

The Civil Aviation, Climate Change Reduction and Legal Aspects of Forest Fires in Indonesia

Dr Gunawan Djajaputra,¹ Dr Ahmad Redi² and Dr K.Martono³

Abstract: This article describes general review such as introduction and historical background; legal ground such as Indonesian Constitution of 1945, Act Number 6 Year 1994, Act Number 23 Year 1997, Act Number 17 Year 2004, Act Number 25 Year 2004, Act Number 1 Year 2009, Act Number 32 Year 2009 and Presidential Regulation Number 46 Year 2008; action to be taken to reduce climate change in the international as well as national level such as membership of UNFCCC, commits to support ICAO's recommendation, environmental measure project (EMP), cooperation with IATA and other agencies, discussion with Switzerland related to climate change, such as the policy approach to climate change, socialization and coordination of a national action plan, eco-friendly airport, alternative fuel for aircraft operation, sustainable air transport and aviation alternative fuels, the emission trading scheme; establishment of national committee on climate change, aviation biofuels and renewable energy at the airport; and two kinds of legal aspect such as liability regime and responsibility regime related to dispute arrangement to achieve sustainability development.

Keywords: civil aviation, climate change and legal aspect of forest fires.

I. Introduction

Indonesia is the world's largest archipelago State. It 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 international destinations as well. 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 development in Indonesia. In addition, air transportation also provides for rapid, efficient and affordable connections to support national logistic flow of goods, including when necessary government missions for disaster relief. However, sustainable development of air transport and aviation industry shall be considered and consistently keep an optimum balance between economic, social and global **environmental factors** (*emphasize added*).

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 Green House 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 2011.⁴ It 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.

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- induce 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

1 Lecturer, Law Faculty, the University of Tarumanagara

2 Dr. Ahmad Redi.,S.H.,M.H Graduate Study and PhD (Indonesian University). Previously was civil servant work for the State Secretary Minister, dealing with, among others, UNDP' expert consultant, prepare mineral coal act. Dr Ahamd Redfi also writes several journal and book related to his specialist and lecturer in the University of Tarumanagara.

3 Prof.Dr.H.K.Martono, S.H.(Indonesian University),LL.M (Mc Gill), PhD (Diponegoro University) Previously served as the chief of the legal division of the Directorate General of Civil Aviation, at Indonesia's Ministry of Communications. He has written extensively about aviation law and regulations in Indonesia and was the parliamentary resource person for when Indonesia was drafting the Civil Aviation Act of 2009.Prof.Dr.H.K.Martono serves as lecturer at the University of Tarumanagara (UNTAR), the Islamic University of Jakarta (UID) and Suryadarma University (UNSUR).

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

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. WWF's review shows that increased rainfall during wet time of the year may lead to high flood risk, such as the Garut, Sukabumi, Cirebon and Bandung cities (West Java) 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 sever 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 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, all 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 National Disaster Prevention Agency (BPBN) join together to reduce climate change in Indonesia.

III. Legal Ground of Climate Change

In Indonesia, climate change regulated by Indonesian Constitution of 1945, Act Number 6 Year 1994,⁵ Act Number 23 Year 1997,⁶ Act Number 17 Year 2004,⁷ Act Number 25 Year 2004,⁸ Act Number 1 Year 2009,⁹ Act Number 32 Year 2009¹⁰ and Presidential Regulation Number 46 Year 2008,¹¹ as follows:

a. Indonesian Constitutional Law of 1945

With regards to environmental sustainability development, Indonesian Constitution Law of 1945 provides that a good and healthy environmental shall be come the fundamental right to every citizen of Indonesia, for that 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. With regards 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 goods and healthy living environment as part of the overall protection of the ecosystem, it shall be necessary to issued an Act to enhance public welfares and achieve happiness of life based on the Pancasila philosophy, 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.¹²

b. Act No.6 Year 1994

5Act 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.

6 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.

7 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.

8 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.

9 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.

10 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).

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

12 Article 33

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. It is the 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 1994.¹³ It stipulates the right and obligation of the State. One of the obligation is to communicate actions taken to mitigate climate change. It is the reason, the Minister of Environmental (MOE) established the National Committee on Climate Change (NCCC) as described in the next description.

c. Act Number 23 Year 1997

Act No.23 Year 1997¹⁴ 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, regulated in Article 9 of Act No.23 Year 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 account 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 MOE of the ROI.¹⁵

d. Act Number 17 Year 2004

The UNFCCC was adopted at the United Nations Headquarters, New York on the 9 May 1992. In accordance with Article 20, it was opened 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, 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 UNFCCC¹⁶

e. Act Number 1 Year 2009

Act number 1 Year 2009 regulates civil aviation. It regulates the promotions of air transport development and to ensure Indonesia's air transportation sector can support national economic 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.¹⁷ With regards environmental, Civil Action Act of 1 year 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.

13 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).*)

14 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..... (19 September 1997)

15 Article 9 of MOE

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

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

Airport business entity or airport operation unit shall be obligated to implement environmental management and monitoring.¹⁸

f. Act No.32 Year 2009

Act Number 32 Year 2009¹⁹ amended Act Number 23 Year 1997,²⁰ 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.

g. 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,²¹ 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 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). Members 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.

**IV.Actions Have Been Taken To Reduce Climate Change
In Indonesia**

1. International Level

The action to be taken to reduce climate change in the international level are membership of UNFCCC; commits to support ICAO's recommendation; environmental measure project (EMP); cooperation with IATA and other agencies; discussion with Switzerland Related to Climate Change as follows :

a. Membership of UNFCCC

18 Article 260

19 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).

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

21.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.

On August 1, 1994, Indonesia ratified UNFCCC. The documents of ratification has been submitted to the Secretary of the United Nations, consequently Indonesia is a Party of the UNFCCC which imply that Indonesia is bound to the rights and obligations, stipulated in the Convention. One of the obligations is to communicate actions taken to mitigate. It is realized that the global warming is a real threat to human welfare in many ways.

b. Commits to Support ICAO's Recommendation

Indonesia commits to support ICAO's suggestion for States to develop and provide to ICAO an Action Plan to detail initiatives to be undertaken to manage aviation's impact on climate change as well as to provide annual updates on traffic data and fuel usage. Indonesia will investigate the viability of alternate means of transport such as rail and buses as alternatives to flight. However, alternate forms of transport come with high infrastructure costs, availability of land for acquisition, practical limitations of being an archipelago and expectations from the community. For Indonesia, the continual increasing use of aviation for domestic travel is a reality with no real short-term alternatives. International air transport remains outside of the Kyoto Protocol while domestic aviation emissions are included in country GHG emission targets. In 2010, Indonesia had some 500,000 domestic Regular Public Transport movements and these are expected to double by 2020. Hence, Indonesia supports a proactive program of change to limit or reduce the emissions of GHG emission from aviation working through ICAO and with Indonesian domestic stakeholders and its regional neighbors.

Indonesia also announced that by 2020 will reduce GHG emission by 26% from Business as Usual (BU) and by 41 if supported.²² Transport is the main sector where growth in GHG emissions is forecasted over the next 10 years. Currently transport emits only 3% of all GHG emission but consumes 52% of all oil. The domestic aviation sector continues to grow and be responsible for an increasing amount of GHG emission. This growth has both environmental and economic impacts that need to be managed. Indonesia, as an archipelago nation of 17,000 Islands relies on transport for economic, social and others. Management of aviation's impact on climate change must be conducted in a way that balances the needs of Indonesian people for a safe, regular and efficient transport services and the responsibilities we all have in protecting Indonesian environment for today.

c. Environmental Measure Project (EMP)

On 27 March 2013, the MOT of the ROI jointly with ICAO's Technical Co-operation Bureau (ICAO-TCB) to undertake launching a large-scale Environmental Measure Project (EMP). The purpose of EMP project such as master plan for Indonesian legislative improvements on emission, green flights and green airports operation program more efficient airspace, design utilization performance based on navigation guidelines, advice on appropriate market based measures; initiatives relating to alternative fuels; and the development of a comprehensive emissions inventory. In this event, Raymond Benjamin, ICAO's Secretary General, underscored that the initiative is part of the Organization's efforts to support member States towards mitigating international aviation carbon emissions. The DGCA work directly with ICAO-TCB in developing the project.

d. Cooperation with IATA and Other Agencies

The ROI has also closely cooperated with the IATA through participating in capacity building activities and technical assessments. In this connection, IATA have presented several joint working papers. In addition, the DGCA of the MOT has established cooperation with aircraft manufacturers such as the Airbus Company which is already giving technical support to Indonesia in implementing operational improvements and PBN, and in the field of Sustainable Alternative Fuels (SAF). Indonesia considers cooperation with other global partners a key support for the successful achievement of its State Action Plan (SAP) and significant progress has been achieved, thanks to that cooperation. In addition, on 23 October 2015, Indonesia also signed an agreement with the United States of America Federal Aviation Administration (US-FAA) regarding "the Promotion of Sustainable Aviation Alternative Fuels and Renewable Energy (PSAAFRE)." The purpose of an agreement is to promote developing and using sustainable alternative fuels for aviation and additional environmental collaboration between the two nations. The DGAC considers that a key international organization is required. In addition, the role of stakeholders and in particular of the aircraft operators is essential for the success of the

²² The 38th General Assembly Session; This program does not influenced by elected President of Donald Trump, see Kompas Daily dated 13 November 2016.

Action Plan. For that reason, the DGCA of the MOT has involved from the very beginning some of its main national carriers in its drafting and implementation.

e. Discussion with Switzerland Related to Climate Change

During the meeting between Doris Leuthard, Federal Councillor of Switzerland and Rizal Ramli emphasized the challenges facing Indonesia is reducing GHG emissions. These challenges represent an opportunity for developing cooperation and economic relations between Indonesia and Switzerland. In addition, the head of the Federal Department of the Environment, Transport, Energy and Communications (DETEC) also held talks with Sofyan Djalil as well as with Siti Nurbaya Bakar, The numerous functions of forests in the context of the combat against climate change and the preservation of biodiversity were the main focus of the talks with these two ministers. During her visit to Jakarta, Doris Leuthard also met with Le Luong Minh, Secretary-General of ASEAN. The meeting provided an opportunity to exchange views, notably concerning the implementation of the climate agreement that was adopted in Paris, and problems associated with infrastructure. Federal Councillor Doris Leuthard's program included several visits such as the Indonesian Institute of Sciences and the Centre for Meteorology and Climate, which is a participating partner in an international project aimed at monitoring and analyzing the consequences of climate change. This project is being coordinated by Swiss Meteorology. Federal Councillor Leuthard's visit was rounded off with a presentation of Indonesian projects relating to renewable energy, plus visits to a factory of the ABB Group and to the Indonesian national airline, Garuda Indonesia. The head of DETEC is being accompanied by a Swiss business delegation comprising representatives from the clean-tech and transport sectors.

2. National Level

The action to be taken to reduce climate change in the national level are the policy approach to climate change; socialization and coordination of a national action plan (NAP); eco-friendly airport; alternative fuel for aircraft operation (FAO); sustainable air transport and aviation alternative fuels; the emission trading scheme; establishment of national committee on climate change (NCCC); aviation biofuels and renewable energy at the airport as follows:

a. Policy Approach to Climate Change

The policy approach to climate change is to reduce the greenhouse effect, as shown in the SAP which Reduce the Greenhouse Effect (RGH). In addition, policy approach to climate change also based on Act Number 6 Year 1994, Act Number 17 Year 2004 and Act Number 32 Year 2009. After Indonesia has ratified of all conventions, the MOE has the obligation to identify GHG to formulate the policy on climate change.

b. Socialization and Coordination of a National Action Plan (NAP)

In August 2010, Indonesia conducted a seminar on Aviation and Climate Change to commence the socialization and coordination of a National Action Plan (NAP). The speakers from ICAO, IATA, airlines' business entities, government and academician. The seminar provided information on what Indonesia can do to help and participate in reducing aviation emissions. As a result of the seminar, the regulators, airlines' business entities, service providers, research agencies, academician and regional partners work together to determine an appropriate action plan that minimizes aviation's impact on climate change. A draft of NAP has been established to help in the discussions and to raise a common understanding into the possible initiatives that are available. The draft of NAP uses the basket of measures to provide in the final report of the Group on International Aviation and Climate Change (GIACC) and covers aircraft modernization; improved engine technology; introduction of most efficient flight routes and flight paths; coordination of ground based infrastructure projects to better use available aircraft technology; operational efficiencies; eco-airports; and market-based measures.

c. Eco-Friendly Airport

For the purpose to implement the policy on climate change, the ROI issued a Presidential Decree No.61 of 2011, and the Ministerial Decree No.KP 201 of 2013. As a national policy framework, it provides for GHG emission reduction and obligation for the energy and transport sector is 26% cumulative up to the year 2020, and 41% with contribution of international air transport. In addition, Indonesia has put in place new regulations concerning eco-friendly airport which are mandatory to be implemented in all Indonesian airports with reference

to the NAP to reduce GHG emission. Airports operator are encouraged to use renewable sources of energy such as solar cells and has also required more effective and efficient Air Traffic Management (ATM) measures. Among these are operational measures such as reducing the taxi and holding time and the use of PBN which will in return decrease gaseous emissions.

d. Alternative Fuel for Aircraft Operation (FAO).

In line with the commitment of the President of the ROI with ICAO and others, the DGAC of the MOT, actively participate and contribute to the global initiative of mitigation of climate change and reduction of GHG emission by 26% accumulative up to the year 2020 with its own activities on the basis of 2005 GHG emissions. These measure are considered with reference to the ICAO global policy and its guidelines. In this regard, Indonesia very much appreciates the ongoing of the ICAO Council to forge a consensus among ICAO' member States including a basket of measures and related action. This ongoing work is encouraging and Indonesia is prepared to fully support the emerging path towards consensus outlined by the ICAO-Council. Indonesia has initiated policy, strategy and implementation measure on alternative FAO such as domestic and/or international flights, for the period of 2016-2020. In the connection of alternative FAO, the DGAC of the MOT, has taken several policy to implement measures in line with the ICAO's global policy and its guidance to contribute the global initiative of mitigation of climate change and reduce GHG emission by accumulative up to the year 2020. Regarding the global initiatives of mitigation of climate change and reduction of GHG emission, Indonesia is fully prepared to support the emerging path towards consensus outlined by the ICAO Council.

e. Sustainable Air Transport and Aviation Alternative Fuels

It is worthwhile to note here, that in the framework to implement the above mentioned policy, on 23 October 2015, the ROI signed Memorandum of Understanding (MOU) with the USA regarding on Sustainable Air Transportation and Aviation Alternative Fuels (SATAAF). This MOU build on effort to protect the environment, reduce GHG emissions worldwide and provide Indonesian's nation and the broader global community with more sustainable energy resources. It builds on mutual interest and challenges for the USA and the ROI partnership, including the environment. The MOU's primary focus areas are research and development of alternative aviation fuel; energy conservation; environmental protection and sustainable aviation growth; critical information and personnel exchange; strengthened capacity-building; and the sharing of best practices, with reference to the agenda item 17 of the 38th General Assembly Meeting conducted in Montreal on 2013 regarding environmental protection.

f. The Emission Trading Scheme

The Clean Development Mechanism (CDM) is one of the mechanism under the Kyoto Protocol which will expire in 2020. Based on the Presidential Regulation Number 6 Year 2011, Indonesia specifies various activities which may directly or indirectly reduce the GHG effect in agriculture, energy, transportation, forestry, peat-land area, industrial areas, and waste management, as well as hot to monitor and report GHG emissions. In this regard, Indonesia has implemented the CDM which generates emission credits through projects that reduce GHG emission in various sectors. In addition, the government of the ROI also has a program called the Reducing Emission for Deforestation and Forest Degradation Plus (REDD+) to gain momentum in Indonesia, particularly after the ROI sign a letter of intent with Norway in 2010. In 2015, Presidential Regulation No.15 Year 2015 was issued, after BP REDD+ and the National Council on Climate Change (NCCC) is integrated into the and Forestry. Various CDM-related regulations have been issued for the relevant sectors, such as energy, power-generation and forestry. For example, Ministry of Forestry Regulation (MFR) No.P.14/Menhut-II/2004 governs the procedures for a forestation and reforestation within the framework of the CDM. MOE Decree No. 206 of 2005 set up a National Commission on the Clean Development Mechanism (NCCDM) which main role is to approve proposed CDM projects if they meet the national sustainable development criteria and to monitor and evaluate the progress of each project.

g. Establishment of National Committee on Climate Change (NCCC)

The main sources of CO₂ emission in Indonesia are energy and forestry sectors. These two sectors contributed for almost 98 per cent of total CO₂ emission. The CO₂ emission from forestry sector was resulted mainly from biomass burning during forest and grass-land conversion activities. To achieve its commitment to global effort to cope with climate change, Indonesia established the National Committee on Climate Change (NCCC). Its consist of representatives from various government agencies, non-government organizations,

academician, and business communities to combat global warming. The NCCC has identified three principles as the foundation for Indonesia in developing national response strategy to address climate change. For the purpose of formulating and broader policy, the NCCC collects several data such as energy, transportation, agriculture, forestry, public health, coastal resources and waste which contribute significantly GHG emission in Indonesia.

To achieve the goal to prevent the GHG emission steps have been taken to gradual removal of energy market distortions, such as fuel and electricity subsidy; promote use and development of renewable energy through incentive such as breaks for investors on the technology; encouraging research; encourage public adoption of energy conservation and efficiency, by adopting techniques such as public campaigns, at the same time using economic incentives to further promote energy efficiency products and energy conservation practices; promote clean and efficient energy use for industry and commercial sectors. Various technologies, for example, clean production, is available to help the industry and commercial sectors become more efficient. Such technologies have been promoted by the government; restructure the price for various energy sources according to the emission and externalities that the energy source emits. In addition, step has been taken to promote use of public transportation by increasing the capacity and comfort of the public transportation system and a shift in the transportation policy towards use of electric trains and road; Air Traffic Control System (ATCS) for regularly congested areas which will allow road users to realize the value of that public good; control vehicle emission and promote use of clean fuels through providing incentives for car users who would like to convert their cars to enable them to utilize better and cleaner of fuel.

h. Aviation Biofuels and Renewable Energy at the Airport

In December 2013, the DGAC of the MOT and Directorate General of Renewable Energy and Energy Conservation (EBTKEC) signed a MOU to pursue the use of aviation biofuels and renewable energy at airports. Based on the Ministry of Energy and Mineral Resources (MEMR) Decree No. 25 Year 2013, the use of bio-jet fuel has been mandated on a national level. This requires 2% bio jet fuel blending in 2016, 3% by 2020, and 5% by 2025. Due to national circumstances, the Task Force (TF) identified that the 2016 goal will not be achieved. However, Indonesia oil producer has shown their commitment to start production by late 2018, with a production capacity of 257,000 kl/year.

Based on the DGAC Decree No.517K/73/DJE/2014 was established Aviation Biofuel and Renewable Energy Task Force (ABRETF) as one of supporting elements in executing Indonesia's NAP to reduce GHG emission from the aviation sector. ABRETF aims to reduce these emissions through utilization of sustainable alternative fuels and renewable energy. The mid-term goal is to reinforce Indonesian utilization of bio-jet fuel by 2018. Based on the MEMR Decree No. 25 Year 2013, the use of bio-jet fuel has been mandated on a national level. This requires 2% bio jet fuel blending in 2016, 3% by 2020, and 5% by 2025. Due to national circumstances, the Task Force identified that the 2016 goal will not be achieved. However, Indonesia oil producer has shown their commitment to start production by late 2018, with a production capacity of 257,000 kl/year. Partnership of ABRETF consisted MOT, MEMR, Ministry of Finance, National Development Planning Agency (NDPA), Airport Operators, Air Navigation Providers, airlines business entities such as Garuda Indonesia, Indonesia Air Asia, IATA, Indonesian National Air Carriers Association (INACA), Pertamina, UOP Honeywell, APROBI, Bandung Institute of Technology, University of Indonesia (UI), Padjadjaran University (UNPAD), Ikatan Ahli Bio Energy Indonesia (IKABI).

The achievements of ABRETF are establishment of Indonesian ABRETF (August 2014), 1st ABRETF workshop : "Indonesia Initiatives on Energy Farming & Sustainable Aviation Biofuel and the ISPO/RSPO Standard (August 2014); establishment of the Aviation Biofuels and Renewable Energy Task Force (ABRETF) (August 2014). This group consists of four Sub Task Forces (TF) working on: formulation of policy, regulation and capacity building program; research and development; testing and certification; commercial, risk analysis and sustainability, ABRETF Secretariat office at Pertamina building is ready to be used (August 2014), start of ICAO-TCB support program (October 2014), kick off meeting regarding standardization of aviation biofuels (December 2014), Indonesia's national oil company and its partners completed a feasible study (January 2015) and ABRETF to collaborate with national stakeholders, held the 2nd International Green Aviation Conference (IGAC) in Denpasar, Bali (August 2015), Indonesia's DGCA and the U.S. FAA signed an MOU to promote the use of sustainable alternative aviation fuels and additional environmental collaboration between the two countries (October 2015). It is worthwhile to note here that since October 2014, the ICAO Technical Cooperation Bureau (ICAO-TCB) has supported Indonesia ABRETF through the MSA Annex 5 INS13801 project.

V.Fight To Haze As Result Of Forest Fires In Indonesia

1. Introduction

An air pollution crisis affecting several countries in Southeast Asia such as, among others, Brunei, Cambodia, Malaysia, Indonesia, Thailand and the Philippines. The haze affected Indonesia from early July to the end of October 2015 turning into an international problem for other countries. It was the latest occurrence of the Southeast Asian haze a long-term issue that occurs in varying intensity during every dry season in the region. It was caused by forest fires resulting from illegal slash-and-burn practices, principally on the Indonesian islands of Sumatra, Kalimantan, Sulawesi and others Island such as Papua, Maluku, Nusa Tenggara Islands, Java which then spread quickly in the dry season. On 4 September 2015, the Indonesian National Board for Disaster Management Agency (INBDMA) declared that at least six Indonesian provinces such as Riau Jambi, Central, West and South Kalimantan, Palembang, Padang, Medan had declared a state of emergency due to the haze. In the province of Central Kalimantan, the pollutant Standard Index (PSI) hit a record high of 1801. The Indonesian government estimated that the haze would cost it between 300 and 475 trillion rupiah (up to US\$35 billion) to mitigate. School closures due to the haze were implemented in Indonesia, Malaysia and Singapore.²³

2. Background of the Haze

Indonesia has struggled for years to fight the forest fires, especially in the Islands of Sumatra and Kalimantan. The fires are caused by firms and farmers engaging in illegal slash-and-burn practices as a relatively inexpensive means to clear their land of unwanted vegetation and peat. Sumatra and Kalimantan possess large areas of peat-land, which is highly combustible during dry season. Peat, which is made up of layers of dead vegetation and other organic matter, contributed heavily to carbon emissions because of the substance's high density and carbon content. The haze was particularly severe in 2015 due to the El Niño phenomenon, which caused drier conditions, causing the fires to spread more. Environmental rights activists provides that palm oil activities were still involved in the burning. Firstly, land clearing by burning is cheap and is more often chosen by companies than any other land-clearing method. Secondly, most companies want to avoid spending money on reforestation. Any company which obtains a license for forest lands must replant them from a fund provided by the government. Most companies do not replant, and to avoid detection, they burn the land. Thirdly, the companies revitalize palm plantations by cutting or burning old palm trees that are no longer productive. The regulation stipulates that such burning must be done on a bed of concrete to avoid spreading the fire, but to reduce costs, most companies do not do this.

3. Countries Affected by Haze

At least three of the ten ASEAN countries have seriously affected by the haze as a result of forest fires such as Indonesia, Malaysia and Singapore. All the haze affected the above-mentioned suspected as a result of the forest fires from Indonesia. 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's entire annual out-put. The 2015 haze crisis could become the worst one recorded in the region, possibly outstripping the 1997 crisis, which cost an estimated nine billion US Dollars. Such states affected by the haze as follows :

a. Indonesia

The 2015 haze affected Indonesia from at least early July, such as Sumatra Island, Kalimantan, Java and others islands as follows:

1). Sumatra Island.

The 2015 haze affected Indonesia from at least early July, with the municipality of Dumai reporting haze beginning late June 2015. By 15 September 2015, around 25,834 were suffering from respiratory infection, 538 having pneumonia, 2,246 suffering from skin irritation, and 1,656 suffering from eye irritation. On 7 October 2015, more than 140,000 Indonesians have reported respiratory illnesses in the haze-affected areas. The haze blanketing the whole of Sumatra island hampered tourism, aviation and maritime activities as well as the Indonesian economy. A state of emergency has been declared in the province of Riau, one of the worst-

23 https://en.wikipedia.org/wiki/2015_Southeast_Asian_haze, 2015 Southeast Asian haze From Wikipedia, the free encyclopedia

affected by the haze. In Pekanbaru, authorities ordered the closing of schools to prevent pupils from being exposed to the haze, and thousands were forced to flee the city. On 21 October, it was reported that the number of people with respiratory problems had risen to 78,829 in Riau alone. Many reported they suffered from dizziness and sore eyes. Most of the victims killed by the haze were students and newborn babies. A nine-year-old third-grade student died because of the smoke and the doctors and nurses who tried to save the child reported that the child's lungs were fully filled with smoke.

In Palembang, students were advised to go to school only twice a week. Sometimes they did not even go to school for a whole week due to the haze, causing wide concern among parents and government officials. At least ten companies, seven of which are foreign companies, were declared as the prime suspects for forest fires in Sumatra and Kalimantan. Two of the companies' certificates were suspended by the government. Indonesian President Joko Widodo ordered all hospitals and community health clinics to be open for 24 hours. On 20 October, there were 825 new hotspots in Sumatra, with the visibility in Riau deteriorating to 50 meters. With regards to airlines operation, around 66 flights in Pekanbaru were cancelled due to poor visibility.

2). Kalimantan Island.

On 22 September 2015, the Indonesian Meteorology, Climatology and Geophysics Agency (IMCGA), which considers a pollution index over 350 "hazardous", reported that the index in Palangkaraya hit 1,986 and the PSI for Pontianak reached 706. These readings surpassed quintuple and double the official "hazardous" level, respectively. In late September, the province of Palangkaraya measured a record high of 2,300 on Indonesia's PSI. On 2 October 2015 was still experiencing a very high PSI of 1,801. With regards to aircraft operation, firefighting helicopters were unable to water-bomb certain areas due to very low visibility.

3). Others' Islands

Other Islands such as Papua, Maluku, Nusa Tenggara Islands, the burning hotspots, increasing sharply in number, had even spread to Indonesia's Papua Island. The *Terra Aqua* satellite also discovered 63 hotspots in Maluku 1,545 hotspots were detected in Indonesia, although the exact number couldn't be ascertained as the haze covering the region was too thick. The Nusa Tenggara Islands also had hotspots: around 67 in East Nusa Tenggara and 25 in West Nusa Tenggara. In Sulawesi, around 800 hotspots were discovered by BPBD, a disaster mitigation agency. There were 57 hotspots in West Sulawesi, 151 in South Sulawesi, 361 in Central Sulawesi, 126 in Southeast Sulawesi, 47 in Gorontalo and 59 in North Sulawesi. With regards to aircraft operation, dozens of flights were cancelled in Timika, West Papua, the Moluccas Islands, Sulawesi were covered by haze. The city of Palu was covered by haze from nearby Kalimantan, causing some flight delays.

b. Malaysia

On 15 September 2015, unhealthy air pollution index (API) readings were recorded in 24 areas in the states of Sarawak with Selangor and Langkawi in Kedah being the worst hit by the haze from Indonesia as result of forest fires. The schools in four states of Sarawak, Selangor, Negeri Sembilan and Malacca together with the Federal Territories of Kuala Lumpur and Putrajaya were order to close temporary. In addition, the government announced that all states except for Kelantan, Sabah and Sarawak were to close schools again for two days. Until 20 October 2015, around 1,909,842 students from 3,029 schools in Malaysia were affected, which increased to 2,696,110 students and 4,778 schools by 22 October 2015. In addition, flights were also delayed and cancelled in the east coast of Sabah due to continuous haze from Kalimantan.

Prime Minister Najib Razak has demanded Indonesia take action against companies responsible for illegal forest fires blanketing part of Southeast Asia in smoke. Only Indonesia alone can gather evidence and convict the companies concerned, whilst Malaysian Education Mahdzir Khalid will not compromise with anything that may bring harm to Malaysian' children in school. In this regard, the Fire and Rescue Department of Sarawak has ready to assist in putting out pear fires in Pontianak. To response the forest fires from Indonesia, Malaysia's aviation and maritime sectors were put on high alert following a worsening in view of the reduced visibility caused by the above-mentioned haze. In addition, Malaysian military has also offered to help Indonesia to fight fires in both Sumatra and Kalimantan.²⁴ On 15 September 2015, both Indonesia and Malaysia started daily cloud seeding. Fourteen helicopters were deployed by Indonesian authorities to dump water on fires in Sumatra and Kalimantan, and cloud seeding aircraft were deployed to Kalimantan. In Malaysia, the cloud seeding operation was carried out for 10 days until 25 September 2015 in areas such as Kuching, Sri Aman, Kota Samarahan and Sarikei in Malaysian Borneo and Kelang Valley in peninsular Malaysia. In addition, the Indonesian government also started building retention basins to restore moisture to the peat-land in

²⁴ https://en.wikipedia.org/wiki/2015_Southeast_Asian_haze, 2015 Southeast Asian haze From Wikipedia, the free encyclopedia

Sumatra and Kalimantan. Dry peat-land, due to the dry season and also drainage for oil palm cultivation, was cited as the reason that fire spread quickly. Retention basins were built by blocking water flow in drainage canals, and the re-wetted peat-land would serve to check the fire. Firefighting efforts involved Singapore, Malaysia and Australia. Russian-made Beriev Be-200 water bombers were involved One of them had arrived at 21 October 2015.

c. Singapore

On 14 September 2015, haze condition in Singapore is very unhealthy. The PSI with reading of 223 rose to 249 before dropping back to the unhealthy range for the rest night. Thunderstorms and rain had improved the situation in the afternoon of the 15th and 16th, whilst a change in prevailing wind direction improved the situation from the 20th and the 22nd. The haze deteriorated again on the evening of the 23rd and the morning of the 24th as denser haze from Sumatra was blown into the country by prevailing southerly winds. On 24 September, the PSI reading rose into the "hazardous" range for the first time in 2015 with a reading of 313. It rose further to 317 which prompted the Ministry of Education (MOE) to close all primary and secondary schools on the 25th due to the worsening haze. The haze deteriorated further during the small hours, reaching a record high for the year with a reading of 341, however PSI quickly fell back into the "moderate" range the next day. The PSI had been hovering at the unhealthy range from the late afternoon to the evening, and the MOE announced schools to reopen on 28 September 2015. Since that day, PSI levels have remained at the unhealthy range, even rising up to very unhealthy on a few occasions.

To mitigate health effects, Singapore launched legal action that could lead to massive fines against Indonesian companies blamed for farm and plantation fires spewing unhealthy levels of air pollution over the city-state. Singapore also launched its own supplies for its residents, mainly to those elderly households who are very vulnerable to the haze with the distribution of AIR+ smart masks to 29,000 elderly residents along with We Care Packs, which contain food and essential items like eye drops, vitamin C tablets, biscuits, instant noodles and canned food.

4. Aircraft's Bombing Water to Fight Forest Fire

With regards aircraft's bombing water to fight forest fires, since 2005 Singapore consistently offered to Indonesia. Previously, Indonesia rejected any Singapore offered to help Indonesia by stating that Indonesia had enough resources to deal with the crisis.²⁵ In October 2015, the Indonesian National Board for Disaster Management (BNPB) request help from Singapore, Malaysia or other countries such as Australia, Russia, Canada to secure bigger aerial fire fighting aircraft for Indonesia. Singapore's Ministry of Foreign Affairs (SMFA) response the request then was offering Singapore's assistance package included a Singapore Civil Defense Force (SDCF), fire-fighting's assistance team, a C-130 aircraft for cloud-seeding and Chinook helicopter equipped with a water bucket for aerial fire-fighting, whilst Malaysia had also offered CL-415 Bombardier that can scoop and drop 6 tons water which pours water from a hanging tank would be joined by a Lockheed L-100 Hercules Tanker with a 15 tons capacity. Officials are adding to the 25,000 personnel that Indonesia has deployed to little effect.²⁶ 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. Fire-fighting efforts involved Australia, Singapore and Malaysia. On 12 October 2015, Australia's L-100 Hercules aircraft arrive at Sumatra. This aircraft operates for five days in South Sumatra as it will be needed to fight fires in New South Wales.²⁷ On 15 October 2015, a Lockheed L100-30 Hercules aircraft of the Australian government landed in Sultan Mahmud Badaruddin II Airport in Palembang during preparations before being deployed to extinguish forest fires. Russia is also sending two amphibious water-bombing planes to help Indonesia to fight forest fires that have spread a "haze" over neighboring countries. 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 Be-200s water bombers were involved one of them had arrived on 21 Oct 2015. The Russian-made Beriev Be-200 carry out up to 37,200 kg of water and fly up to 3,850 km without refueling. Other aircraft Canadian-made CL-215 which smaller than Beriev Be-200s still packs a punch in terms of its flight range. Indonesia believes these bombers can be game-changes in its fight against forest fires raging in Kalimantan and

25 Siti Nurbaya Bakar, Indonesian Environment and Forestry Minister. See https://en.wikipedia.org/wiki/2015_Southeast_Asian_haze, 2015 Southeast Asian haze From Wikipedia, the free encyclopedia.

26 Dr Sutopo Purwo Nugroho, Indonesian Disaster Management Agency (BNBI), see Wahyudi Soeriaatmadja Indonesia Correspondent In Jakarta and Shannon Teoh Malaysia Correspondent In Kuala Lumpur, On 5 October 2015.

27 Sutopo Purwo Nugroho, BNPB spokesman.

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.²⁸ Those aircraft have a solid track record in fire-fighting operation across Europe and North America. The Republic of Singapore (ROS) Air Force does not operate the two aircraft identified by the BNBI. After a 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 is prepared to increase their assistance in dousing the fire. 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 Bombardier 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. Malaysia is the only country in Southeast.

Meanwhile, the Dauphin helicopter will act as a fire spotter. Another C-130 from Malaysia's Air Force will be ferrying logistics to South Sumatra where the 25-member team will 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\$400,000.²⁹ 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,³⁰ 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.

VI. Legal Aspect Of Forest Fires

With regards to legal aspect, there are two kinds of legal regime in the environmental climate change in Indonesia such as private law legal regime (legal liability regime) and public law regime (responsibility regime) in nature as follows:

1. Legal Liability Regime (Private Law Regime)

a. 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.³¹ 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.³² 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.³³ 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.³⁴ The Government and/or community can form environmental dispute settlement service providing agency which has a free and impartial disposition.³⁵

b. 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.

28 Dr Sutopo Purwo Nugroho, Indonesian Disaster Management Agency (BNBI), see Wahyudi Soeriaatmadja Indonesia Correspondent In Jakarta and Shannon Teoh Malaysia Correspondent In Kuala Lumpur, On 5 October 2015.

29 Hishammuddin Hussein, Malaysian Defense Minister (MDM) at the Subang military air base.

30 Detiknews.com reported
31 Act Number 23 Year 1997

32 Article 30

33 Article 31

34 Article 32

35 Article 33

c. Regime of Liability

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.³⁶ 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 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.³⁷

d. 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.³⁸

e. The right of the Community to Bring Class Action

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.³⁹ 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.⁴⁰ Procedures for the submission of legal actions in environmental problems by the community, refers to the applicable Civil Procedures Law.⁴¹

2. Legal Responsibility Regime (Public Law Regime)

a. 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

36 Article 34
37 Article 35
38 Article 36
39 Article 37
40 Article 38
41 Article 39

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.⁴²

b. Criminal Law Provisions

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;⁴³ 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;⁴⁴ any person who in violation of applicable legislative provisions of the effective legislation, because of their carelessness performs an action.⁴⁵ 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.

VII. Conclusion and Recommendation

1. Conclusion

Based on the above-mentioned description, could be concluded that Indonesia is strongly active effort to prevent and reduction of climate change in the international and national level. As far as related to regulations Indonesia has issued several to implement the commitment to the International Civil Aviation Organization (ICAO) and joint together other international organization such International Air Transportation Association (IATA).

2. Recommendation

Taking into consideration, that climate change is regularly occurs in Indonesia, the authors recommend that Indonesia consistently to effort preventing climate change in Indonesia.

42 Article 40

43 Article 42

44 Article 43

45 Article 44

Bibliography

Articles

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

Documents

- [1]. 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).*)-(State Gazette of the Republic of Indonesia Year 1994 Number 42, Supplement Gazette of the Republic of Indonesia Number 3557.
- [2]. 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.
- [4]. 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.
- [5]. 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.
- [6]. 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.
- [7]. 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).
- [8]. Presidential Regulation *Concerning National Council for Climate Change*, (Pres.Reg.No.46 Year 2008) [4 July 2008].
- [9]. Presidential Decree *Concerning National Action Plan to reduce GHG emissions (RAN-GRK)* (Pres. Decree No.61 Year 2011).

Others

- [10]. http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (down load on 1 November 2016) The 38th General Assembly Session
- [11]. ¹ https://en.wikipedia.org/wiki/2015_Southeast_Asian_haze, 2015 Southeast Asian haze From Wikipedia, the free encyclopedia
- [12]. https://en.wikipedia.org/wiki/2015_Southeast_Asian_haze, 2015 Southeast Asian haze From Wikipedia, the free encyclopedia
- [13]. See https://en.wikipedia.org/wiki/2015_Southeast_Asian_haze, 2015 Southeast Asian haze From Wikipedia, the free encyclopedia
- [14]. Dr Sutopo Purwo Nugroho, Indonesian Disaster Management Agency (BNBD), see Wahyudi Soeriaatmadja Indonesia Correspondent In Jakarta and Shannon Teoh Malaysia Correspondent In Kuala Lumpur, On 5 October 2015.
- [15]. Hishammuddin Hussein, Malaysian Defense Minister (MDM) at the Subang military air base. Detiknews.com reported