

# Individual's Responsibility Concept in International Forest Fires Cases

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#### **Abstract**

In international law, not all the crimes committed by individuals can be held accountable in the International Criminal Court. Until now, the crimes committed by the individual to the environment, which obviously have an impact internationally, still can not be categorized as an international crime, especially against perpetrators of forest and land fires. So it is necessary to define the concept of accountability of individual perpetrators of forest and land fires under the authority of the International Criminal Court.

**Keywords:** Individual's Responsibility, International Forest Fires, *International Criminal Court*.

### I. Introduction

Status of the individual as a subject of international law have long been raised over the development of classic international law in the late 14<sup>th</sup> century and early 15<sup>th</sup> century BC. Starting from consideration of Francisco Vittoria who lives in the year 1480 until 1546, has been firmly stated that "Countries in behavior as individuals, may not act as they pleased (Ius Intergentes)" (Boer Mauna, 2005), then the people become the main topics that discussed to be able to act as a subject of international law among legal experts around the world. Hugo Krabbe a legal expert from the Netherlands, in his book written in 1906 under the title "De Moderne staatsidee" (english: the Modern State ideas), says that " individual may only be the subject of law ... including international law (Boer Mauna, 2005).

Over time, the development of the individual as a subject of international law becomes more focused by entering individual as supporting the rights and obligations into several international agreements in the form of declarations, conventions, or in other form of agreement. Call it a Treaty of Peace that ended World War I, better known as the Treaty of Versailles. This Agreement is made by Germany, Britain, France and its allies, which was signed at Versailles on June 28, 1919. In this treaty clauses, expressly provide the possibility for natural persons (individuals) to propose or be prosecuted to the international court. So this agreement is considered as one of the historical roots written accommodate individual position as supporter of the rights and obligations in the international community.

In the following period, namely since the middle of the ninth century, the individual as a subject of international law has been received well in contemporary practice. Contemporary practice is based on the development of the branch of international law that has been widely regulates the status of individuals who can be held criminally accountable in the International Criminal Court (ICC). These rules can be found in the Genocide Convention of 1948, the Convention on Apartheid in 1973, Conventions governing humanity, and others.

In fact, not all the crimes committed by individuals can be held accountable in the ICC, especially crimes against environmental destruction. Until this time, the crimes committed by individuals against environmental manifestly global impact, still can not be categorized as a crime international. Several agreements state in shaping the Protection and Conservation of the Marine Environment, the Stockholm Conference in 1972, the Conference of Nairobi and the WCED, 1982, the Earth Summit in Rio de Janeiro in 1992, etchanya charge state as a subject of international law that bears an obligation to preserve the environment to children and grandchildren someday. none of them touched the accountability of individuals in the behavior of the destruction of the environment toward environmental. Existence of country responsibles for the environment, as long as it is also ineffective. In fact, many vested interests of certain parties that must be accommodated in enforcing environmental laws. So that no one country can manage the environment properly, whereas the preservation of the environment is the responsibility together.

In Indonesia, more destruction of the environment is done by burning the forest and land. The perpetrators of forest and land fires is very little to be held accountable before the law. Whereas the environmental damage that occurs is real and it affects the air pollution that is not healthy for residents directly adjacent to the burning site. Moreover, as a result of forest and land fires are conducted in Indonesian territorial also felt for neighboring countries such as Singapore and Malaysia. So the forest and land fires that occurred in Indonesia has become a bad precedent for other countries.

Indonesia, which is one of the tropical country that has the largest forest area in the world after Brazil and Zaire, is a pride for the nation of Indonesia. What more important role that forests have economic benefits as a



foreign exchange earner for sustainable development in Indonesia. However, under current conditions, the forest should be safeguarded and utilized optimally with the aspect of sustainability, has now suffered degradation and deforestation is quite surprising for the international community. In fact Indonesia get Guinness world record released by Greenpeace as a country that has the fastest annual rate of deforestation in the world. As many as 72% of the original forest has been destroyed Indonesia with 1.8 million hectares of forest have suffered destruction in each year. This happens in a vulnerable period between 2000 to 2005, the rate of deforestation by 2% annually.

In the aspect of burnt forest conditions, since 2011 ago, forest burning in Indonesia continues to increase until 2016. Data that writer get from the ministry of environment of the Republic of Indonesia, shows that the overall area of land burned in Indonesia at least, seen in in 2013 that covering 4918.74 ha, and most land burned, occurred in 2015 with an area of 261,060.44 hectares. This of course should get special attention to environmental sustainability in the future.

The following table land area burned by forest fires that occurred in Indonesia from the period 2011 to 2016:

Recapitulation of forest fires Size (Ha) per Province in Indonesia

Period 2011 to 2016							
No	PROVINCES	2011	2012	2013	2014	2015	2016
1	Aceh	· -	13,00	-	155,66	-	-
2	Bali	-	250,00	60,50	30,00	8,50	-
3	Bangka Belitung	-	-	-	-	-	-
4	Banten	-	-	-	2,00	-	-
5	Bengkulu	0,50	-	-	5,25	181,00	-
6	DKI Jakarta	-	-	-	-	-	-
7	Gorontalo	-	-	-	-	2.082,74	-
8	Jambi	89,00	11,25	199,10	3.470,61	19.528,00	-
9	West Java	1.278,55	1.945,50	252,80	552,69	3.292,40	-
10	Central Java	712,24	454,00	31,20	159,76	6.995,34	-
11	East Java	48,35	2.960,05	1.352,14	4.975,32	975,95	-
12	West Kalimantan	-	577,40	22,70	3.556,10	3.191,98	1.771,8
13	South Kalimantan	-	60,50	417,50	341,00	1.714,89	160,00
14	Central Kalimantan	22,00	55,15	3,10	4.022,85	122.882,90	912,89
15	East Kalimantan	148,80	51,50	-	325,19	19.179,86	1.197,2
16	North Kalimantan	-	-	-	-	-	3,00
17	Kepulauan Riau	-	-	-	-	-	-
18	Lampung	31,00	-	-	22,80	19.695,86	-
19	Maluku	-	-	-	179,83	3.394,48	-
20	North Maluku	-	-	-	6,50	60,00	-
21	Nusa Tenggara	-	-	12,00	3.977,55	1.462,04	-
22	East Nusa Tenggara	-	553,20	649,90	980,87	372,43	64,37
23	Papua	-	-	-	300,00	1.792,44	-
24	West Papua	-	-	-	-	-	-
25	Riau	74,50	1.060,00	1.077,50	6.301,10	4.040,50	1.928,3
26	West Sulawesi	-	-	-	-	-	-
27	Sulawesi South	31,75	45,30	40,50	483,10	720,40	18,91
28	Central Sulawesi	-	30,83	1,00	70,73	-	-
29	Sulawesi Tenggara	85,90	346,10	13,00	2.410,86	57,82	184,86
30	Sulawesi North	-	1,80	0,25	236,06	18.268,93	-
31	West Sumatera	-	3,50	-	120,50	-	-
32	Sumatera South	84,50	-	484,15	8.504,86	30.984,98	266,49
33	Sumatera Utara	5,00	1.181,00	295,40	3.219,90	177,00	547,50
34	Yogyakarta	-	6,45	6,00	0,27	-	-
	Total	2.612,09	9.606,53	4.918,74	44.411,36	261.060,4	7.055,3

Source: http://sipongi.menlhk.go.id/hotspot/luas kebakaran

From the data that has been described above, it is felt necessary to think how the concept of individual responsibility on forest and land fires that have an impact internationally in the future? Because of all this, the absence of rule of international law that can ensnare the individual as a subject of international law on the crime of slander and destruction environmentalists international (mainly the burning of forests and land), then the



perpetrators of the destruction and pollution of the environment more freely to repeat the same act and very difficult to be stopped. Whereas, the impact of forest and land fires are not only felt by the citizens of Indonesia, but also have an impact on other countries.

## 2. Break Through the State Sovereignty in environmental enforcement

## 2.1. State Sovereignty on the Enforcement of Environmental Law

Power in the state comes from a wide variety of theories including the theory of state sovereignty which asserted that sovereignty rests with states. The state should create and establish laws and theories of the rule of law supreme authority in a country that is the law itself. Rulers and the people or citizens, including the state itself are all subject to the law (Soehino, 1993: 154-156) In relation to power, the state was given the responsibility in order to achieve public welfare including environmental protection and management.

The meaning of sovereignty in the state are full and supreme power in a state to control the entire region without interference from other governments. According J.H.A. Logemann, Sovereign is the highest absolute power or powers on the people and regions of the world and its contents are owned by a sovereign national state system. (C.S.T. Kansil: 2000)

State sovereignty is often likened to the jurisdiction of a country. Within the meaning of applicable state jurisdiction is the power of the state to enforce the law against the people, things, or deeds (jurisdiction of the legislature) and state power over the people, actions or objects in the judicial process (yuridsiksi adjudications), or more short of state power impose the rule of law, compliance with legal requirements and penalties for violations of the provisions of applicable law (law enforcement jurisdiction).

In general, a country could have full power to exercise its jurisdiction over its territory against citizens or persons residing in its territory, but can not exercise jurisdiction outside its territory. Jurisdiction is termed territorial jurisdiction, which means that the legal authority of a country for everything that can happen in their area. However, there are exceptions where a country can not fully exercise its jurisdiction, namely to building diplomatic and consular missions of other countries residing in its territory (extraterritorial jurisdiction).

In relation to the environment, is basically an ecosystem, then the laws governing environmental aspects should also be viewed as a system. The legal system consists of sub-systems - sub legal system, which among other things is a sub system of environmental law. (Sunaryati Hartono, 1991: 46). Sub Environmental Law system consists of principles, rules and also include institutions and processes in order to make it happen in reality. (Kusumaatmadja, 1976: 14).

During this time the sovereignty of the country against environmental law enforcement, has been recognized under international law. State as one subject of international law has an important role in the enforcement of environmental law. All forms of action on the environment, ranging from the preservation of the environment, to punish perpetrators of environmental pollution has been stipulated in national law in the countries subject themselves to international environmental law.

In Indonesia, for example, protection of the environment, especially the burning of land can be found in the applicable law, which is contained in the Act - Act No. 32 of 2009 on the Protection and Management of the Environment (hereinafter referred UUPPLH), while that for the Prevention and destruction of forests can be found in Law No. 18 in 2013 on the Prevention and Eradication Forest destruction (hereinafter referred UUP3H). The concept of protection of the environment, especially the burning of land divided into 2 (two) groups, namely crimes committed by individuals, and the crimes committed by the company.

In Act UUPPLH, ban burning of land by individuals can be found in Article 69 paragraph (1) which expressly provide:

"Everyone prohibited from clearing land by burning".

Meanwhile, on the ban, then the corporate will also be subject to criminal sanctions in case of burning of land, it is stipulated in Article 116 UUPPLH, which asserts:

- (1) If the environmental crime committed by, for, or on behalf of a business entity, criminal prosecution and criminal sanctions imposed on:
  - a. business entity; and / or
  - b. those who gave the orders to commit the offense or the person acting as the leader in the activities of the criminal act.
- (2) If the environmental crime as referred to in paragraph (1) shall be done by a person, which is based on employment or other relation acted within the scope of the enterprise, criminal sanctions imposed against giving the orders or leaders in such offenses regardless of the offense the criminal is done individually or jointly.

From the formulation of Article 116 UUPPLH above, it looks phrase "those who gave the orders to commit the crime" and "a person who acts as the leader of the activities of crime" but the explanation of Article 116 UUPPLH no explanation for that meaning, so that the law enforcement practices these words are always questionable meaning both by the investigator or by the public prosecutor, so that the prohibition contained in this



Article to be less effective to implement.

Meanwhile in UUP3H born after their UUPPLH, none found to ban fires forest. In UUP3H just load some of the restrictions as set forth in Article 12, are as follows:

Every person is prohibited from:

- a. cutting trees in forest areas which are not in accordance with the permission of forest utilization;
- b. cutting trees in a forest area without a permit issued by the competent authority;
- c. cutting trees in the forest area illegally;
- d. loading, unloading, extracting, transporting, controlling, and / or have the results of the logging in forests without permission;
- e. transport, control, or have a timber forest products that are not fitted together legal documentation of forest products;
- f. carrying tools commonly used to cut, cut, or cut trees in the forest area without the permission of the competent authority;
- g. carry heavy equipment and / or tools and other widely or reasonably suspected to be used for the transport of forest products in the forest area without the permission of the competent authority;
- h. utilize timber forest products suspected proceeds of illegal logging;
- i. circulate timber from illegal logging by land, sea or air;
- j. smuggle wood from or into the territory of the Republic of Indonesia through rivers, land, sea, or air;
- k. receive, buy, sell, trade, receives deposits, and / or have a known forest products from illegal logging;
- l. purchasing, marketing, and / or process timber forest products that come from forests that are taken or illegal way; and / or
- m. receive, sell, trade, receives deposits, storing, and / or have a timber forest products that come from forests that are taken or collected illegally.

Thus, it created new problems for Indonesia against prosecution forest arsonists. Obviously in huum applicable, separating the land and environmental significance. In UUPPPLH set the ban for everyone weeks to clear land by burning, but the rules contained in UUP3H there is not any prohibition against forest fires. This gives rise to legal confusion because Indonesian law separate definition of "land" and "forest". So that the rule of law in Indonesia, especially environmental issues, would be inconsistent with the principle of international law that have been expressly agreed stating "the environment is a legacy for our children and grandchildren".

It is in a worsening also to aspects of the enforcement of law in Indonesia who know the principle of "legislation that is specifically ruled out the laws of a general nature", so that the rules on criminal offenses in forestry applies in particular as contained in UUP3H, which are not subject to UUPPPLH. While in UUPPPLH only provide rules ban the burning of land and not the forest. So that the perpetrators of forest fires very difficult to be held responsible, despite the destruction of forests that pollute the environment as a result of forest fires committed by certain parties are already evident.

In a theoretical context, said land and forests have been interpreted differently use. The term used in connection with the land surface of the earth and all the characteristics that belongs to him and important for human life (Christian and Stewart, 1968). In more detail, the term land or land can be defined as a region on the surface of the earth, covering all components of the biosphere that could be considered permanent or cyclical located above and below the region, including the atmosphere, soil, parent rock, relief, hydrology, plants and animals, as well as any consequences caused by human activities in the past and present, all of which have an impact on land use by humans in the present and in the future (Brinkman and Smyth, 1973; and FAO, 1976).

While forest definitions can be found in Act No. 41 of 1999 on Forestry which is defined as a unified form of landscape ecosystem biological natural resources dominated by trees in their natural forms environment, the one with the other can not be separated. This definition of the difference, then make the rule of law is not clear, so it is very rarely the perpetrators of forest fires may be requested for legal accountability.

In fact, UUPPPLH and UUP3H born in different years, UUPPPLH born in 2009, while UUP3H born in the year 2013, but the rule of law can not anticipate the tragedy of forest and land fires in Indonesia that has happened is very powerful in 2015 ago, although in UUPPPLH and UUP3H prioritize preventive law enforcement, but it is considered not able to protect the forests and lands from destruction by burning. As a result of forest and land fires, it has also cause smog disaster which also affects neighboring countries such as Singapore and Malaysia.

The total amount of land burned reached 261,060.44 hectares. Of these fires, Indonesia suffered a loss of Rp. 221 trillion, this loss is also equivalent to 1.5% of national gross domestic product, which means that forest fires hamper the pace of development. Victims of land and forest fires have recorded 24 people died, more than 600 thousand people infected with Upper Respiratory Infections (ARI), 60 million people are exposed to the smoke. (Accessed from http://nasional.republika.co.id/).

On the other hand, the consequences caused by land and forest fires and smog that hit Indonesia, Malaysia and Singapore also lost more than Rp.30 trillion. While ASEAN losses amounting to Rp 200 trillion. According to Hari who works as a researcher at the Center for International Forestry Reseach (CIFOR), haze resulting from



forest fires contain hazardous substances, such as Carbon Dioxide, Sulfur Dioxide, Nitrogen and Ozone. As a result, millions of people of Indonesia will be disrupted health when inhaling harmful substances such (accessible from http://www.riauonline.co.id).

Of forest fires and land on the idea in 2015, as many as 12 companies are becoming suspects of forest and land fires. The 12 companies are operating in various regions, including those operating in the island of Sumatra and Kalimantan. The companies there are engaged in the plantation, there is in the area of industrial forest plantations (HTI). Of the 12 companies that made suspects, there are four cases that enter phase one. This means that investigators from the police had submitted the case file to the Public Prosecutor for prosecution upfront court. The perpetrators charged under Article 108 UUPPPLH. (Accessible from http://www.bbc.com)

In Article 108 UUPPPLH firmly set:

"Anyone who does the burning of land referred to in Article 69 paragraph (1) letter h sentenced to imprisonment for a minimum of three (3) years and a maximum of 10 (ten) years and a fine of at least Rp.3.000.000.000,000 (three billion rupiah) and Rp. 10,000,000,000.000 (ten billion rupiah)."

Thus, it was obvious that the sovereignty of Indonesia in the enforcement of environmental law (especially over land and forest fires) can only snare the arsonists to land. As for the perpetrators of forest fires can not be held accountable according to the law, because there is no rule of law that can be applied. In context of international law, if the individual perpetrators of international crimes are not prosecuted by the positive law based on the sovereignty of a country in enforcing the law, the International Criminal Court can ask accountable before international law becomes an arbitrary round.

## 2.2. The concept of Individual Liability in the future on Forest Fires.

As has become common knowledge among legal scholars, until with the current developments, which became the subject of international law, namely the State, the Holy See (Vatican), the International Red Cross, international organizations, individuals (people), and the parties to the dispute (belligerent), However, of the five subjects of international law, the state is a key actor in international law, in the sense that international law regulate the rights and obligations assumed by a country that is derived from the provisions contained in international engagement (adithiya diar, 2011: 85).

Someone acting on behalf of a country can be justified individually. Thus, even if a country is responsible for an act that has been blamed (a wrongful act) committed by officials, the officials individually also accountable criminally for the same conduct, especially regarding the violation of the law of armed conflict (humanitarian law) and other international crime.

According to Romli Atmasamita (2000: 40) There are three sources to find acts that are classified as an international crime committed by individuals, namely:

- (1) international crime comes from habit that developed in the practice of international law;
- (2) international crime derived from international conventions;
- (3) international crime born of the historical development of the convention on human rights.

However, since the entry into force of the Rome Statute (Rome Statute) which set up the ICC (International Criminal Court, ICC), on July 17, 1998, the types of crime according to the three sources was summarized in Article 5 of the Statute, although not entirely, governing ICC jurisdiction, namely:

- (A) Crime of Genocide
- (B) Crimes against Humanity;
- (C) Crimes of War;
- (D) Aggression.

The concept of the responsibility of the individual (natural person) is also listed in Article 6 Paragraph (3) of the Statute of ICTR in 1994 entitled "individual criminal responsibility (individual criminal responsibility)", and in Article 7 paragraph (3) and Article 25 of the Statute Rome regarding the International Criminal Court (Rome Statute of the International CriminalCourt) in 1998. Article 25 of the Rome Statute in 1998 states that: the jurisdiction of the International Criminal Court (International Criminal Court) are individual persons (natural-persons). A suspect in the jurisdiction of the Court, individually responsible and punishable by appropriate penal provisions in the Rome Statute.

If the offender is connected with forest and land fires, contextual interpretation is indeed not be for individuals who can legally dipertangungjawaban in the ICC. However, as a philosophical, then the perpetrators of forest and land fires should be held accountable legally in the ICC to categorize actors forest and land fires into the category of crimes against humanity. This is when considered with two (2) basis as follows:

- 1. That in Article 7 paragraph (1) Rome Statute, which is referred to and included in the Crimes against Humanity is one of the few following acts committed intentionally as part of a widespread and systematic attack directed against the civilian population:
  - a) murder;
  - b) extermination;



- c) slavery;
- d) deportation or forcible transfer of population;
- e) imprisonment or deprivation of physical liberty arbitrarily and in violation of fundamental rules of international law;
- f) torture;
- g) rape, sexual slavery, enforced prostitution, forced pregnancy, enforced sterilization, or any other form of sexual violence;
- h) the persecution of a group that can be recognized or to a group of political, racial, national, ethnic, cultural, religious, gender / sex, or other groups, which are universally not permitted in international law;
- i) enforced disappearances;
- j) the hate crimes (apartheid);
- k) similar inhuman acts, which deliberately caused suffering severe, serious injury to body, mental or physical health of a person.
- 2. That the forest fire and smoke have caused losses for other countries and other civilians who have at least been cause severe suffering for the people around the location of the burning mainly suffering to get right to the good living environment and healthy that also have an impact on physical health, mental, or other physical health.

In fact, if using two (2) reasons above to be held accountable and prosecuted in the ICC, it will always get a long debate in enforcement. Many countries as persons subject to the Rome Statute, will refuse to categorize crimes forest and land fires as part of Crimes against Humanity. Therefore it is necessary to establish a special rule governing explicitly that individual perpetrators of forest and land fires can be demanded legally before the ICC.

Notch individuals as perpetrators of the burning of forests and land must see the concept in line with the concept of individual accountability in the ICC. Specifically, these individuals must be separated from the concept of State responsibility as a subject of international law. That the concept of the individual as a subject of international law that the burning forest and land will certainly be regarded as a criminal has an international environment if the result of forest and land fires have caused losses for other countries.

During this time the problem of environmental pollution resulting from the burning of forests and land of a country can only be sued by the affected countries of forest and land fires. But it must be acknowledged honestly to hold the state can not provide a deterrent effect on key players in the burning, and the incidence of forest and land fires even this has occurred repeatedly.

Principally should be recognized that each country has its criminal law are also universal, but this principle will also be faced with the sovereignty of the state to protect the perpetrators, so that there should be a strengthening of the authority of the ICC to take action against perpetrators of forest and land fires which also affects other countries.

Ideal concept of the authority of the ICC to take action against perpetrators of forest and land fires should also need to break through the sovereignty of the state, with no accountability to emphasize that countries have sovereignty in enforcing accountability law. Individuals concept as perpetrators of forest and land fires under the authority of the ICC ideal are individuals who as a result of the actions that the burning of lands and forests has led to the citizens of other countries who are disadvantaged in the fulfillment of the right to environment is good and healthy, which is the non-fulfillment of the right to a good environment and healthy also likely to cause damage to health body, mental, or other physical health for the citizens of other countries. Thus, it is necessary to strengthen the concept of accountability of individual perpetrators of forest and land fires to quickly poured in international law as a form of custody to the adage "the environment as the heritage of our children and grandchildren"

### 3. Conclusion

Based on the discussion, it can be concluded as follows:

- 1. In the context of international law, if the individual perpetrators of international crimes are not prosecuted by the positive law based on the sovereignty of a country in enforcing the law, the International Criminal Court can ask accountable before international law throughout the authority.
- 2. The concept of accountability of individuals as perpetrators of forest and land fires under the authority of the ICC is the ideal individual as a result of actions that the burning of lands and forests has led to other citizens who are disadvantaged in the fulfillment of the right to environment is good and healthy, that the non-fulfillment of the right to a good environment and healthy also likely to cause damage to health agencies, mental, or other physical health for the citizens of other countries.

# Refferences

Adithiya Diar, 2011, the State's responsibility in the Enforcement of Human Rights, Jakarta: Publisher, the Constitutional Court of the Republic of Indonesia - Study Center for Constitutional Studies University of Muhammadiyah Magelang.



- Boer Mauna 2005, International Law: Definition, Role and Function in the Era of Global Dynamics (Edition 2), Bandung: Publisher, Alumni.
- Christian and Stewart, 1968 C.S. Christian and G.A. Stewart, Methodology of integrated surveys, Proceedings of the Toluouse Conference on Integrated Aerial Surveys and Studies, UNESCO, Paris.
- C.S.T. Kansil, 2000, the law system of the Republic of Indonesia, Jakarta: publisher, Rineka Reserved.
- $FAO.\ 1976.\ A\ Framework\ of\ Land\ Evaluation.\ FAO\ Soil\ Bull.\ No.\ 32\ /\ I\ /\ IRLI\ Publ.\ 22\ Rome,\ Italy.\ 30h.$
- Soehino, 1993, the state of science, Yogyakarta: Publisher, Liberty.
- Sunaryati Hartono, 1991, legal politics towards the national legal system, Bandung: Publisher, Alumni.
- Muchtar Kusumaatmadja, 1976, Law, Society, and the National Law Development, Jakarta: Publisher, Bina Cipta. Sonia Fitri, BNPB Record Losses Due to Fires Rp 221 trillion in 2015, [Online] Available: http://www.republika.co.id/, (December, 20, 2015).
- Police charge 12 companies suspected incendiary forest and land, [Online] Available: http://www.bbc.com, (October, 12, 2016)
- Winahyu, Losses Indonesia, Malaysia and Singapore result Karhutla Rp30 trillion, [Online] Available: http://www.riauonline.co.id/, (November, 19, 2015).
- Ministry of Environment and Forests, [Online] Available: http://sipongi.menlhk.go.id/hotspot/luas kebakaran(October, 21, 2016).