

## Palm Oil and Natural Disasters: Sociological Meanings of Discourses on the Ecological Impact of Oil Palm Expansion

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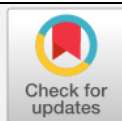
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### ABSTRACT

Since its inception and until now, oil palm plantations have been controversial in Indonesia. Although there is ample evidence presented by proponents proving that oil palm expansion has made an important contribution to the Indonesian economy, from an ecological point of view, it is claimed by critics to have negative impacts on the environment, one of which is the cause of natural disasters. The link between oil palm expansion and natural disasters is debated between critics and supporters of oil palm expansion. This study examines the theme of criticism of oil palm expansion as a cause of natural disasters and counter-discourse of supporting oil palm expansion. By using literature study methods and an environmental, sociological perspective, it is found that the discourse on the impact of oil palm plantation expansion shows a contradiction between the views of the New Ecological Paradigm (Paradigma Ekologi Baru or PEB) and the Human Exemptionalism Paradigm (Paradigma Keterpisahan Manusia or HEP). The Indonesian government is building a counter-discourse of ecological modernization to maintain and develop oil palm plantations expansion.

**Keywords:** Affected Communities; Counter Discourse; Natural Disasters; Oil Palm Plantation; Sustainability Discourse

## 1. Introduction

Although it had started in Indonesia in 1911 (Afrizal, 2007, p. 95), the massive development of oil palm plantations began in 1980, related to the development of world palm oil demand (Afrizal, 2007, p. 152; Colchester & Chao, 2013). In 2018, there was 14,326,350 ha of oil palm plantations in Indonesia (Direktorat Jenderal Perkebunan, 2019).

Oil palm plantations are controversial (Rival & Levang, 2014; Austin et al., 2017, p. 41). There is much evidence that oil palm plantations contribute significantly to the Indonesian economy. Oil palm plantations provide revenue for the government and residents and alternative job providers (Syahza, 2008; Mongabay.co.id, 2013; *Majalah Sawit Indonesia*, 2014; Potter, 2015, p. 10; Dharmawan et al., 2016, pp. 3-6). On the other hand, the expansion of palm oil has negative impacts. There are four negative impacts of oil palm expansion that have received great attention: land conversion conflicts, deforestation, loss of biodiversity, and natural disasters (Noveria et al., 2004; Afrizal, 2007, pp. 156-175; Sheil et al., 2009; Colchester & Chao, 2013; Vijay et al., 2016).

Environmentalists highlighted the impact of oil palm expansion from an ecological point of view. Their criticisms have brought the discourse of oil palm expansion from shifting from an economic impact to a negative ecological impact. During its development, criticism of the expansion of oil palm plantations made supporters of oil palm expansion respond by generating counter-discourse to defend the sustainability of oil palm plantations.

This research focuses on debates on the ecological impact of oil palm expansion, particularly natural disasters. Based on the literature study, this research presents the discourse themes of oil palm expansion as a cause of natural disasters and the counter-discourse and the response of the Indonesian government. The questions answered in this research are: What is the themes of the discourse on oil palm expansion causing natural disasters?; What is the Indonesian government's response to criticism of oil palm expansion? By using the literature review method and the Environmental Sociological Perspective, the results show that the discourse on the ecological impact of oil palm expansion shows a contradiction between the views of the New Ecological Paradigm (NEP) and the Human Exemptionalism Paradigm (HEP). Meanwhile, the view of ecological modernization is used by the Indonesian government to respond to criticism of oil palm expansion.

## 2. Literature Review

The analysis of this research is informed by the theory of environmental sociology, especially the New Ecological Paradigm (NEP), hereinafter referred to as the New Ecological Paradigm (NEP) and the Human Exemptionalism Paradigm (HEP), hereinafter referred to as the Human Exemptionalism Paradigm (HEP). The distinction between NEP and HEP was first formulated by Riley R. Dunlap and William R. Catton in the 1970s in their various publications.

HEP and NEP are sociological discourses on how society should be discussed from a sociological perspective. HEP views society as separate from nature, ignoring natural constraints on community development (Catton & Dunlop, 1978, p. 43). With that viewpoint, people who adhere to HEP focus on society by "neglecting habitat" (Catton & Dunlop, 1978, p. 44). This means that HEP carries the idea of anthropocentrism - a notion that places humans at the center of the universe (Kortenkamp & Moore, 2001, p. 2; Amérigo et al., 2007, p.99; Amérigo et al., 2012, p. 355) - to argue about society. In contrast, NEP, introduced by environmental sociologists in the 1970s (Catton & Dunlop, 1978, p. 30), argued a reciprocal relationship between nature and society (Catton & Dunlop, 1978, p. 45). Therefore, according to NEP, the discourse of community development must consider nature and see it as an obstacle to

community development (Catton & Dunlop, 1978, pp. 46-48; Albrecht, 1982, pp. 9-10). It can be seen that NEP contains the notion of ecocentrism, which views that nature should be valued based on its usefulness for itself (Mol & Spaargaren, 2000, p. 138; Kortenkamp & Moore, 2001, p. 2). With this idea, NEP is used as an indicator of environmental concern that reflects the orientation of a pro-environmental attitude (Dunlap et al., 2000, p. 428).

Both HEP and NEP represent a view of the relationship between society and nature and serve as an interpretation scheme (Albrecht, 1982, p. 11), a reference in mind used to interpret reality. Because of his view, people who adhere to HEP are less concerned with the conservation of the physical environment, on the contrary, because the view of people who adhere to NEP is pro-environment (Catton & Dunlop, 1978; Albrecht, 1982, p. 11).

There is a debate about finding a balance between the public's desire to live in harmony with nature and exploit natural resources to sustain life and develop economically. Then, since the early 1980s, the discourse of ecological modernization began to develop.

Ecological modernization opposes the discourse of demodernization, which sees the need to reorganize the life order of modern society so that sustainable development can occur (Mol & Spaargaren, 2000, p. 19; Carolan, 2004, p. 249). Ecological modernization holds that economic progress is even a strategic way to deal with the environmental crisis, for this natural resources need to be commoditized, but by minimizing their negative impact on the environment with technology (Andersen & Massa, 2000, pp. 338-340; Mol & Spaargaren, 2000, pp. 20-21; Carolan, 2004, p. 249). The main belief is that government control of business actors can lead to pro-environmental corporate behaviour (Andersen & Massa, 2000; Carolan, 2004, p. 250). With that, ecological modernization is reflected in government policy (Andersen & Massa, 2000, p. 344).

### 3. Research Methodology

The data used in this study came from literature reviews (books and journal articles), web publications, and newspaper news. Literature is obtained from searches with Google searching and own collections. The criteria for the journal articles and books studied to discuss the impact of oil palm expansion in Indonesia.

Data analysis was carried out by studying all publications many times, then reducing them by marking the appropriate information. After that, codification was carried out using a coding framework based on the concepts of NEP, HEP, and ecological modernization. Themes are made after structurally interpreting the data that has been reduced. Data interpretation pays attention to words, sentences, and other discourses in books, scientific articles, and statements on websites.

The word criticism is used in two senses: expressing not supporting someone and studying something from two sides of strengths and weaknesses. Publications that highlight weaknesses are judged as expressions that do not support oil palm expansion. On the other hand, publications highlighting the advantages of oil palm expansion are considered supporting oil palm expansion. People who emphasized the negative session on oil palm expansion were called critics of oil palm expansion. People who emphasized the advantages of oil palm were called supporters of oil palm expansion.

### 4. Results and Discussion

#### 4.1. Discourse Themes on Oil Palm Causes Natural Disasters

Two themes were found: 1) Deforestation due to oil palm expansion which causes natural disasters, and 2) Oil palm expansion causes air pollution.

#### 4.1.1. Deforestation Due to Oil Palm Expansion Causes Natural Disasters

There are two views of critics regarding the link between oil palm expansion and natural disasters. The first view is that oil palm expansion causes natural disasters indirectly, while the second view states that oil palm expansion causes natural disasters directly. The first point of view will be discussed first. Oil palm expansion causes natural disasters through the important contribution of palm oil production to global climate change through deforestation. Therefore, they emphasize the discussion of oil palm expansion as a cause of deforestation. Massive expansion and wide-scale oil palm have been declared the cause of deforestation. In one article, critics of oil palm stated, “according to the Food Sustainability Index,... oil palm cultivation, which involves clearing tropical forests or burning peat lands, has played a major role in increasing rates of deforestation in Southeast Asia, and especially in Indonesia and Malaysia (The Economist, 2019). The same thing is found in the Mongabay news ([Mongabay.co.id](http://Mongabay.co.id), 2013) “The expansion of oil palm plantations has an impact on deforestation and forest degradation”.

Many critics ([Table 1](#)) of oil palm expansion do not explicitly state that oil palm expansion is the cause of natural disasters. The link between the two is evident from the argument that large-scale deforestation, which is claimed to be the result of massive oil palm expansion, contributes significantly to climate change. Climate change is then the cause of natural disasters. If it is not in the context of climate change, there is less meaning in talking about the impact of oil palm expansion on the rate of deforestation.

**Table 1. Some Examples of Discourses on the Ecological Impact of Oil Palm Expansion**

Discourse on the Ecological Impact of Oil Palm Expansion	Discourse Maker
“Global warming: From palm oil, it is closely related to the sources of greenhouse gas emissions from the production process and supply chain of palm oil, which causes damage to the function and absorption capacity of greenhouse gases by land, forests, and peat, including gases produced from mills of palm oil and gas residues from agricultural fertilizers, chemicals, and fossil fuels, activities of mill machinery and oil palm plantations”.	<a href="#">TUK Indonesia (2015)</a>
“The environmental impact, namely oil palm plantations reduce the ability of forests to convert CO <sub>2</sub> so that oil palm plantations encourage global warming to be faster”.	<a href="#">Tandan Sawit (2015, p. 6)</a>
“The expansion of oil palm plantations has resulted in changes in forest land cover which have an impact on changes in the ecology of an area”.	<a href="#">Amalia et al. (2019, p. 137)</a>
“The environmental impacts of large-scale oil palm plantations include tremendous loss of biodiversity, increased greenhouse gas emissions, massive deforestation, depletion of soil nutrients, drought and depletion/desertification and water pollution from toxic waste”.	<a href="#">Colchester &amp; Chao (2013)</a>



Second view: deforestation is a direct cause of natural disasters. Massive oil palm expansion is associated with flooding around the oil palm plantation area. For example, WALHI (Indonesian Forum for the Environment) stated that floods that have recently occurred in Riau are since many forest areas have been converted into oil palm plantations ([Tempo.co, 2017](#)). In addition, the chairman of the Siak Watershed Forum emphasized that the expansion of oil palm plantations is the cause of flooding around oil palm plantation areas such as in the Siak Regency ([Kompasiana.com, 2015](#)). From the results of his research, a researcher confirmed that in his research location, floods became more frequent after the expansion of oil palm plantations ([Amalia et al., 2019, p. 137](#)).

Critics say oil palm expansion damages local ecological conditions, causing flooding because rainwater is not absorbed. For example, WALHI staff stated that flooding that has recently occurred in Riau is since many forest areas have been converted into oil palm plantations, making the forest no longer having the function of holding water in an ecosystem ([Tempo.co, 2017](#)). A comprehensive explanation was given by the Chairperson of the Siak Watershed Forum: "Oil palm is a monocot (fibrous root) plant so that abundant rainwater is not absorbed into the ground and only flows on land into the river flow. The flowing water will carry nutrients and settle on the riverbed. As a result, the land will become arid, and the river will be shallower" ([Kompasiana.com, 2015](#)).

#### **4.1.2. Oil Palm Expansion Cause Air Pollution**

Air pollution is one of the following natural disasters that critics say is the result of oil palm expansion. The impact of air pollution that gets their attention is smog ([Glauber & Gunawan, 2016](#); [Purnomo et al., 2018](#)). The smoke haze results from burning land and forests to clear new land for new planting of oil palm. In the discourse of critics and oil palm expansion proponents, their attention is paid to the actors who burn land and forests and their motives for their actions.

Critics of oil palm expansion claim that big oil palm companies are one of the main actors in burning land and forests. Their motive is to clear land for new oil palm planting. For example, WALHI states that "...most of the hotspots are in the concession areas of large transnational companies", some are within concessions of large oil palm plantations "([WALHI, 2019b](#)). Then, an online media reported WALHI's statement regarding the forest fires: "The Ministry of Environment and Forestry has also sealed 42 concessions belonging to the company and one individual land that was burned which was suspected of belonging to the perpetrators of the forest burning" ([Deutsche Welle, 2019](#)).

A research report states the important actors of forest fires in Kalimantan are small farmers who burn land/forest for the traditional clearing of new agricultural land. One researcher's publication on this subject illustrates this.

Based on data from the Malay customary leader of Sanggau Regency, all heads of families with oil palm plantations open land by burning in the dry season. This makes this burning technique a *prima donna* to open land for oil palm plantations. Apart from being a local custom, this method of grilling is fairly cheap. This is always done because it is not prohibited by the West Kalimantan Regional Regulation, wherein the concession is that land clearing by traditional means can still be done. Land clearing by burning certainly has an impact. Moreover, if done together in the dry season, the smoke caused by burning the land will be seen and produce black smoke in the air ([Emilya & Sumiyati, 2018, p.710](#)).

However, WALHI rejects the view that small farmers are the main perpetrators of forest burning. This environmental NGO does not deny the small farmers involved in burning forests

and land to open new agricultural land, which is the cause of the haze. However, according to them, the main actors that cause large-scale land and forest fires are companies, including plantation companies. As quoted from the WALHI narrative above, it appears that the perpetrators of burning smallholder forests are stated to be very few. WALHI (2019b) statement “In the findings of WALHI, which was conveyed in 2015, most of the hotspots were in the concession areas of large groups of transnational companies” emphasized that it is not small farmers who burn land and forest which are important.

## **4.2. Counter-Discourse**

Attention is paid to the discourse of environmentally friendly palm oil constructed by the Palm Oil Agribusiness Strategic Policy Institute (PASPI), the Indonesian Palm Oil Association (Gabungan Pengusaha Kelapa Sawit Indonesia or GAPKI), and the Palm Oil Research Center (Pusat Penelitian Kelapa Sawit or PPKS). The existence of these three organizations aims to sustain the palm oil business. PASPI is an NGO that focuses on the sustainability of the palm oil business. GAPKI is an association of oil palm business actors. PPKS is a business entity engaged in oil palm development research. Compared to GAPKI and PPKS, PASPI is more comprehensive in narrating the discourse on the impact of oil palm expansion. Therefore the discourse constructed by PASPI is given more attention in this research.

In 2016, PASPI published a book entitled “Mitos vs Fakta: Industri Minyak Sawit Indonesia dalam Isu Sosial, Ekonomi dan Lingkungan Global” (Myths vs. Facts: Indonesian Palm Oil Industry in Global Social, Economic and Environmental Issues), 2nd edition. This book is directed as a negative campaign against the palm oil industry (PASPI, 2016, pp. v-vi). To make a persuasive idea, the words myth and fact are used as framing.

This book emphasizes that oil palm expansion causes environmental damage and causes natural disasters is a myth and therefore does not occur (PASPI, 2016). To negate this view, PASPI builds a discourse on environmentally friendly palm oil. This is called fact. As far as natural disasters are concerned, there are four important themes in the discourse of environmentally friendly palm oil: Oil palm expansion is not the main cause of deforestation in Indonesia; oil palm expansion is not the cause of global climate change; oil palm expansion is not the cause of flooding; not only the expansion of oil palm polluting the air.

### **4.2.1. Oil palm expansion is not the main cause of deforestation**

PASPI tries to convince various parties that the cause of oil palm expansion does not mean deforestation. This NGO that defends oil palm-based its statement on a review of research results and states that deforestation caused by oil palm expansion is small and therefore meaningless. “Palm oil derived from deforestation (from the conversion of disturbed production forests) is only about 2.5 million hectares, while those from reforestation (from the conversion of agricultural land and abandoned land) amounted to 7.9 million hectares”. PASPI concludes that the expansion of oil palm plantations in Indonesia is instead reforesting an area of 5.3 million hectares (PASPI, 2016, pp. 118-119).

To negate the expansion of palm oil that causes no meaningful deforestation, PASPI states that deforestation is more caused by development in general. The development of pastureland, sugar cane, soybean, rapeseed, and sunflower plantations is a major driver of global deforestation. This was conveyed when discussing MYTH 2-01.

Although slightly different, GAPKI does not deny that oil palm expansion contributes to deforestation. The same as PASPI, the Indonesian palm oil agency, emphasizes that deforestation has been caused by various agricultural and development activities worldwide.

Therefore, GAPKI stated that critics of oil palm expansion did not emphasize the palm oil industry as the cause of deforestation (GAPKI, 2017a).

#### **4.2.2. Oil Palm Expansion Does Not Cause Floods in Indonesia**

Rejecting that oil palm expansion is the main cause of deforestation, related to the impact of flooding, the direct impact of oil palm expansion, which critics claim to have caused by oil palm expansion, PASPI responded with statements untrue and baseless. PASPI uses statistical data on natural disasters issued by the Central Statistics Agency to support this statement. Based on BPS natural disaster statistics, PASPI emphasized that flooding occurred in all provinces in Indonesia and most often occurred in areas not centres of oil palm expansion. Therefore, the flood disaster has nothing to do with oil palm plantations (PASPI, 2016, p. 61). "The phenomenon of flood disasters is part of global climate change which causes floods to occur in almost all countries in the world and has nothing to do with oil palm plantations" (GAPKI, 2017c).

GAPKI also stated that the floods that occurred in Indonesia had nothing to do with oil palm expansion. GAPKI's argument was to quote data from the National Disaster Management Agency in 2015. Flood disasters often occur in provinces with no oil palm plantations (GAPKI, 2017a), and floods occur worldwide.

#### **4.2.3. Palm Oil Does Not Cause Global Climate Change**

PASPI emphasizes that the view that oil palm expansion has an important contribution to climate change is wrong (PASPI, 2016, p. 119). PASPI's main argument: "global warming is caused by an increase in the intensity of the greenhouse gas effect on the earth's atmosphere, not by the expansion of oil palm".

#### **4.2.4. Not only the expansion of oil palm produces air pollution**

Regarding air pollution due to land and forest fires associated with clearing new land for oil palm plantations, PASPI stated that this was a discussion that cornered oil palm plantations. PASPI's conclusion is based on two arguments: 1) The reality is that oil palm expansion is not always accompanied by land and forest fires, and 2) land and forest fires are not typical of oil palm plantation centres. To support this argument, as with other discourses, PASPI compares the incidence of land and forest fires in oil palm central provinces with those that are not. Based on this comparison, PASPI concluded that land and forest fires are common in Indonesia and even worldwide. In addition, land and forest fires occurred both at centres and not centres for oil palm expansion. Therefore, oil palm expansion should not be stated as the cause of forest/land fires. PASPI strengthens its argument by quoting Global Forest Watch's statement: "About 60 per cent of the hotspots were found outside concessions, namely in state forest areas, 26 per cent of Industrial Plantation Forest concessions, while only 10 per cent of hotspots in oil palm plantation concessions.

### **4.3. Response of the Government of Indonesia**

The Indonesian government raises a discourse on solutions to the negative impact of oil palm expansion. As seen from its policy, the Government of Indonesia, through the Ministry of Agriculture, implements a sustainable Indonesian palm oil policy. Palm oil is seen as important to the Indonesian economy as a solution to economic difficulties (Afrizal, 2007). Still, the negative impact of palm oil production on the environment is also recognized. Considering these two things, the Indonesian government's policy choice is to develop palm oil production

by controlling it so that oil palm expansion does not damage the environment. The government launched the discourse on sustainable oil palm plantations and sustainable palm oil management to the public.

Sustainable oil palm plantation itself is defined as a business in oil palm plantations that meets three feasibility: economically viable, socially viable, and environmentally viable. Environmentally feasible is environmentally friendly, which indicators to assess are contained in the attachment to the Regulation of the Minister of Agriculture on Indonesian Sustainable Palm Oil (ISPO).

For the first time, the Indonesian government made guidelines for sustainable palm oil plantations in the attachment to the Minister of Agriculture's Regulation on Indonesian Sustainable Palm Oil (ISPO). Oil palm plantations are required to have an ISPO certificate. The ownership of the ISPO certificate is stated as an indicator of sustainable palm oil production practices. Until the end of 2019, 502 oil palm companies had ISPO certificates with a total land area of 2.8 million ha ([Direktorat Jenderal Perkebunan, 2019](#)).

Then, at the end of 2019, the central government issued a policy on the National Action Plan for Sustainable Oil Palm Plantations. Increasing the capacity of plantations, environmental management, and accelerating the certification of Indonesian palm oil are three things that are stated to be implemented by various relevant government agencies. Regarding environmental management, it is stated that efforts to reduce greenhouse gas emissions in gardens and land will be carried out. Addressing deforestation that critics of oil palm expansion have highlighted is not explicitly stated in the policy. There has been no report on the effectiveness of the policy.

#### 4.4. Discussion

The discourse on the relation between oil palm expansion and natural disasters was developed by critics of oil palm expansion and supporters of oil palm expansion in Indonesia. Critics of oil palm are environmentalists and environmental NGO activists, while supporters of oil palm are associations of oil palm entrepreneurs and affiliated organizations such as PASPI. Critics of oil palm do not want oil palm plantations not to be developed in Indonesia. What they want is tight control over CPO production.

Regarding the discourse of oil palm expansion which causes natural disasters, the heart of the debate is the contribution of oil palm plantations to increasing greenhouse gas effects. Critics claim that oil palm expansion contributes significantly to the intensity of the greenhouse effect, which causes climate change which is then one of the causes of natural disasters. Contribution of oil palm expansion through deforestation. This then became a debate between the two parties. The second argument centres on the status of land used for large-scale oil palm plantations: Is the land used forest land or not? According to critics, oil palm expansion has resulted in converting forested land into oil palm plantation areas. For example, when rejecting oil palm expansion in Papua, WALHI stated that oil palm expansion in Papua is carried out in forested areas by releasing the forest area's status - the conversion of forest areas ([WALHI, 2019a](#)). WALHI's view is supported by research by Rival & Levang in 2014, which found a large area of forested land converted to oil palm plantations: "In the span of a few decades, Indonesia has seen the conversion of more than 5 million hectares of primary forest... Environmental NGOs are right to emphasize this negative aspect of palm oil expansion" ([Rival & Levang, 2014, p. 34](#)). Palm oil proponents argue against this by stating that oil palm is generally planted on land that has been deforested by the activities of companies holding forest concessions ([PASPI, 2016, p. 119](#)). PASPI's view is following several Indonesian forestry experts ([wartaekonomi.co.id, 2017](#)).



The researchers confirm that oil palm expansion is quite extensive in forested areas. Based on a case study research in Bularan District (in Sabah, Malaysia) using satellite imagery, [Norwana et al. \(2011\)](#) reported that oil palm expansion between 1970-1980 in the studied area had converted areas formerly forested into areas for oil palm plantations. They call this condition forest degradation. Other investigators, [Obidzinski et al. \(2012\)](#), also concluded that the expansion of oil palm plantations leads to deforestation. Then, based on a review of research results in Malaysia and Indonesia, [Sheil et al. \(2009\)](#) reported that oil palm plantations cause deforestation. However, various research results indicate that some oil palm plantations are carried out on land not forested since the land has been cleared by companies holding Forest Concession. The development of oil palm plantations on forest land is quite extensive and means for deforestation. Based on that, although not all oil palm plantations managed by companies convert forests. [Sheil et al. \(2009\)](#) stated that the expansion of oil palm plantations is one of the main causes of deforestation.

Carbon emissions due to deforestation occur in two ways: First, deforestation causes carbon emissions stored in the soil that previously remained in the soil because the land cover blocks it ([Richard, 2005, p. 16](#); [Hufty & Haakenstad, 2011, pp. 1-2](#); [Bennett, 2017, p. 5](#)); Erect that has been absent makes the carbon released into the air not captured ([Philander, 2012](#); [Richard, 2005, p. 13](#)); Second, the massive clearing of peatlands for the opening of new oil palm plantations is also stated to be the cause of deforestation in peatlands which causes carbon emissions into the air, because carbon is stored in large quantities in peatlands ([Wibowo, 2010, pp. 254-255](#); [van Noordwijk et al., 2007](#)).

Carbon emissions to the air that are beyond nature's ability to neutralize result in climate change: changes in temperature, humidity, rainfall, and wind in an area that has been patterned for a long time ([Philander, 2012, p. 210](#); [Nwankwoala, 2015, pp. 225-226](#)). This phenomenon is known as anthropogenic climate change. Climate change is related to human action. Anthropogenic climate change is caused by global warming, often called global warming, resulting from human activities releasing carbon into the atmosphere.

Climate change causes natural disasters (such as droughts, floods, and landslides) through changes in rainfall patterns caused by changing climate in an area ([Philander, 2012, p. 210](#); [Jameti & Corfee-Morlot, 2009, p. 6](#)). For additional information, in the Mekong River Delta (in Vietnam), climate change is believed to be the cause of rising sea levels which then leads to the intrusion of seawater into the land, this causes salination of agricultural areas, which damage rice crops ([Pham et al., 2018, p. 2142](#)).

Even though they are aware of the contribution of oil palm plantations to the intensity of the greenhouse gas effect, PASPI stated that their contribution is much smaller than the production of other commodities. With this argument, PASPI stated that deforestation (which also small from oil palm expansion) due to oil palm expansion does not make an important contribution to climate change. With this statement, it can be concluded that PASPI denies that oil palm expansion is indirectly the cause of natural disasters.

Although they both build a comparative logic to argue, they both carry different comparative logics. Critics of oil palm expansion make comparisons of the condition of the area around oil palm expansion before and when oil palm expansion occurs (during operation) and focuses only on oil palm. Meanwhile, the proponents of oil palm expansion use comparative logic between regions and between crops. They base their argument on comparing oil palm and other vegetable oil and biomass-producing crops (mainly soybeans, rapeseed, and sunflower).

The different comparisons produce different conclusions. Compared to conditions before oil palm expansion with conditions when oil palm plantations were developing in areas that are

now the centres of oil palm plantations, critics say the environmental conditions when oil palm plantations were operating were degraded, and flooding was more frequent. Based on this comparison, oil palm expansion is an independent variable for natural disasters such as inundation. However, compared to provinces where there is no oil palm expansion with oil palm expansion, the frequency of floods and forest fires is more in provinces where there is no oil palm expansion, as stated by oil palm supporters based on data from the Central Statistics Agency. Based on that, it is stated that oil palm expansion is not the cause of floods and forest fires.

Concerning land/forest fires, the debate between critics and proponents of oil palm expansion is developing towards the identity of the fire perpetrators. Critics emphasized that the perpetrators were large-scale companies, while the proponents emphasized that the main actors were small farmers.

The sharp difference between the two is that they each base their views on the opposite angle: Critics use the New Ecological Paradigm (NEP) perspective. The proponents of oil palm expansion base their views on the Human Exemptionalism Paradigm (HEP). This is seen in the critics of palm oil, who highlight the expansion of oil palm from the point of view of the benefit of nature: preservation of nature. From this point of view, they state that oil palm expansion is one of the causes, which means environmental damage. Environmental damage is then stated as the direct and indirect cause of natural disasters. While the way oil palm expansion is the indirect cause of natural disasters is through the important contribution of oil palm expansion to global warming through the resulting deforestation, oil palm expansion is the direct cause of natural disasters through local ecological damage caused by oil palm expansion. On the other hand, the supporters of oil palm (PASPI and GAPKI) see the need for oil palm expansion for economic sustainability. This is an analysis from the point of view of human interests.

PASPI and GAPKI's emphasis on oil palm as a solution to economic problems caused by modernity shows the HEP views embodied in their discourse. PASPI and GAPKI highlight the important contribution of oil palm to the Indonesian economy as an important alternative for improving economic welfare (PASPI, 2016, pp. 1-8). GAPKI builds a discourse on palm oil to fill the country's needs. For example, GAPKI states that for the context of the European Union, palm oil makes an important contribution: it creates many jobs in Europe, provides a source of income to many people in Europe, imposes heavy taxes on the governments of countries in Europe (GAPKI, 2017b). As a result of this Anthropocene perspective, attention to the negative impacts of oil palm expansion has not been paid attention.

The narrative of the ecological impact of oil palm expansion, with which the discourse on the connection between oil palm expansion and natural disasters was found, between critics and supporters of oil palm expansion, shows a contradiction between the views of the New Ecological Paradigm (NEP) and the Human Exemptionalism Paradigm (HEP). HEP sees the relationship between society and nature from the point of view of the interests of society: Nature is placed as something to serve human needs, an emphasis on the human ability to solve problems resulting from meeting people's needs, consideration is focused on human interests. The views of oil palm expansion proponents such as PASPI and GAPKI show the HEP's view, the view of oil palm from the point of fulfilling human needs. This can be seen in the discourse quote below.

To meet the additional demand for vegetable oil, the question is: will the world community choose to increase soybean oil or palm oil production? ...If the world community chooses to fulfil additional vegetable oils towards 2050 from increasing soybean oil production, different new world soybean plantations are needed. Three hundred forty million hectares (assuming

productivity of 0.5 tonnes oil/hectare). This means that the world community will eliminate 340 million hectares of forest (deforestation) in South America ....If the world community chooses to meet the additional world vegetable oil needs towards 2050 from palm oil, then the expansion of palm oil plantations (additional) needed is only 34 million hectares (PASPI, 2016, pp. 299-300).

NEP views the relationship between society and nature from another perspective, namely from the perspective of nature. The community is believed to need to adjust to the limitations of nature. NEP's perspective can be seen in the discourse of critics of oil palm expansion. They use it to assess oil palm expansion. Critics of palm oil like WALHI see genuine interests when discussing oil palm expansion, not economic interests (business, employment, and state revenue). This view has led them not to carry out a comparative analysis of oil palm with other bioenergy crops but to only focus on the impact of oil palm expansion on the ecosystem in areas where oil palm expansion centres are located.

The Indonesian government has responded to criticism of oil palm expansion by taking the views of critics into account. Since the Indonesian government views the palm oil industry as a source of significant income and employment and responds positively to critics, the Indonesian government's discourse of oil palm expansion is ecological modernization because oil palm expansion has the potential to have negative impacts on the environment and positive impacts on the economy, attention is paid to control of CPO production. As seen from its policy, the Government of Indonesia, through the Ministry of Agriculture, implements a sustainable Indonesian palm oil policy. Palm oil is seen as important for the Indonesian economy, a solution to economic development difficulties (Afrizal, 2007), but we also recognize the negative impact of palm oil production on the environment. Consequently, the Indonesian government's policy choice is to develop palm oil production to control it so that oil palm expansion does not damage the environment. For this, the discourse on environmentally friendly palm oil production and sustainable palm oil management was raised. This is why the idea of a moratorium on oil palm expansion put forward by WALHI is difficult for the Indonesian government to consider.

In solving problems, the Government of Indonesia uses the discourse of a neutral party, a party that presents a balanced discussion. One of them is the publication of research results from IUCN (International Union for Conservation of Nature and Natural Resources). By using comparative logic, IUCN conducted a meta-analysis of the research results on the impact of oil palm expansion (Meijaard et al., 2018). In a research report released in 2018, the UN agency concluded that compared to other vegetable oil producers. However, the environmental impact of oil palm expansion is smaller, the environmental impact of oil palm is significant. Based on that, the IUCN argument is that if what is in question is only the fulfilment of the world's need for alternative energy, especially biodiesel energy, oil palm plantations are a better choice for natural conservation negative impacts they have on the environment. This means that IUCN's conclusions based on metanalytic studies do not state that palm oil production has no adverse impact on the environment. The agency's conclusion states that compared to others, palm oil is better. If only the expansion of oil palm plantations itself is discussed, IUCN, based on this metanalytic study, concludes that large-scale oil palm plantations harm the environment.

Therefore, the IUCN conclusion is that while oil palm is better than other bioenergy crops, it also harms the environment. Therefore it is important to improve palm oil production and stop deforestation for new oil palm expansion. This conclusion is stated in the IUCN statement, "A greater demand for sustainably produced palm oil should put pressure on producers to

improve practices ...by far, the biggest gains for biodiversity in an oil palm context are through avoiding further deforestation" (Meijaard et al., 2018, p. 83).

The second neutral publication that is considered is written by Rival & Levang (2014). They highlight in different ways the discourse on oil palm expansion. While this paper also states that oil palm expansion has significant impacts on the environment (such as deforestation), the problem is not caused by the oil palm itself but by how humans grow the crop. True, the palm oil crops are most efficient at producing palm oil compared to others, and replacing it with others is not the right choice, but it is also true that the way palm oil is produced creates problems.

What happened is what the two researchers concluded: "The picture is more complex; oil palm is not one thing, nor is it another, but both at the same time" (Rival & Levang, 2014, p. 20). Therefore, this research supports ecological modernization to deal with the controversy over oil palm expansion in Indonesia.

As stated earlier, there has been a sustainable palm oil policy launched by the Indonesian government. However, the impact of this policy on corporate actions has not been satisfactory (Morgans et al., 2018). Therefore, while ISPO standards continue to be made more sensitive to the ecological impacts of oil palm expansion, the CPO production certification process needs to be carried out effectively. In addition, oversight of oil palm plantation companies needs to be increased by involving civil society organizations.

## 5. Conclusion

With a focus on the analysis of the discourse on the relationship between oil palm expansion and natural disasters, this research shows that oil palm expansion continues to be controversial in Indonesia, as seen from oppositional discourses published by both critics and proponents of oil palm expansion. Regarding the discourse on the ecological impact of oil palm expansion, the second discussion contains contradictory views: between the views of the Human Exemptionalism Paradigm (HEP), with the New Ecological Paradigm (NEP) sociology of environmental literature popularly called the New Ecological Paradigm. The views of oil palm expansion proponents such as PASPI, GAPKI, and the Indonesian government are the views of PKM. Meanwhile, the opinions of critics contain arguments for PEB. Oil palm expansion proponents emphasize the benefits of oil palm expansion for humans (for government sources of income and the welfare of citizens). But critics stress the necessity of adjusting palm oil production to Indonesia's natural limitations. To build their argument, they use different comparative logic: Paraproponents use comparisons between regions and between vegetable oil-producing crops, while critics use time comparisons. The different comparative logics lead to different conclusions.

Because HEP and NEP emphasize different things, in the Indonesian context, the discourse of ecological modernization, which the Indonesian government uses, is a middle way that needs to be supported and consistently applied so that the positive contribution of palm oil production to the Indonesian people is not accompanied by environmental degradation which later causes of natural disasters.

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The authors have declared no potential conflicts of interest concerning the study, authorship, and/or publication of this article.

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