

Legal Aspects, Economic and Aircraft's Water Bombing Related to Forest Fires in Indonesia

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Abstract: *This article purported to describe historical background of climate change in Indonesia such as legal ground of climate change includes Indonesian constitution law of 1945, Act No.6 Year 1994, Act No.23 Year 1997, Act No.17 Year 2004, Act No.1 Year 2009, Act No.32 Year 2009 and Presidential Regulation No.46 Year 2008; legal aspect of forest fires such as private law regimes included mediation of disputes, compensation, strict liability in nature, time limit of bringing legal actions and the class action of lawsuit; public law regimes includes authority of civil government official, criminal law provisions and criminal jurisprudent; economic aspect of forest fires includes flight delay, the huge cost of economy, billions of dollars' worth of damages and losses, impact of Indonesia's forest fires, flight cancellation, state emergency and foreign assistance; aircraft's bombing water to flight forest fires such as from Australia, Canada, Malaysia, Singapore and Russia.*

Keywords: *legal aspects, economic and aircraft's bombing water and forest fires.*

I. INTRODUCTION

Indonesia is the world's largest archipelago's State. Its consists of 17,508 Islands, about 6,000 of which are inhabited. Referring to the 2010 national census, the population of Indonesia was 237,6 million. In archipelagic State such as Indonesia, air transportation has a major role to play in connecting the Islands. It shall provide connectivity for national, regional and remote areas and connect Indonesia to national, regional as well as international destinations. It enables to transport goods, passengers, business travel as civil servant, leisure peoples, business peoples, tourism, employment, family visit, friends and finally increase to support the development of the national economic in Indonesia. In addition, air transportation also provides for rapid, efficient, affordable prices, and connections to support national logistic flow of goods, including when necessary government missions for disaster relief. However, sustainable development of air transport and the aviation industry shall be consider and consistently keep an optimum balance between economic, social and global **environmental factors** (*emphasize added*).⁴

Global climate change has impact to the air transport and aviation industry, taking into account that air transport and aviation industry growth can affect global climate change and contributes to the greenhouse gas (GHG) pollutant in terms of carbon emissions. In this connection, the President of the Republic of Indonesia (ROI) Joko Widodo, issued the Presidential Decree No.61 of 2011.⁵ The Presidential Decree No.61 of 2011 provides for GHG emission reduction and the obligation for the energy and transport Sector is 26% cumulative up to the year 2020 and 41% with contribution of international support.⁶ This article purported to describe legal aspects, economic and aircraft's bombing water related to forest fires in Indonesia.

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⁴Dr Gunawan Djajaputra, Dr Ahmad Redi, and Dr.K.Martono.,*The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*, Vol.9(7) IOSR-JAC 1(July 2016).

⁵ Presidential Decree *Concerning National Action Plan to reduce GHG emissions (RAN-GRK)* (Pres. Decree No.61 Year 2011).

⁶ Dr Gunawan Djajaputra, Dr Ahmad Redi, and Dr.K.Martono., *supra* note 4, at 1

II. HISTORICAL BACKGROUND OF CLIMATE CHANGE IN INDONESIA

The impact of global warming is already evident in Indonesia and it will likely worsen due to further human-induced climate change. The review from the global conservation organization, climate change in Indonesia affects for human and nature. Highlights that annual rainfall in Indonesia is ready down by 2 to 3 per cent, and the seasons are changing. The combination of high population density and high levels of biodiversity, together with a staggering 80,000 kilometers of coastline and 17,500 Islands, make Indonesia one of the most vulnerable country to the impacts of climate change.

Shifting weather patterns have made it increasingly difficult for Indonesia's farmers to decide when to plant crops and erratic droughts and rainfall has led to crop failures. A recent study by a local research institute provides that Indonesia had lost 300,000 tons of crop production every year between 1997-2000, three times annual loss in the previous decade. Climate change in Indonesia means millions of fishermen are also facing harsher weather conditions while dwindling fish stocks affect their income.

As rainfall decreases during critical times of the year translates into higher drought risk, consequently a decrease in crop yield, economic instability and drastically more undernourished people. This will undo Indonesia's progress against poverty and food insecurity. World Wide Forest (WWF)'s review shows that increased rainfall during wet time of the year may lead to high flood risk, such as the Garut and Bandung cities (West Java), Sampang district (East Java), Sayung Village, Demak District (Central Java), Flores Timur's⁷ flood and others provinces that killed people and displaced nearly half a million people, with economic losses of US\$ 450 million.

Climate change impacts are noticeable throughout the Asia-Pacific region. More frequent and severe waves, floods, extreme weather events and prolonged droughts will continue to lead to increased injury, illness and death. Continued warming temperatures will also increase the number malaria and dengue fever cases and lead to an increase in other infection as a result of poor nutrition due to food production disruption.

The Indonesian government has taken its role seriously and lead the way in the fight against national and global climate change. Indonesia has to take up the challenge of climate change, putting climate adaptation in the development agenda, promoting sustainable land use, as well as demanding support from industrialized nations. Indonesia is already a significant emitter of GHG emission due to deforestation and land-used change estimated at 2 million hectares per year and accounts for 85 per cent of the country's annual GHG emissions. It is also a serious coal producer and use in the region.

With regards to air transport and aviation industry, Indonesia and neighboring countries such as Australia, Brunei, Malaysia, Singapore and other international organization such as International Civil Aviation Organization (ICAO), International Air Transport Association (IATA) and aircraft manufactures jointly take action to reduce climate change. In addition, several aviation industry such as Garuda Indonesia, Sriwijaya Air, Lion Air, airport operators such as PT Angkasa Pura I and PT Angkasa Pura II and government institution such as Badan Penanggulangan Bencana Nasional (BPBN) join together to reduce climate change in Indonesia.⁸

III. LEGAL GROUND OF CLIMATE CHANGE

In Indonesia, climate change regulated by Indonesian Constitution of 1945, Act Number 6 Year 1994,⁹ Act Number 23 Year 1997,¹⁰ Act Number 17 Year 2004,¹¹ Act Number 25 Year 2004,¹² Act Number 1 Year 2009,¹³ Act Number 32 Year 2009¹⁴ and Presidential Regulation Number 46 Year 2008,¹⁵ as follows:

⁷ Daily Kompas, dated 11 February 2017, at 21

⁸ Dr Gunawan Djajaputra, Dr Ahmad Redi, and Dr.K.Martono., *supra* note 4 at 2

⁹ Act Concerning Ratification of United Nations Framework Convention on Climate Change (Act No.6 Year 1994), (State Gazette of the Republic of Indonesia Year 1994 Number 42, Supplement Gazette of the Republic of Indonesia Number 3557.

¹⁰ Act Concerning Environment Management, (Act.No.23 Year 1997), State Gazette of the Republic of Indonesia Year 1997 Number 68, Supplement State Gazette of the Republic of Indonesia Number 3699.

¹¹ Act Concerning Ratification of Kyoto Protocol to the United Nations Framework Convention on Climate Change (Act No.17 Year 2004) State Gazette of the Republic of Indonesia Year 2004 Number 72, Supplement Gazette of the Republic of Indonesia Number 4403.

¹² Act Concerning National Development Planning System (Act No.25 Year 2004), State Gazette of the Republic of Indonesia Year 2004 Number 104, Supplement State Gazette of the Republic of Indonesia Number 4421.

IV. INDONESIAN CONSTITUTIONAL LAW OF 1945

With regards to environmental sustainability, Indonesian Constitution Law of 1945 provides that a good and healthy environment shall be come the fundamental right to every citizen of Indonesia, it is the reason the national economic development shall be organized based on the principles of sustainable and environmentally-friendly development. The environmental quality that is currently declining and has threatened the survival of human life and other living things and there is a need of protection and environmental management on serious and consistent basis by all the stakeholders. In relation with the global is increasing to result a climate change that is exacerbating the environmental degradation, therefore it is necessary to conduct protection and management of environment. In order to ensure the legal certainty and the protection of the right of every person to earn a good and healthy living environment as part of the overall protection of the ecosystem, it shall be necessary to issue an Act to enhance public welfares and achieve happiness of life based on the Pancasila, and implement environmentally sustainability development guided by an integrated and comprehensive national policy which take into consideration the needs of present as well as future generation.¹⁶

a. Act No.6 Year 1994

Taking into account that global warming is a real threat to human welfare , Indonesia strongly supports the objective of the United Nations Framework Convention on Climate Change (UNFCCC) to prevent the anthropogenic gas concentration in the atmosphere exceeding a level that would endanger the existence of life on earth. For that reason, on 5 June 1992, Indonesia signed the UNFCC. For the purpose to implement the UNFCCC, the President of the ROI issued Act No.6 Year 1994.¹⁷ Act 6 of 1994 stipulates the right and obligation of the ROI. One of the obligations is to communicate actions taken to mitigate climate change. It is the reason, the Minister of Environmental and Forestry (MOEF) established the National Committee on Climate Change (NCCC) as described in the next description.

b. Act Number 23 Year 1997

Act No.23 Year 1997¹⁸ regulates environmental provisions. It provides, among others, general provision; basis, objectives and target; community, rights, obligation and the role; the authority of environmental management; preservation of environmental functions; environmental compliance requirement; environmental disputes settlement; investigation; criminal provision, transitional provisions and closing provisions.

With regard to climate change, found in Article 9 Act 23 of 1997. It provides that the government of the ROI determines national policies on environmental management. Such determination of policies, shall take into consideration of religious values, culture and traditional and living norms of the community, whilst the performing environmental management shall integrated manner by the government institution in accordance with their respective field of task and responsibility, the public and other agents of development and taking into consideration of the integrated planning. In addition, environmental management shall be performed in an integrated manner with spatial management, protection of non-biological natural resources, protection of artificial resources, conservation of biological natural resources and their ecosystems, cultural preservation, biodiversity and climate change (*emphasis added*) as well. For the implementation of such planning of the environmental is coordinated by the Ministry of Environment and Forestry (MOEF) of the ROI.

c. Act Number 17 Year 2004

¹³ Act Concerning Civil Aviation, (act No.1 Year 2009). State Gazette of the Republic of Indonesia (ROI) Number 1 Year 2009, Supplement Gazette of the Republic of Indonesia Number 4956.

¹⁴ Act Concerning Protection and Management of Environment, (Act No.32 Year 2009), State Gazette of the Republic of Indonesia No.140 Year 2009 (3 October 2009).

¹⁵ Presidential Regulation Concerning National Council for Climate Change, (Pres.Reg.No.46 Year 2008) [4 July 2008].

¹⁶ Article 33; See also Dr Gunawan Djajaputra, Dr Ahmad Redi, and Dr.K.Martono.,*supra* note 4 at 2

¹⁷ Act Concerning (Undang-undang tentang Pengesahan Konvensi Kerangka Kerja PBB tentang Perubahan Iklim (Ratification of United Nations Framework Convention on Climate Change (Act.No.6 Year 1994) (June 5th, 1994); See also Dr Gunawan Djajaputra, Dr Ahmad Redi, and Dr.K.Martono.,*supra* note 4 at 3.

¹⁸ Act Concerning Environmental Management (Act No.23 Year 1997. State Gazette of the Republic of Indonesia No.68 Year 1997, Supplement State Gazette of the Republic of Indonesia No. 3699 (19 September 1997)

The UNFCCC was adopted at the United Nations Headquarters, New York on the 9 May 1992. In accordance with Article 20 of the UNFCCC, it was open for signature at Rio de Janeiro from 4 to 14 June 1992, and thereafter at the United Nations Headquarters, New York, from 20 June 1992 to 19 June 1993. The Convention is subject to ratification, acceptance, approval or accession by States and by regional economic integration organizations. States and regional economic integration organizations that have not signed the Convention may accede to it at any time. The Convention entered into force on 21 March 1994, in accordance with Article 23 of the UNFCCC, that is on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession. In this regards, Indonesia has ratified on 13 July 2004 and come into force on 3 December 2005, consequently, Indonesia has right and obligation to comply UNFCCC.¹⁹

d. Act Number 1 Year 2009

Act No. 1 Year 2009 (the CAC of 2009).²⁰ It regulates the promotions of air transport development and to ensure Indonesia's air transportation sector can support national development and is viable to compete and survive nationally, regionally and internationally. Its regulates a host of matters related to aviation, ranging from sovereignty in airspace, aircraft production, operation and airworthiness of aircraft to aviation security and safety, aircraft procurement, aviation insurance, aircraft accident investigation, and licensing of aviation professionals. The 2009 Act also regulates scheduled as well as non-scheduled air transport, aircraft ownership and aircraft leasing, liability of air carriers, air navigation facilities, airport authorities, and most pertinent to the current discussion, the tariffs that can be charged for the provision of air transport services and charges related to the use of aviation facilities.²¹

With regards environmental, the CAC of 2009, provides that airport business entity or airport operation unit shall be obliged to maintain environmental contamination at the airport(s) and surrounding areas in accord with threshold limit and standard quality determined by the government. In order to maintain environmental contamination, the airport business entity or airport operation unit may limit the time and frequency of decline aircraft operation. Airport business entity or airport operation unit shall be obligated to implement environmental management and monitoring.²²

e. Act No.32 Year 2009

Act No.32 Year 2009²³ amended Act No.23 Year 1997,²⁴ and it provides, among others, general provision; principle, objective and scope; planning; utilization; control; maintenance; management of hazardous and toxic; substance and wastes; information system; duties and authorities of the government and local government; rights, responsibilities and prohibition; role of people; monitoring and administrative sanction; settlement of environmental disputes; investigation and evidence; criminal indictment; transition and closing provision.

f. Presidential Regulation Number 46 Year 2008.

1). Establishment of the National Council for Climate Change (NCCC)

The Presidential Regulation Number 46 Year 2008 regulates the establishment of the NCCC. In the consideration of the NCCC provides that the excessive increase in GHG emission let the global climate change,²⁵ which degrades the environment and harms of life, whilst the geographic position of Indonesia as an archipelagic State is prone to climate change that should be controlled on the principle that all are responsible in

¹⁹ http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (down load on 1 November 2016)

²⁰ Act *Concerning Aviation*, Act.No.1 of 2009, State Gazette of the Republic of Indonesian No.1 Year 2001, Supplement State Gazette No.4956

²¹ Adya Paramita Prabandari, Wahyu Satrio Utomo, Dr Martono, *Indonesian Aviation Human Resources : An Critical Analysis*. Vol.9 (6) IOSR Journal (June 16th 2016) at 20-30

²² Article 260; See also Dr Gunawan Djajaputra, Dr Ahmad Redi, and Dr.K. Martono.,*The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*, Vol.9(7) IOSR-JAC 3(July 2016).

²³ Act *Concerning Protection and Management of Environment*, (Act No.32 Year 2009), State Gazette of the Republic of Indonesia No.140 Year 2009 (3 October 2009).

²⁴ Act *Concerning Environment Management*, (Act.23 Year 1997) State Gazette of the Republic of Indonesia No.....???

²⁵ Climate Change is a change in the average condition of a climate and/or various climates from time to time as a result of human activities.

accordance with each country's social, economic and technological capacities. Based on the above-mentioned consideration, the President of the ROI established a NCCC to improve the coordination of control over the climate change and to strengthen the position of Indonesia in international forums on climate change.

2). **Member's and Task of NCCC**

The member of NCCC are ministry of environment, finance, home affairs, foreign affairs, energy and mineral resources, forestry, agriculture, industry, public works, national development planning/head of Bappenas, marine affairs and fisheries, transportation and health. The task of NCCC are, among others to formulate national policies, strategies, programs and activities to control climate change; to coordinate activities in controlling climate change including the activities of adaptation, mitigation, transfer of technology and funding; to formulate mechanism and procedure for carbon trade; to monitor and evaluating the implementation of policies on control of climate change; to strengthen the position of Indonesia and to encourage developed countries to be more responsible for controlling climate change.

3). **Working Units**

In carrying out its task, the NCCC will be assisted by some working units composed of adaptation working unit, mitigation working unit, transfer-of-technology working unit, funding working unit, post-Kyoto 2012 working unit and forestry and land use conservation working unit. If deemed necessary, the executive director may establish working units other than the above-mentioned units. In addition, the membership of the working units shall be represented by relevant government agencies and experts.

V. LEGAL ASPECTS OF FOREST FIRES

With regards to legal aspects, there are two kinds of legal regime in the environmental climate change in Indonesia such as private law and public law regimes in nature respectively as follows:

a. Private Law Regime

1). Mediation of Disputes

The settlement of private law regime can be reached through the court or out of court based the voluntary choice of the parties in dispute, but out of court dispute settlement does not apply to criminal environmental actions.²⁶ If an out of court dispute settlement has already been chosen, legal action through the court can only be undertaken if such effort is declared to have not succeeded by one or several of the parties.²⁷ Out of court environmental dispute settlement is held to reach agreement on the form and size of compensation and/or on certain actions to ensure that negative impacts on the environment will not occur or be repeated.²⁸ In out of court environmental dispute settlement as mediation, the services of the third party can be used, both which do not possess decision making authority and which possess decision making authority, to help resolve an environmental dispute.²⁹ The Government and/or community can form environmental dispute settlement service providing agency which has a free and impartial disposition.³⁰

2). Compensation

Every action which infringes the law in the form of environmental pollution and/or damage which gives rise to adverse impacts on other people or the environment, obliges the party liable for the business and/or activity to pay compensation and/or to carry out certain actions. The burden of carrying out certain participatory actions, the judge can determine compulsory monetary payment to be made for every day of lateness in completion of such certain actions.

3). Strict Liability in Nature

Every action which infringes the law in the form of environmental pollution and/or damage which gives rise to adverse impacts on other people or the environment, obliges the party liable for the business and/or activity to pay compensation and/or to carry out certain actions. As well as the burden of carrying out certain participatory actions, the judge can determine compulsory monetary payment to be made for every day of lateness in completion of such certain actions.³¹

²⁶ Act Number 23 Year 1997

²⁷ Article 30

²⁸ Article 31

²⁹ Article 32

³⁰ Article 33

³¹ Article 34

Strict of liability regime apply, for that reason party liable for a business and/or activity which gives rise to a large impact on the environment, which uses hazardous and toxic materials, and/or produces hazardous and toxic waste, is liable for losses which are given rise to, with the obligation to pay compensation directly and immediately upon occurrence of environmental pollution and/or damage. The party is liable for a business and/or activity can be released from the obligation to pay compensation if those concerned can prove that environmental pollution and/or damage was caused by one of the following reasons the existence of a natural disaster or war; or the existence of situation of coercion outside of human capabilities; the existence of actions of a third party which caused the occurrence of environmental pollution and/or damage. Where losses occur which have been caused by a third party, he third party is liable for paying compensation.³²

4). Time Limit of Bringing Legal Actions

The limitation period for bringing legal actions to court follows the periods set out in the applicable Civil Procedures Law, and is calculated from the moment the victim knows of the existence of environmental pollution and/or damage. Stipulations on the limitation period for bringing legal actions do not apply to environmental pollution and/or damage which is caused by a business and/or activity which uses hazardous and toxic materials and/or produces hazardous and toxic waste.³³

5). The Class Action of Lawsuit

The community has the right to bring a class action to court and/or report to law enforcers concerning various environmental problems which inflict losses on the life of the community. If it is known that the community suffers as a result of environmental pollution and/or damage to such an extent that it influences the basic life of the community, the governmental agency which is responsible in the environmental field can act in the community's interest.³⁴ In the scheme of implementing liability for environmental management consistent with a partnership principle, environmental organizations have the right to bring a legal action in the interest of environmental functions. The right to bring a legal action is limited to a demand for a right to carry out particular measures without the presence of a demand for compensation, except for expenses or real outlays. Environmental organizations have the right to bring a legal action if they meet the conditions such as they have the form of a legal body or foundation; in the articles of association of the environmental organization it is stated clearly that the goal of the founding of the organization concerned was in the interests of the preservation of environmental functions; activities consistent with its articles of association have already been carried out.³⁵ Procedures for the submission of legal actions in environmental problems by the community, refers to the applicable Civil Procedures Law.³⁶

b. Public Law Regime

1). Authority of Civil Government Officials (CGO)

The Indonesia National Police Investigators (INPI), certain (CGO) associated with the government agency whose scope of functions and responsibility are in the environmental management field, are given special authority as investigators as Civil Investigator Officers (CIO) is provided in the laws appropriate with applicable Criminal Procedures Law (CPL). Such CIO have the authority to carry out examination of the correctness of a report or explanation in relation to a criminal action in the environmental area; to carry out examination of people or legal bodies who are suspected of criminal actions in the environmental field; to request an explanation and evidence from individuals or legal bodies in relation to a criminal incident in the environmental field; to carry out examination of account-keeping, notes and other documents which are relevant to a criminal action in the environmental field; to carry out examination at certain places which are suspected of containing evidence, accounts, notes, and other documents along with carrying out confiscation of materials resulting from infringements which can be used as evidence in criminal cases in the environmental field; to request experts assistance in the scheme of the implementation of the function of investigation of criminal actions in the environmental field. In addition, CIO shall inform INPI of the commencement and the result of their investigation and convey the findings of investigation to the Public Prosecutor (PP) through INPI. Investigation of environmental crimes in Indonesian waters and the Exclusive Economic Zone (EEZ) is carried out by investigators according to applicable laws and regulations.³⁷

2). Criminal Law Provisions

³² Article 35

³³ Article 36

³⁴ Article 37

³⁵ Article 38

³⁶ Article 39

³⁷ Article 40

With regard to criminal law provision, there are at least six provisions regulate criminal law such as action in environmental pollution and/or damage or caused the death or serious injury of person;³⁸ any person who due to their negligence performs an action that causes environmental pollution and/or damage causes the death or serious injury of a person; any person who in violation of applicable legislation, intentionally releases or disposes of substances, energy and/or other components which are toxic or hazardous onto or into land, into the atmosphere or the surface of water, imports, exports, trades in, transports, stores such materials, operates a dangerous installation, whereas knowing or with good reason to suppose that the action concerned can give rise to environmental pollution and/or damage or endanger public health or the life of another person;³⁹ any person who in violation of applicable legislative provisions of the effective legislation, because of their carelessness performs an action.⁴⁰

The alleged criminal person penalized at least 3 (three) years and maximum of 15 (fifteen) years imprisonment and at least fine of Rp.500,000,000 (five hundred million rupiah) and maximum fine of Rp.750,000,000 (seven hundred and fifty million rupiah). If all a criminal action done by or in the name of a legal body, company, association, foundation, or other organization, criminal liability to a fine is increased by a third.

If a criminal action done by or in the name of a legal body, company, association, foundation or other organization, criminal charges are made and criminal sanctions along with procedural measures are imposed both against the legal body, company, association foundation or other organization concerned and against those who give the order to carry out the criminal action concerned or who act as leaders in the carrying out of it and against the two of them. If a criminal action done by or in the name of a legal body, company, association, foundation or other organization, and is done by persons, both based on work relations and based on other relations, who act in the sphere of a legal body, company, association, foundation or other organization, criminal charges are made and criminal sanctions imposed against those who give orders or act as leaders regardless whether the people concerned, both based on work relations and based on other relations, carry out the criminal action individually or with others.

If charges are made against a legal body, company, association, foundation or other organization, the summons to face court and submission of the warrants is directed to the management at their place of residence, or at the fixed place of work of the management. If charges are made against a legal body, company, association, foundation or other organization, which at the time of the bringing of the legal action is represented by someone who is not a manager, the judge can make an order so that the management face the court in person.

3). Crime Against Humanity

Indonesia is the world's largest producer of palm oil and forest fires are frequently intentionally lit to clear the land with the resulting haze an annual headache. On 27 October 2015 a prolonged dry season and the impact of EL Nino have made the situation far worse, with one estimate that daily emission from the forest fires have surpassed the average daily emission of the entire US economy. The forest fires have caused the air to turn a toxic sepia color in the worst hit areas of Sumatra and Kalimantan, where levels of the PSI have pushed toward 2,000. PSI above 300 is considered hazardous. Such high PSI above 300 is endangered wildlife such as orangutans have also been forced to flee the forests because of the forest fires.⁴¹ Haze has caused the schools in neighboring Singapore and Malaysia shut down, flights grounded and events cancelled. In addition, Indonesia's forest fires also threaten a third of world's wild orangutans. Sutopo Puro Nugroho, the spokesperson for the Meteorology, Climatology and Geophysics Agency (BMKG) acknowledged that for months 43 million people on the two islands have been inhaling toxic fumes. The number of unrecorded cases was likely much higher. In the worst affected parts, on Sumatra and Kalimantan, ten people have died from haze-related illnesses and more than 500,000 cases of acute respiratory tract infections.⁴² This is a crime against humanity of extraordinary proportions.

4). Criminals Jurisprudence

³⁸ Article 42

³⁹ Article 43

⁴⁰ Article 44

⁴¹ Indonesia's fires labeled a 'crime against humanity' as 500,000 suffer.

<https://www.theguardian.com/world/2015/oct/26/indonesias-fires-crime-against-humanity-hundreds-of-thousands-suffer>.

On 27 October 2015

⁴² Indonesia's fires labeled a 'crime against humanity' as 500,000 suffer.

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On 27 October 2015

The lawsuit lodged by the MOEF in the Palembang District Court (PDC) in South Sumatra sought US\$ 570 million in damages, however the PDC rejected US\$ 570 million lawsuit against PT Bumi Mekar Hijau (BMH), a supplier to Sinar Mas Group (SMG), due to the evidence collected by the MOEF failed to prove its alleged criminality in the burning of 20,000 hectares of its concession in Organ Komering Ilir, South Sumatra, in 2014. The evidence could not prove that the BMH was guilty, because the BMH still able to plant acacia trees on the concession after it was burned, which meant there must be no environmental damage.⁴³

According to the Forum for the Environment (Walhi) the reasoning behind the verdict was illogical and do not know what the judges were thinking by exonerating BMH. The reasoning is so misguided and shows that the judges actually does not understand to handle forest fires cases inside companies.⁴⁴ In addition, according to Rasio Ridho Sani, the Director General of Law Enforcement, MOEF, the fact that BMH was not able to keep its concession from getting burned should be enough to punish the company. The truth is that massive forest fires happen inside concessions to cut the costs of land clearing and to shorten the planting period. Furthermore, the judges failed to take into account of the air pollution caused by the fires. The environmental damage should not only be seen from the damage to land. The forest fires caused the air Pollution Standard Index (PSI) to reach a hazardous level and that is enough to prove that there was environmental damages.

According to the regulations, a concession permit holder should be held responsible to fires occurs inside its locations, whatever the cause, however, the panel of judges did not take into consideration the fact of the case. The fact is that fires did happen and the company did not have adequate facilities to prevent and manage the forest fires. According to Muhnur Satyahaprabu, Walhi Legal and Executive Policy Manager, the decision might have been different had the MOEF demanded that the trial be presided by judges holding environmental licenses. Such case requires good understanding of regulations related to the environment.

The decision sets a bad precedent for similar cases that have yet to go to trial, with the government still pursuing other companies allegedly responsible for forest fires that have eased on account of monsoon rains. The government has sanctioned 23 companies over the forest fires, with three having land-use or environmental permits revoked, 16 having permits suspended and four issued government force sanction. If the lawsuit filed by the MOEF against BMH in 2014 was rejected, it was bad precedence.⁴⁵

VI. ECONOMIC ASPECT OF FOREST FIRES

a. Haze, Economy and Aircraft Bombing

On 8 September 2015, Indonesia and Malaysia are again plagued by a traditional haze caused by forest fires in Palangkaraya (Central Kalimantan). The thick haze resulted in the cancellation of various commercial flights at the local airports such as in Jambi, Surabaya. Furthermore, it was reported that in parts of Malaysia an unhealthy air quality was recorded. Each year forest fires damage the environment on the resource and forest-rich islands of Sumatra and Kalimantan as farmers clear plantation and forest lands. Illegal slash and burn practice is common on these islands and form a recurring problem, particularly in the dry season. The El Nino weather phenomenon could cause an extended dry season in Indonesia, implying a higher risk of forest fires in Southeast Asia's largest economy.

Aircraft water bombing on operations had to be cancelled due to limited visibility. On land, firefighting operations are being carried out in Jambi. However, the teams are having difficulty to find water sources to combat the fire, while equipment is limited as well. The Jambi Health Agency (JHA) has already distributed 22,400 face masks to local residents who live nearby affected regions for health protection. Meanwhile, at least seven areas in Peninsula Malaysia are being plagued by air pollution. The air pollutant index (API) showed that the air in these areas is currently unhealthy. These areas namely Nilai, Bukit Rambai, Port Dickson, Seremban, Batu Muda, Malacca, and Banting.

b. Flight Delayed

Thousands of forest fires caused by slash-and-burn farming have suffocated vast expanses of Southeast Asia caused disrupt commercial flight and cancellation of various commercial flights at the local airports. At Juanda International Airport in Surabaya, flights have been disrupted due to forest fires. Hundreds of passengers

⁴³ Hans Nicholas Jong., *Court finds no damages after forest fires*. <http://www.thejakartapost.com/news/2015/12/31/court-finds-no-damages-after-forest-fires.html>. Jakarta 31 December 2015.

⁴⁴ Hans Nicholas Jong., *Court finds no damages after forest fires*. <http://www.thejakartapost.com/news/2015/12/31/court-finds-no-damages-after-forest-fires.html>. Jakarta 31 December 2015.

⁴⁵ Hans Nicholas Jong., *Court finds no damages after forest fires*. <http://www.thejakartapost.com/news/2015/12/31/court-finds-no-damages-after-forest-fires.html>. Jakarta 31 December 2015.

stranded overnight due to Lion Air delays. Flight were delayed overnight for passengers to Lombok International Airport in Lombok, West Nusa Tenggara (NTT) etc.

c. The Huge Cost of Economy

Open burning in plantations and forest fires in Sumatra and Kalimantan in Indonesia have generated thick clouds of smog across the Straits of Malacca to Malaysia, disrupting flights in the two countries. The haze disrupted operation, at least, at 16 airports and closed 13. Ten of the closed airports are in Kalimantan, the other three are in Sumatra, Aceh and Riau provinces. With exception of Sultan Iskandar Muda International Airport (SIMIA) in Aceh, they all service domestic flights. Several hours or cancelled flights at Medan's Kuala Namu International Airport (MKNIA), Hang Nadim International Airport (HNIA) in Batam and Pekanbaru's Sultan Syarif Kasim II International Airports (PSSKIA), the smog reduced visibility to between 50 meters and 100 meters at the 13 closed airports. The airports will be opened right away after approval issued the DGAC.

Similar to Indonesia, in Malaysia, delay or cancellation of flight occurs at Kuala Lumpur International Airport (KLIA), Penang International Airport (PIA), Senai International Airport (SIA) in Johor Baru and Kuching International Airport due to poor visibility force the delay or cancellation. At Kuching International Airport (KIA) visibility fell to 400 meters forcing the cancellation of 26 flights and delaying 16 as of 17 September. In Changi International Airport (CIA) in Singapore did not escape the effect either, as the Civil Aviation Authority of Singapore (CAAS), Singapore increased the allocated space between departing and landing aircraft. The visibility on both runways fell to less than 1,500 meter, but the airport saw no flight cancellations.

The haze imposes huge cost on the affected airlines, airports and the economies of the countries involved. It happens when owners of oil palm plantations and timber contractors carry out open burning of the discards of their harvest. The lack of fire-suppression systems in the forests and plantations and the sheer size of the areas compound the problem. Poor accessibility is another factor.

d. Billions of Dollars' Worth of Damages and Losses

Indonesia's forest fires and haze crisis in 2015 has been described by many in the international community as an environmental disaster. Since August 2015, large parts of the country's forests and land area have burned out of control, impacts the health, education and livelihoods of millions of Indonesians living in the areas with the worst burning. This has also resulted in billions of dollars' worth of damages and losses. Forest fires become a problem every year during the annual dry season, when fires are lit to clear and/or prepare land for agriculture. The smoke from the forest fires creates massive haze across Indonesia and neighboring countries such as Singapore and Malaysia. Fires occur throughout Indonesia and on all type of soils, but fires on peat-lands are of particular concern as they cause up to 90% of the haze, releasing three to six time more particulate matter than fires on other types of soil. Peat-lands are concentrated in lowland areas of Sumatra, Kalimantan and Papua, where the worst impacts of the fires and haze have been felt.

e. Impacts of Indonesia's Forest Fires

Forest Fires and resulting haze have caused Indonesian and neighboring countries significant economic, social and environmental costs as follows:

1). Economic Costs

Early estimates of the total economic costs of the forest fires of 2015 in Indonesia alone exceed US \$16 billion. This estimate includes losses to agriculture, forestry, transport, trade, industry, tourism, and other sectors. Some of these costs are direct damage and losses to crops, forests, houses and infrastructure, as well as the cost of responding to the fires. Many of the economic losses result from the disruption of air, land and sea transportation due to the haze. These damages and losses are expected to have serious impact on the economic growth rate of affected provinces and the government's efforts to reduce poverty in the hardest-hit regions, such as Central Kalimantan.

2). Social Costs and Human Suffering

Air quality during high burning periods in villages near the fires regularly exceed the maximum level of 1000 on the international Pollutant Standard Index (PSI). The toxic smoke causes widespread respiratory, eye, and skin ailments and is especially hazardous for the very young and the elderly; the toxic air they breathe include carbon dioxide, cyanide, and ammonium. The long-term health impacts are not yet known but are expected to be highly significant. Businesses and schools close due to the haze, crippling many low-income families and prompting them to fall back into poverty. In 2015, approximately 5 million students have been impacted by school closures.

3). Environmental Costs

With regards to environmental cost, in 2015, more than 2.6 million hectares of forest, peat, and other land have burned. Burned peat areas can be restored, but short-term impact include the loss of timber and non-timber forest products, and the loss of habitat for pollinators, wildlife, and grazing lands. While not yet fully analyzed, the costs related to biodiversity may exceed US \$295 million for 2015. The long-term impact on wildlife and biodiversity is also not fully known, but thousands of hectares of habitat for orangutans and other endangered species have been destroyed. In terms of global impact, forest and peat fires are a major source of greenhouse gas (GHG) emissions. In October 2015, daily emissions from Indonesia's fires in exceeded the emissions from the entire US economy – that is more than 15.95 million tons of CO₂ emissions per day. If Indonesia could stop the fires it would meet its stated target to reduce GHG emissions by 29% by the year 2030.

f. Flight Cancellation

Haze resulting from forest fires on Indonesia's Sumatra Island is disrupting flights at a number of local airports and fouling air quality as far away as Singapore and Malaysia. At least six airlines canceled flights from Sultan Thaha Airport in Jambi, after all flights there were cancelled, no flights were operating morning at Sultan Syarif Kasim II Airport in Riau province. The haze, caused by farmers who burn forests to clear their land for agriculture, is an annual occurrence that sends haze wafting northward to Singapore and Malaysia. The booth governments have complained to Indonesia, and Singaporean legislators passed a law allowing regulators to prosecute companies involved in illegal forest burning.

The haze can send air quality in Singapore and Malaysia into hazardous territory, defined as a reading above 100 on the three-hour Pollutant Standards Index (PSI) reading in Singapore was 86, down from 121 Monday evening and far below the record of 401 set in June 2013. Flights were operating as normal from Singapore's Changi and Seletar airports. Visibility in the morning was as little as 300 meters at Sultan Mahmud Badaruddin II airport in Palembang in the southern part of Sumatra, and was 500 meters in Riau. Air carriers such as Garuda Indonesia, Sriwijaya Air, Lion Air and Citilink have cancelled all flights to and from Jambi.

The fires are exacerbated by the local dry season. Indonesian authorities warned last week that haze will be worse than in previous years, the Bernama news agency reported. Indonesian President Joko Widodo visited Sumatra to survey the government's response to the problem. Malaysia's natural resources minister is due to visit soon to discuss possible solutions with his Indonesian counterpart.

g. State Emergency

Across the region Indonesia's haze crisis has been causing the schools in neighboring such as Singapore, Malaysia have been shut down, flights have grounded, events cancelled and Indonesian products boycotted, as millions try to avoid the intense smoke and six Indonesian provinces have declared a state of emergency. As the Indonesian Council of Ulema has held mass prayers for rain.

h. Foreign Assistance

The administration of President Joko Widodo has deployed 30 aircraft and 22,000 troops to fight the fires on the ground, as well as stationed several warships off Kalimantan, on standby to evacuate victims if required. Malaysia, Singapore, Australia and Japan have also sent assistance, however, environmentalists have warned that the measures, a few helicopters, water bombers and face masks, are far from sufficient. With regards to aircraft bomber, the Russian Beriev BE-200 water bomber drops its payload over a fire in Ogan Komering Ilir, South Sumatra.

VII. AIRCRAFT'S BOMBING WATER TO FIGHT FOREST FIRES

At least three of the ten ASEAN Countries have seriously affected by the haze as a result of forest fires from Indonesia such as Indonesia, Malaysia and Singapore. It has been reported that an Indonesian forest fires had generated around 600 million tons of GHG emission, an amount described as "roughly equivalent to Germany' entire annual out-put. The 2015 haze crisis could become the worst one recorded in the region, possibly outstripping the 1997 crisis.⁴⁶ For the purpose to fight the haze as a result of forest fires from Indonesia,

⁴⁶ Dr Gunawan Djajaputra, Dr Ahmad Redi and Dr.K.Martono., *The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*. Vol.9(7) IOSR-JAC 9-10(July 2016).

several States such as Australia, Canada, Malaysia, Singapore and Russia send aircraft's bombing water as follows:

a. Australia

On 12 October 2015, Australia's L-100 Hercules aircraft arrive at Sumatra. Such aircraft operates for five days in South Sumatra as it will be needed to fight fires in New South Wales,⁴⁷ On 15 October 2015, a Lockheed L 100-30 Hercules aircraft of the Australian government landed in Sultan Mahmud Badaruddin II Airport in Palembang during preparations before being deployed to extinguish forest fires.⁴⁸

b. Canada

Canada sent Canadian-made CL-215 which smaller than Russian-made aircraft, Beriev Be-200s still packs a punch in terms of its flight range. Indonesia believes these bombers can be game-change in its fight against forest fires raging in Kalimantan and Sumatra and had initially wanted Singapore and Malaysia's help to acquire them. These amphibious aircraft can fly then land on a river, take or sea to scoop up a very large amount of water and then take-off again to douse fires over an area of between 1 ha to 1.6 ha. So, with just one-strike fires are gone.⁴⁹ Those aircraft have a solid track record in fire-fighting operation across the Europe and North America.⁵⁰

c. Malaysia

After the meeting with Indonesian President Jokowi in Jakarta, Malaysian Prime Minister Najib Razak consider the haze a serious issue as it's burden to Malaysians and Indonesian, then Malaysia prepared to increase their assistance in dousing the fires. Malaysia dispatches one Bombardier amphibious aircraft, one Hercules C-130 aircraft and a survey helicopter. The Bombardier amphibious aircraft uses a "water bombing" technique capable of putting out a fire the size of a football field. For the next five days, the Bombing CL 415 from Malaysia's Maritime Enforcement Agency (MMEA) operated seven hours a day to put out the fires burning up large swathes of forest in South Sumatra, whilst the Dauphin Helicopter will act as a fire spotter.⁵¹

Another C-130 from Malaysia's Air Force ferrying logistics to South Sumatra where the 25-member team be stationed for a week. The week-long operation is expected to cost the Malaysian government up to 1.7 million ringgit or more than US\$ 400,000.⁵² In relation to operate an aircraft bombing water, the South Sumatra governor Alex Noerdin apologized for the haze crisis in the area, acknowledging that he is most responsible for the haze situation,⁵³ however, Mr Alex Noerdin said that a change in wind directions contributed to the crisis, as smoke is also blown from Kalimantan to South Sumatra. The authorities in South Sumatra have done all they can to put out the fires, with help from the army, police and the National Disaster Management Agency (NDMA). All parties involved should work together to extinguish the fires.⁵⁴

d. Singapore

⁴⁷ Sutopo Purwo Nugroho, BNPB spokesman; See Dr Gunawan Djajaputra, Dr Ahmad Redi and Dr.K.Martono., *The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*. Vol.9(7) IOSR-JAC 11(July 2016).

⁴⁸ Dr Gunawan Djajaputra, Dr Ahmad Redi and Dr.K.Martono., *The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*. Vol.9(7) IOSR-JAC 11(July 2016).

⁴⁹ Sutopo Purwo Nugroho, Indonesian Disaster Management Agency (BNPB); See Wahyudi Soeriaatmadja Indonesia Correspondent in Jakarta and Shamon Teoh Malaysia Correspondent in Kuala Lumpur, On 5 October 2015.

⁵⁰ Dr Gunawan Djajaputra, Dr Ahmad Redi and Dr.K.Martono., *The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*. Vol.9(7) IOSR-JAC 11(July 2016).

⁵¹ Dr Gunawan Djajaputra, Dr Ahmad Redi and Dr.K.Martono., *The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*. Vol.9(7) IOSR-JAC 11(July 2016).

⁵² Hishammuddin Hussein, Malaysian Defense Minister (MDM) at the Subang Military air base.

⁵³ Detiknews.com reported.

⁵⁴ Dr Gunawan Djajaputra, Dr Ahmad Redi and Dr.K.Martono., *The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia*. Vol.9(7) IOSR-JAC 11(July 2016).

Since 2005 Singapore consistently offered to Indonesia to send aircraft's bombing water to fight the forest fires, however, previously Indonesia rejected the offered by stating that Indonesia had enough resources to deal with the crisis.⁵⁵ In October 2015, the Indonesian National Board for Disaster Management (BNPB) request help from Singapore to secure bigger aerial fire-fighting aircraft for Indonesia. Singapore's Ministry of Foreign Affair (SMFA) response the request then was offering Singapore's assistance package included a Singapore Civil Defense Force (SCDF), fire fighting's assistance team, a C-130 aircraft for cloud-seeding and Chinook Helicopter equipped with a water bucket for aerial fire-fighting.⁵⁶ Officials are adding to 25,000 personnel that Indonesia has deployed to little effect. In Palangkaraya and Sumatra were still experiencing a very high PSI, aircraft operation, fire-fighting helicopters were unable to water-bomb certain areas due to very low visibility.

e. Russia

Russia is also sending two amphibious water-bombing planes to help Indonesia to fight forest fires that have spread a "haze" over neighboring countries such as Singapore, Malaysia and the Philippines as well. According to the National Disaster Mitigation Agency (NDMA), the Russian-made aircraft the Beriev Be-200s were scheduled to arrive in Palembang. The planes can scoop 12,000 liters of water from rivers, lakes or the sea and dump it over the fire. Russia is taking over from Malaysia and Australia, which have ended their five-day missions. Russian-made Beriev-200s water bombers were involved one of them had arrived on 21 October 2015. The Russian-made Beriev Be-200s carry out up to 37,200 kg of water and fly up to 3,850 km without refueling.⁵⁷

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