 'inadequate'. According to Climate Action Tracker, if all countries were to submit 'inadequate' pledges, then warming would likely exceed 3–4°C.[95]

3.4.3 THE IMPLICATIONS OF INTERNATIONAL MARKET MECHANISMS AND LULUCF FOR AMBITION

The manner in which carbon credits from international market mechanisms and LULUCF credits are utilised will have significant implications for ambition.

Firstly, the use of these credits diminishes the mitigation efforts countries will be required to undertake domestically to meet their targets, and even offsets emission increases from the more carbon-intensive energy, industry and transport sectors. For instance, after accounting for removals from the LULUCF sector, boreal forest-rich Russia's 25-30% reduction becomes a reduction of 6-11% of industrial GHG emissions. [96] For the European Union, the impact is lower and in the range of 1-4% of 1990 emissions, depending on the accounting rules finally decided on.[97] Only Norway, among all countries, has expressly stated that the "*final choice of land sector accounting shall not affect the ambition level for 2030 compared to when the land sector is not included*." For South Korea, only two-thirds of its reduction target is expected to be achieved domestically.[98]

Second, the accounting framework adopted could distort quantifications of emission reductions. For instance, Climate Action Tracker has assessed that Canada's proposal to use a 'net-net approach' for accounting of the LULUCF sector and a 'production approach' to account for harvested wood products, instead of the more rigorous rules in the Kyoto Protocol, could potentially lead to double counting, asymmetric accounting (counting sinks while omitting sources) and other complications.[99]

Third, the lack of finality on the treatment of credits can cause uncertainty over a country's ambition level, making difficult any adequacy assessment. It could also motivate other parties to defer decisions on LULUCF accounting and usage of international market mechanisms to after Paris.[100] Norway and Mexico, for instance, have said that they intend to use international credits only in the event that the former's commitment will be fulfilled individually (without collaboration with the EU) and if the latter's conditional target comes into force. The EU has stated that its approach towards accounting for LULUCF emissions would be decided "*as soon as technical conditions allow and in any case before 2020*."

3.4.4 TRANSPARENCY AND AMBITION

The lack of transparency in country INDCs can also contribute to uncertainty over each country's ambition levels. For example, Iceland has stated that it aims to be part of a collective delivery by EU countries but that a "*precise commitment for Iceland … has yet to be determined, and is dependent on an agreement with the EU and its member states.*"[101] In the case of Russia, the mitigation target prescribed in domestic legislation and proposed in its INDC is the same, but with different end dates: 2020 for the former and 2030 for the latter. Experts who have weighed in on this issue have raised a number of questions on what this means for emissions in the period 2021-2030 – Will emissions remain more or less stable in these years, or will they rise after 2020, peak and eventually fall to the same level by 2030; if the latter, when might the peak occur?[102] These issues will have important implications for calculations of cumulative emissions and quantifications of the exact effect of Russia's pledge. The Chinese INDC provides very little detail on the emission trajectories that non-CO2 gases will take. Some estimates suggest that total GHG emissions will continue to grow even after CO2 emissions peak.[103] The Chinese INDC also does not specify how emissions and removals from the land sector will be accounted – if they will be covered only under the forest stock volume target or if they will contribute towards the achievement of the Co2 targets. Other examples include the lack of information on the levels at which Mexican emissions will peak, on the extent to which Canada will make use of market mechanisms or whether Gabon will account for the LULUCF sector at all (Gabon has stated in Annexure B to its INDC that it will not be using carbon stocks to achieve its commitment. However, Annexure C notes that the LULUCF sector plays an important role in helping Gabon achieve its emission reduction targets).

If the treatment of markets and LULUCF sector is not clarified, and further information on a host of other issues is not provided to the UNFCCC, in advance of the preparation of the synthesis report, adequacy assessments may not give an accurate picture of the path we are heading towards.

3.5 Equity and Fairness in the INDCs

The Lima Call to Climate Action allows for (but does not require) the inclusion of information on "*how the Party considers that its intended nationally determined contribution is fair and ambitious, in light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2.*"[104]

In developed country justifications of fairness and ambition, what is conspicuous in its absence, and expectedly so, in a system of national self-determination, is any mention of indicators such as responsibility and capability. Countries have instead, put forth their own interpretations of what constitutes a fair share.

"*Progression beyond current undertaking*" and "*well in line with science*" are two of the more common arguments. For example, the United States, currently rallying to push the envelope on the reach of the Clean Air Act, stays silent on the issue of equity and fairness, but highlights the acceleration in the pace of emission reductions that their current target will require over reductions between 2005 and 2020: a near doubling. The European Union notes the increase in efforts over past pledges, both in level of ambition and treatment of offsets. Both the European Union and Japan state that their INDC targets are consistent with the need for halving emissions by 2050 compared to 1990 and with IPCC recommendations for the developed country cohort to reduce emissions by 80-95% by 2050 (compared to 1990). The EU also highlights the fall in its average per-capita emissions to justify its reduction target: from 12 tonnes CO2-eq. in 1990 to 9 tonnes CO2-eq. in 2012 and projected to fall further to around 6 tonnes CO2-eq. in 2030. For Russia, achieving its 2030 emission reduction target will result in a deeper decoupling of economic growth and GHG emissions than has occurred in its past, which in its view, is a justification for ambition and fairness. Australia notes that its target is 'comparable to the targets of other advanced economies.'

Switzerland explicitly states that considerations of responsibility, cost-efficient mitigation potential and abatement costs and capacity should be included in understandings of fair shares. In its view, its own responsibility towards climate change is low because its historic emissions amount to 0.2% since 1990 and per-capita emissions are at world's average levels. It also notes that its abatement costs are high due to limited availability of short term cost-efficient mitigation potential: scope for mitigation activities lies mainly in the housing and transport sectors which have long transformation periods. It mentions the need for capacity to be used as an indicator for fairness, but provides no information on how it fares along this metric. Japan and South Korea draw attention to their limited mitigation potential; for South Korea, this limited potential stems from manufacturing forming a large share of its industrial structure and the high energy efficiency of its major industries. South Korea also notes the limited extent to which it can make use of nuclear energy owing to decreased levels of public acceptance for nuclear plants in the aftermath of the Fukushima accident. Japan notes that the transparent manner in which it has listed policy measures and target breakdowns for its major sectors ensures fairness.

Among developing country INDCs, Mexico draws on its low per capita emissions (5.9 tCO2e) and its miniscule contribution to global emissions (1.4%), in its discussion of fairness. China highlights its vulnerability to climate change and the multiple developmental challenges it faces in addition to combating climate change

4. CONCLUSION

There is much left to be resolved on the INDC issue. Parties have yet to decide on the legal nature of the contributions, duration of contribution cycles and the assessment process that contributions will be subject to. In

the meantime, many countries, as seen above, have already submitted or initiated processes to formulate their INDCs. Given the absence of strict guidelines, these processes are largely being conducted at their discretion. How this degree of self-determination will affect ambition and fairness in contributions and inclusiveness in scope is yet to be fully seen.

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