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LEGAL ASPECT OF FOREST FIRE IN INDONESIA

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Abstract

This study to examine legal aspect, why always happen and impact of forest fire in Indonesia. The conclusion are, even though there is a forestry law as regulated in Law No. 41/1999 on Forestry, as amended by Law Number 19/2004, forest fires have been repeated several large scale since the early 1980s until now. The case of Indonesia which was experiencing forest fires is a manifestation of unclear and poorly enforced policies, economic forces that push business to use fire to clear land, lack of technological alternatives, poor public participation and aggravated by climatic condition such as the extended drought. Although many policies have already been formulated and special management agencies have been established, policies implementation remain weak, coordination is poor and the current system is inefficient. Added to these factors, is the reality that government official's business leader and general public lack a sense of urgency about the fires. Fires can impede national economic performance and increase poverty at the local level. It is mostly that disaster until now will repeat/recur unless definitive steps are taken to encourage short term and long term prevention strategies. Fires cause tremendous ecological impacts such as air quality, hydrological cycle, biological diversity, natural succession, disruption of the production and decomposition of organic materials, soil, disruption in the nutrient cycle, climate regulation and carbon sink; social impact such as food security, impact on health such as death, asthma, ARI, and impact on economic such as, agriculture, forestry, health, transmigration, transportation and tourism.

Keywords: Legal Aspect, Forest Fire, Indonesia.

I. Introduction

Indonesia, country located off the coast of mainland Southeast Asian the Indian and Pacific oceans. Its islands can be grouped into the Greater Sunda Islands of Sumatra (Sumatera), Java (Jawa), the southern extent of Borneo (Kalimantan), and Celebes (Sulawesi); the Lesser Sunda Islands (Nusa Tenggara) of Bali and a chain of islands that runs eastward through Timor; the Moluccas (Maluku) between Celebes and the island of New Guinea; and the western extent of New Guinea (generally known as Papua). The capital, Jakarta, is located near the northwestern coast of Java. In the early 21st

century Indonesia was the most populous country in Southeast Asia and the fourth most populous in the world.¹

Indonesia is the largest country in Southeast Asia, with a maximum dimension from east to west of about 3,200 miles (5,100 km) and an extent from north to south of 1,100 miles (1,800 km). It shares a border with Malaysia in the northern part of Borneo and with Papua New Guinea in the centre of New Guinea. Indonesia is composed of some 17,500 islands, of which more than 7,000 are uninhabited. Almost three-fourths of Indonesia's area is embraced by Sumatra, Kalimantan, and western New Guinea; Celebes, Java, and the Moluccas account for most of the country's remaining area. Indonesia was formerly known as the Dutch East Indies (or Netherlands East Indies). Although Indonesia did not become the country's official name until the time of independence, the name was used as early as 1884 by a German geographer; it is thought to derive from the Greek *indos*, meaning "India," and *nesos*, meaning "island." After a period of occupation by the Japanese (1942–45) during World War II, Indonesia declared its independence from the Netherlands in 1945. Its struggle for independence, however, continued until 1949, when the Dutch officially recognized Indonesian sovereignty. It was not until the United Nations (UN) acknowledged the western segment of New Guinea as part of Indonesia in 1969 that the country took on its present form. The former Portuguese territory of East Timor (Timor-Leste) was incorporated into Indonesia in 1976. Following a UN-organized referendum in 1999, however, East Timor declared its independence and became fully sovereign in 2002.²

The Indonesian archipelago represents one of the most unusual areas in the world: it encompasses a major juncture of Earth's tectonic plates, spans two faunal realms, and has for millennia served as a nexus of the peoples and cultures of Oceania and mainland Asia. These factors have created a highly diverse environment and society that sometimes seem united only by susceptibility to seismic and volcanic activity, close proximity to the sea, and a moist, tropical climate. Nevertheless, a centralized government and a common language have provided Indonesia with some sense of unity. Furthermore, in keeping with its role as an economic and cultural crossroads, the country is active in

¹ Central Bureau of Statistic, 1997. "Indonesia Figure 1997", Central Bureau of Statistic, Indonesia. See also Central Bureau of Statistic, State Ministry of Population-National Family Planning Coordinating Board, Ministry of Health, and Demographic and Health Surveys Macro International Inc, 1997. "INDONESIA DEMOGRAPHIC AND HEALTH SURVEY, 1997". And also Ministry of Environment and United Nation Development Program, (1997), *Agenda 21 Indonesia, National Strategy for Sustainable Development*.

² Central Bureau of Statistic, 1997. *Ibid*.

numerous international trade and security organizations, such as ASEAN, OPEC, and the UN.³

Forest fires were first recorded in the late 19th century when Michielen (1882) conducted a survey of the region between the Kalanaman and Cempaka Rivers (now Sampit and Katingan Rivers) in central Kalimantan. He reported that forest fires had damaged a number of sites in 1887. (*Ministry of Environment and UNDP, 1998*).⁴ Forest fires were first included as part of Indonesia forest statistics in 1978/1979. The first comprehensive record of a major fire incident, however, came after the blazes that devastated east Kalimantan in 1982-83. Since that time, forest fires have been reported annually.

In fact, there are legal aspect especially criminal sanctions for forest fires as regulated in Law Number 41/1999 concerning Forestry, as amended by Law Number 19/2004, but in reality there are still forest fires. The following data shows just that.

Table (1)
Forest Fires in Indonesia 2014-2019 (ha)⁵

Year	Ha
2014	44.411,36
2015	2.611.411,44
2016	438.363,19
2017	165.483,92
2018	529.266,64
2019	1.592.010

Source: http://sipongi.menlhk.go.id/hotspot/luas_kebakaran

This study aimed to answer what is the legal aspect especially criminal sanction of forest fire in Indonesia, why Forest Fire Always Happen and what is the impact of forest fire

II. Discussions

A. The Legal Aspect of Forest Fire

In Indonesia, the legal aspects of forest fires especially criminal sanction are regulated in Law Number 41 of 1999 concerning Forestry, as amended by Law Number 19/2004. Article 50 of this law determines: (1) Everyone is prohibited from damaging

³ *Ibid.*

⁴ Ministry of Environment and UNDP, 1998. "Forest and Land Forest in Indonesia, Impacts, Factors and Evaluation", Volume I, September 1998.

⁵ http://sipongi.menlhk.go.id/hotspot/luas_kebakaran retrived Juli 15, 2020.

forest protection infrastructure and facilities. (2) Every person who is granted a business license for area utilization, business permit for service utilization the environment, business permits for utilization of timber and non-timber forest products, and harvesting permit timber and non-timber forests are prohibited from carrying out activities that cause forest damage. (3) Everyone is prohibited from:⁶

- a. do and or use and or occupy illegal forest areas;
- b. encroach on forest area;
- c. cutting down trees in the forest area with radius or distance up to:
 1. 500 (five hundred) meters from the edge of a reservoir or lake;
 2. 200 (two hundred) meters from the edge of the spring and left and Right river in swampy areas;
 3. 100 (one hundred) meters from the left and right of the river bank;
 4. 50 (fifty) meters from the left and right edge of a tributary;
 5. 2 (two) times the depth of the abyss from the abyss;
 6. 130 (one hundred thirty) times the difference between the highest pairs and lowest tide from the beach.
- d. burn down the forest;
- e. cut down trees or harvest or collect forest products in the forest without having the right or permission from the authorized official;
- f. accept, buy or sell, accept exchange, accept deposit, store or possess known forest products should be thought to originate from forest areas taken or illegally collected;
- g. carry out general or exploration or exploration activities exploitation of mining materials inside the forest area, without permission Minister;
- h. transport, control, or own forest products that are not completed together with a certificate of validity of the results Forest;
- i. pasture cattle in non-forested areas specifically appointed for this purpose by the official who authorized;
- j. carry heavy equipment and / or other common equipment or should be suspected to be used to transport forest products inside a forest area, without the permission of the authorized official;
- k. carrying tools commonly used to cut down, cutting, or splitting trees in a forest area without permit from the authorized official;

⁶ Law Number 41 of 1999 concerning Forestry, as amended by Law Number 19/2004.

- l. dispose of objects that can cause fire and damage and endanger the existence or continuity forest function in the forest area; and
- m. removing, carrying, and transporting plants and wild animals which are not protected by originating laws from the forest area without the permission of the authorized official.

Criminal sanctions that burn forests and dispose of objects that can cause fire and damage and endanger the existence or continuity of forest functions into forest areas are regulated in Article 78 paragraph (4) and paragraph (11) of Law Number 41/1999 Concerning Forestry, as amended by Law Number 19/2004. Article 78 paragraph (4) states: Anyone who for his negligence burns the forest, is threatened with a maximum imprisonment of 5 (five) years and a maximum fine a lot of Rp. 1,500,000,000.00 (one billion five hundred million rupiah). Article 78 paragraph (11) states: Anyone who deliberately discards objects that can cause a fire and damage and endanger the existence or continuity the function of the forest into the forest area, is threatened with a maximum imprisonment of 3 (three) years and a maximum fine Rp. 1,000 000,000.00 (one billion rupiah).

In addition, land burning is regulated in Law Number 32/2009 concerning Protection and Management of Environment. Article 108 determines: Everyone who burns land as referred to in Article 69 paragraph (1) letter h, is criminally convicted imprisonment for at least 3 (three) years and at most 10 (ten) years and a minimum fine Rp.3,000,000,000.00 (three billion rupiah) and a maximum of Rp 10,000,000,000 (ten billion rupiah).

B. Why Forest Fire Always Happen

Forest fires always start by one of two ways - naturally caused or human caused.

Naturally Caused

a. Climate Factors

When climatic reduce rainfall it is considered a critical factor contributing to fires on several occasion (1982-83; 1991; 1994; and 1997). In fact large fires have occurred in years with extended dry seasons, these are primarily associated with the El-Nino climatic phenomenon that caused drought.

Human Caused

a. Social Factors

From a social angle, many actors and factors influence forest fires. Actors included government, industries, and communities that are associated with forest fires. How ever factors include beliefs, knowledge, awareness, attitudes and behavior.

Awareness and Attitude of the Government. The government's political commitment to protect the environment is low when compared, for instance to the attention given to family planning programs. Certainly, in the immediate aftermath of the fires, government attention heightened but it was not sufficiently high.

Awareness and Behavioral of Business. Business people and companies are often accused of being responsible for causing forest fires. Field experience suggest that the profit orientation of business and the absence of corporate responsibility are significant factor in causing fires. Although there are no explicit instruction from company management to burn, the amount of money budget for land clearance is so small that contractors are forced to use the cheapest means of land clearance available i.e. fire. Agriculture companies such as oil palm plantations can not afford to clear land without using fire, as it is not economically feasible. Hence, although laws already prohibit the use of fire for land clearance, plantation continues to set fire.

Accidents and Carelessness. Fires are often caused by the carelessness of local residents and migrants who throw lit cigarette butts to the ground or do not extinguish active fires on their plots of land. Accidental fires frequently occur along the roadside and it is almost certain that roadside fire are caused by litting cigarettes that are dropped from passing cars. (FFPCP, 1997).⁷ Local residents can also be careless when hunting or when collecting rattan or other forest products. Residents often stay in the forest for extend period sometimes for up a month, the fires they light for cooking or for other purposes are often neglected. (ITCI, 1997).⁸

Property Rights. Conflicts between different groups in society can often lead to communities feeling indifferent about forest or feeling they do not possess any ownership claims on the forest. The long term's impacts is that the community often remains silent when fire occur, or they exploit the opportunity to burn other people's forest. Conflicts over property rights involve a number of groups between local residents, between local residents and government, between local residents and migrants. Between local residents and industry, and between industries.

Erosion of Local Knowledge. Traditional knowledge and attitudes in this context do not only include those ideas explicitly related to fire, but also included local culture that

⁷ FFPCP 1997. "Wild Fire Occurrence and Causes in the three FFPCP Pilot Areas in 1996-1997. (Project Report No. 13D)". Government of Indonesia Ministry of Forestry-European Union-European Commission-Natural Resources Institute-Cirad-Forest BCEOM-SCOT CONSEIL.

⁸ ITCI, 1997. "Field Visit Report of Fires Area in Logging Concession/Forest Product Concession".

creates harmony between human and nature. Clearly, government efforts to shift local residents from their reliance on vegetable gardens. This immigrants are new farmers that have only recently turned to agriculture because they can not find other work and spontaneous.

b. Economic Factors

Incentives and Disincentive for Business. The absence of economic incentives to clear land without using fires is another factor that leads to fires. From the perspectives of business, fire is by far the cheapest means of clearing land. A number of law already prohibit the use of fire for land clearance. But there are no complementary mechanism such as environmental performance bonds nor are there economic incentives for business to obey existing laws land clearance could be optimally achieved the principle of “zero emissions”. Business are not given disincentives for damaging the forest. For example if a Logging Concession/Forest Product Concession area is burned, the owner or the company is not forced to pay compensation to the state. The company is obliged to pay certain royalties, but if trees are damaged or destroyed, the company is not required to compensate the state.

Credit and Insurance. The current financial credit system does not take environmental cost into account and is thus another factor that can be held to fires. The decision to issue credit to oil palm plantations is based on an evaluation of the soundness of the company and on the length of time it will take for the company to repay the loan. There is no consideration of weather a company can cause fires.

Production and Investment Target. Production and investment targets in Indonesia are often prepared without studying the capacity of resources to sustain the industry. For example, the government has targeted Indonesia to become the world’s largest producer of oil palm. If this is to happen, the production of palm oil must increase from 4.1 tons per year in 1994 to 7 tons per year before the turn of the century. (CIC, 1997).⁹ To meet this target, a substantial forest area will need to be converted to agriculture with burning as the method of choice.

Another disincentive for local communities to participate in fire prevention and control is that they are not involved in forestry or plantation business. For example, Logging Concession/Forest Product Concession has an obligation to conduct the

⁹ CIC, 1997. “Study about Indonesia’s Industry and Oil Palm Plantation”. PT. Capricorn Indonesia Consult Inc. Jakarta.

Logging Concession/Forest Product Concession Village Development Program, but in practice the company tends to work with communities in village far from their work area. Therefore the communities near the Logging Concession/Forest Product Concession who do not get any economic and social benefits are not motivated to help the companies when fires occur. (Ramon, 1997).¹⁰

c. Technology Factors

Timber Estate Concession, Agriculture and Transmigration projects all rely on fires as the primary method for land clearing. Land clearance is carried out by companies or bay individuals. Timber Estate Concession, Plantation and Transmigration unit can either clear land themselves or hand to job over the contractors. Regardless of who clears the land, the technique of burning is typically the same. Vegetation is cut, allowed the dry, piled and then burned. If this method is applied to very large areas there is always possibility that fires may burn out of control.

Many farmers typically clear about one hectare of land each year for subsistence crops. Usually land is opened at the end of the dry seasons in August or in early September. Under normal climate conditions, rains begin to fall by August or early September. Burning usually begins at 1 PM, after the cuttings have had a chance to dry. Even if it has rained for one or two days, the biome is still sufficiently dry to burn. But if the dry season is long, rain does not come until October or November, fires beginning in August run high risk of becoming uncontrollable and are difficult to extinguish.

For local communities, opening dry land farm by using fire is a tradition that has been handed down for generation. The tradition has persisted because the method is simple, quick and does not require huge investment of capital or labor. This method is also used to eradicate weeds and crop diseases.

C. The Impact of Forest Fire

Fires cause tremendous ecological, social, economic as well as health impacts on societies affected by them.

a. Impacts on Physical Environment

Fires will undoubtedly have a direct impact on the physical environment, namely on the forest ecosystems as they disrupt forest functions, pollute River Watershed area and reduce biological diversity, while at the same time pollute the immediate atmosphere.

¹⁰ Ramon, J, 1993. "Forest Inventory of the Participatory Forest Management Area; General Description, Classification and Stratification of the Inventory Plots". SFTDP, GTZ Report, Sanggau, Kalimantan – Indonesia.

Air Quality. Due to the influence of global environmental factors (El Nino) as well as local climate conditions (low surface wind speed), the haze that was created by the recent fires remained in low atmosphere areas for a relatively long period of time. This haze will have an adverse impact on the health of all life forms (human, plants and animals) living in the effected area. Haze density reduces visibility, which disrupted transportation. In 1997 forest fires in Kalimantan island was practically entirely covered by smoke.

Hydrological Cycle and Biological Diversity. Tropical rain, forest have several unique characteristic such as a wealth of biological diversity, a thin top soil layer, and multiple strata consisting of large trees, bushes, epiphytes and lianas.

Disruption of Natural Succession. Forest fires reduces the power of natural succession and the evolution of forest ecosystem. They also stimulate changes in vegetation growth in line with fire patterns so that mosaic pattern consisting of various succession phases will ensue. Gaps in the forest canopy due to fires ecological balance among species.

Disruption of the Production and Decomposition of Organic Materials. Fires reduce the capacity of forest plans to conduct photosynthesis, which reduce their capability to retain and primary energy. It therefore follows that secondary energy production will also decreases, at least until leaves begin to reappear. The forest will also lose significant amounts of biomes and the production of organic materials will slow down.

Impact on Soil. The effect of forest fires is based on the interaction of soil, vegetation and biotic as well a biotic environment, and is cumulative in the long term. Drastic changes in soil characteristic can be observed after frequent fire cycles, which turn lowland dipterocarpacei forest into alang-alang grasslands. (*Ministry of Environmental and UNDP, 1998*).¹¹

Disruption in the Nutrient Cycle. Forest fires affect the nutrient cycle in the following ways, nutrients are eroded by winds, the rate of nutrient cycle is slowed, the capacity for maintaining nutrients in the soil decreases, decomposition of forest litter is reduced, nutrients are leached by running-off water and the rate of nitrogen fixation declines.

Hydrological Cycle. Forest fires reduce rainwater interception, increase raindrops on forest floor, decrease plant transpiration, decrease the moisture of topsoil due to high evaporation, and increase the amount of run-off water.

¹¹ Ministry of Environment and UNDP, 1998. "Forest and Land Forest in Indonesia, Impacts, Factors and Evaluation", Volume I, September 1998.

Climate Regulation and Carbon Sink. Forest plays an important role in regulating local, regional and even global climates. At the local level trees provide shade and maintain water, serving as a cooling agent during hot weather. Trees also function as storm breakers and maintain heat in winter. At the regional level, evaporation from trees is released into the atmosphere and returns back to the earth surface in the form of rain. The loss of vegetation in areas such as the Amazon valley and West Africa might reduce the level of average precipitation regionally. (Ministry of Environment & UNDP, 1998).¹² At the global level, the growth of plants is related to the carbon cycle. The disappearance of vegetation results in the reduction of carbon dioxide absorption, which in turn increases the green house affect. (Primack, et.al. 1998).¹³

Impact on Biodiversity. Tropical rain forest is the richest source of biological diversity in world in terms of ecosystem, species and genetic diversity. According to the World Conservation Monitoring Center (1998), Sumatra and Kalimantan have 11 forest types with a number of endangered plant species. Prior to the 1997 fires, both islands had lost most more than 50% of their primary forest. Following the 1997 fires it is projected that there will be more damaged forest and that the list of endangered plant species will be Ave longer.

The 1997 fires affected national parks, although the impacts in many of these areas were less than in other less protected regions. According to Directorate of Forest Prevention, there are 13 National Parks affected by fires in 1997 which area under fires (ha) are 17.666,05. Also fires will have an impact on animals population.

b. Social Impact

There are some aspects if we are talking about social impact from forest fires namely: food security, loss of income, loss of shelter and disruption of social well being.

Food Security. Rice self-sufficiency is an important factor in diversified rural economies, and especially village communities who attach a great deal of cultural and spiritual significance to dry rice cultivation. However, climatic extremes, in addition to reduces land availability due to influx of plantation. For villages suffering from rice shortages, cash income is vital in order to prepare food.

¹² Ministry of Environment and UNDP, 1998, *Ibid*.

¹³ Primack, RB, J. Supriatna, and P.Karmadibrata, 1998. “*Biology Conservation*”. Obor Foundation, Jakarta.

Loss of Income and Loss of Shelter. Forest fire has been caused loss of income. Fires completely destroy the garden of the most people. The majority of the people lost a very large portion of their assets like rubber and fruit garden

Disruption of Social being. Forest fire expressed deep feeling of chaos and injustice, depression and hopelessness. In short, the expressed a sense of life out of balance. The losses the felt were not just monetary or physical losses, but a loss of unity and safety in their lives. In place where fires which had clearly originated on plantation land which had so badly damaged livelihoods of local communities, many felt that the injustice of cumulative losses and assaults by the plantation on village economic, social and cultural life had become intolerable.

c. Health Impact

Haze has also contributed to the death of 19 people and more than 500,000 cases of acute respiratory infections. Existing research suggests long-term exposure to air pollutants correlates with increased cardiovascular and chronic respiratory illness. A study on the effects of the 1998 Indonesian haze crisis on fetal, infant and under-three child mortality showed that air pollution led to 15,600 fewer surviving children.

Table (2)
Health Effects¹⁴

No	Health Effect
1.	Death
2.	Asthma
3.	Bronchitis
4.	ARI
5.	Daily Activity Constraint
6.	Increase of Out Patient
7.	Increase of Hospital Patient
8.	Lost Work Days

Source: <http://pubdocs.worldbank.org>

This table (2) shows that The health impact of forest fires. According to Health Office in Sumatra and Kalimantan this figure included eight provinces namely: Riau, West Sumatra, Jambi, South Sumatra, West Kalimantan, East Kalimantan, South Kalimantan and North Kalimantan.

¹⁴ <http://pubdocs.worldbank.org> retrived, July 20, 2020.

d. Economic Impact

Land and forest fires have a direct as well as an indirect effect on the national economy. Direct economic effects included losses such as forest products (timber and non-timber), biological diversity, as well as those losses incurred by agricultural sector. While some of the indirect impacts attributed to haze included health problems, loss of workdays. Loss of ecological functions, tourism losses and loss incurred by the transportation sector.

Table (3)
Fire Related Economic Losses in Indonesia (2015)¹⁵

No	Sector	Losses (USD Millions)
1.	Agriculture:	
	Estate Crops	3.112
	Food Crops	1.727
2.	Environment:	
	Biodiversity Loss	287
	Carbon Emission	3.966
3.	Forestry	3.931
4.	Manufacturing and Mining	610
5.	Trade	1.333
7	Transportation	372
8.	Tourism	399
9.	Health	151
10.	Education	39
11.	Firefighting Cost	197
Total		16.124

Source: <http://pubdocs.worldbank.org>

According to World Bank (2015) total economic losses USD 8.8 billion (120 trillion rupiah) nationally. This represent lost revenue for the country, which could have been used for other productive purposes, especially sustainable development.

Furthermore a loss of USD 8.8 billion (120 trillion rupiah) may seem to be very large, this is equivalent to GDP growth in the affected provinces may be lower by between 0.7

¹⁵ <http://pubdocs.worldbank.org> retrived July 20, 2020.

and 4.7 percentage points in 2015, all else equal. In other words, Indonesia lost the opportunity to earn revenue equivalent to that amount.

Damages to agriculture include those to infrastructure and equipment, while losses capture the cost of reclaiming burned lands for planting and the foregone production revenue during this reclaiming period. As a result, the 2015 fires are estimated to cause additional losses of about USD 800 million per year for the next three in the case of estate crops (e.g., palm oil, rubber, and coconut) and five years for forests. Damages to estate crops affected companies and small-holder farmers. Costs to food crops (USD 1.7 billion) translate into lower incomes for farmers and possible impacts on food security. Forestry losses, at USD 3.9 billion, account for the lost value of timber and the cost of reforestation.

Loss in the agricultural sector is generally related to decreases in income due to the destruction of plants such as oil palm, rubber, coconut, coffee, sugar cane, cocoa, cashew and other. Health cost such as, death, asthma, bronchitis, ARI, activity restriction, out patient, hospitalization and workday lost.

Fires also adversely affect transmigrate. A part from direct health impact due to haze and dust, their source of livelihood is also affected due to the damage inflicted upon their fields and their environment. For example, transmigrate working for Timber Estate Concession Companies lost their jobs because land preparation activities had to be stopped. As a result, they lost their monthly salaries, allowances as well as medical insurance.

The haze enveloping Indonesia has no doubt affected the tourism industry, as both domestic and foreign tourists were reluctant to visit haze-affected region. This decision was made taking into account the health consideration as well as the risk of airport closures as well as flight cancellation and delay.

III. Conclusion and Recommendation

A. Conclusion

Even though there is a forestry law as regulated in Law No. 41/1999 on Forestry, as amended by Law Number 19/2004, forest fires have been repeated several large scale since the early 1980s until now. The case of Indonesia which was experiencing forest fires is a manifestation of unclear and poorly enforced policies, economic forces that push business to use fire to clear land, lack of technological alternatives, poor public participation and aggravated by climatic condition such as the extended drought.

Although many policies have already been formulated and special management agencies have been established, policies implementation remain weak, coordination is poor and the current system is inefficient. Added to these factors, is the reality that government official's business leader and general public lack a sense of urgency about the fires.

Fires can impede national economic performance and increase poverty at the local level. It is mostly that disaster until now will repeat/recur unless definitive steps are taken to encourage short term and long term prevention strategies.

Fires cause tremendous ecological impacts such as air quality, hydrological cycle, biological diversity, natural succession, disruption of the production and decomposition of organic materials, soil, disruption in the nutrient cycle, climate regulation and carbon sink; social impact such as food security, impact on health such as death, asthma, ARI, and impact on economic such as, agriculture, forestry, health, transmigration, transportation and tourism.

B. Recommendation

Government officials, business leaders and general public are among the prime considerations for Indonesia to success fully play in the those fires problems. Rehabilitation of the environment is necessary to ensure sustainable development.

All essential actors in should try more than ever to put their acts together. Success is better guaranteed where all actors are working and moving together in same direction.

Development activities could only be achieved with adequate support from all actors. If support in this problem is minimal, effort should be undertaken to improve this situation.

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