Climate Change

Is Not Just Changes in Winter and Summer between Target and Reality After the IPCC 2018 Report

Policy Paper on Climate Change
Published by Wahana Lingkungan Hidup Indonesia

WALHI

Friends of the Earth Indonesia

"We fishermen can no longer read the season, because it has changed. Before, we were able to read the season by seeing stars and clouds, so we could decide to go down to sea or not. "
(Abjan Armain - Lelei Village - North Maluku)

01 Introduction

What is conveyed by fishermen in North Maluku, as one of the regions that has so many small islands, can actually be an illustration for us, that climate change is not just the arrival of winter and as fast as lightning is changing with the stifling summer. More than that, climate change is about the safety and living space of the people.

The Paris Agreement that was adopted in the negotiations rounds of the 21st Conference of the Parties (COP) in 2015 and officially entered into force in November 2016 after being ratified by 197 countries, has set targets for countries to limit global temperature rise below 20C and to take drastic measures to maintain a maximum temperature rise of 1.50C through the national emission reduction target of Nationally Determined Contribution (NDC). This agreement also recommends countries to report their national reduction targets every 5 years as well as reveals information on these achievements for transparency purpose. To ensure the achievement of maximum efforts, every 5 years the state parties should increase its reduction target higher than their previous target.

At the 21st session of the Conference of Parties (COP) held in Paris in 2015, Indonesia stated its commitment to reduce Greenhouse Gas (GHG) emissions by 29% by its own effort and by 41%, conditional on international support by 2030. The Paris Agreement has also been ratified through law No. 16 of 2016 concerning Indonesia's commitment is reinforced by the first Indonesia's NDC document in November 2016. Based on the NDC, the unconditional (CM1) emission reduction target by 2030 is 834 million ton CO2e and the conditional (CM2) emission reduction target is 1,081 million ton CO2e. These targets are fairly high, and the emission reduction target from land use change sector is 17%.

Two years after the Indonesia's NDC adoption, what steps have been taken by the central government to reduce emissions from the land use change sector amid the national infrastructure development policies and to respond the development at the global level after the IPCC special report. Furthermore, could these adaptation efforts guarantee protection for the area managed by the community, especially who are living around and within the forests as well as coastal areas and small islands that are almost forgotten at all times, despite the fact that our coastline is one of the longest one in the world and thousands of small islands with their natural diversity have been the living space for the people. It is also necessary for us to ensure the safety of the citizens, especially women, farmers, fishermen, urban poor groups, and children who often lose their voice in the global climate negotiation events.

This policy paper was written to revisit the implementation of Indonesia's commitment to the climate change mitigation in the midst of the challenges of the ongoing environmental and humanitarian crisis, which is due in part to national and international dynamics and insignificant changes in economic control, in particular after the IPCC re-issued report requiring us to re-examine our commitment to achieving emissions reduction targets through economic and development policies, especially in the natural resources sector.

In addition to include WALHI's political stance, particularly related to the climate change counter measurement and the future threat trend, this policy paper contains policy recommendations to the government and the parliament. We do not have the luxury of time to immediately mitigate the climate change, because the cycle of time is not only about sending signals through nature by the arrival of rainy and dry seasons that no longer can be predicted, but have also threatened people's safety due to climate disasters and threatened the area managed by the community. Moreover, the Indonesia' s National Disaster Management Agency has stated that most of the disasters that occur in Indonesia are climate disasters and that we are in the

02 IPCC Report and Challenges for Indonesia

In October 2018, the Intergovernmental Panel on Climate Change (IPCC) issued a special report indicating that we could no longer wait for maintaining a maximum temperature rise of 1.50C. There is only 12 years left to maintain the 1.50C temperature limit and to avoid ecosystem destruction. The IPCC's repots furthermore says that the impact of a 1.50C temperature rise is far greater than imagined.

The IPCC report states that global warming due to human activities has reached around 10C in 2017 compared to those in preindustrial period and continues to increase by around 0.20C every ten years. If global emissions continue to increase at the present rate, global warming will surpass the limit of 1.50C between 2030 and 2052.

The temperature rising up to 1.5 degree Celsius will result in unavoidable impact, especially for the survival of humans and other species on the earth and minimize the opportunity to adapt. The impact will be increasingly severe for small islands, tropical and subtropical countries in the southern hemisphere including Indonesia.

The IPCC report also compares the impact caused by global temperature increases of 1.5 degree Celsius and 2 degree Celsius. It is pointed out in the report that if we limit the increase of global temperatures to 1.5 degree Celsius compared to 2 degree Celsius, we will be able to reduce half the number of people suffering from water scarcity and significantly reduce the risk of extreme weather including drought and forest fires, starvation, disease and death due to extreme temperature and damage to biodiversity and ecosystem. Relocation of up to 10 million people due to the sea level rising can also be avoided if we are able to keep the earth's temperature not exceeding the 1.5 degree Celsius limit.

The IPCC report presents various kinds of adaptation options available to reduce the risks of climate change, such as ecosystem-based adaptation, ecosystem restoration, degradation and deforestation prevention, biodiversity management, sustainable aquaculture, local wisdom-based and customary knowledge-based adaptation. In relation to the risk of sea level rise, the adaptation steps can be taken include shoreline resiliency and hardening program implementation. Risks to health, livelihoods, food, water, especially in rural areas, for example, can be dealt with efficient irrigation, social safety nets, disaster risk management and community-based adaptation. At the same time, for urban areas, the following measures can be taken: green infrastructure, sustainable land use and planning and sustainable water management.

The IPCC special report elaborates various important steps to stabilize the temperature rise at a maximum of 1.5 degree Celsius. The solution delivered by the IPCC requires a number of swift and drastic measures that have never been taken previously and cannot be delayed any longer such as cutting 50 percent of the world fossil fuel use starting today until the next 15 years and completely eliminating it in 30 years.

However, solution for replacement of the fossil fuels offered by the IPCC can be backfired, particularly for community who are living around and within the forest, because the IPCC states that if energy needs remain as today, then between 1-7 million km2 of land must be converted into bioenergy crops, while there must be an additional 10 million km2 of new forests by 2050. Today's main debate is whether the bioenergy crops can be considered equal to the forests, as well as who will manage them and how will these forests be managed?

Challenges faced by Indonesia in its efforts to counter measure climate change and achieve emissions reduction targets are at various levels. The results of a study conducted by Wahana Lingkungan Hidup Indonesia (Walhi) reveal that low-carbon development efforts prepared by regional governments do not have a good reciprocal relationship with the national planning to achieve greenhouse gas emission reduction targets, in fact, in some cases they tend to conflict each other. This position paper is also prepared to give input to new regional governments as a result of the 2018 simultaneous regional elections which are expected to complete the preparation of the Regional Medium-Term Development Plan (RPJMD) six months after being inaugurated in order to mainstream the climate change adaptation and mitigation in the RPJMD preparation, including mitigation efforts of land-based sector.

Many regional policies have not been consistent with emission reduction policies at the national level, especially when there is no national-level obligations requiring each region to prepare a climate change action plan at the provincial and district levels despite the fact that the government through BAPPENAS has prepared a National Action Plan for Greenhouse Gas Emission Reduction (RAN GRK) document for the National level to be delivered to the Provincial level in the form of the Regional Action Plan for Greenhouse Gas Emission Reduction (RAD GRK).

Presidential Instruction on moratorium Number 6 of 2017 concerning Postponement and Improvement of the Management System for Granting New Permits for Primary Natural Forests and Peatlands. The palm oil moratorium policy issued by President Joko Widodo, should have been seen by all elements, especially the government as an Indonesia's effort to reduce emissions in the land-based sector. Accordingly, it does not transfer the emission targets to the energy sector. As we understand, energy sector policy to encourage renewable energy are still far from expectations. The government still depends on dirty fossil energy such as coal.

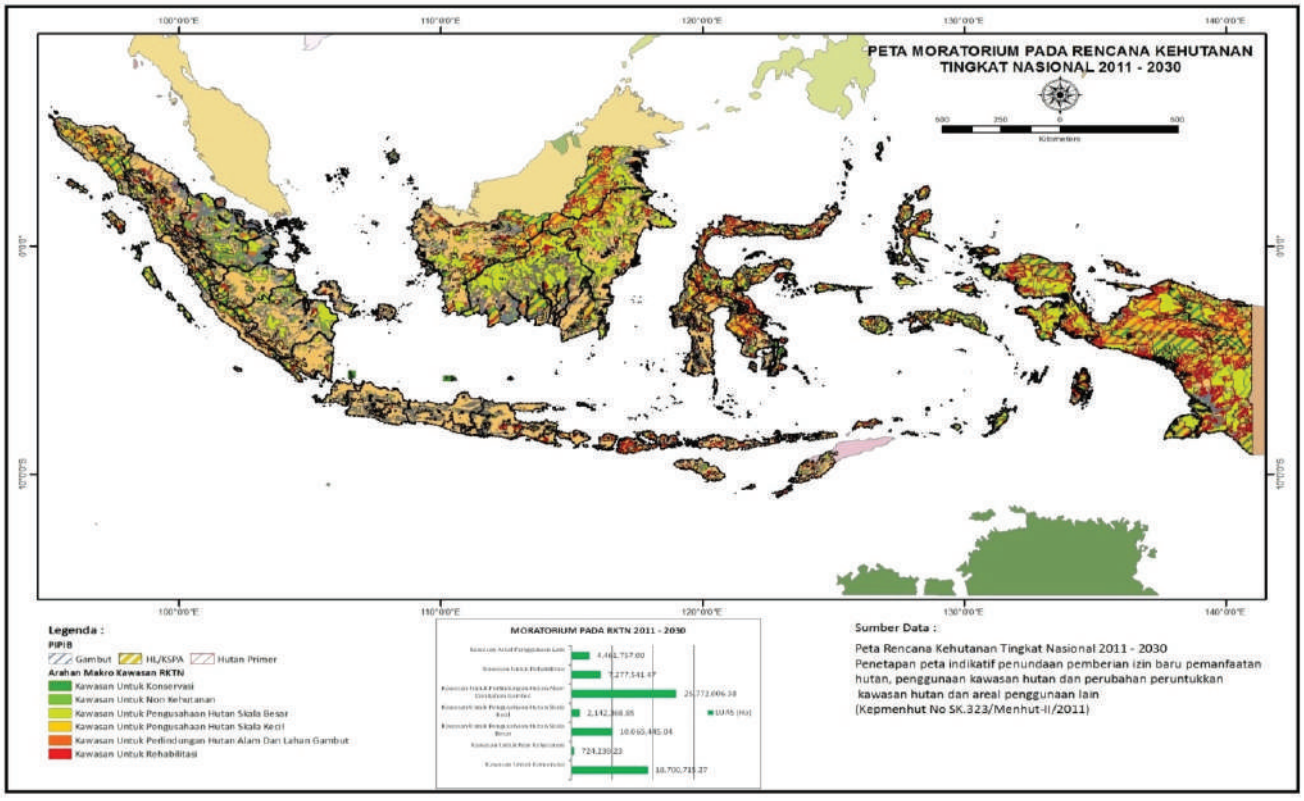
On the other hand, the government policy set out in the NDC are less ambitious and inconsistent with the aim of preserving global temperatures of less than 1.5 degree Celsius. The IPCC report also mentions that all countries' NDC targets, in accordance with the Paris Agreement, would still cause global warming of more than 1.5 degree Celsius. Friends of the Earth International predicts that NDC target of all countries will increase global temperature to reach 2.9 until 3.4 degree by 2100. To avoid global temperature rising above 1.50C, the global emission must go down before 2030.

02 1. The Fate of Ecosystem related to Emission Reduction from Land Use Change

In the context of climate change, peat swamp ecosystems play a very important role because they are able to store 20 times more carbon than ordinary tropical rainforests or mineral soils. It is estimated that every hectare of tropical peat that was dried for opening monoculture plantations, releases 55 metric ton of carbon dioxide annually or nearly equivalent to burning of more than 6,000 gallons of gasoline. On the other hand, peatland–based biodiesel can produce nearly four times diesel oil emissions[1]. Indonesia has the highest potential for obtaining mitigation benefits from the protection of peat swamp ecosystems.

Protecting wetlands can also increase climate resilience. As one of the important climate control factors, Indonesia's peatlands have important value to the world, because they store at least 57 billion ton of carbon, which can only be matched by the Amazon rainforest storing 86 billion ton of carbon.

If the moratorium policy is reinforced in conjunction with active measures taken by the government for at least 25 years, the state can save natural forests, peat swamp ecosystems and other essential ecosystem areas such as karst, as well as improve resilience to climate change.



[1]*https://www.nytimes.com/2018/11/20/magazine/palm-oil-borneo-climate-catastrophe.html*

Monoculture plantations have caused high emission in the land-based sector due to the conversion of forests to plantations, especially oil palm plantations. According to the latest research by viewing the drivers of deforestation at the global level has found that deforestation rate in Southeast Asia in 2011–2015 reached 39 million hectares. The main driver of deforestation is forest conversion for commodities, one of which is palm oil. The percentage reached 79% in 2011–2015, followed by forest conversion for timber plantations with a percentage reaching 13%. This indicates that palm oil and timber plantations are the main drivers of deforestation in Southeast Asia including Indonesia. Without stopping the expansion of the main drivers of deforestation it is very difficult to meet the emissions reduction targets, particularly in the land-based sector.

Due to the fact that peatlands are the place for storing carbon, hence when there was a fire on peatlands, a large volume of carbon was released into the air. The results of the WALHI investigation on the 1997 forest and land fires, show that the events were due in part to other major events that were interconnected, namely the permits that were massively granted to to logging and forestry industries through Forest Concession Rights (HPH).

Expansion of monoculture plantations such as oil palm plantations and industrial plantations has been a major driver of deforestation and peatland clearance in Indonesia. The fact that fires on peatlands continue to repeat every year in the same location, namely South Sumatra, Jambi, South Sumatra, Riau, Central Kalimantan, West Kalimantan and East Kalimantan, indicates that there has been a mismanagement by companies toward the peatland that destroyed the environment.

After the 2015 large forest and peatland fires, the President issued Presidential Regulation No. 1/2016 concerning the Peat Restoration Agency (Badan Restorasi Gambut/BRG) which can actually be seen as a form of commitment to its pledge to address forest and land fires and to protect the peat swamp ecosystem, especially in some priority areas, namely South Sumatra, Riau, Jambi, West Kalimantan, Central Kalimantan, East Kalimantan and Papua.

Despite the decline in forest and peat swamp fires since the issuance of the Presidential Regulation in 2016, there has no significant change yet in the efforts for minimizing forest and peatland fires. This can be seen from the unstable decline in forest fires which has increased again in 2018. In West Kalimantan for example, until August 2018 there were 790 hotspots[2]. Of the total hotspots, 172 hotspots existed inside the Peat Hydrological Zone, consisting of 68 hotspots in the cultivation function area and 104 hotspots in indicated protected function area[3].

Comparison of Forest and Peat Fires from 2015-2018

Year	2015	2016	2017	2018
Total Hotspots	4123	1038	445	790
Hotspots in peatlands				
Indicated Cultivation Function	530	64	20	68
Indicated Protected Function	717	67	25	104
Hotspots in Peat Concession	1120	100	42	201

Law enforcement should become an inseparable part of the recovery of peat restoration, given that some of the targets for peat restoration are included in the corporation concession area, both oil palm plantations and timber plantations. Weak law enforcement is one of the critical issues over the President's commitment, because that is one of the fundamental problems of chaotic peat management in Indonesia. And unfortunately, law enforcement efforts have been lacking again.

[2]Hotspot NASA (firms.modaps.eosdis.nasa.gov)
[3]SWALHI Kalbar; Overlay Hotspot NASA (firms.modaps.eosdis.nasa.gov) level of reliability 80-100% with KHG BRG 2017 Map.

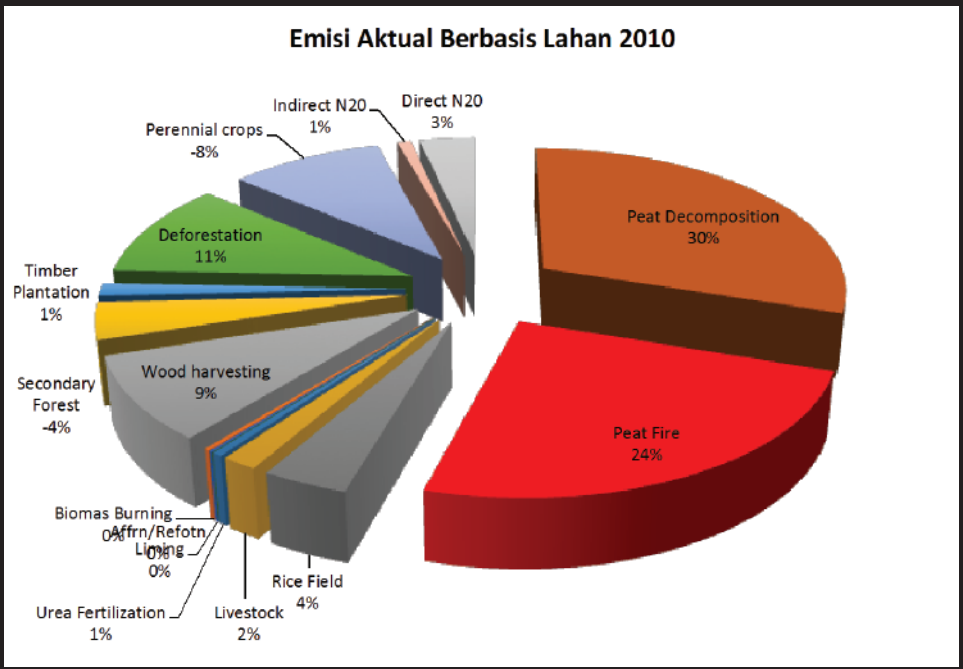
02 2. Agriculture and Forest Land Use

Forests play a very important role for human life and for the sustainability of this earth. Today's world forests serve their function to reduce 25 percent of carbon dioxide emissions. Protecting and increasing the coverage of tropical rainforests are particularly important to cool the earth temperature down while at the same time helping to create important rainfall to ensure the sustainability of food production.

While the IPCC focuses on the importance of increasing forest cover area to 10 million km2 by 2050, the most recent research found that in 2011–2015 in Southeast Asia alone the deforestation rate reached 39 million hectares. The main driver of deforestation is forest conversion for commodity purpose, one of which is for palm oil commodity. The percentage reached 79% in 2011–2015, followed by forest conversion for timber plantations with a percentage reaching 13%. This research indicates that palm oil and timber plantation commodities are the main drivers of deforestation in Southeast Asia including in Indonesia.

Data of the Center for Climate Risk and Opportunity Management, Bogor Agricultural University show that 21% of actual land-based emissions in 2010 came from deforestation and timber plantations, while 75% of total carbon emissions of the land sector came from peat fires and deforestation.

In all natural resources sectors, the government continues to guarantee and protect the investors, by providing easiness to obtain land, cheap labor costs and guaranteed security stability. The massive forest and peat fires that occurred in 2015 and the massive agrarian / natural resource conflicts have been the sign of strong control by the private sector, building up its power, both economically and politically.



Source: Climate Risk and Opportunity Management, Bogor Agricultural University, 2018

Industries that greatly contribute to the high emissions from forestry include monoculture plantations such as oil palm and timber plantations. In terms of terminology, WALHI choses to use the term timber plantation (kebun kayu) instead of industrial forest plantations (hutan tanaman industri) to deconstruct the assumption that industrial plantations are part of the forest with a production function. For WALHI, industrial forest plantations are not forests, because they are built on monoculture and wood base as their commodities. Forests should include not only wood, but the entire biodiversity therein with their respective ecological functions. Industrial plantations that are constructed as forests are actually reducing the meaning of the forest itself, which has an important ecological unity for the sustainability of all living creatures.

In the plantation sector, the palm oil industry is one of the main causes and actors of high deforestation in Indonesia. The increase in oil palm plantations that occurred since the mid-1970s until now has destroyed dozens of millions of hectares of forest throughout Indonesia. Since oil palm entered Indonesia in the early 20th century until the 1980s there were only around 300,000 hectares of oil palm plantations which were almost entirely on the island of Sumatra, however in line with high industrial demand, oil palm plantations increased very rapidly and currently, the Director General of Plantation, Ministry of Agriculture noted that there are more than 14 million hectares of oil palm plantations in Indonesia spread across various regions of Indonesia from Sabang to Merauke. Since 2006, Indonesia even has replaced Malaysia as the world's largest CPO producer that controls 54 percent of the international CPO market share.

In September 2018, President Joko Widodo, issued Presidential Instruction Number 8/2018 concerning the postponement and evaluation of permits for oil palm plantations as well as increasing of oil palm plantation productivity, which comes after the issuance of the 2017 Presidential Instruction No. 6 of 2017 concerning Postponement and Improvement of the Management System for Granting New Permits for Primary Natural Forests and Peatlands. This is certainly also intended to reduce the rate of deforestation and greenhouse gas emissions from the plantation sector. However, the mortarium period of only three years is not sufficient.

The chaotic management system of natural resources, especially in the forestry sector, has created so many problems, besides deforestation, fire and tenure conflicts that are also high in and around forest areas. Thereby, performance-based oil palm moratorium policy with measurable indicators is once again very important, with the permit suspension of minimum 25 years, while simultaneously reviewing the permits, enforcing laws against corporate crime, restoring and protecting areas that managed by the community and ensuring the recovery of the essential ecosystem region that have been destroyed by land-based industries such as oil palm and timber plantations.

In the simulation scheme developed by the Center for Climate Risk and Opportunity Management, IPB, based on Business as Usual calculations and two counter measures schemes that are developed by taking into account the development pattern that considers emission policies, Indonesia must reduce a minimum of 497 million ton of carbon emissions from the forestry sector by 2030. This means that Indonesia must ensure absolute prohibition of more opening and allotment of forest areas for industry, especially after the results of the IPCC special report in October 2018 which showed that countries need to increase their NDC targets. Therefore, Indonesia cannot just stick to a minimum reduction of 17 percent from the forestry sector. The simulation prepared by the climate risk center shows that Indonesia can still improve its carbon emission reduction from forestry sector by 650 million ton of CO2e.

No	Sektor	Tingkat Emisi GRK 2010 (*)	Tingkat Emisi GRK 2030 (Juta Ton CO2e)			Penurunan Emisi GRK			
						Juta Ton CO2e		% Terhadap BaU Total	
		Juta Ton CO2e	BaU	CM1	CM2	CM1	CM2	CM1	CM2
1	Energi	453.2	1,669	1,355	1,271	314	398	11%	14%
2	Limbah	88	296	285	270	11	26	0.38%	1%
3	IPPU	36	69.6	66.85	66.35	2.75	3.25	0.10%	0.11%
4	Pertanian	110.5	119.66	110.39	115.86	9	4	0.32%	0.13%
5	Kehutanan*	647	714	217	64	497	650	17%	23%
	TOTAL	**1,334**	2,869	2,034	1,787	834	1,081	29%	38%
	*Incl. peat fire			Total reduksi		29%	38%		

02 3. Coastal Areas and Small Islands

The coastal areas and small islands of around 17,000 islands, will be the main target and directly affected by changes in rainfall patterns or extreme climate, especially rob events or sea levels rising and sea water intrusion in the form of salinity increase. Based on national exploration land data (Puslitbangtanak 2000), the landforms that will be affected by climate change in the form of sea level rising and intrusion are alluvial (lakustrin) basin landforms, delta / estuarine plains, tidal plains and coastal areas, which reach 23.9 million ha or 12.85% of the total land area of Indonesia. Coastal areas and tidal plains spread throughout most of Indonesia's region, while deltas (estuarine) spread in all provinces in Kalimantan and some in Sumatra.

The sea level rising projected to increase by around 5 mm / year will have an impact on more than 81,000 km of coastline in Indonesia and 400,000 agricultural land on the coastal areas (ADB and IFPRI 2009). About 60% of Indonesia's population lives in coastal areas and lowlands will be affected by the sea level rise. Most of the productive agricultural land is located in coastal areas such as northern coast of Java (Pantura Jawa).

Increase in sea level and threat to food security. Projected sea level rise as high as 1 m will result in loss of rice production in the North and East coastal areas of Aceh, East coast of North Sumatra, South Sumatra, and Jambi, South coast of Lampung, North coast of West Java, Central Java, East Java, coast of West Kalimantan, South Kalimantan and South Sulawesi. The highest production losses due to flooding and salinity is projected to occur in West Java Province which reaches more than 16,000 ton, Central Java around 8,000 ton, East Java 4,000 ton, South Kalimantan 3,200 ton and North Sumatra around 2,300 ton and other provinces totaling around 9,000 tons[4].

Unfortunately, the RPJMN and NDC do not explicitly mention the vulnerability of islands to climate change or adaptation and mitigation efforts in coastal, marine and small islands. As an archipelagic country, Indonesia should have a plan or roadmap on how to build climate change adaptation and mitigation efforts, including building data on resilience. This policy is important in the midst of threats to the survival of coastal and marine ecosystems sources that comes from the land, whether from the port activities, large-scale tourism industry, as well as efforts to change the coastal landscape such as reclamation projects. On small islands, another major threat is the expansion of monoculture plantations such as oil palm plantations that are expanding into North Maluku. The RZWP3K policy should also base on the vulnerability of the region from climate change and how to incorporate community resilience and protect them from various threats as mentioned above.

Indonesia plays an important role to properly maintain the existing mangrove ecosystem so that, it can also play its important role in mitigating and adapting to the climate change effects. In addition, the mangrove ecosystems function is also very crucial for the sustainability of the fishermen lives and people living on the coastal areas. Unfortunately, from the total of 3.4 million hectares of mangrove area in Indonesia, more than 50% is degraded. This condition is caused by the expansion of the property industry, mining, plantations, ponds and mass tourism in addition to the piles of waste that originating from the land which then flows into the sea.

[4]*http://www.litbang.pertanian.go.id/buku/memperkuat-kemampuan-wilayah/3.pdf*

To date, mangroves deforestation rate has been very alarming, as almost 52,000 hectares of mangroves in Indonesia are destroyed annually. Weekly mangrove deforestation rate is equivalent to 3 times of the soccer field area. As an archipelago and related to today's government commitment to no longer turn its backs on the sea, it is necessary to have corrective and systematic policies to discontinue the mangrove deforestation rate while ensuring the survival of fishermen and communities living in the coastal areas by involving them in the efforts to restore the mangrove ecosystem.

It is wrong to see mangroves and land forests only as carbon sequester. Moreover, if it is associated with blue carbon as an effort to replicate the REDD+ concept on land, that set a price for each CO2 sequestered, to be subsequently converted to a financial value or price to be calculated on the carbon market. Furthermore, this approach is adopted as a project merely for local governments to pursue additional financing without making policy changes at the regional level in terms of low carbon development planning.

03 Future Threat Trend

The market does not capture the value of thousands of species of plant and biodiversity in the Brazilian Amazon or in other various tropical rainforests in the world.
(Maria Hartiningsih, Jejak Samar Chico Mendes-Kompas November 20, 2009)

03 1. BECCS – Bio Energy Carbon Capture and Storage

Forests are not only about landscape and biodiversity therein. Talking about forests means talking about politics and economics. As forests are able to sequester large amounts of carbon, all eyes will look at the forest as new financial sources and they will become the central issue of intensive negotiations, including in the carbon market.

In the midst of chaotic management of the Indonesia's forest and peat areas, a special report published by the IPCC does not specifically reflect the controversy and potential threats to the living space and areas managed by the people who live in and around the forest. One of the potential new threats named Bioenergy with Carbon Capture and Storage (BE + CCS = BECCS), which is the main technology proposal presented to promote negative emissions (net negative emissions), a technology that is considered capable of removing carbon emissions from the atmosphere.

Relying on the promise that BECCS is able to extract large amounts of carbon dioxide from the atmosphere is not without a high risk. Large-scale bioenergy development is ineffective for generating energy and heat as bioenergy is not neutral carbon emission because it is developed with a monoculture plantation model. In fact, this can have a large negative impact on humans and biodiversity, since it is replaced by large-scale plantations for bioenergy.

BECCS is a strategy that combines energy plantations with carbon capture and storage processes, namely the process of capturing carbon emissions from large sources of polluter such as fossil-based power plants of Coal Power Plant, transferring them to the storage areas that are generally located underground to prevent carbon contamination from entering into atmosphere.

There has no evidence that this technology alone can be implemented on a wide-scale area or in the long-term period. The availability of large land for bioenergy crops and carbon capture areas can be backfired with high costs. WALHI records that currently there are 1.1 million hectares of area allocated for bioenergy plantation forests, with the absence of a national processing industry capable of developing this further. The Association of Indonesian Forest Entrepreneurs (APHI) states that since last year there have been 10 units prepared for bioenergy plantation forests with a total area of around 297,645 hectares. In addition, there are around 22 more units that have pledged their commitment to develop bioenergy plantation forests with a concession area of around 790 thousand hectares. The exact location of the area designated as the bioenergy plantation forest is unknown.

In general, timber plantation has become one of the commodity sectors that controls vast land area or one of the actors who monopolizes land in Indonesia in addition to oil palm, HPH and mining area. WALHI records that until 2014, the monopoly of forest areas from 4 (four) sectors has reached 57 million hectares, from a total of 132 million hectares of Indonesia's forest area. According to WALHI's long records, timber plantation is vulnerable to triggering land and environmental conflicts with members of societies or communities. According to the WALHI Jambi database, for example conflicts with Asia Pulp and Paper (APP) began with the eviction of agricultural and swidden cultivation land of the community, criminalization, intimidation and violence until murder towards farmers / farm activists.

BECCS itself also has the potential to become an entry point for carbon offsetting as reflecting from experience with Reducing Emissions from Deforestation and Forest Degradation (REDD) or carbon trading where giant industries and developed countries avoid responsibility for reducing their domestic carbon emissions by transferring the responsibility to carbon capture in countries owning forests.

To mitigate climate change, all parties must reduce emissions from the energy and land sector, instead of pretending to balance one sector against the others. There is a difference between circulating biological carbon and geological locked carbon. The volume of carbon stored in ecosystems is the result of a dynamic balance between the atmosphere, the ocean and the terrestrial ecosystems. As long as humans continue to release geological carbon, for example through extractive industries such as mining or peatland clearing, more carbon is released into this dynamic change and balance. In the end, terrestrial ecosystems will stop sinking and become a source of carbon emissions. This carbon capture storage technology still poses high risk in terms of how long and how much carbon is captured and stored below this ground.

To produce sufficient volume of negative emissions to change the mitigation scenario into a reality, around 100 million and nearly three million hectares of land must be dedicated to biomass production. Three million hectares is equivalent to twice the land area currently cultivated in the world.

The area of land needed will replace food production, increase world food insecurity – which causes food shortages and rising prices in the context of the growing world population. It will also increase the current rate of deforestation and replace natural ecosystems, threatening biodiversity, which has exceeded the critical threshold. Most of the biomass cultivated is produced on monoculture plantations, which have their own inherent problems like biochemical needs, GMO use, land grabbing and loss of biodiversity.

We still remember on how the boom in bioethanol demand contributed to the global food crisis in 2007 – 2008. At that time, biofuel demand boosted food prices by up to 75 percent worldwide[5], in Indonesia there was also a shortage of soybean and edible oil supplies when the plant production was diverted to supply biofuel needs for industry and transportation in Europe and the United States.

Ecosystem restoration and reforestation (REDD) practices in Indonesia also have many red report cards. The WALHI's findings in East Kalimantan show that the projects generated in the REDD + scheme is only a further effort to exploit the forest and obscure the rights and access of the community, especially indigenous people. It happened when the foundation of the forest is only placed as a commodity and misguided business wrapped in conservation cover.

The BECCS big umbrella is actually called Geoengineering technology, namely technology which intentionally developed and on a large scale manipulates living systems on this earth, or often referred to as techno–fix efforts to address the climate change.

Climate geoengineering technology can be divided into three major groups, namely;

1. Solar radiation management (reflecting sunlight into space), such as the development of transgenic plants that can reflect sunlight better
2. Transfer of greenhouse gases
3. Sequestration (carbon storage) and weather modification.

Geoengineering technology has a high risk of increasing the climate crisis impact that has occurred today. Moreover, this technology has not been proven both technically nor its feasibility to be applied on a wide scale without causing further threats to land use, food sovereignty, and biodiversity.

[5]The Guardian. 2008. Secret report: biofuel caused food crisis
https://www.theguardian.com/environment/2008/jul/03/biofuels.renewableenergy

04 The Role of Areas Managed by Community in Reducing Emissions

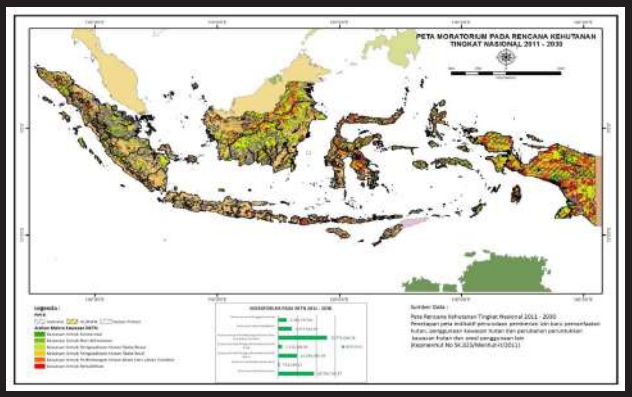
"Sago is not only a source of income, but also a source of our lives. By relying on sago, we must preserve forests and peat ".
(Wak Nung, villager of Sungai Tohor)

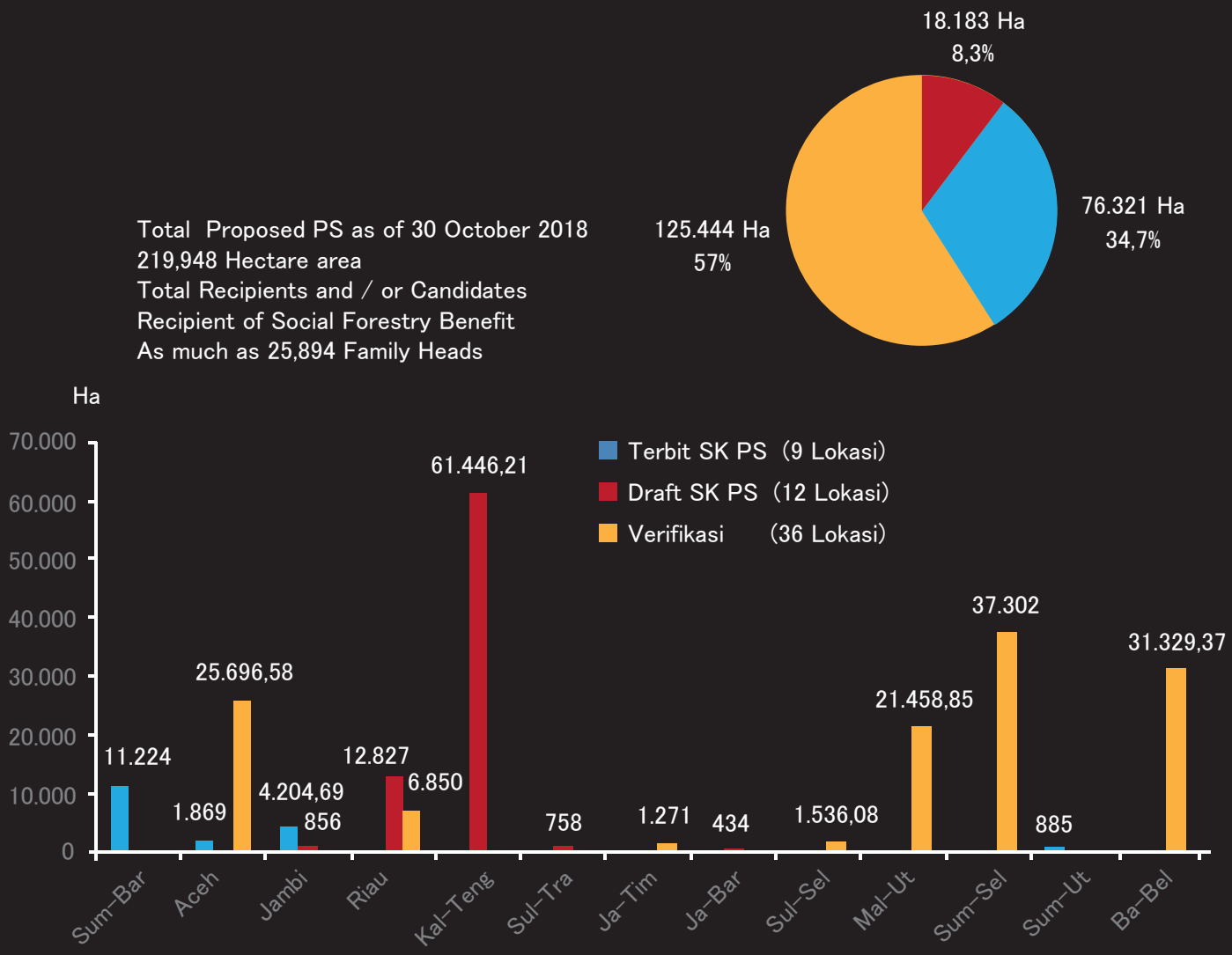
The President has committed to giving the community, the rights to manage the forest through social forestry and agrarian reform programs. Social forestry in particular is allocating 12.7 million hectares with various schemes. The 12.7 million forest policy, which is almost the same as the size of British country, the management rights of which will be given to the people is actually Indonesia's contribution in counter measuring global climate change, if this policy is accompanied by policies to stop the expansion of extractive industries, including mining, oil palm plantations, industrial plantations and massive scale infrastructure development. Law enforcement against corporate crime and review of licensing is an important element that must also be undertaken by the government for successful implementation of the 12.7 million social forestry policies. This is because in practice, the area managed by the community with their local wisdom has been far more sustainable and equitable compared to the management model adopted by the corporation.

One example of a community management area which has good practice on how the community opposes monoculture investment, which for a dozen of years has burned forests and peatlands, and at the same time developing the people's economic alternatives, is a community managed area in the Tohor River, Meranti Islands, Riau. The sago management carried out by the Sungai Tohor Community in the Meranti Islands of Riau is able to show that the community are able to manage their natural wealth with locally owned and equitable wisdom.

Good practices carried out by the communities in managing their natural resources are also adopted in various regions in Indonesia. The WALHI study in areas that have a peat swamp ecosystem landscape in Jambi, South Sumatra, Riau, West Kalimantan and South Kalimantan, shows that indigenous people / local communities, men and women have the knowledge to manage and preserve the ecosystem of peat swamps, which not only building a more sustainable economy, but also equity for their future generations.

Not only on land, the areas managed by community in coastal and small islands areas have also been widely practiced by indigenous people / fishing communities both fishermen and farmers. Including the practice of their adaptation to the weather, through natural signs that are used as a guide in managing the sources of life.




Total Proposed PS as of 30 October 2018
219,948 Hectare area
Total Recipients and / or Candidates
Recipient of Social Forestry Benefit
As much as 25,894 Family Heads
18.183 Ha
8,3%
76.321 Ha
34,7%
125.444 Ha
57%
Ha
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0
Terbit SK PS (9 Lokasi)
Draft SK PS (12 Lokasi)
Verifikasi (36 Lokasi)
11.224
1.869
25.696,58
4.204,69
856
12.827
6.850
61.446,21
758
1.271
434
1.536,08
21.458,85
37.302
885
31.329,37
Sum-Bar
Aceh
Jambi
Riau
Kal-Teng
Sul-Tra
Ja-Tim
Ja-Bar
Sul-Sel
Mal-Ut
Sum-Sel
Sum-Ut
Ba-Bel

05 Closing and Recommendations

Based on the results of a recent study conducted by the IPCC, all countries must take important and urgent measures to reduce the earth's temperature below 1.5 degrees, including the Indonesian government which has pledged to reduce emissions. Despite the fact that steps to deal with climate change must be taken immediately, WALHI rejects a number of solutions to mitigate climate change that will actually lead to a new crisis on the one hand, and on the other hand will not answer the structural problems in natural resources and environmental management leading to climate change. WALHI rejects false solutions or market-based false solutions and solutions that create commodification and financialization of natural resources, as well as technical solutions alone that are unable to reach the root of the problem of climate change such as techno-fixes. WALHI also rejects reforestation based on market and corporate schemes, because corporate-based reforestation is only part of the corporation green washing practices. In our opinion, there have been too much luxuries and opportunities given to corporations by the country and in fact, they have failed as proven by various environmental and humanitarian crises that have occurred in various parts of the world.

WALHI puts forward the following recommendations related to the policies:

1. All countries, including Indonesia, must take drastic and swift actions to reduce emissions in the energy, forest and land sectors as well as in industry and transportation sectors. This action must be carried out structurally by correcting Indonesia's future economic and development policies. In the future, the government of Indonesia must formulate corrective, structural and systematic policies to achieve the emission reduction target drastically, in order to guarantee safety for citizens and ensure the protection of the area managed by the community from the climate change impact. The government must take urgent measures to boost the earth's temperature to be below 1.50C for the sake of people's safety.

2. Continuing and reinforcing the Presidential Instruction on the moratorium on Postponement and Improvement of the Management System for Granting New Permits for Primary Natural Forests and Peatlands. WALHI recommendation is that for a period of 25 years, the natural resource management system, especially in the forestry sector must be improved as well as that the palm moratorium policy and permit evaluation, environmental audit on the corporation are carried out.

3 Stipulation of RAD-GRK policies and low-carbon development. Low-carbon development must be included in the RPJMD, specifically for regions that are currently in the process of formulating the RPJMD post-regional election. The policy formulation of the RPJMD must provide opportunities for the citizens to give their meaningful participation. Therefore, integrated low-carbon development at the regional and national level is important to ensure drastic measurement for reducing emissions.

4 Formation of Nomenclature in the Ministry of Home Affairs. So far, there has been slow acceleration of regional action plans in reducing greenhouse gas emissions due to among others, the absence of nomenclature and political budget to support regional efforts to make significant breakthroughs in dealing with climate change.

5 Strengthening ecosystem-based climate change adaptation especially for coastal and small island islands communities, as well as communities living in rural areas because the impact of climate change has and will have direct impact on the sustainability of their lives and in order to avoid the effects of a more severe climate disaster. Protecting the areas managed by the community, in the management of forest, coastal and marine areas and recognizing people's initiatives in managing their natural resources in a fair and sustainable manner with local wisdom that is owned as part of climate change adaptation and mitigation. This includes recognizing the knowledge of customary peoples, local communities, women, farmers, fishermen in dealing with and minimizing disaster risks.