Road to Achieve Indonesia's Intended National Determined Contribution (INDC): Spearheading Stricter Preventive Reinforcement to Indonesia's Peat and Forest Fires

Biondi Sanda Sima, Peking University, China

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Abstract

One of the most anticipated climate change negotiation, The Conference of Parties (COP) 21, has recently been concluded, leaving many sustainable development enthusiasts a hopeful trajectory about the future. The Intended Nationally Determined Contribution (INDC) was said to be the game-changer, turning the agreement with a largely bottom-up governance. It enables both developing and developed countries to embrace the climate reality, take nationally-driven initiatives to contribute in reducing anthropogenic interference to the climate system, while still acknowledging the varying degree of financial capital, culpability and capacity available to them. Indonesia was among the early conference parties to come up with its ambitious emission reduction target in its INDC. It pledged to reduce at least 26% of its GHG emission against business-as-usual scenario by 2020 with its own endeavor, and 41% by 2030 with international support. However, with the recent flaming of peat and forest fires, many critics question the efficacy of this ambition.

This paper will argue that in order to achieve its INDC target Indonesia needs to spearhead serious attention to put an end to its reoccurring haze. Against the direction of Indonesia's INDC that does not seem to prioritize ending the forest fires, the paper will elaborate on the following three premises: (i) that the major source of Indonesia's carbon emission is indeed coming from peat and forest fires: 63% of Indonesian carbon emission are from Peat and Land-Use, Land-Use-Change and Forestry (LULUCF); (ii) that forest fires prompts the largest amount of contingency costs among other sources of carbon emission; and (iii) that existing regime will make it feasible to tackle the reoccurrence of forest fires, if stronger reinforcement is exercised at full-throttle.

Keywords: Indonesia's Forest Fires, Intended Nationally Determined Contribution

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Introduction

The 21st edition of the Conference of Parties (COP) for the United Nations Framework Convention of Climate Change (UNFCCC) has recently been concluded in December 2015. It was marked as a milestone in the global climate change agreement. It was the first time in history where all 169 nations, regardless of their development stages, agreed to pursue a common interest of keeping the rise of global temperature below 2 degree Celsius, and to attempt to halt it at 1.5 degree Celsius (UNFCCC, 2015).

The inclusive agreement was not the sole accomplishment made in COP21. Monetary provision of USD 100 billion to finance efforts to tackle the ramifications of climate change, commitment to an enhanced transparency and regular reporting mechanism are among the publicly heralded breakthrough achieved through the intense weeks of negotiation. The even more daunting task, however, is to ensure smooth implementation process, in which scholars are optimistic about. It is the Intended Nationally Determined Contribution (INDC) who was said to be the game-changing factor essential to the success of COP21.

INDC is a bottom-up initiative, where each country submits its own unique, nationally agreed set of target to curb carbon emissions. Unlike in other past COPs where targets where agreed on a higher ground through multilateral discussions and was later enforced to signatories. COP21 allows more flexibility for different context of countries situation and give room to them to endeavor combatting climate change at their own pace. This bottom-up approach also put an end to the dividing quarrel between developed and developing countries—whereas previously, climate change was considered to be the responsibility of mere developed countries that are more industrialized and have the financial capacity to finance the transition to environmentally-friendly technology—that now both fronts agree to embrace the urgency and responsibility to protect the planet, although still acknowledging differences and capacity and resources of each member states.

2015 was marked as the year of success, in terms of bringing the issue of climate change—which regardless of IPCCC conclusive statement about its eminent danger, is still highly contested among scholars—to a more prominent space. Nevertheless, it was also a year of contempt. The amount of carbon emission has ballooned to a staggering rate, reaching up to 35,669,000 kt. The year has also been dubbed as the hottest year in millennia.

Among the most talked-about culprit is the vast and long-ending forest fires from land clearance for palm oil plantation in Indonesia. The issue has long been renowned as a reemerging crises hampering Indonesia's economic development, having spillover to a variety of other problems, such as health concerns, lost of biodiversity, transboundary haze to the neighboring ASEAN countries, among others.

In 2015 alone, the amount of carbon emission released by Indonesia during the months when the fires occurred, surpassed the amount of carbon produced by industrialized countries, such as the US and Western Europe in the entire year. In fact, the 2015 haze has made Indonesia to jump the rank of the most-polluting carbon emitter from sixth to fourth worldwide. It is such an irony, considering the crisis

comes from the availability of in-land forests that are supposed to contribute to absorbing carbon and abate the climate avalanche. Yet, despite the enormous impacts it has caused year after year, the crisis receives very little attention from the government. And as soon as the fires were put off by the rain, it will soon be forgotten, until it reoccurs again the following year.

This year, however, Indonesia has boldly reiterated its stronger commitment to address the haze crisis by bringing it to attention in its submitted INDC to the COP21. This paper would highlight Indonesia's commitment in INDC and analyze the feasibility of its implementation, from the angle of forest preservation as the major culprit of Indonesia's carbon emission.

In answering the question of "what causes the seemingly unstoppable reoccurrence of Indonesia's forest fires and how to put it to an end in order to achieve Indonesia's targets as proposed in its INDC", this essay will be divided into three parts. It will first provide descriptive analysis of present global governance on climate change. Secondly, it will highlight Indonesia's commitment as set forth in its submitted INDC, dated in 24 September, 2015, in comparison to other countries' commitment and link the premise to Indonesia's forest fires and analyze the causes of it. It will then provide elaboration on the first three arguments in favor of the following hypothesis, that in order for Indonesia to achieve its INDC, it would have to address its peat and forest fires quandary to be among top national priorities:

- 1. Because the major source of Indonesia's carbon emission is indeed coming from peat and forest fires: 63% of Indonesian carbon emission are from Peat and Land-Use, Land-Use-Change and Forestry (LULUCF);
- 2. That forest fires prompts the largest amount of contingency costs among other sources of carbon emission;
- 3. That existing regime will make it feasible to tackle the reoccurrence of forest fires, if stronger reinforcement is exercised at full-throttle;

Global Governance on Climate Change

The United Nations Framework Convention of Climate Change (UNFCCC)

The UNFCCC is a United Nations Convention whose aims are to prevent humandriven activities or anthropogenic interference from causing climate system upheaval. The Convention entered into force on March 21, 1994, two years after its first establishment from the Rio Convention in the Rio Earth Summit 1992. With 196 member states, UNFCCC is able to govern universal legitimacy, including enforcing what is deemed to be binding agreements, resulted from the Conference of Parties (COP). Of all the 21 sessions of meeting convened by the COP, among the most significant ones are:

1. Kyoto Protocol (1997) was among the first convention to set a binding agreement to reduce Greenhouse Gas (GHS) emissions, with heavier burden placed onto developed countries—under the principle of "common but differentiated responsibilities. It offered three market-based mechanisms to achieve the emission reduction targets, namely i) international emissions trading, ii) clean development mechanism, and iii) joint implementation (UNFCCC, 2008).

- 2. Bali Road Map (2007) spelled out five pillars of long-term commitment to reduce carbon emissions, namely: i) shared vision, ii) mitigation, iii) adaptation, iv) technology, and v) financing.
- 3. Cancun Agreement (2010) was marked as a relatively successful climate negotiation due to its regarded comprehensive package, adding up capacity building and forest protection in developing countries as repository of carbon.
- 4. Durban Outcomes (2011) built from the previous climate agreements and established the roadmap for implementation, including i) continuing as a second commitment period of the Kyoto Protocol, ii) launching of a new platform of negotiations, iii) concluding in 2012 of a broad-based stream of negotiations, and iv) concluding a global review of reduction target.
- 5. Doha Climate Gateway (2012) addressed multifaceted roadblocks on the road to achieve emission target by strengthening the ongoing regime, including economic diversification initiative, action on forests and deforestation, new market mechanism, support to developing counties' action, completion of new infrastructure, and long-term climate finance to name a few.
- 6. Warsaw Outcomes (2013) reinforced the Green Climate Fund (GFC) to finance developing country action. It also builds on crucial foundation leading up to the 2015 COP21, including closing the pre-2020 ambition gap, supporting people affected by climate change impact, strengthening efforts to mobilize 100 billion USD by 2020, cutting emissions from deforestation with the so-called the Warsaw Framework for REDD+, emphasizing on driving adaptation, use of technology as well as heightened accountability.

Conference of Parties 21 (COP21)

COP21 is the continuation of UNFCCC's member states meeting, held in Lima in the year before. Although the ratification for the agreement to enter into force is pending upon each county's domestic approval, the conference was considered largely successful, gaining strong support by all the conference parties. Both developed and developing countries reached a common understanding of embracing climate reality and seek to enact proactive actions to tackle them (see Picture 2.1.).

Countries agreed "to keep global temperature increase well below 2 degree Celsius (3.6 degree Fahrenheit) and to pursue efforts to halt it up to 1.5 degree Celsius". They also called upon the speed up of financing resources for developing countries for US\$ 100 billion a year by 2020 (UNFCCC, 2015). The underlying feature driving the success of the conference was the Intended Nationally Determined Contribution (INDC), which is a bottom-up governance approach where each country may propose its nationally set target, taking into consideration its national context and capacity. In the next chapter, this essay would turn into a case study of a country who can potentially strike the balance of reaching this global target through its vast availability of printing forests, yet become one of the seemingly insurmountable doers in heightening the heat: Indonesia.





(Source: World Resources Institute, 2015)

Clearing the Road to Achieve Indonesia's INDC

Indonesia is a disaster prone country due to its geographical location, and thus, recognizing the effort to combat climate change that may exacerbate natural disaster and, in turn, jeopardize food, water, and energy security is pivotal to Indonesia's development. For Indonesia, the impact of climate change is believed to increase disaster likelihood for up to 80%. This includes flood, landslides, sea-level rise, and water shortages during prolonged drought (Indonesia's INDC, 2015). Around 42 million Indonesians live in the low-lying coastal areas making it vulnerable to the long-term impact of increasing sea-level rise. 50% of the said areas is largely urbanized, making the cost significantly increase. Considering the magnitude of the long terms impacts climate change pose to Indonesia make the efforts to contribute in halting anthropogenic interference speeding up climate change a reasonable pursuit for Indonesia to follow.

If we put Indonesia's emission into global context, we'll find that the margin to the current top polluters remain considerably large. Nonetheless, the increasing trend of Indonesian emission, when other countries have successfully been able to either contain or even decrease theirs, making commitment and practical efforts from Indonesia to manage its emission become a vital element to the success of the ambitious global climate target (see Picture 3.1).



Picture 3.1. Selected Countries' CO2 Emissions (kg per 2005 PPP \$ of GDP)

(Source: World Bank, 2015, accessed from Google Public Data Explorer)

The question that looms large right now how and by which fashion should Indonesia plan on achieving its INDC, considering its current developmental stage of still sniffling attempts to maximize economic gains for its people's welfare. 11% of Indonesia's population live below poverty line. This is around 27,500,000 headcounts, a large number indeed. By 2025, Indonesia aims to reduce poverty line to below 4% of its population. This means at least 17,500,000 people have to be lifted out of poverty within 10 years time span, assuming the fertility rate equals to 2, which, projection wise, might barely be the case. Meanwhile Indonesia's GDP growth has slowed down during 2010-2015, from up to 6.5% to 4% in the first quarter of 2015, with unemployment rate at 5.9% and rising at over 6% in the last quarter of 2015. To provide room for environmentally sustainable means of production and consumption pattern might as well be seen as an additional burden to its tight fiscal situation.

The commitment Indonesia proposed in the 2015 COP21 is the exact same notion previously proposed in 2009. Indonesia is willing to reduce its emission by 26% against business as usual (BAU) scenario in 2020 with its own effort, 29% against business as usual in 2030 and 41% against business as usual by 2030 with international support. This means that within 5 years time frame, Indonesia's emission should be 738 MtCO2e—with international support—and 468 MtCO2e with its own effort. The least Indonesia promised to do is to get its emission level to just slightly below 2005 level. The projected emission from BAU would be at 2,881 GtCO2e in 2030.

To enable the 41% ambitious target, Indonesia pledging for external assistance. The form of international support Indonesia seeks to attract, include: (i) technology development and transfer, (ii) capacity building, (iii) payment for performance mechanisms, (iv) technical cooperation, (v) access to financial resources. It is not clear how much each of this assistance deemed sufficient to provide the basis in achieving the increment of carbon emission target to arrive at 41% reduction point. However, regardless of the amount Indonesia expects, it can be hopeful about the flowing in of such assistance, given that records are kept at promising trend. This,

nonetheless, would not be achieved whatsoever with the forest crisis continue to backfire on the very currency that attract environment-related foreign assistance: the forest currency.

Other commitment from Indonesia side is to endeavor to increase the use of renewable energy to 23% of energy mix uses by 2025. It would also improve its waste management sector, hoping to convert it to renewable energy mix. It will seek to empower district level government's policy and institutional capacity through consultation and capacity building. The implementation process would also take into consideration the involvement of multistakeholder initiatives, such as by private sectors, non-governmental organizations, academia, vulnerable groups and women, and local groups (adat communities) with their respective local wisdom and practices.

According to Indonesia's submission, and conforming to the three pillars of sustainable development, there are three layers of resilience it will seek to comfort: economic, social and livelihood, as well as ecosystem and landscape resilience. Efforts for economic resilience will be directed into the following: (i) sustainable agriculture and plantations, (ii) integrated watershed management, (iii) reduction of deforestation and forest degradation, (iv) land conservation, (v) utilization of degraded land for renewable energy, (vi) improved water efficiency and consumption patterns. Efforts for social and livelihood resilience will be as follows: (i) enhancement of adaptive capacity by developing early warning systems, broad-based public awareness campaigns, and public health programs; (ii) development of community capacity and participation in local planning processes, to secure access to key natural resources, (iii) ramping up disaster preparedness programs for natural disaster reduction, (iv) identification of highly vulnerable areas in local spatial and land use planning efforts, (v) improvement of human settlements, provision of basic services, and climate resilient infrastructure development, (vi) conflict prevention and resolution. Efforts for ecosystem and landscape resilience: (i) ecosystem conservation and restoration, (ii) social forestry, (iii) coastal zone protection, (iv) integrated watershed management, (v) climate resilient cities.

In contrast to many doubts that Indonesia government is incapable to reach its targets, this paper would point out on several alternatives on how Indonesia may still be able to achieve its Intended Nationally Determined Contribution. The focus would be directed to the ongoing crisis of Indonesian peat and forest fires. The author argues, if this reoccurring crisis gets the attention it deserves, Indonesia's INDC is going to be largely achievable. This paper will provide three arguments why haze quandary needs to the uproot onto the top national priority.

Argument 1: statistics concludes that the major source of Indonesia's carbon emission comes from peat and forest fires.

Indonesia GHG Abatement Cost Curve shows that, in 2005, over 80% of Indonesia's carbon emission is resulted from Peat Fires (41%) and Land Use, Land-Use Change, and Forestry (37%) as a result of deforestation through logging and forest fires (see Picture 3.2.). DNPI estimates that the country's emission may reach up to 3.3 billion ton of carbon by 2030 should this trend continues.

Picture 3.2. Indonesian Carbon Emission (Past Record and Future Estimation)



(Source: Indonesia GHG Abatement Cost Curve, 2006)

From 2005-2010, Indonesia's carbon emission increased for around 400 MtCO2e reaching 1,800 MtCO2e. According to Indonesia's Ministry of Environment and Forestry, 63% of these emissions were due to land conversion from peat and forest fires (Indonesia's INDC, 2015). 16% of it was resulted from fossil fuel combustion, i.e. transport and energy usage. Indonesia's INDC will use 2010 emission level as the baseline.

Indonesia is a leading producer of over 50% of global palm oil supply, essential in the production of a wide array of food, soaps, cosmetics, biofuel, as well as other products (Carlson et al., 2012). A vast amount of land in Sumatera and Kalimantan, two out of five biggest islands in Indonesia, are peatlands converted to cultivate palms for the oil supply, both for domestic and export use. Peatlands store a sizable amount of carbon dioxide, and are especially vulnerable to fire especially during dry season. Even the lightest exposure to fire may quickly spread over hectares of land, causing it particularly challenging to put off.

Due to rising global demand and attempt to suppress expensive initial production costs, many plantation owners often opt to short-cut by bribing local farmers to clear up land, sometimes pristine forest areas, through slash-and-burn method. Existing practices also permit small farmers to do this clearance, for maximum of two hectares, to level competition to big corporates. This is then considered as a loophole and has since been abused, causing open fire throughout the islands. What caused the 2015 forest-fire disaster especially fatal were the prolonged dry season and El Niño, making the spread quickly went out of hand. Picture 3.3. shows the continuing primary forest lost year after year precedent to the 2015 record-breaking fires. Picture 3.3. Tree Cover Loss in Indonesia's Primary Forests



(Source: World Resource Institute, 2015)

Argument 2: that forest fires prompt the largest amount of contingency costs among other sources of carbon emission.

According to Indonesia Economic Quarterly Report, released by the World Bank, the 2015 forest fires has caused USD 16.1 billion, including the lost from declining tourism and halted productivity due to office and school closure, costs on environment and health ramifications, mitigation costs, among others (see Picture 3.4)

Picture 3.4. Estimated Loses and Damages from 2015 Forest Fires and Haze (in IDR m)

	Jambi	Riau	South Suma- tra	West Kaliman- tan	South Kaliman- tan	Central Kaliman- tan	East Kaliman- tan	Papua	Total
Agriculture	2,890	2,482	14,190	4,793	7,187	17,051	15,488	2,370	66,452
Estate crops	1,839	1,841	3,575	3,274	2,315	14,765	13,813	1,311	42,734
Food crops	1,052	641	10,615	1,519	4,872	2,286	1,675	1,059	23,718
Environment	3,109	3,139	16,552	5,158	5,317	10,660	7,282	7,188	58,406
Biodiversity loss	233	335	988	312	369	455	449	803	3,943
Carbon emission	2,876	2,805	15,565	4,846	4,947	10,205	6,833	6,386	54,462
Forestry	1,863	4,175	13,348	2,309	9,583	1,260	11,194	10,246	53,977
Manufacturing and mining	396	2,511	1,823	836	1,678	196	943	0	8,382
Trade	2,528	4,008	3,982	1,652	1,913	1,804	1,481	929	18,298
Transportation	280	430	1,106	237	912	1,522	435	185	5,107
Tourism	140	1599	1626	740	523	571	225	50	5,474
Health	495	298	388	165	327	230	167	8	2,079
Education	53	55	123	61	77	72	61	39	540
Firefighting costs	137	155	677	198	325	477	431	299	2,700
Total in IDR million	11,892	18,853	53,814	15,149	27,843	33,842	37,708	21,314	221,415

Note: Losses do not account for the economic benefit to those who set fires.

Source: Bogor Agricultural University; BPPT; BPS; CIFOR; media reports; Ministry of Health; regional governments; World Bank staff calculations

(Source: World Bank's Indonesia Economic Quarterly, 2015)

As a comparison, the financial lost is double the amount needed to reconstruct Aceh post the 2004 Tsunami tragedy. Although the 2015 haze is among the worst in history, it is not the only precedence that come with such an outstanding financial

blow. According to a different report by Asian Development Bank (2001), the contingency costs of 1997's forest fires are enough to provide basic sanitary and water provision to one-third of Indonesian poor (see Picture 3.5). Considering the eventual reoccurrence of the forest fires, the accumulative costs are beyond measure. Ending the forest fires, will not only help Indonesia's achieve its INDC, but also answer the problem of providing more fiscal room for actual economic stimulus for sustainable development.

Sector	Minimum	Maximum	Mean	
Agriculture				
Farm Crops	2,431	2,431	2,431	
Plantation Crops	319	319	319	
Forestry				
Timber from Natural Forests	1,461	2,165	1,813	
Lost Growth in Natural Forest	256	377	316	
Timber from Plantations	94	94	94	
Non-wood Forest Products	586	586	586	
Flood Protection	404	404	404	
Erosion and Siltation	1,586	1,586	1,586	
Carbon Sink	1,446	1,446	1,446	
Health	145	145	145	
Transmigration, Buildings and Property	· 1	1	1	
Transportation	18	49	33	
Tourism	111	111	111	
Firefighting Costs	12	11	12	
Total	8,870	9,726	9,298	

Picture 3.5. Estimated Loses and Damages from 1997 Forest Fires and Haze (in USD m)

Source: S. Tahir Qadri, ed., Fire, Smoke, and the Haze: The ASEAN Response Strategy (Manila: Asian Development Bank, 2001), p. 55.

(Source: Asian Development Bank, 2001)

Argument 3: that existing regime will make it feasible to tackle the reoccurance of forest fires, if stronger reinforcement is exercised at full-throttle.

Since 2009, Indonesia has started to spearhead its primary focus in addressing the haze issue. Among past actions taken under Susilo Bambang Yudhoyono's administration up to the recent initiatives as underpinned in the Indonesia's INDC document. The established foundation, given the grave situation at hand, making Jokowi's future inaction no longer tolerable. The following are among the keyenabler for stricter reinforcement:

- 1. Sets of regulatory framework to support domestic implementation: Presidential Regulation No. 61/2011, No. 71/2011. The latter would also deal with MRV program (Monitoring, Reporting, and Verifying). Also with the Environmental Protection and Management Law of 2009.
- 2. Moratorium on peat lands conversion and clearance of primary forests from 2010 to 2016.
- 3. Establishment of RAN-API (National Action Plan on Climate Change Adaptation) to assist in streamlining INDC into National Development Plan.
- 4. Having Director General of Climate Change, under the Ministry of Environment and Forestry (PERPRES 16/2015), with interministerial coordination with

Ministry of National Development Planning (BAPPENAS) and Ministry of Foreign Affairs.

5. Recently established Badan Restorasi Gambut (BRG or *Peatlands Restoration Agency*) as the focal point of prevention and restoration mechanism. It is tasked to rewetting and replanting 600 hectares peatlands in 4 different regencies in 2016, which are Pulang Pisau of Central Kalimantan, Ogan Komering Ilir and Musi Banyuasin of South Sumatra, and Meranti of Riau; along with longer timeline of assignment to achieve 2million hectares of restored peatlands in five years in 7 provinces, namely Riau, Jambi, South Sumatra, West Kalimantan, Central Kalimantan, South Kalimantan and Papua.

On top of these: (i) the active and ever-present NGOs, such as WALHI, in Sumatera and Kalimantan that can act as watchdogs; (ii) the prominence of certification scheme conducted by RSPO (Roundtable of Sustainable of Palm Oil); (iii) the increasing awareness from both global importers to domestic consumers, it should be relatively easier for Jokowi's prospectus bill, if any, to gain popular support and pass the hurdle in the House of Representative. The underlying problem, nonetheless, would foreseeably remain on the implementation process. National government claims to have no direct authority to reinforce this legal provision, pointing fingers at district and local government to be in touch with the issue. What is even more surprising, 24 agencies have mandates linked to forest preservation that makes the forest fires become a snowball of blame game, leaving no one to own the problem. Interministerial coordination continue to be a challenge and Jokowi's administration needs to step up its authority to really iron out the whole situation.

Conclusion

The Conference of Parties 21 was considered a historical success for the right reason. It was for the first time developing countries formally join the board in fighting against climate change calamity. It is only understandable, nonetheless, given the lack of resources and technical know-how, that developing countries might have different priorities on its agenda that starve them from having to consider the often-costly sustainable development practices. However, many of these nations are among the most vulnerable ones, given the irreversible and massively destructive impact climate change can cause. Looking at the highest global carbon-emitter chart, many developing countries--a lot of them with demographic boom--are also hanging on the top tiers, making their contribution an indispensable element to the success of this cause. This includes Indonesia.

This paper brought forward three arguments to draw Indonesia's attention to its peat and forest fires. In order for it to achieve the "26% of its GHG emission reduction against business-as-usual scenario by 2020 with its own endeavor, and 41% reduction by 2030 with international support", peat and forest fires are the first to face upfront. This paper has elaborated the following: (i) the major source of Indonesia's carbon emission is indeed coming from peat and forest fires: 63% of Indonesian carbon emission are from Peat and Land-Use, Land-Use-Change and Forestry (LULUCF); (ii) that forest fires prompts the largest amount of contingency costs among other sources of carbon emission; (iii) that existing regime will make it feasible to tackle the reoccurrence of forest fires, if stronger reinforcement is exercised at full-throttle. Driven by reliable data, this paper concludes that the ending forest fires drama is not only key to debottleneck Indonesia's climate contribution, but also, considering the amount of contingency costs the fires have wasted into thin air, a catalyst to arrive at a more prosperous Indonesia.

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Contact email: biondisandasima@gmail.com