

The Purpose of INDCs for an International Climate Agreement

Written by Max Meulemann

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MAX MEULEMANN, AUG 5 2015

On the road to the next Conference of Parties (COP) in Paris at the end of this year, the participating countries were invited to hand in their Intended Nationally Determined Contributions (INDC). This is based on a decision taken at the COP 2013 (UNFCCC 2013) in Warsaw that asked all participating countries to announce publicly their intended contributions by the first quarter of 2015. While this original request was rather vague, the Lima Call for Climate Action (UNFCCC 2014) specified more clearly the nature of the INDCs. They are supposed to provide a reference point or base year of emission reductions, a time frame, and further information about the methodological approach how the targets came about. Additionally, countries should discuss how their INDCs attribute to reaching the UNFCCC's climate target (temperature change $< 2^\circ\text{C}$) and if they are fair and ambitious. Although only 37 countries representing roughly 31% of global emissions have handed in their INDC before the deadline on March 31 2015, several more, especially China, have handed in their INDCs by now adding up to 55% of global emissions (real time overview by World Resources Institute (2015)). Such behavior is not uncommon for the UNFCCC process and there is still time until December before the next COP in Paris. It is already a major success for the INDC process that the two biggest emitters, the US and China, have submitted their proposals.

From an economic perspective INDCs are a bottom-up, pledge-based approach (Bodansky 2004), allowing countries to announce any commitment they see fit based on their national circumstances. These pledges create a floor or minimum commitment open to international and public scrutiny if countries do not comply with them. Similar to a ratchet device, there is no turning back from a once made commitment. All INDCs combined imply a global emission limit comprised of national targets of all participating countries in the climate negotiation process (so far only developed countries (Annex-1) countries were given binding targets on emissions). Even if the commitments were small (which they are), future agreements could build on this. Having a global target and binding national targets would boost possibilities for emission trading across nations. Without such targets, emission reductions in undeveloped countries have to be estimated compared to a business as usual target to make sure that they represent real reductions (a problem that is called additionality, see also Greiner and Michaelowa (2003) or Schneider (2009)).

Furthermore, INDCs abolish the original dichotomy of the Kyoto Protocol of Annex 1 (mostly developed countries) with targets vs. non-Annex 1 countries (developing countries) with no targets. This differentiation was appropriate in the 1990s but now more than 50 non-Annex 1 countries have surpassed Annex 1 countries in GDP per capita (Olmstead and Stavins 2012). Also, the total amount of emissions of non-Annex 1 countries surpasses the amount of emission from Annex 1 countries, so that even a 100% reduction of emission by Annex 1 countries would not suffice to prevent climate change. This schism is rather stalling negotiations as naturally non-Annex 1 countries are reluctant to graduate to Annex 1 countries (Harvard Project on Climate Agreements 2010). A further problem of this division is that many developed countries began to outsource emission intensive production to developing countries with no targets. This process is also known as "leakage" and a large part of the purported emission reductions just "leaked" to the developing countries as studies of consumption based greenhouse gas accounting show (Peters and Hertwich 2008).

Summing up the reductions of the already published INDCs fails to comply with any of the scientific estimates of

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emission reductions to prevent global warming (WRI Blog, (World Resources Institute 2015)). Some NGOs have complained about the weak pledges made by the US and the EU. A policy brief by Climate Action Tracker (2015) accuses the EU of actually going below its original Copenhagen pledge of 20 % reduction as the EU INDC now includes emission reductions from land-use change and forestry. The US suddenly opts for 2005 as the reference year of emission reductions while normally 1990 is the most often used reference year. This conveniently coincides with the peak of US emissions (Environmental Protection Agency 2015). Changing peak target dates and references points obviously influences the percentage reductions for the better or worse. China does go a different way. Like the US they chose 2005 as the reference year but instead of an emission reduction target, China announces a carbon intensity target to emphasize the goal of a decarbonized economy. The target is to reduce the amount of carbon dioxide emissions per unit of GDP by 60% to 65% (China already plans to reduce this percentage to 40%-45% by 2020). This would imply a peak of emission by 2030. It will be interesting to see, if this will really be driven by more energy efficient production or rather a shift away from carbon intensive industries to the service sector (China 2015).

Strategic thinking offers two explanations for the size of the pledge and the timing of the US and the EU. First, weak pledges should prevent developing countries from free riding on the efforts of the developed countries. Is this fair? Probably not, but bargaining power does not care much about fairness. The US Senate had made it very clear that it would not endorse any international climate agreement without commitments from developing countries (U.S. Senate 1997). Second, the timing of the pledges is important to send this message. The developing countries cannot really threaten to increase emissions to scare the developed countries. Contrary, the early weak pledges send a signal to the developing countries at an early stage forcing them to increase their efforts. More so, since the developing countries are going to be most affected by the damages of climate change. Economists would call this a *Stackelberg game* where the first mover has an advantage over the second mover forcing him to take account of his actions. Promising to much already now would set incentives for developing countries to reduce their efforts. NGOs often demand that the developed countries should take a lead role, but so far this has not turned out to work that well. The EU recognized this, when they adopted a “flexible” climate (EurActiv 2015) target contingent on the results of the COP in Paris.

Looking at China, we finally see efforts which are probably not adequate to prevent a temperature increase of but are a first serious step towards that goal. One could think that China realizes the global nature of and its impact on the problem, but the shift away from coal is rather driven by national than global considerations. China heavily depends on coal for its energy mix (2/3 according to The Climate Group (2015)) and one study identifies air pollution as the fourth leading risk factor for death in China linked to 1.2 million deaths in 2010 (Teng and Jotzo 2014). In this regard, China's position is rather self-interested and the promotion of renewables and energy efficiency addresses concerns about energy safety and reduces dependence on fossil fuel imports.

In contrast to the previous Kyoto Protocol, few proposals mention the use of international emission credits through market mechanisms to implement their targets. This is surprising because originally market based mechanisms like Joint Implementations (JI) or the Clean Development Mechanism (CDM) were a corner stone of the Kyoto Protocol to provide low cost emission reductions abroad. Ironically, the big success of CDM might have played a role for this decision. Ever since CDMs and similar programs were created, the market has grown extensively, but it is not always clear if the purported reductions were real emission reductions. There are perverse examples of projects that increased the production of one GHG gas (HCFC-22) in order to avoid the byproduct of another GHG gas (HFC-23) (Schneider 2011), which lead to a ban of those reduction credits in the European Trading System (ETS). There are a number of reasons that have driven down the price for emission reductions supplied by CDMs, but the institutional framework for CDMs has created a market worth \$19.8 billion in 2010 (The Guardian 2011). Therefore, it is not surprising that the EU, Russia, and the USA are rather critical of CDMs and the like, but it is surprising that China, a beneficiary of CDM investments in the past (see UNEP DTU), does not endorse such options. Establishing a global limit and national targets would substantiate the benefits of CDMs and alleviate the problem of non-additional emissions reductions.

A number of scientific studies stress the importance of fairness for international climate negotiations (Ringius, Torvanger et al. 2002, Lange, Vogt et al. 2007) and indeed fairness is an important criteria of the Lima Call for Climate Action. So how do countries justify their INDCs? Switzerland (Switzerland 2015) for instance invokes equity

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principles of responsibility, ability and efficiency to justify their proposal and advocates for emissions trading on grounds of cost efficiency. Some NGOs like the Climate Action Tracker (2015) judge the EU a bit harshly. The EU rightly claims that its emissions have already peaked in the 1970s and that they are moving towards a more sustainable emission pathway (per capita emissions in the EU are already much lower than in the US). Compared to the US the EU target appears more ambitious and in line with fairness, but of course more could be done. It might be that NGOs count more on the public pressure in the EU as the topic seems to resonate more with EU citizens than with US citizens (GALLUP (2011) and Talking Climate (2011)). On the other side of the spectrum the American INDC (United States 2015) just states that “the target is fair and ambitious”. Given the rather weak targets and switching to 2005 as the reference point, this is debatable because the US is very responsible for climate change due to past emissions. Being one of the richest and most advanced countries in the world the US would also be very capable and morally obliged to fight against climate change. China’s INDC (China 2015) touches the fairness issue briefly and wants to “adhere to the principles of equity and common but differentiated responsibilities and respective capabilities” as originally stated by the UNFCCC. This is combined with some discussion about finance and technology transfers but, not unlike the USA, China could elaborate more on this. Time will tell if other major countries and players will insist on more precise arguments to justify certain positions or if talking about fairness is used to conceal self-interest when possible or necessary.

INDCs are not a “silver bullet” to stop climate change, but they could serve as a stepping stone to a more comprehensive climate agreement (German Development Institute 2015). The fact that not many developing countries have yet handed in their INDCs is troubling, but there is still time until Paris and maybe developing countries will be able to build their INDCs on their previous Nationally Appropriate Mitigation Action (NAMA) proposals as discussed by the Deutsche Gesellschaft für Internationale Zusammenarbeit (2014). With time the amount of global emissions covered by INDCs are likely to rise further the closer we get to Paris. The main hope is that the ratchet nature of public pledges might force countries to fulfill their pledges fearing national and global public pressure enforced by NGOs and the media.

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The Purpose of INDCs for an International Climate Agreement

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Max Meulemann is a post-doctoral researcher at the chair of resource economics at ETH Zürich. His research focuses on the role of fairness in international climate agreements and permit markets. Specifically, he is interested in the role of burden sharing and therefore (his group) released a climate calculator on www.ccalc.ethz.ch.